FOUNDATIONS of Restaurant Management & Culinary Arts
Level Two

National Restaurant Association

Prentice Hall

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**Level 1**
This is the first book in a two-book series covering the Foundations of Restaurant Management & Culinary Arts.

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**Level 2**

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Students using this book can receive recognition from the National Restaurant Association?

Yes!

The *Foundations of Restaurant Management & Culinary Arts*—Levels 1 and 2 curriculum teaches students the fundamental skills they will need to begin a career in the industry. What’s more, after completing each level of this industry-driven curriculum, students can sit for the National Restaurant Association’s exam for that level. Students who pass both the Level 1 and Level 2 exams receive certificates from the National Restaurant Association.
Welcome Students!

Dear Students:

Welcome to the exciting restaurant and foodservice industry!

We at the National Restaurant Association are thrilled to take this journey with you as you learn more about our industry. Restaurant and foodservice operations make up one of the most dynamic industries in the United States today. They are a shining example of the entrepreneurial spirit and a place where employees become owners every day.

Millions of opportunities: As the nation’s second-largest private-sector employer, the restaurant and foodservice industry creates opportunity for millions of Americans. The industry employs some 13 million Americans today and is expected to add almost 2 million positions over the next decade.

This means there are many opportunities and career paths ahead of you. Whether it’s a quick-service restaurant, a family operation, or a multi-million-dollar company providing on-site foodservice at schools or hospitals, our industry is the place to build your career.

Industry-backed learning materials matter: Foundations of Restaurant Management & Culinary Arts was developed with input from industry leaders. We believe that an industry-backed education is the best way to prepare you to lead us into the future. Together, we have identified the management, operational, and culinary skills critical to success in the industry. The skills you develop in Level 1 and Level 2 will give you a competitive advantage as you embark upon your career or further your education.

We are proud that you have chosen to take this first step in your career with the National Restaurant Association. As the leading business association for the restaurant industry, the Association works to lead America’s restaurant industry into a new era of prosperity, prominence, and participation, enhancing the quality of life for all we serve. Our philanthropic foundation, the National Restaurant Association Educational Foundation, enhances the restaurant industry’s service to the public through education, community engagement, and promotion of career opportunities.

The National Restaurant Association looks forward to partnering with you throughout your career! We invite you to learn more about us at www.restaurant.org and www.nraef.org, and be sure to check out Appendix A in this book to learn more about scholarships, educational programs, industry certifications, member benefits, and more.
Our objective with this program is simple yet significant:

Provide an industry-driven curriculum that prepares students for a career in restaurant and foodservice management.

To achieve that objective, *Foundations of Restaurant Management & Culinary Arts* was meticulously developed by the National Restaurant Association with input and contributions from countless representatives from both industry and education. That balanced perspective is important in helping students make the connection between classrooms and careers.

The visual tour that follows summarizes many of this textbook’s most distinguishing and remarkable features. *Foundations of Restaurant Management & Culinary Arts*, Level 1 and Level 2, provide the following benefits:

- Comprehensive coverage of culinary and management topics
- An industry-infused approach
- Pedagogy that supports 21st Century Learning
- Relevant and timely topics from global cuisines to sustainability
- Content aligned to certificates and ProStart program opportunities
- Certificate opportunities that meet Carl Perkins funding requirements
- Supplements and technologies that help educators do more in less time

We offer a pedagogy that is fortified by 21st Century Learning themes and objectives:

- Critical thinking and problem solving
- Communication and collaboration
- Creativity and innovation
- Global awareness
- Health literacy

Thank you for considering *Foundations of Restaurant Management & Culinary Arts*!
SUMMARY – Bullet points that tie in directly to the section content and the Study Questions.

SECTION REVIEW QUESTIONS – Questions designed to assess students’ understanding of the section content through critical thinking.

CHAPTER 11 | Global Cuisine 2: Europe, the Mediterranean, the Middle East, and Asia

Cuisine of the Americas

Earth Day event

Case Study Follow-Up

Case Study

Cultural Influences

France

The Mediterranean

Morocco

Study Questions

SECTION 11.2 THE MEDITERRANEAN

It can be difficult to determine which countries actually belong in this region. France, Italy, and Spain all border the Mediterranean Sea, and all have regions with “typical” Mediterranean foods. Moreover, the Mediterranean Sea is long enough that countries from Morocco to Syria can be legitimately included in this category. However, the list focuses on three countries – Morocco, Greece, and Tunisia – that reflect traditional Mediterranean cuisine.

Study Questions

After studying Section 11.2, you should be able to answer the following questions:

• What are the cultural influences and flavor profiles of Morocco?
• What are the cultural influences and flavor profiles of Greece?
• What are the cultural influences and flavor profiles of Tunisia?

Morocco

Cultural Influences

In this section, you learned the following:

• France’s culture and cuisine have both French and other, peaceful and otherwise, influences.
• Perhaps the event that defined French cuisine was the

Chapter 11 | Foundations of Restaurant Management & Culinary Arts

Industry-infused case studies:

CASE STUDY – Each chapter begins with a Case Study that features the chapter content applied in a real-world situation. The Case Studies introduce several different restaurant and foodservice professionals at work in various jobs and industry settings. The Case Studies draw the students into the chapter content with several thought questions for students to consider as they read the chapter.

CASE STUDY FOLLOW-UP – Each chapter concludes with a follow-up to the opening Case Study, recapping the case study and asking students questions they can answer and apply with the knowledge they have gained.

PROFESSIONAL PROFILE – Each Case Study is followed by a profile of a leading industry professional, featuring notables such as Emeril Lagasse, Guy Fieri, and many others from all levels and types of industry settings. Each profile describes the subject’s industry experience and views on the chapter topic, as well as interesting quotes and career vignettes.

Chapters organized as sections:

GRAPHIC ORGANIZER – Chapter content is divided into sections, and each one begins with a Graphic Organizer at the top of the page showing teachers and students what to expect in the upcoming section, as well as where they are within the chapter structure.

STUDY QUESTIONS – Each section begins with a list of Study Questions that give students an active way to consider the upcoming content with the understanding that after they finish the material they should be able to answer each of the questions.

At the end of each section:

SUMMARY – Bullet points that tie in directly to the section content and the Study Questions.

SECTION REVIEW QUESTIONS – Questions designed to assess students’ understanding of the section content through critical thinking.
CURED MEAT

The southeast coast is famous for citrus, saffron, and rice production. Figure 11.8 depicts a variety of important products that are legally protected from imitation. Pimientos del piquillo manchego is a classic preparation of fried fish that dates back to at least the fourteenth century. It was considered street food for people of lesser means and flavored with garlic, salt, and other seasonings.

Did You Know…?

What is haute cuisine?

What are the three steps involved in the preparation of fish?

Now obtain a piece of cured meat from a local grocery or delicatessen. What is cured meat? Write a paragraph describing it. What is used in one of these cultures and describe in two paragraphs the process for it.

Certificate exams using the Exam Prep Questions, which are provided in the same objective test format as the real certificate exams.

APPLICATIONS – Class and lab activities to provide hands-on learning and application.

Throughout all chapters:

SERVSAFE® CONNECTION – Food safety is emphasized throughout the book via the ServSafe® Connection, a feature box that details important foodhandling and safety information that comes directly from the National Restaurant Association's industry-standard ServSafe program.

ESSENTIAL SKILLS – Vital culinary and management skills are featured in hands-on, step-by-step Essential Skills boxes, typically including one or more photos to illustrate key steps.

ON THE JOB – These feature boxes show students how important points from a section are used in an industry setting.

NUTRITION – Nutrition features provide important dietary guidelines for the food items discussed in a section.

FAST FACT – Interesting facts and tidbits about the chapter content are showcased through the Fast Fact box. Examples include the history of the grand sauces and the origins of salsa—both the word and the food.

WHAT'S NEW – Interesting information on the latest industry trends and news.

KEY TERMS – Highlighted in bold within the running text and clearly defined at the point of first use.

At the end of each chapter:

APPLICATIONS – Cross-curricular projects for math, language arts, science, and critical thinking.

EXAM PREP QUESTIONS – Students can review the chapter content and prepare for the National Restaurant Association's certificate exams using the Exam Prep Questions, which are provided in the same objective test format as the real certificate exams.

RECIPES – Class-ready recipes for preparing some of the delicious dishes featured in the chapter.
Supplements:

Teacher’s Wraparound Edition

The unique Teacher’s Wraparound Edition was designed with input from educators and industry professionals to help teachers be more prepared in less time. The Teacher’s Wraparound Edition includes the complete Student Edition in conjunction with point-of-use teaching notes, strategies, and review tips. Skills extensions and critical-thinking activities challenge students by expanding upon what they are learning in the Student Edition.

Activity Guide

The Activity Guide contains a wealth of additional lab and classroom activities to supplement the activities in the Student Edition. It includes critical-thinking activities that review and enhance the text learning, as well as hands-on application activities that give students more opportunities to experience the course content interactively. Separate books for Level 1 and Level 2.

Printed Test Bank with ExamView® CD

The comprehensive test bank includes objective and short answer questions for both levels of the Student Text. Questions are provided in print format for duplication with separate answer keys, as well as on CD in ExamView® software for creating randomized and customized exams. Separate books for Level 1 and Level 2.

Teacher’s Resource DVD

A complete media DVD supports the teaching package. It includes PowerPoint® presentations, videos, and interactive media for each chapter, as well as point-of-use teaching notes and tips, answers, and class/lab set-up information for the activities in the student Activity Guide. Separate DVDs for Level 1 and Level 2.

CourseSmart Textbooks Online

The CourseSmart Textbooks Online enable students to access the textbook they use in class from home or anywhere with an Internet connection. CourseSmart eTextbooks give schools an affordable alternative to providing students with the essential learning resources they need to succeed. And, with a CourseSmart eTextbook, students can search the text, make notes online, print out reading assignments that incorporate lecture notes, and bookmark important passages for later review. For more information, or to subscribe to the CourseSmart eTextbook, visit www.coursesmart.com.

Additional Supplements

The Companion Web site includes student resources and additional activities such as crossword puzzles, essay questions, and self-grading quizzes. To access the Companion Web site, please visit http://www.pearsonhighered.com/frmca. Recipe Cards are printed on laminated cards for durability and ease of use.
Acknowledgements

The development of Level 1 and Level 2 of *Foundations of Restaurant Management & Culinary Arts* would not have been possible without the expertise and guidance of our many advisors, contributors, and reviewers. We would like to thank the thousands of educators who have been involved in the ProStart program and given us invaluable support and feedback as they have taught the National Restaurant Association’s curriculum. Additionally, we offer our thanks to the following individuals and organizations for their time, effort, and dedication in creating these first editions.

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Guy “Guido” Fieri
Restaurateur, Celebrity Chef, Food Network Host

Johnny Garlic’s California Italian Restaurants (3 locations), Tex Wasabi’s Restaurant (2 locations), Knuckle Sandwich, LLC

Three years ago, I won the second season of The Next Food Network Star. Today, as the “Bad Boy” of the Food Network, I host three popular shows—Guy’s Big Bite; Ultimate Recipe Showdown; and Diners, Drive-Ins, and Dives.

The Story Behind the Man

I actively chose this career. I started cooking at about ten. In my house, the rule was that “whoever cooks makes the decision (on what to have)…” I was such a pest that mom made a rule that you couldn’t ask “what’s for dinner” until after lunch.

I began my love affair with food at the age of ten, selling soft pretzels from a three-wheeled bicycle cart I built with my father. I named the cart “The Awesome Pretzel.” Through selling pretzels and washing dishes, I earned enough money in six years to study abroad as an exchange student in Chantilly, France. While there, I gained a true appreciation not only for international cuisine, but the culture and lifestyle associated with it. I also realized that if you go to the point of origin and eat a food there, that’s where you get the best experience. So, for example, go to France to have a baguette, go to Philly to have a cheesesteak.

I learned the way I recommend everyone should learn…you need to try lots of things, even if you aren’t crazy about them. I’d rather have ten two-bite meals than one big one.

After graduating from the University of Nevada-Las Vegas with a bachelor’s degree in hospitality management, I went to work for Stouffer’s, managing its flagship restaurant in Long Beach, California. After three years, I became district manager of Louise’s Trattoria, overseeing six restaurants and responsible for recruiting and training for the growing chain.

In 1996, my business partner Steve Gruber and I opened Johnny Garlic’s, an Italian restaurant in Santa Rosa. We soon had two more sites for that concept, and then moved on to develop Tex Wasabi’s, a Southern BBQ and California sushi restaurant. (See what I mean about trying things?)
Although he is busy with so many enterprises, Guy believes in using his celebrity to help others. In the fall of 2007, the Navy flew him to the Persian Gulf to entertain and cook for the troops.

**Keys to Success**

I believe that to succeed in this industry you need to take calculated risks. You can’t be hesitant to try things. Food is the common denominator of all people from all walks of life. So experience everything…eat everything you can. Listen to anybody that cooks. Challenge yourself to enjoy food that is not normal to you. Try everything! And then “Own it! ……Do you own it?”

In all aspects of this industry, food is an emotional experience…whether you’re in the kitchen or out in front, on the restaurant floor or the management floor. And we all need to understand it.

We’ve skipped a few generations of food at home…ever since the advent of the two-person working family in the 1970s. We’re not learning pass-downs from grandma and mom anymore. Instead, we’ve moved to home replacement meals. There’s been a huge influx of midmarket family restaurants.

We’re also wising up. We eat for different reasons…palate and health. But we all want better food. Remember, we are what we eat, and we’re moving back to basics. That will be the focus of the industry in years to come.

It’s a smarter chef’s game. We need to be creative; we need to take risks. But we also have to be supremely aware of food safety and cost management.

So, to be successful, experiment and apply. Study hard and use this program. If you want a broad awareness of food, this is your program. If you want to be a professional, this is where you start. If you want to be a legend, this is a great foundation.
Chapter 1

Breakfast Food and Sandwiches
Case Study  
**Following a Hunch for Brunch**

Having recently expanded Kabob’s service to include weekday lunch with profitable results, Miguel wants to try opening up for weekend brunch as well. But Chef Kate is skeptical of the idea. The two of them have been exchanging ideas on the issue for the past few weeks.

Miguel feels that opening up for brunch would further increase their visibility in the neighborhood. It would allow them to showcase another elegant variation on their already successful lunch and dinner menus, and would help them gain exposure with people who may not yet know about Kabob. In addition, the cost of breakfast food, such as eggs and pancakes, typically comes with a higher margin of profit. Miguel sees all potential and very little risk involved in giving this a try.

Chef Kate, on the other hand, isn’t as comfortable with the idea of serving breakfast foods. It’s been years since she’s focused on that kind of service, and she’s concerned about the product she’ll be able to put out. She doesn’t want the reputation of the restaurant to be tarnished with a substandard brunch service. And, since a traditional brunch menu offers a very broad range of items, from eggs to sandwiches to steaks, timing would be crucial. Can she comfortably put together a menu to meet all of these concerns and demands?

Chef Kate also is concerned about start-up and service costs. Would they need to hire a brunch chef? Would table-service specs need to be revised for the front of the house? Would this require new waitstaff training or hiring? Would they need to buy new table setups to fit the brunch atmosphere? Chef Kate is seeing much more risk than potential benefit to this endeavor.

As you read this chapter, think about the following questions:

1. How might you balance Miguel’s enthusiasm with Chef Kate’s concerns? How could you make this endeavor work so that everyone was happy?
2. What would your biggest concerns be in starting up a brunch service?
I have always loved to cook. To be able to make a living at what you love is magical!

I graduated magna cum laude with a bachelor’s degree in culinary arts from Johnson & Wales University in Providence, Rhode Island. Additionally, I studied classical French cuisine at the École Supérieure De Cuisine De Françoise in Paris, France. I’ve won both gold and silver medals in the American Culinary Federation Hot Food Competitions and was also a participant in the 2000 World Culinary Olympics held in Erfurt, Germany.

Specializing in International Cuisine, I believe in using the freshest ingredients to perform your best artwork. You should cook to impress and season to leave an impression. Make sure you know the regional and ethnic culinary flavors of the area in which you work and live.

I worked for five years for the Walt Disney World Resort restaurants, including the Biergarten Restaurant, The Coral Reef, Epcot Events, Germany Pavilion, and the African Outpost . . . a really wide range of flavors and dishes.

Here I found out that there’s always time for fun. For instance, each year at Walt Disney World, we had a food and wine festival. One year, when working at the Biergarten, I was bringing food out to the tented area used for the festival. This included a new wheel of Raclette cheese, which usually weighs about 13 pounds. This cheese wheel was large, and here I was, carrying it out on my shoulder. A young man—a resort guest—was looking at me quizzically. So, I smiled and said: “This is Mickey’s lunch. Gotta’ run!”

By the way, most recently, Chef Morgan was the personal chef for Shaquille “Shaq” O’Neal when he played with the Miami Heat. She has created many dishes for the Heat star and has traveled with him extensively.

On a more serious note, however, it was during this experience in Walt Disney World that I found my passion for foods of the sea and preparing them in their ethnic tradition. My classical training provided a wonderful base to create my signature fusion of flavors.

For those of you interested in entering this field, I say that the combination of education and experience is priceless. We must continually reinvent ourselves in order to contribute excellence to our craft.
 remembering:

“Always cook from your heart.”

About Breakfast Food and Sandwiches

My favorite breakfast dish is Classic Eggs Benedict: I am a classic chef and this dish mirrors perfection and versatility. It takes talent and skill to perfect the hollandaise that finishes the dish. This dish also is very versatile. You can make lots of different Benedicts—lobster, smoked salmon, even spinach for vegetarians.

There’s an interesting story here, though. Originally, I actually didn’t like Eggs Benedict. I kept thinking “eggs and eggs?” (Chef Morgan is referring to the eggs in the hollandaise sauce.) But once I actually started making the sauce—the delicacy of it, the blends of flavors—it was gorgeous! So, now I have “palate respect” for this wonderful dish. And since I love seafood as well, I’ve leaned toward things like Lobster Benedict with shrimp in the sauce. The sweetness of the lobster paired with the lemon zing of the sauce . . . wonderful!

My favorite sandwich is the Grilled Reuben sandwich: Once again, it’s a classic dish. But this time, it is the flavor profile—the mix of ingredients—that appeals to me. When in high school in Detroit, Michigan, I remember going out to get a corned beef sandwich piled five inches high with corned beef. So, this is like coming home.

SECTION 1.1 DAIRY PRODUCTS AND EGGS

Do you think that you know everything you need to know about eggs and dairy products, such as milk, cream, butter, and cheese? Do you recall the slogan, “It’s not just for breakfast anymore?” Well, that’s true. These products are actually the basis of almost every meal.
Study Questions

After studying Section 1.1, you should be able to answer the following questions:

- What are the basic differences between milk, cream, and butter?
- What is the proper procedure for handling and storing milk and milk products?
- What are the basic parts of cheese, and what are the primary kinds of cheese?
- What are the various grades and sizes of eggs?
- What are the different ways to cook an egg?

Milk and Milk Products

Some milk is available in raw form, but most milk products are processed to remove harmful bacteria that could make people sick. Two processes applied to milk products are pasteurization (pass-cher-i-ZAY-shun) and homogenization ( huh-MAH-juh-ni-ZAY-shun):

- **Pasteurization**: Milk is heated to kill microorganisms that cause spoilage and disease without affecting its nutritional value.
- **Homogenization**: Milk is strained through very fine holes to break down fat and then is blended into one fluid.
The Pasteurization Process

Dairies use basically two methods of pasteurization today: batch and continuous flow. In the batch process, a large quantity of milk is held in a large heated vat at 149°F for 30 minutes and then cooled quickly to about 39°F. In the continuous flow, or HTST (High Temperature, Short Time) method, milk is forced through small pipes that are heated on the outside by hot water. While flowing through the pipes, the milk is heated to 161°F for at least 16 seconds. It then gets cooled down gradually until it is chilled and stored at 39°F. Most milk in the United States is pasteurized using the continuous flow method. Figure 1.1 shows this process.

Pasteurization kills most, if not all, of the disease-causing bacteria that can be found in raw milk. The pasteurization process makes milk and milk products safer for human consumption. The process also increases the length of time the milk is acceptable for use. Pasteurized milk can be shelved for up to 16 days.

Figure 1.1: The process of pasteurization was named after its developer Louis Pasteur.

The type of milk utilized is often based on the nutritional value. For example, lactose-intolerant customers may want lactose-reduced or lactose-free milk. While some people call lactose intolerance a milk allergy, that is not an entirely accurate description. This common condition is digestive and is a reaction to many cultured dairy products, not just milk. While lactose intolerance is sometimes called a milk allergy, it is not one. A casein allergy is a true protein-sensitive allergy and all dairy foods must be avoided. Dairy alternatives, such as soy milk and rice milk, can be used instead. Table 1.1 on the following page shows a variety of different types of milk.
### Table 1.1: Types of Milk

<table>
<thead>
<tr>
<th>Type of Milk</th>
<th>Fat Content</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Whole</td>
<td>At least 3.25%</td>
<td></td>
</tr>
<tr>
<td>Low fat</td>
<td>Available in 1% and 2%</td>
<td></td>
</tr>
<tr>
<td>Skim</td>
<td>Less than 0.5% (usually 0.1%)</td>
<td>Made from fresh liquid milk that has bacteria added to it to create a sour taste Doesn’t actually contain butter Has a rich, thick texture and tangy acid taste that is valued in baking and the preparation of many items, such as salad dressings</td>
</tr>
<tr>
<td>Buttermilk</td>
<td>Depends on the type of fresh milk used</td>
<td>Processed with high heat, cooled, and then packaged in a sterile environment to avoid contamination Doesn’t need refrigeration Has a shelf life of 9 months</td>
</tr>
<tr>
<td>Evaporated</td>
<td>At least 6.5%</td>
<td>Made from milk by removing 60% of the water Has a slight cooked flavor from its canning process Usually used in baking; helps bring richness without excess moisture</td>
</tr>
<tr>
<td>Condensed</td>
<td>At least 8.5%</td>
<td>Tastes richer and sweeter than evaporated milk Made from whole milk by removing 60% of the water and then sweetening with sugar Used in specialty baking when richness and sweetness are desired Cannot replace evaporated or other milk products unless the recipe’s sugar content and fat content are adjusted</td>
</tr>
<tr>
<td>UHT (ultra-high temperature)</td>
<td>Depends on the type of fresh milk used</td>
<td></td>
</tr>
<tr>
<td>Powdered</td>
<td>Depends on the type of fresh milk used</td>
<td>Usually made from whole or skim milk Made from milk by removing all of the water Can improve the reconstituted flavor by serving the milk very cold Often used in baking</td>
</tr>
<tr>
<td>Lactose-free milk</td>
<td>Depends on the type of fresh milk used</td>
<td>Made by adding enzymes to milk to break down the lactose</td>
</tr>
<tr>
<td>Soy milk (nondairy)</td>
<td>Four grams of fat per eight-ounce serving (fortified)</td>
<td>Often fortified with vitamins (including calcium, and perhaps vitamin D and riboflavin) and offered in low-fat forms Has a slightly nutty flavor with a rich texture Is available in different flavors Good source of protein; has no cholesterol</td>
</tr>
</tbody>
</table>

(continued)
Table 1.1: Types of Milk continued

<table>
<thead>
<tr>
<th>Type of Milk</th>
<th>Fat Content</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rice milk (nondairy)</td>
<td>Three grams or less per eight-ounce serving</td>
<td>Often fortified with vitamins (check for the addition of calcium, vitamin D, and riboflavin)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Usually made with water, brown rice syrup, starch, and other thickeners</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Has a sweet flavor and a thin texture</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Is available in different flavors</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Has less protein than milk or soy milk</td>
</tr>
</tbody>
</table>

It's also important to recognize that low-fat and skim milks behave differently in cooking than whole milk does. Fat brings flavor, body, and mouthfeel to a dish. If a chef reduces the fat in the milk, the ingredient will perform differently in the recipe.

Lactose Intolerance

People who are lactose intolerant can't easily digest lactose, which is a natural sugar found in milk and dairy products. Undigested lactose moving through the body can cause uncomfortable symptoms such as gas, bloating, nausea, diarrhea, or stomach pain.

Some people who are lactose intolerant can't digest any lactose at all. Others who are lactose intolerant can digest small amounts. While lactose intolerance is not life threatening, it can cause quite a bit of distress for those who suffer from it. A big challenge for those who suffer from lactose intolerance is finding foods that can be digested easily while still providing a full range of proper nutrients in their diets.

Soy and rice milk are great alternatives to milk for people who are lactose intolerant. If fortified with calcium, they provide many essential vitamins and nutrients, while also avoiding the higher fat and cholesterol content found in whole dairy products. It is a good strategy to use lactose-free dairy products, including cheese, Swiss cheese, and yogurt, rather than turning away from dairy foods completely.

To further supplement the calcium found in dairy products, menu planners should keep in mind other calcium-rich foods, including kale, canned fish (such as tuna and salmon), and chickpeas. Note though, that while these foods have a higher-than-normal calcium content, they are not calcium rich when compared to dairy.
Receiving and Storing Milk

Milk products should be received at 41°F or lower unless otherwise specified by regulatory requirement. (Some areas may require a different receiving temperature.) All milk and milk products should be labeled “Grade A.” This means that the product meets standards for quality and safety set by the FDA and the U.S. Public Health Service. Milk should have a sweetish flavor. It should be rejected if it is too sweet or if it has a sour, bitter, or moldy taste.

Milk products should be stored at 41°F or lower. Always use the FIFO (first in, first out) method of stock rotation for milk. With the FIFO method, food handlers store products to ensure that the older products are used first. For example, they place products with an earlier use-by or expiration date in front of products with later dates. Any milk that has passed its use-by or expiration date should be thrown away (see Figure 1.2).

![Figure 1.2: The first in, first out (FIFO) food rotation method ensures serving safe food and eliminates spoiled food waste.](image)

Creams

Cream contains far more fat than milk. Chefs use it based primarily on its fat content, which provides richness. Creams with more than 30 percent fat are stable when whipped. They add elegance and flavor to many desserts. The heavy creams also bring richness and a silky texture to sauces and dressings. Table 1.2 on the following page shows the common types of cream.
## Table 1.2: Types of Cream

<table>
<thead>
<tr>
<th>Type of Cream</th>
<th>Amount of Fat</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Light whipping cream</td>
<td>About 30%</td>
<td></td>
</tr>
<tr>
<td>Heavy whipping cream</td>
<td>36 to 38%</td>
<td></td>
</tr>
<tr>
<td>Very heavy whipping cream</td>
<td>40%</td>
<td>Produces a greater yield and a longer shelf life for the products made with it</td>
</tr>
<tr>
<td>Light cream</td>
<td>18 to 30%</td>
<td>Sometimes called coffee cream</td>
</tr>
<tr>
<td>Half-and-half</td>
<td>10.5 to 18%</td>
<td>One part milk/one part cream; technically half-and-half doesn’t have enough fat in it to be called cream</td>
</tr>
<tr>
<td>Sour cream</td>
<td>At least 18%</td>
<td>Tangy flavor and thick texture due to the culturing the cream receives</td>
</tr>
</tbody>
</table>

### Butter and Butter Substitutes

Different types of butter are chosen based on their flavor and consistency. The best grades of butter are either Grade AA or Grade A. Butter is most commonly used to add flavor, richness, or smoothness to a dish.

Butter is made by mixing cream containing between 30 percent and 45 percent milkfat at a high speed. The finished butter must contain at least 80 percent butterfat content. The remaining 20 percent of the butter is milk solids and water:

- **Sweet butter** is butter made only from pasteurized fresh cream. It is typically pale yellow and may be salted or unsalted.
- **Cultured butter** (European butter) is made from fermented cream and has a higher butterfat content and lower salt content than regular butter.

While butter has traditionally been produced in sticks or blocks, spreadable butter and whipped butter are now available. Both have been chemically formulated to spread more easily.
European-style butter is low in moisture and high in butterfat. Plugrá (ploo-gra) is one example of this type of butter. While regular butter is 80 percent butterfat and 20 percent water and milk solids, Plugrá is 82 percent butterfat. It is slow-churned, which helps to create a creamy texture.

European-style butter is preferred by bakers because the lower water content results in flakier pie crusts and crisper cookies. Chefs sometimes use this type of butter to add a rich texture to food. For example, you can make Alfredo sauce without using cream if you use a European-style butter and Parmigiano-Reggiano cheese.

Butter is available salted or unsalted. Most commercially sold butter is lightly salted. Manufacturers add salt to butter as a preservative and sometimes to enhance flavor, but butter should contain no more than 2 percent salt. Chefs often use unsalted butter in desserts and some cooking, because it gives them more precise control over the amount of salt in a dish.

Butter is good for cooking because it adds color and flavor to food. Butter for cooking is often clarified, which means either the chef or the manufacturer has heated it and removed the milk solids and water. Clarified butter is better for many cooking processes because the milk solids in whole, or unclarified, butter burn easily (the point at which an oil or fat begins to burn is called the smoke point). Clarified butter has a higher smoke point, which makes it less likely to burn when heated.

A butter substitute is any alternative used to replace butter in a recipe. Examples include margarine, olive oils, and soy-based oils, which are all used to avoid cholesterol but not fat. (Some of these alternatives are more heart healthy than butter, but still flavorful.) Additionally, rice-based oils have less fat content and less cholesterol.

Margarine is one of the most common butter substitutes, but it is a manufactured food product that often contains no milk products. Margarine is made of vegetable oils and animal fats with added flavoring, emulsifiers, colors, preservatives, and vitamins. Contrary to what many people believe, margarine is not much lower in fat than butter. At least 80 percent of margarine’s calories must come from fat. Solid margarine is the most popular form. Liquid margarine is often used in sautéing and grilling. One benefit of margarine is that it usually has a higher smoke point than butter.
Did You Know…?
Margarine was first made in France in 1870. French chemist Hippolyte Mège-Mouriés invented oleomargarine for Emperor Louis Napoleon III. The emperor was looking for a suitable substitute for butter for use by his military.

Trans Fat
It’s hard to talk about margarine without thinking of trans fats. When margarine was first created, it had a significant amount of trans fats because of the hydrogenation process—the process used to solidify liquid vegetable oil into a spread. These fats are created when manufacturers hydrogenate (that is, combine with, treat with, or expose to the action of, hydrogen) liquid oils to make the oils solid so that they have longer shelf lives. Research has shown trans fats to raise LDL (“bad” cholesterol) and lower HDL (“good” cholesterol). This combination can increase the risk of heart disease.

Both butter and margarine must be stored in tightly sealed containers to prevent them from absorbing the flavors of other foods.

Essential Skills
Clarifying Butter
1. To make 1 cup of clarified butter, put 1¼ cups of butter in a saucepan over very low heat.
2. The butter will slowly melt into three separate layers—water and milk solids sink to the bottom; liquid butterfat in the middle; and foam on top. Do not stir butter as it melts.
3. Skim foam off the top. See Figure 1.3a on the following page.
4. Remove the saucepan from the heat to let the butter cool a bit. This will allow any remaining milk solids to sink to the bottom.
5. Slowly and carefully pour the butterfat into a separate container, being very careful to not let the water or milk solids slip out of the bottom and into the butterfat container.
6 Alternatively, you can try to ladle the butterfat from the saucepan and into a separate container. See Figure 1.3b.

![Figure 1.3a: Step 3—Skim the foam off the top.](image1)

![Figure 1.3b: Step 6—Ladle the butterfat from the saucepan into a separate container.](image2)

**Cheese**

All cheeses have three basic parts: water, fat, and protein. The amounts vary depending on the type of cheese, several varieties of which are shown in Figure 1.4. For example, cottage cheese can have up to 80 percent water and little fat. On the other hand, a hard cheese like Parmigiano (pahr-muh-ZAH-noh) might have as little as 30 percent water but a high percentage of fat.

Dairies make cheese by separating a milk’s solids from its liquid in a process called **curdling**. The proteins, or curds, that form are then usually processed in some way to make a particular type of cheese. Some are then ripened. Because curdling separates the solids from the lactose portion of milk, lactose-intolerant people can eat ripened cheese. Cheese is rich in calcium. There is a wide variety of processing techniques, ripening methods, and types of milk used to make cheese.

![Figure 1.4: There are many types of cheese.](image3)
Receiving Cheese

When inspecting cheese for receiving, make sure it has a uniform color and the typical flavor and texture for the cheese. Also, if it has a rind, be sure that the rind is clean and unbroken.

The types of milk used in cheese include the following:

- Cow
- Goat
- Sheep

Did You Know…?

A tour through the heartland of America, whether it’s dairy country, Amish country, or both, can be a great restaurant experience. One special treat is cottage cheese, freshly made on-site.

Cottage cheese, historically, was cheese made in the cottage, at home. It is not a complicated process to make the dry curds of cottage cheese. It involves gently heating and holding milk, and then adding a small amount of culture starter. After the curds form, they are strained and separated. A very small amount of whey tends to remain. Traditionally, the dry curds are then mixed with fresh, thick, sweet cream to create the final dish.

Some establishments purchase just the dry curds from a dairy processor, and mix them with cream before serving. New cream cottage cheese has a fresher and more delicate flavor than commercial cottage cheese. It can be served alone, with salt and pepper and tomatoes, or with fruit.

Cheese can be unripened or ripened. Unripened, or fresh, cheeses include cream cheese and cottage cheese. Some cheeses are ripened by external bacteria put into curds (Brie, bleu, Roquefort, Camembert). Others are ripened by bacteria naturally in the curds (Swiss, Havarti). The variety of cheese ranges from mild to sharp to pungent (very sharp). Table 1.3 on the following page provides a comparison of a variety of cheeses.
### Table 1.3: Varieties of Cheese

<table>
<thead>
<tr>
<th>Type of Ripening</th>
<th>Characteristics</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unripened, fresh</td>
<td>Soft and white</td>
<td>Cottage cheese</td>
</tr>
<tr>
<td></td>
<td>Should be eaten soon after purchase</td>
<td>Cream cheese</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ricotta</td>
</tr>
<tr>
<td>Soft-ripened</td>
<td>Ripened from the outside (or rind) into the center</td>
<td>Brie</td>
</tr>
<tr>
<td></td>
<td>Rinds are powdery white or golden orange</td>
<td>Camembert</td>
</tr>
<tr>
<td></td>
<td>Can be semisoft to creamy in texture</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mold and bacterial cultures provide flavor, body, and texture</td>
<td></td>
</tr>
<tr>
<td>Semisoft, ripened</td>
<td>Mild cheeses, some with buttery flavor</td>
<td>Gouda</td>
</tr>
<tr>
<td></td>
<td>Smooth, sliceable texture</td>
<td>Munster</td>
</tr>
<tr>
<td></td>
<td>Ripen outward from the interior and sometimes ripen from the surface</td>
<td></td>
</tr>
<tr>
<td>Blue-veined, mold-ripened</td>
<td>Mold is injected or sprayed into the cheese to spread throughout it while it ages (typically blue or green)</td>
<td>Maytag Blue</td>
</tr>
<tr>
<td></td>
<td>Creamy texture and a somewhat strong flavor</td>
<td>Gorgonzola</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Roquefort</td>
</tr>
<tr>
<td>Firm, ripened</td>
<td>Bacterial cultures help to ripen the cheese, and curing usually takes a long time</td>
<td>Cheddar</td>
</tr>
<tr>
<td></td>
<td>Firm texture</td>
<td>Gruyère</td>
</tr>
<tr>
<td></td>
<td>Mild to sharp flavor, depending on how long it’s been aged</td>
<td>Emmental</td>
</tr>
<tr>
<td>Very hard, ripened</td>
<td>Ripened with bacterial culture and enzymes</td>
<td>Asiago</td>
</tr>
<tr>
<td></td>
<td>Very slow process (at least 2 years in most cases)</td>
<td>Parmigiano-Reggiano</td>
</tr>
<tr>
<td></td>
<td>Hard and dry texture; good for grating</td>
<td>Pecorino Romano</td>
</tr>
</tbody>
</table>

**Did You Know...?**

Other than cheese rinds made from cloth or wax, such as those found on Edam or Gouda, all naturally formed cheese rinds are completely edible.

Manufacturers make **processed cheese** by grinding, blending, and forming one or more natural cheeses. Emulsifiers help to make the product uniform. It’s also pasteurized to prevent it from aging. It can have many flavors, including port wine, herbed, and plain processed (such as American). The taste is usually mild compared to aged cheese.
**Essential Skills**

*Considerations in Storing Cheese*

1. Wrap cheese in waxed or parchment paper so cheese can still breathe without drying out. New wrapping should be used each time a cheese is rewrapped. See Figure 1.5.

2. Optimal temperature for storing cheese is 35°F to 45°F at a high humidity level, which typically means toward the bottom of the refrigeration system.

3. Double wrap pungent cheeses, such as bleu cheeses, so the aroma doesn't permeate other foods, and so other food aromas don’t permeate the cheese. Alternatively, cheese can be wrapped and held in an airtight plastic container or plastic bag.

4. Do not freeze cheeses, as they may lose their texture and flavor profile.

5. If stored cheese is overly dry or slimy or if it lets off a strong odor, discard it immediately.

---

**Eggs**

An egg is composed of the outer shell, the white (albumen), and the yolk. The white consists of protein and water. The yolk contains protein, fat, and lecithin, a natural emulsifier (thickener). The membranes that hold the egg yolk in place are called chalazae (kuh-LEY-zuh). See Figure 1.6 for an illustration of the main parts of an egg.

There are USDA grades for shell eggs—Grades AA, A, and B. Buyers purchase the top two grades (Grade AA and Grade A) for menu items in which the egg's...
appearance is important. A USDA Grade AA egg means that the yolk is high and the white will not spread much when the shell is broken. A USDA Grade A egg means that the yolk is fairly high and the white will still not spread too much when the shell is broken. Both Grade AA and A eggs have generally clean, unbroken shells. Grade B eggs are not usually purchased fresh by operations, but might be bought refrigerated or frozen. Grade B eggs are good for use in menu items that will hide their appearance, such as baked items. As eggs age, they lose density. This means the thick part of the white becomes larger, and the egg spreads over a larger area when it is broken. Figure 1.7 shows the differences in how eggs should look according to grade.

Figure 1.7: Eggs look different depending upon the grade.

Buyers must choose eggs by size—ranging from peewee (15 ounces per dozen) to jumbo (30 ounces per dozen). Figure 1.8 shows the range of actual egg sizes. Many operations use large eggs (24 ounces per dozen) for all purposes. In fact, most recipes are based on this size. Size and grade together determine the cost of eggs. What if the recipe calls for jumbo eggs and you only have medium eggs in stock? You'll find that many recipes call for a certain number of ounces of egg. So, if you know how many ounces are in a jumbo egg and a medium egg, you can calculate how many medium eggs you will need to equal the amount called for in the recipe.
Cooking with Eggs

1. Consider using pasteurized shell eggs or egg products when prepping egg dishes that need little or no cooking, such as hollandaise sauce, tiramisu, and Caesar salad dressing.

2. Cook eggs for immediate service to 145°F for 15 seconds. Cook eggs that will be hot-held for service to 155°F for 15 seconds.

Young hens produce smaller eggs, which are generally of a better quality than larger eggs. Medium eggs are best for breakfast cooking because the appearance of the cooked eggs is important.
Eggs come in a variety of forms, as shown in Table 1.4.

<table>
<thead>
<tr>
<th>Form</th>
<th>Usage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fresh (shell) eggs</td>
<td>These are most often used for breakfast cooking or instances in which a whole shell egg is required. Use pasteurized shell eggs if the operation mainly serves high-risk populations, such as those in hospitals or senior-care centers.</td>
</tr>
<tr>
<td>Frozen eggs</td>
<td>Frozen eggs are usually made from high-quality fresh eggs and are excellent for use in scrambled eggs, omelets, French toast, and baking. They are pasteurized and are usually purchased in 30 lb cans or milk carton-style containers. Frozen eggs take at least 2 days to thaw at refrigerated temperatures.</td>
</tr>
<tr>
<td>Dried eggs</td>
<td>Use dried eggs primarily for baking. They are not good for breakfast cooking. Dried eggs do not store well, so keep them refrigerated or frozen and tightly sealed.</td>
</tr>
<tr>
<td>Egg substitutes</td>
<td>Egg substitutes may be entirely egg-free or made from egg whites, with dairy or vegetable products substituted for the yolks. These substitutes are important for people with cholesterol-free diet requirements.</td>
</tr>
<tr>
<td>Organic and other alternatives</td>
<td>Many customers now look for organic products and/or products that indicate humane treatment of the animals that produced the items. Organic eggs come from chickens that have been raised without the use of antibiotics, pesticides, or hormones. Some organic eggs receive certification through the USDA’s National Organic Program, which confirms the processes used by the producer. Customers may also look for the use of cage-free and free-range eggs. These descriptors refer to the way the chickens were treated on the farms and are related to how much space and outdoor access they have; however, the terms are not regulated legally and their definitions vary by farm. An operation that wants to purchase these types of eggs should research the producer before doing so. Hens that are fed only vegetable-based food products produce vegetarian eggs. Omega-3 eggs are another kind of egg that has been appearing in the market in the past few years. Eggs naturally have some omega-3 fatty acids, but some egg companies feed their hens special diets to ensure their eggs have even more of the substance.</td>
</tr>
</tbody>
</table>
Like all purchased items, evaluate and order eggs based on characteristics such as their color, form, packaging, intended use, and preservation method. Figure 1.9 depicts uses of fresh, frozen, or dried eggs.

**Figure 1.9:** Fresh or frozen eggs are most often used to make omelets (top left). Frozen or dried eggs are frequently used for baking cakes (top right).

### Good Egg or Bad Egg?

Cholesterol is a waxy substance that is found in certain foods, such as meat, dairy products, and eggs. In recent years, there has been a lot of news coverage about how much cholesterol should be in a healthy diet and what foods to eat or avoid to maintain a healthy diet. Eggs are often at the center of this coverage, with conflicting reports about their nutritional effects. How can you be sure what eggs contribute to your diet?

First, eggs are definitely high in cholesterol, but all of the cholesterol is contained in the yolk. However, research has not found that plasma cholesterol (that is, cholesterol in the blood stream) increases significantly when people include egg yolks in their diets. Also, blood plasma HDL (the “good cholesterol”) levels tend to rise a little when eggs are the cholesterol source, which is a good thing. It should also be noted that any egg dish prepared with only egg whites is cholesterol-free (in terms of the egg component, that is).

Second, the average healthy person should limit daily cholesterol intake to 300 milligrams. One whole large egg contains approximately 213 milligrams of cholesterol, or 71 percent of the recommended daily allowance. So, limiting cholesterol intake from other food sources on days when you eat eggs is a good idea.

Finally, on the sunnier upside of eggs, they are a good source of protein and are very low in fat. One large egg contains 6 grams of protein, which is 12 percent of the recommended daily intake. As with all foods, knowing the nutritional values of eggs will help you make better, wiser choices.
Receiving and Storing Eggs

Purchasers should use suppliers that can deliver eggs within a few days of the packing date in refrigerated trucks that are capable of recording air temperature during transport. When the eggs arrive, the truck’s air temperature should be 45°F or lower. Store the eggs immediately in refrigeration at an air temperature of 45°F or lower.

To be acceptable, shell eggs must also meet the following criteria:

- No odor
- Clean and unbroken shells

Reject any shell eggs with an off odor, a sulfur smell, or dirty or cracked shells.

Liquid, frozen, and dehydrated eggs must be pasteurized by law. They also must have a USDA inspection mark. When delivered, refrigerate liquid and frozen eggs at or below 45°F unless the eggs should stay frozen. Check packages for damage or signs of refreezing, and make sure that the use-by date has not passed. Reject any packages that are damaged or have an expired use-by date.

Fresh eggs must be stored at an air temperature of 45°F or lower. Store liquid eggs according to the manufacturer’s recommendations. Place dried egg products in a cool, dry storeroom. Once eggs have been mixed with water, store them at 41°F or lower.

Essential Skills
Cracking and Opening an Egg

1. Crack the egg using a sharp snap of the wrist, striking the egg against a hard, flat surface. This leaves a dent in the shell. Too hard, and you have a mess. Too soft, and the shell doesn’t break. See Figure 1.10a on the following page.

2. When you make the dent, use two thumbs in the dent and pull the two sides of the egg apart. See Figure 1.10b

3. Let the egg drop into a small bowl. Always crack eggs into a bowl instead of directly into the product. See Figure 1.10c

4. Inspect the egg for small bits of shell. Fix the problem. See Figure 1.10d

5. Then, add the egg to the product. See Figure 1.10e
## Essential Skills

### Separating Egg Whites and Yolks

1. Crack the egg using a sharp snap of the wrist, striking the egg against a hard, flat surface. This leaves a dent in the shell. Too hard, and you have a mess. Too soft, and the shell doesn’t break.

2. When you’ve made the dent, use two thumbs in the dent and open the egg carefully, allowing the unbroken yolk to settle into one side of the shell as the white pours off into the bowl.
3. Gently move the egg to the other open shell half, allowing the rest of the white to flow out. See Figure 1.11a.

4. There should be no speck of yolk in the white.

5. Put the yolk into a separate dish. See Figure 1.11b.

Note: An egg separator or spoon can help with this process.

If the shell is clean, bacteria will not enter the egg by cracking it open. Make sure the eggshells are clean. See Figure 1.10, which illustrates the process.

Cooking Eggs

Chefs can cook eggs in many ways, from hard cooked to scrambled to soufflés. Different egg preparations, from hard cooking to coddling, require different cooking times. When preparing eggs, it is important to time the cooking.

A grayish-green color can develop when a shell egg is cooked too long or a scrambled egg is held too long before service; this comes from the development of iron sulfide. It is a natural reaction that occurs between the iron content in the yolk and the sulfur content in the egg white. While the color does not generally develop sufficiently to impact the flavor quality of the egg, it reduces the eye appeal of the egg.

Make hard-cooked eggs by simmering and then shocking the eggs. Shocking is putting the eggs into cold water immediately after cooking to stop the cooking and make them easier to peel. Eggs should be simmered, rather than boiled, because boiling can cause fragile eggshells to crack and make the egg tough. In addition to breakfast dishes, hard-cooked eggs are an important ingredient in a number of other popular preparations, such as cold hors d’œuvres, canapés, salads, and garnishes.
Essential Skills
Simmering or Hard Cooking an Egg in Shell

1. Select an egg free of cracks; cracked eggs will leak in cooking and not be usable for service.
2. Bring enough water to completely cover the egg to a rapid boil; then reduce the heat to a simmer, 180°F to 185°F.
3. Carefully lower an egg into the water. See Figure 1.12a.
4. Cook for 3 to 8 minutes for soft-boiled eggs; cook for 10 minutes for hard-boiled eggs. (Excess cooking time will result in a grayish-green tone developing in the outer edge of the yolk.) See Figure 1.12b.
5. Serve immediately or cool immediately to be used cold later.

Tip: Cool and peel hard-cooked eggs immediately after they have finished cooking. This prevents a green ring from forming around the yolk.

Cooking times for shell eggs:
- Coddled (or slightly cooked): 30 seconds; lower cold eggs into already simmering water.
- Soft-cooked: 1 to 2 minutes
- Medium-cooked: 3 to 5 minutes
- Hard-cooked: 10 minutes

Combine baked eggs with a number of additional ingredients to create a fun, satisfying breakfast. To bake eggs, place the shelled eggs into individual ramekins (RAM-uh-kins), small, ceramic oven-proof dishes. Combine them with other ingredients, such as butter, cream, or cooked bacon. Or, layer them on top
of cooked food, such as mashed potatoes or a thick tomato sauce. Then, bake the eggs until the whites are fully cooked.

**Essential Skills**

*Baking an Egg*

1. Prepare the baking dish by buttering it generously.
2. Add any additional ingredients in an even layer to the baking dish.
3. Bake the eggs at 325°F until the whites are set and milky in appearance.
4. Unmold the eggs, if desired, garnish, and serve hot. See Figure 1.13.

![Figure 1.13: Step 4—Garnish the dish and serve it hot.]

**Shirred eggs** are a variety of baked egg. Like baked eggs, cook shirred eggs with other ingredients, such as cheese, vegetables, meats, and sauces. Cook shirred eggs in butter (and sometimes cream) in a ramekin. The size, shape, and material of the baking dish can affect the texture of the finished item. The egg must be fresh because its appearance is very important in the service of this dish. Most important, freshness will prevent the yolk from breaking.

**Essential Skills**

*Cooking a Shirred Egg*

1. Butter a baking dish and place it on a hot stovetop.
2. Break an egg into a separate dish, and then slide it into the shirred dish when butter has slightly browned. See Figure 1.14a on the following page.
3. Finish the egg in an oven set to 325°F to set the white portion and produce a hot but liquid yolk.
To poach eggs, shell them (remove from the shell) and simmer the eggs in water. Poached eggs are popular in classic dishes, such as eggs Benedict and eggs Florentine, and as toppings for hash or baked potatoes. A properly poached egg should be tender and well-shaped, meaning the yolk is centered and the white is not rough or ragged.

**Essential Skills**

*Poaching an Egg*

1. Combine water, salt, and vinegar in a shallow skillet or pan and bring it to a simmer.

2. Break the eggs into a clean cup and slide the egg carefully into the poaching water. Cook until the whites are set and opaque. See Figure 1.15a.

3. Remove the eggs from the water with a slotted spoon and blot them on an absorbent towel.

4. Trim, if desired, and serve hot. See Figure 1.15b.
Scrambled eggs should have a light texture, creamy consistency, and delicate flavor. They are best when served very hot. Blend the eggs just until the yolks and whites are combined, and then add any seasonings. Cook scrambled eggs over gentle heat while constantly stirring and scraping from the bottom and sides of the pan to keep them creamy and prevent them from burning.

Essential Skills
Scrambling Eggs

1. Beat eggs until they’re well blended; if adding milk, the standard proportion is ½ cup per six eggs. See Figure 1.16a.

2. Heat the frying pan and add fat.

3. When the fat bubbles, add the beaten eggs to the pan.

4. Stir eggs, shaking the pan to keep the eggs moving. Cook to a creamy consistency with no white showing. It’s best to remove the eggs from the pan slightly undercooked, because carryover heat will finish setting the eggs. See Figure 1.16b.

5. Serve immediately on a warm plate. If they’re being held for service, place the eggs in a lightly oiled (preferably buttered) warm pan. Holding eggs for an excessive time will result in a grayish-green color on the bottom and sides of the eggs. See Figure 1.16c.

Fried eggs are quick and easy to prepare. To make sure that eggs are fried with the yolks high and centered, use fresh eggs and an appropriate amount of cooking fat, cook the eggs at 145°F for at least 15 seconds, and serve immediately. If they are going to be held for a few minutes, cook them at 155°F. The yolk should be cooked to whatever doneness the customer requests. Eggs fried up, sometimes called sunny-side up, are fried only on the bottom. Eggs fried over easy are fried on the bottom, then turned over and fried very lightly on their top sides. Basted eggs are fried and then steamed in a covered pan.
**Essential Skills**

*Making a Fried Egg*

1. Heat a frying pan and add fat (such as clarified butter, bacon fat, shortening, oil, or margarine).

2. Break an egg into a small dish.

3. When the fat in the frying pan bubbles, slip the egg into the pan. See Figure 1.17.

Over-easy:
- Cook the egg until the white is set.
- Flip the egg by pushing the pan forward and pulling back sharply, or use a spatula.
- Continue to cook until the white is firmly set with a soft yolk.

Hard-fried:
- Cook the egg until the white is set.
- Puncture the yolk and then flip the egg.
- Continue to cook it until the white and the yolk are firmly set.

Basted:
- Fry the egg on one side.
- Do not flip the egg.
- Moisten it during cooking with hot fat or cover the pan, allowing the egg to steam slightly until the yolk is slightly whitened.
- Cook until the white is firmly set and the yolk is hot but soft.

Sunny-side up:
- Cook the egg, without flipping or basting, until the white is set.

4. Serve eggs immediately on a warm plate.
Make omelets by slightly beating eggs and then cooking them in a skillet with a filling, such as cheese, mushrooms, onions, or ham. Omelets are either rolled, flat, or souffléed. A rolled omelet should be golden yellow with a creamy, moist interior and must be made to order. Flat omelets (also called frittatas) may be made in individual portions or in larger quantities. Souffléed omelets have a light, fluffy texture because the egg whites are whipped before cooking.

**Essential Skills**

*Rolled Omelet*

1. Blend the eggs, liquid (milk, cream, and/or water), and seasonings.
2. Pour the egg mixture into a heated and oiled pan.
3. Swirl the pan over the heat, stirring and scraping the eggs simultaneously until curds begin to form. See Figure 1.18a.
4. Add a filling, if desired.
5. Cook the omelet until it is set.
6. Roll the omelet—completely encasing the filling—out of the pan directly onto a heated plate. Shape it, using a clean towel, if necessary. See Figure 1.18b.
7. Rub the surface with butter, if desired.

*Figure 1.18a:* Step 3—Stir the eggs.

*Figure 1.18b:* Step 6—Place the omelet on a heated plate.
Essential Skills

*Flat Omelet (Frittata)*

1. Blend the eggs, liquid (milk, cream, and/or water), and seasoning.
2. Sauté any garnish ingredients. See Figure 1.19a.
3. Pour the egg mixture into a hot, oiled pan over the garnish, swirling the pan so the egg mixture covers the entire bottom of the pan.
4. Cook, without stirring, until the edges are set.
5. Finish the omelet in a hot oven, adding other garnish ingredients, such as grated cheese. See Figure 1.19b.
6. Brown under a broiler, if desired.

**Figure 1.19a:** Step 2—Sauté any garnish, such as mushrooms.

**Figure 1.19b:** Step 5—Finish the omelet in a hot oven.
Essential Skills  

Souffléed Omelet

1. Whip the eggs until they are frothy. Add any seasonings and garnish ingredients. See Figure 1.20a.

2. Pour the egg mixture into a heated and oiled pan.

3. Cook the omelet until the edges and bottom are set. See Figure 1.20b.

4. Finish in a hot oven.

Tips for perfect omelets include the following:

- Always use high heat.
- Use the appropriate omelet pan (8 or 10 inches).

Other favorite egg dishes that can be carried over to lunch or dinner include quiche (KEESH) and soufflés (soo-FLAYS). **Quiche** is a savory egg custard baked in a crust. Blend eggs with milk or cream until smooth and then add a variety of other ingredients. In one traditional quiche, the Florentine, blend the eggs with onion or spinach, cheese (usually Gruyere or Swiss, but other cheese can be used), and crisp bacon or cooked ham. Regardless of ingredients, season the mixture of eggs and other ingredients, pour it into an uncooked pie crust, bake it in a moderately heated oven, and serve it hot. Quiches are easy to reheat in a microwave oven just before serving.

**Soufflés** are made of eggs and can be both savory and sweet. While they can be served at any meal, they take time to bake and must be made to order. Make a soufflé by enriching a sauce base (generally béchamel) with egg yolk, whipped egg whites, and flavorings. The egg whites cause the soufflé to puff during cooking. Soufflés are not difficult to prepare, but timing is everything. The kitchen staff and the serving staff must work together very closely to assure that the customer receives the soufflé while it is still hot and puffy. Cheese soufflés are very popular.
Essential Skills
Making Soufflés

1. Prepare a base and add the flavoring.
2. Whip egg whites and fold the whites into the base. See Figure 1.21a.
3. Fill the molds. See Figure 1.21b.
4. Place them in a hot oven.
5. Once they are done, serve the soufflés immediately. See Figure 1.21c.

Did You Know…?

Chicken eggs are the most common type of egg and are commonly found in food stores. Their shells are usually either white or brown. But there are many other types of eggs including the ostrich egg, quail egg, duck egg, goose egg, and turkey egg.

The ostrich egg is the largest of all eggs. It weighs about 3½ to 5 pounds and is equivalent to two dozen chicken eggs. The ivory-colored shell is very thick, and it takes a knife to crack it. They are fluffier than chicken eggs, which makes them good for baking and pastries. It takes one hour to soft cook a fresh ostrich egg and 1½ hours to hard cook one. Unless there is an ostrich breeder in the neighborhood, ostrich eggs are hard to find.

Quail eggs are popular with gourmets. They are small and oval with a speckled outer shell. Quail eggs taste similar to chicken eggs, but they have a thin shell that cracks very easily compared to chicken eggs. Since the shell is so thin, the moisture in the egg white evaporates as the egg ages. Five quail eggs equal the weight of one chicken egg. Quail eggs are mostly hard-boiled and served as a food garnish, hors d’oeuvre, or an accompaniment for salads. Quail eggs are often found in Asian stores.

Duck eggs are larger than chicken eggs and range in size from small to jumbo. The egg white is more transparent, containing less yellow than a chicken egg. Duck eggs have more protein, flavor, and richness, are higher in fat, and have more cholesterol than chicken eggs. The richness of duck eggs makes them well suited for desserts.
Goose eggs are four times larger than chicken eggs. They are rich in flavor and best suited for dessert dishes. They can be used in any recipe calling for chicken eggs. One goose egg is equal to two chicken eggs. Because goose eggs are very high in fat and cholesterol, they should be used sparingly.

Turkey eggs are 1 ½ times larger than a jumbo chicken egg. They have a brown shell and are rich in flavor. They are also high in fat and cholesterol. Generally, farmers do not sell turkey eggs commercially because turkeys produce 100 to 120 eggs per year, compared to commercial egg-producing chickens that lay over 300 eggs per year. In addition, a turkey doesn’t start laying eggs until she is 32 weeks old, whereas a chicken starts laying eggs at around 19 weeks of age. It takes more money and time to produce turkey eggs.

No matter how they are prepared, always follow safety steps to ensure properly cooked eggs:

- Handle pooled eggs carefully. **Pooled eggs** are eggs that are cracked open and combined in a container. Cook them immediately after mixing, or store them at 41°F or lower. Wash and sanitize the containers used to hold pooled eggs before making a new batch.
- Keep shell eggs in cold storage until ready for use. Take out only as many eggs as needed for immediate use. Figure 1.22 shows well-made egg dishes.

![Figure 1.22a: Hard-cooked eggs.](image1)

![Figure 1.22b: Baked eggs.](image2)

![Figure 1.22c: Poached eggs.](image3)

![Figure 1.22d: Scrambled eggs.](image4)
Summary

In this section, you learned the following:

- There are many types of milk; the type of milk you use is often based on the nutritional value you want. Cream contains far more fat than milk. It must have at least 18 percent fat content just to be considered light cream, and heavy whipping cream can be 40 percent fat or higher. The type of cream used is based primarily on its fat content. Butter is made by mixing heavy cream at a very high speed. Butter itself must have at least 80 percent butter-fat content; the remaining 20 percent is milk solids and water.

- The pasteurization process is what kills the bacteria in milk that could make people sick. All milk and milk products should be labeled Grade A, stored at 41°F or lower, and handled using the FIFO (first in, first out) method. Any milk that has passed its use-by or expiration date should be thrown away.

- All cheese has three basic parts: water, fat, and protein. The amounts vary depending on the type of cheese. There are three different types of milk used in cheese: cow’s milk, goat’s milk, and sheep’s milk. Cheese comes in three primary textures: soft, semisoft, and hard. Cheese can also be either fresh (unripened) or aged (ripened).
Eggs are chosen by their grade (AA, A, or B) and size (ranging from peewee, the smallest, to jumbo, the largest).

Eggs can be cooked using many different methods, including simmering, frying, poaching, and baking.
Section 1.1 Review Questions

1. Define each of the following terms:
   a. Homogenization
   b. Jumbo
   c. Pasteurization
   d. Clarified
   e. Peewee
   f. Ripened

2. List the three basic parts of cheese.

3. What is the best way to handle and store milk?

4. What determines if cream will be stable when whipped?

5. Chef Nims’ favorite breakfast dish is Classic Eggs Benedict. She says that this dish “mirrors perfection and versatility.” What does that mean to you? Do you agree?

6. Eggs would definitely be on any brunch menu. Taking into account Chef Kate’s concern about quality, timing, and efficiency, what egg dishes would you put on the Kabob brunch menu?

7. Investigate the many differences in dairy products between Jersey and Guernsey cows.

8. What are the costs and benefits to using organic products? How do you yourself weigh the pros and cons? Which type of products would you choose for your restaurant: conventional or organic?
Section 1.1 Activities

1. Study Skills/Group Activity: The History of Dairy

Working alone or in a group, select a century. Research the production and use of dairy products in that time period. Pick a specific location: France, the United States, China, etc. Chart the production and usage of milk, eggs, and cheese in that time frame and area.

Compare your charts in class. Are there differences in usage based on area or ethnicity? Were these products used more by the upper or lower classes? How were they used?

2. Activity: No Whey!

Cheese is made from the solid components of milk with the liquid whey removed. How does this work? Why does fresh milk remain liquid without solid particles falling out of the solution? How is cheese made? How long does it take? What are some of the potential pitfalls? Research cheese making in both small independent and large commercial operations.

3. Critical Thinking: Breaking Down Milk

When milk comes out of the cow, it is all one liquid. Milkfat, or cream, rises to the top and is skimmed off. Nonfat milk is sometimes called “skim milk” for this reason. Cream is collected and used for various recipes, including butter production. The difference between each of these is fat content. What are the fat limits on milk, cream, and butter? Create a graphic that shows the relationship between milk, cream, and butter.
SECTION 1.2 BREAKFAST FOODS AND DRINKS

Breakfast foods are wholesome and satisfying. That’s why some places serve breakfast all day long. In addition, an entire food culture has developed around the drinks that normally accompany breakfast—coffee bars and tea rooms.

Study Questions

After studying Section 1.2, you should be able to answer the following questions:

■ What are other popular breakfast foods aside from eggs?
■ What are the primary breakfast proteins and how should they be handled for service?
■ What is hash and how is it prepared?
■ What are the basic types of breakfast potatoes and how is each prepared?
■ What are the two basic types of breakfast cereal?
■ What are the traditional hot breakfast beverages and how is each served?

Pancakes, Waffles, Crêpes, and French Toast

Other popular breakfast foods include pancakes, crêpes, waffles, and French toast. The batters for these items are simple to make. Many can be cooked in a few minutes.

Make pancakes with a medium-weight pour batter, and cook them on an open, lightly oiled griddle. See Figure 1.23 on the following page. Crêpes (CRAPES or CREPPS) are very thin pancake-type items with a high egg content. The result is a delicate, unleavened griddlecake. Crêpes are traditionally cooked in a lightly oiled, very hot sauté pan. Make Swedish pancakes with a slightly sweetened batter that is a bit heavier than a crêpe batter. Cook these pancakes on a flat griddle or in a special fluted pan.
For waffles, use a medium-weight pour batter similar to pancake batter, but with more egg and oil. Cook waffles in a specially designed waffle maker, or iron, that creates grid-like holes or specialty designs.

French toast is sliced bread (preferably a day old) dipped in an egg-and-milk mixture. Chefs often season the mixture lightly with cinnamon and nutmeg. Cook French toast on a lightly oiled griddle or flat pan, or pan-fry it in clarified butter in a hot sauté pan.

Serve pancakes, crêpes, waffles, and French toast with butter and syrup, powdered sugar, fresh fruit, or whipped cream. For additional variety, add ingredients such as chocolate chips or blueberries to pancake or waffle batters.

**Essential Skills**

*Making Pancakes, Crêpes, Waffles, and French Toast*

1. Prepare the batter according to the particular recipe. See Figure 1.24a.
2. While letting the batter rest, heat the pan, griddle, or waffle iron.
3. Lightly coat the pan or griddle with oil, clarified butter, or a nonstick spray.
4. When the surface is hot, pour the batter in or on it. In the case of French toast, first dip the bread in the egg-milk mixture, and then place it on a heated surface. See Figure 1.24b.
5. Turn the item and completely cook it on the other side. When using a waffle iron, do not turn the item.
Preparing Breakfast Meats and Starches

Operations often include breakfast meats, such as bacon, sausage, ham, Canadian bacon, and hash, to complete the breakfast meal.

**Bacon and Sausage**

Food preparers can cook bacon and sausage in advance. Bacon is about 70 percent fat and shrinks quite a bit. Cook bacon until it is crisp, and then drain it of fat. Cook sausage completely through. It should be slightly browned on the outside but juicy on the inside. Some operations have begun using precooked bacon and sausage. These items help to reduce labor cost and equipment requirements.

**Essential Skills**

*Cooking Bacon or Sausage*

1. Cook it in a fry pan or on a griddle on a medium heat. See Figure 1.25a.
2. Alternatively, place it on sheet pans and bake it at 375°F in a standard oven until it is crisp and brown as desired. See Figure 1.25b.
3. Monitor it and turn it as needed to ensure even cooking and browning.

![Figure 1.25a: Step 1—Cook bacon or sausage in a fry pan or griddle.](image)

![Figure 1.25b: Step 1—Or, place the meat on sheets and bake it.](image)
Ham and Canadian Bacon

Ham for breakfast service is a smoked or cured item that only needs to be heated and browned slightly on a griddle or under the broiler. Canadian bacon is boneless pork loin that has been cured and smoked. Cook it the same way as ham, by heating and browning it. Ham and Canadian bacon don't hold well. Cook them as close to service as is practical.

Fish

Operations often offer fish, such as smoked salmon or trout, on breakfast and brunch menus. See Figure 1.26. Generally, these items are served cold; all such fish items should remain properly refrigerated until as close to service as is practical. Items such as broiled trout are particularly popular for breakfast at certain types of resorts.

Hash

Hash is a mixture of chopped meat (fresh, smoked, or cured), potatoes, and onions. The ratio of meat to vegetable is not an exact one, and the chef can include a wide variety of vegetables to give the dish color and flavor. The goal of the dish is to achieve a flavorful balance of meat, potatoes, and onion. Hash can be prepared from leftover meat. The meat should always be of high quality; otherwise, the result will not be a quality product. Hash is often formed into patties and fried.

Potatoes

Potatoes are prepared in a variety of ways for breakfast and brunch. Most often chefs make them into hashed brown potatoes or home fries. Prepare hashed brown potatoes, or hash browns, by steaming or simmering them in lightly salted water and then peeling, chilling, and shredding the potatoes. Cook the shredded potato on a lightly oiled griddle on medium heat to a light golden
brown on both sides. **Home fries** are raw potatoes that have been peeled and then sliced, diced, or shredded. Cook them on a well-oiled griddle, or pan-fry them until golden brown and cooked through. Season hash browns and home-fried potatoes well during cooking.

**Cereals**

Hot and cold cereals have become more popular as breakfast entrées. A wide variety of cold cereals featuring oat bran and granola are common breakfast requests. Cold, prepackaged cereals need no formal preparation. Serve cold cereals with accompanying milk or cream, sugar (brown sugar is attractive), and fresh fruit, such as sliced bananas or strawberries. Some kitchens prefer to make their own granola, often serving it with yogurt and fresh or stewed fruit.

There are two types of hot cereal: whole, cracked, or flaked (oatmeal and cracked wheat) and granular (farina and cornmeal). When preparing hot cereal, be sure to measure the correct amount of water, salt, and cereal according to package directions. Adding milk makes the cereal creamier—and more expensive. When using milk, take care not to boil or scorch it. Always add the cereal to the liquid slowly, stirring constantly to prevent lumps. “Instant” hot cereals are precooked and dried cereals that are reconstituted in hot water or milk. These cereals have become popular in homes and commercial kitchens because they need little preparation time and do not lump easily. To prevent hot cereals from drying out, keep them covered until they are served. Oatmeal, cream of wheat or rice, grits, and cornmeal mush are all typical hot cereals. Figure 1.27 shows examples of hot and cold cereals.

![Figure 1.27: Hot and cold cereals are popular breakfast entrées.](image-url)
Breads and Pastries

The most common breakfast bread in the United States is probably the simple slice of toast—white, wheat, and sourdough, for example, grace many tables. Other bread and pastry options include bagels, biscuits, muffins, croissants, doughnuts, cornbread, coffeecake, English muffins, and sweet rolls, among many others. Chefs typically serve breakfast breads hot or warm, accompanied by butter, honey, cream cheese, or jam.

Fruit

A number of fruits are commonly associated with the breakfast table. Halved grapefruit, either raw or broiled with brown sugar, is very popular on breakfast menus. Although fresh fruits—whole or sliced, depending on the type—may appear with cereals, many people enjoy a light fruit salad as part of this meal. Compotes and jams made of fresh or dried fruits also play a role: for instance, slather apples cooked in cinnamon on top of a stack of pancakes. Fruit juices, especially orange and tomato, are traditional at this time as well.

Breakfast Buffet: Considerations when Presenting Cold Fish and Meat

1. Always keep cold foods separate from hot foods.
2. Hold cold foods at 41°F or colder.
3. Keep all cold foods refrigerated until ready to serve.
4. Display cold foods upon ice beds.
5. Make ice beds by filling bowls or chafing dishes with ice and placing small shallow trays of cold food items on top of the ice. See Figure 1.28.
6. Use smaller rather than larger trays and frequently rotate in new trays from the refrigerator.
7. Check food temperatures at least once every two hours, which will leave time to fix a problem before you must throw out the food.
8. Replace empty food platters with new platters rather than reusing the previous ones.

Did You Know…?

The CDC estimates that 76 million people in the United States become ill from foodborne pathogens every year, and 5,000 of these people die. Pathogens that cause foodborne illness grow rapidly at room temperature (70°F). The temperature danger zone is 41°F to 135°F.
Coffee in Schools

The coffee culture in the United States began its renaissance in the 1990s, and it's still in full bloom almost a full two decades later. There aren't any signs of it slowing down either—especially since the market for coffee and coffee-based drinks continues to get younger.

Coffee houses are now a staple on most college campuses, but an ever-increasing number of college campuses are taking it a step further by building a coffee shop right into the college library. More and more teens are using coffee houses to gather and socialize as well. In 2007, Starbucks Corp. officially recognized that its customer base had expanded to include teenagers and children, which was a reversal from its previous stance. This trend seems to be taking hold in high schools. Foodservice contractor Aramark, for example, has opened 15 coffee shops in high schools across the country.

There may be nutritional perils associated with this trend. Most young people do not simply have a small cup of black coffee. Many popular coffee drinks are high in fat and sugar, and the caffeine can be habit forming.

What does all this mean? Well, if nothing else, it means that the next generation of coffee drinkers promises to be better versed and more selective in their coffee tastes, preferences, and service. This is an industry trend that any foodservice professional would do well to be aware of.

Hot Breakfast Beverages: Coffee, Tea, and Cocoa

Traditional breakfast beverages include coffee, tea, and hot cocoa. Always serve hot beverages very hot and steaming. Both coffee and tea contain caffeine, which is a stimulant. People who are sensitive to the effects of caffeine will often ask for decaffeinated options. Figure 1.29 shows a variety of hot breakfast beverages.

Coffee beans are the berries of a tropical shrub that are roasted to develop their flavor. The degree of roasting, which can be light, medium, or dark, affects the flavor of the coffee. Americans generally prefer medium roast, while dark roast coffee is popular in Europe. Coffee is often
served at every meal. Flavored coffee—ranging from hazelnut, almond, mint, and chocolate to blueberry and strawberry—is also popular at any meal.

Many times, a sip of coffee is the first and last impression a customer has of a restaurant. Because these impressions are very important, always purchase, brew, and pour good-quality coffee. Avoid holding brewed coffee for over an hour. After that time, the loss of flavor is considerable. Serve coffee hot and steaming. Plan coffee production so that coffee is always fresh.

For the best-tasting coffee, use the right proportion of water to coffee. Always start with fresh, cold water, and heat it to a proper brewing temperature of 195°F to 200°F. Take into account proper timing, equipment, filters, and holding procedures as well.

Clean coffee urns regularly to avoid calcium buildup and to ensure good-tasting coffee. To clean urns, run a solution of one part white vinegar and four parts water through the brewing cycle. Rinse the system by running plain cold water through the brewing cycle three times.

Cold coffee drinks are also very popular now. Iced coffee, which is the coffee counterpart to iced tea, is made by putting brewed coffee over ice. Fancier frozen coffee drinks are also very popular and often come in different flavors such as mocha, caramel, or peppermint.

Tea is generally less expensive than coffee, although some rare teas can be quite expensive. One cup of tea has about half the caffeine contained in a cup of coffee. Tea is served either very hot or iced. There are black teas (tea leaves that have been fermented) and green teas (tea leaves that are not fermented). Oolong tea is partially fermented. Herbal tea (technically called a tisane because there is no actual tea in the blend) is made from many different fruits and herbs and is naturally caffeine-free. After tea is graded, which depends on its level of bruising, wilting, and oxidation, it is blended to ensure consistency and uniformity. Some tea blends may contain as many as 30 individual teas. Figure 1.30 shows a well-presented table-side tea service.
Did You Know…?
Fermentation is the term used in the tea industry for the treatment of tea leaves that breaks down certain unwanted chemicals and modifies others to develop the flavor of the tea.

Tea, Anyone?
Dry tea leaves contain low levels of bacteria, yeast, and mold (like most plant-derived food). Tea must be handled properly to ensure its safety:

• When steeping tea, make sure the tea leaves are exposed to water at least 175°F for at least 5 minutes. When preparing tea in automated machines, make sure the leaves remain in contact with water at least 175°F for 1 minute.
• Brew only as much tea as you reasonably expect to sell within a few hours.
• Never hold tea brewed for iced tea at room temperature for more than 12 hours. Throw out the tea at the end of the 12 hours.
• To protect tea flavor and avoid pathogen contamination and growth, clean and sanitize tea brewing, storage, and dispensing equipment at least once a day. Equipment should be disassembled, washed, rinsed, and sanitized. Urn spigots should be replaced at the end of each day with freshly cleaned and sanitized ones.

Hot cocoa is also a popular breakfast drink. It is made from cocoa powder or shaved chocolate and sugar stirred into heated milk or water. The terms “hot chocolate” and “hot cocoa” are often used interchangeably, but there is a difference. Hot chocolate is made from actual chocolate bars. Hot cocoa is made from the powder of the cacao bean. Hot cocoa is much lower in fat than hot chocolate because the cocoa butter, added back in when chocolate bars are manufactured, is extracted when the cocoa powder is ground from the cacao bean.

Hot cocoa is usually made from its instant form, a dry mix of cocoa powder, sugar, and dry milk, mixed with hot milk or water. Hot cocoa drinks can be topped with small marshmallows or whipped cream.
Caffeine

Caffeine is a stimulant, and it is the most popular drug in the world. Every day, over 90 percent of Americans use caffeine in some form. Caffeine is found in chocolate, colas and other carbonated beverages, coffee, and tea. Today, many “high-energy” drinks are specially formulated to increase the caffeine content so as to increase drinkers’ energy during the day.

Caffeine acts as a stimulant by causing chemical changes in the brain. One effect it has is to raise the level of dopamine in the brain. Dopamine increases feelings of well-being and enhances mood. This reaction is one of the primary reasons why caffeine is also addictive.

Because of its addictive quality, people who drink caffeine regularly can experience withdrawal symptoms such as irritability, restlessness, muscle stiffness, headache, and difficulty concentrating.

Contrary to popular belief, light-roasted coffee has a higher caffeine content than dark-roasted coffee. The longer roasting process in dark-roast coffee literally roasts more caffeine out of the coffee beans. In terms of caffeine content, though, coffee tends to have higher caffeine content than other caffeinated beverages, aside from high-energy drinks.

Honey Straws

Honey is a traditional accompaniment to hot tea. The problem with using honey is that it can be messy—hard to get out of its container, hard to dispense into a cup, and easy to get all over hands and table surfaces. This is not desirable or practical for restaurant service.

The new trend of using honey straws solves a lot of these problems. They come in a variety of flavors and are easy to use, carry, and dispense. The customer cuts the end off of the straw and pushes the honey into a cup of tea without getting sticky. See Figure 1.31.

Figure 1.31: Honey straws are a convenient accompaniment to hot tea.
Essential Skills
Making Hot Tea with Tea Leaves

1. Put tea leaves into a preheated, empty pot. Use 1 teaspoon loose tea or one single service tea bag for each 6 ounces of water.

2. Pour boiling water into the pot. See Figure 1.32a.

3. Let the tea steep (soak) for at least 3 to 5 minutes.

4. Serve immediately after steeping. Tea will become bitter if left to steep too long. See Figure 1.32b.

Figure 1.32a: Step 2—Pour boiling water into the pot.

Figure 1.32b: Step 4—Serve tea immediately after steeping.

Being a Barista

With an exponential increase in the numbers of coffee bars, a new group of server opportunities has arisen… the baristas.

In English, barista is a name applied to a person who prepares and serves espresso-based coffee drinks. The word barista is Italian, where a barista is a male or female “bartender” who typically works behind a counter, serving both hot drinks (such as espresso) and cold alcoholic and nonalcoholic beverages.

However, many employers, such as Starbucks, officially use this title for their employees. Among coffee fans, the term is often reserved for someone who has acquired a level of expertise in the preparation of such drinks. In fact, some consider a true barista to be a type of “coffee sommelier,” a professional who is highly skilled in coffee preparation, with a comprehensive understanding of coffee, coffee blends, espresso, quality, coffee varieties, roast degree, and espresso equipment and maintenance.
Summary

In this section, you learned the following:

- Pancakes, waffles, crêpes, and French toast make up the primary breakfast foods aside from eggs, and these items have similar preparation methods. Crêpes are thinner and have a higher egg content than the basic pancake.

- Bacon, sausage, ham, Canadian bacon, and fish make up the traditional breakfast meats. Bacon and sausage hold well for service, but ham, Canadian bacon, and fish should always be prepared as close to service as is practical.

- Hash is traditionally a combination of meat, potatoes, and onion, but chefs can include other items to give the dish color and flavor.

- Potatoes have two traditional forms for breakfast: hashed brown (steamed or simmered before being shredded and fried) and home-fried (shredded or chopped raw before being fried). Season both versions liberally during preparation.

- Both hot and cold cereals are popular breakfast entrées. They are healthy and relatively easy to prepare. Hot breakfast cereals come in two basic forms: whole, cracked, or flaked (such as oatmeal or cracked wheat) and granular (such as farina and cornmeal).

- Traditional hot beverages are coffee, tea, and cocoa. Coffee and tea can also be served cold over ice, and are available either caffeinated or decaffeinated. Cocoa is lower in fat than hot chocolate and typically made in the United States by mixing hot milk or water with a prepackaged blend of cocoa powder, sugar, and dry milk. All of these beverages in their hot form should be served within an hour after brewing.
Section 1.2 Review Questions

1. What is the difference between a crêpe and a regular pancake?
2. Name two breakfast meats that hold well before service.
3. Describe the two basic forms of hot breakfast cereals.
4. How long can coffee or tea be held before it starts losing flavor?
5. Chef Nims says that you should “cook to impress, and season to leave an impression.” How would you prepare a breakfast meal of pancakes or crêpes, meat items, and beverages that would impress a group of culinary students?
6. Breakfast food items tend to be high in fat and calories. Knowing that Kabob makes a concerted effort to keep its menu options healthful and heart-healthy, what breakfast dishes can they put on their brunch menu that will maintain their usual standards?
7. This chapter pointed out that the market for coffee drinkers continues to get larger and more selective and that coffee houses, both independent and corporate chains, continue to multiply. Would these facts make you more or less inclined to focus on coffee service at your own establishment? Given how saturated the coffee market is, how much time and money would you invest in your coffee service?
8. Would you use instant cereals in your restaurant? Why or why not?
Section 1.2 Activities

1. Study Skills/Group Activity: A Puzzling Way to Start the Day

Work within a group to research a specific breakfast food. Selections may include grits, scrapple, fried mush, hash browns, fried tomatoes, or any other breakfast food that might be new to the class. Groups can present their findings to the class.

2. Activity: Investigation: The Cocoa Case

Investigate cocoa service in a restaurant setting. What is the best way to make cocoa? Does it hold well? How is cocoa best served? Should guests make their own from a mix at the table?

3. Critical Thinking: Wedding Brunch

Create two complete breakfast menu options for a wedding brunch. Your menu must include the main course, side dishes, and the beverage. Explain why you chose those specific menu options for the event.
SECTION 1.3 SANDWICHES

Peanut butter and jelly? Grilled cheese? You probably grew up eating these kinds of sandwiches. Now, take a look at how sandwiches have changed.

Study Questions

After studying Section 1.3, you should be able to answer the following questions:

- What are the basic kinds of sandwiches and what are the basic components?
- What role does each of the three main elements of a sandwich play?
- What are the necessary tools and equipment needed at a sandwich station?

Basic Kinds of Sandwiches

When making sandwiches, consider the combinations of flavors and textures created by different breads, condiments, and meat and vegetable additions. For example, how does the texture of the bread blend with the texture of the filling? Do the flavors work together? Decide whether to serve the sandwich hot or cold, and consider the ratio of bread to the quantity and flavors of the other ingredients.

All sandwiches fall into one of two general categories: hot or cold. A simple hot sandwich consists of hot fillings, such as hot roast beef or grilled vegetables, between two slices of bread or two halves of a roll. Additional items such as fresh tomato, lettuce, or onion may be added for flavor. In the United States, hamburgers and hot dogs are among the most popular hot sandwiches.

In the broadest sense of the word, sandwiches may be served in a variety of ways: open-faced on one slice of bread, rolled up in a piece of bread (such as a wrap sandwich), or even on a flat crust (such as pizza).
Did You Know…?
The popular explanation for the term “sandwich” is that John Montagu, the Fourth Earl of Sandwich, asked his valet to bring him meat between two pieces of bread that he could eat (maybe at his desk, maybe at a card table). Today, a sandwich is defined as two or more slices of bread with a filling of meat, fish, cheese, jam, or pretty much anything else.

Hot Sandwiches

Make open-faced hot sandwiches by placing one slice of buttered or unbut-tered bread or roll on a serving plate with hot meat or other filling and covering it with a hot topping, such as sauce or cheese. Broil the sandwich quickly if the cheese needs melting. Make smaller versions of some types of open-faced hot sandwiches for hors d'oeuvres (or DERVS), the hot or cold bite-sized finger foods that are served before a meal.

Grilled (or toasted) sandwiches are another type of hot sandwich. Butter the outside of the bread and brown on the griddle or in a hot oven. Grilled cheese, grilled ham and cheese, and tuna melt (grilled tuna salad and cheese) are popular varieties. Make panini sandwiches by grilling sandwiches on a panini (PAH-nee-nee) press. This compresses the sandwich and warms the ingredients without adding additional fat to the outside of the sandwich. Figure 1.33 provides an example of a well-made panini sandwich.

Make deep-fried sandwiches by dipping the sandwich in beaten egg (sometimes with bread crumbs) and then deep-frying it. Cook the sandwich on the griddle or in the oven to reduce fat and make it less greasy. One example is a Monte Cristo sandwich, which is filled with turkey or chicken breast, ham, and Swiss cheese.

Pizza, while not a typical sandwich, is hot, open-faced Italian pie with a crisp yeast dough dough bottom. Bake pizza with flavored or seasoned tomato sauce and
additional toppings, such as cheese, meat, and vegetables. Pizza comes in a wide variety of crusts, such as thin, thick, and pan. There is a tremendous variety of toppings and sauces as well. Examples include chicken alfredo, Hawaiian with pineapple and Canadian bacon, and taco pizza. Pizzas can also be wood-fired, roasted, or kiln-baked.

**Cold Sandwiches**

A simple **cold sandwich** consists of two slices of bread or two halves of a roll, a spread, and a filling. As with hot sandwiches, the choices for fillings are many. The most common fillings are meat and cheese or a salad, such as egg salad or tuna salad.

A **submarine sandwich** usually refers to a cold sandwich served on a long, sliced roll with several types of cheese, meat, lettuce, tomato, onion, and various other toppings. These sandwiches may also be referred to as subs, grinders, heroes, or hoagies. In some instances, the filling may be hot, such as in a meat-ball sub.

A **wrap sandwich** is made on any type of flat bread—for example, tortillas, cracker bread, or rice paper wrappers—and spread with a hot or cold sandwich filling. It is then rolled up.

A **multi-decker sandwich** has more than two slices of bread (or rolls) with several ingredients in the filling. The club sandwich is one example of a multi-decker sandwich. A traditional **club sandwich** is three slices of toasted bread spread with mayonnaise and filled with an assortment of sliced chicken and/or turkey, ham, bacon, cheese, lettuce, and tomato. Serve club sandwiches cut into four triangles.

Open-faced sandwiches can also be cold sandwiches, made with a single slice of bread, with the filling or topping attractively arranged and garnished. A version of the open-faced cold sandwich is a **canapé** (CAN-uh-pay), a type of hors d’oeuvre. See Figure 1.34. Make canapés from bread or toast cutouts, English muffins, crackers, melba toasts, or tiny unsweetened pastry shells. Spreads can be as simple as flavored butter or softened cream cheese. Use meat or fish spreads to give a zestier flavor.

**Figure 1.34:** A pantry chef may prepare canapés using crackers with an attractive topping.
flavor. Or use fruit, vegetables, and meat cut into bite sizes as the base for canapés. An attractive garnish is the finishing touch to any canapé.

**Tea sandwiches** are small, cold sandwiches usually served on bread or toast, trimmed of crusts, and cut into shapes. The filling and spread may be the same as those for canapés. Tea sandwiches may also be served open faced.

**Did You Know...?**
The hamburger is the most popular sandwich in the United States. In this country, there are primarily two types of burgers: quick-service hamburgers and individually prepared burgers made in homes and restaurants. Common toppings include lettuce, tomatoes, onions, sliced pickles, and/or cheese.

**Tips for Salads and Sandwiches Containing TCS Food**
- Make sure TCS food such as tuna, eggs, ham, and chicken is properly cooked before mixing it into sandwich filling.
- Always refrigerate salad sandwiches at 41°F or lower. Remember that pathogens can grow in food that is in the temperature danger zone. **NOTE:** This should also be done for potato and pasta salads made with mayonnaise (which contains eggs).
- Remove from the cooler only as much food as you can prepare in a short period of time, and prepare food in small batches. This keeps ingredients from sitting out for long periods of time.
- Many sandwiches have ready-to-eat food as their ingredients; for example, deli meat, cheese, and vegetables. Remember to wash your hands before putting on gloves when handling ready-to-eat food.

**Primary Sandwich Components: Bread, Spread, and Filling**

Preparing hot and cold sandwiches to order is an important skill for anyone who works in foodservice. Many operations prepare sandwiches to order to ensure their freshness. Cover sandwiches prepared ahead of time with a sheet of plastic wrap and store in a refrigerator for service within three hours, or wrap them individually and refrigerate for two to three days.
The basic components of a sandwich are bread, spread, and filling. While bread serves as an edible container for the food inside, it also provides bulk and nutrients. Pullman loaves, sandwich loaves of sliced white bread, are still the most frequently used sandwich bread. But a variety of hard rolls, pita bread, French bread, tortillas, flatbreads, and multigrain or cinnamon and raisin bread are also very popular. Many operations also offer a variety of whole wheat, marbled ryes, and non-wheat or gluten-free breads. Regardless of the type, any bread or roll must be served fresh.

There are many different types of spreads that can be used when preparing a sandwich. A spread serves three main purposes: to prevent the bread from soaking up the filling, to add flavor, and to add moisture. Butter and mayonnaise are the most common spreads. Butter must be soft enough to spread easily without tearing the bread. Butter can be softened by whipping it in a mixer or letting it stand at room temperature for about 30 minutes. Butter flavored with lemon, chive, mustard, honey, or other ingredients is often used to add a unique flavor to a sandwich.

While mayonnaise is often used instead of butter because it has more flavor, it actually adds moisture to the bread and can make it soggy. Commercially prepared mayonnaise has been made with pasteurized eggs and is, therefore, less hazardous than homemade mayonnaise. Raw, unpasteurized eggs should never be used to make mayonnaise in kitchens catering primarily to high-risk individuals.

The filling of the sandwich is the main attraction. The purpose of the filling is to provide the primary flavor to the sandwich. Generally, the filling is protein-based, but it doesn't have to be. Vegetable-based sandwiches are popular today, such as Caesar salad wraps or portobello sandwiches. Fillings can vary from sliced or grilled meat and cheeses to salad mixtures such as egg or tuna. The filling may be sliced, ground, blended, or tossed—any form that fits the type of sandwich being prepared. The flavors of a sandwich are limited only by the creativity of the sandwich chef.

Sandwiches are often served with accompaniments. These vary from additional condiments, such as ketchup, mustard, or horseradish sauce to fresh and pickled vegetables, such as lettuce, onion, tomato, and sweet or dill pickles. French fries or chips are also a popular accompaniment, as are potato salads and slaws.

Pizza is generally composed of a crust, sauce, and toppings. All of these ingredients are affected by customer tastes and local demands for a particular pizza or toppings. For example, New York-style pizza has a thin, flexible crust with a small amount of sauce. Chicago-style deep-dish pizza, on the other hand, has a very thick crust and much more sauce and cheese. Pizzas may be extremely
simple or contain a number of complex ingredients; as with sandwiches, it largely depends on customer desires and the chef’s creativity.

Table 1.5 reviews the various primary sandwich components.

<table>
<thead>
<tr>
<th>Primary Sandwich Components</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Beef</strong></td>
<td>Roast beef slices, cold or hot; hamburger patties; small steaks; corned beef; pastrami</td>
</tr>
<tr>
<td><strong>Mayonnaise-based salads</strong></td>
<td>Egg salad; tuna salad; chicken salad; turkey salad; crabmeat salad; ham salad</td>
</tr>
<tr>
<td><strong>Fish and shellfish</strong></td>
<td>Tuna; sardines; smoked salmon and lox; shrimp; anchovies; fried fish</td>
</tr>
<tr>
<td><strong>Pork products</strong></td>
<td>Roast pork; ham; bacon; Canadian bacon</td>
</tr>
<tr>
<td><strong>Poultry</strong></td>
<td>Turkey breast; chicken breast</td>
</tr>
<tr>
<td><strong>Cheeses</strong></td>
<td>Cheddar; Swiss; monterey jack; mozzarella; pepper jack; provolone; American; cream cheese</td>
</tr>
<tr>
<td><strong>Pickled vegetables</strong></td>
<td>Dill and sweet pickles; olives; peppers; artichoke hearts</td>
</tr>
<tr>
<td><strong>Condiments</strong></td>
<td>Mustard; horseradish sauce; ketchup; hot sauce; relish</td>
</tr>
<tr>
<td><strong>Vegetables</strong></td>
<td>Lettuce; tomatoes; onions, raw or grilled; sprouts (alfalfa, bean, etc.); spinach and other greens</td>
</tr>
<tr>
<td><strong>Other fillings</strong></td>
<td>Peanut butter and other nut butters; jelly; hard-cooked eggs; fruits, fresh or dried; hummus; tabbouleh</td>
</tr>
<tr>
<td><strong>Popular pizza toppings</strong></td>
<td>Meat, poultry, and seafood</td>
</tr>
<tr>
<td></td>
<td>Pepperoni; sausage; bacon; chicken; anchovies; shrimp</td>
</tr>
<tr>
<td></td>
<td><strong>Cheese</strong></td>
</tr>
<tr>
<td></td>
<td>Mozzarella; Parmesan; ricotta; gorgonzola; feta</td>
</tr>
<tr>
<td></td>
<td><strong>Vegetables</strong></td>
</tr>
<tr>
<td></td>
<td>Mushrooms; olives; tomatoes; eggplant; peppers; onions; broccoli; spinach; arugula</td>
</tr>
</tbody>
</table>
Sandwiches and Ready-to-Eat Foods

Any food that will not be thoroughly cooked or reheated after it is prepared should not be touched with bare hands. Most sandwich items fall into this category. Pathogens from the human body can be transmitted by direct contact and contaminate food. So it is recommended that single-use gloves (also known as disposable gloves) be worn when handling sandwich ingredients and making sandwiches. Alternatively, tongs, forks, spatulas, and waxed paper can also be used to handle sandwich ingredients.

Gloves can be contaminated by sneezing, coughing, preparing raw or undercooked meat, or touching anything that is not food-preparation equipment, such as money or the telephone. Remember to wash hands thoroughly before putting on a pair of new gloves.

In addition, even with gloves, frequent handwashing is required to prevent food contamination. Handwashing is required after doing anything that may result in the contamination of hands, such as using the bathroom, smoking, handling raw or undercooked meat, coughing, sneezing, touching money, or using the telephone.

Handwashing and wearing gloves are two safe, easy ways to reduce food contamination and foodborne illness.

Did You Know…?
The average child in the United States eats approximately 1,500 peanut butter and jelly sandwiches by the time he or she graduates from high school. In the United States, we refer to peanut butter and jelly sandwiches as PB&J. In England, though, PB&J stands for peanut butter and jam sandwiches.

Sandwich Stations

Sandwich preparation involves a great deal of handwork, precision, and speed. It is important to reduce hand motions whether preparing sandwiches in quantity or to order. The setup for a sandwich station depends on the operation’s menu and on available equipment and space. Like every other station in a professional kitchen, the sandwich station needs two basic things: ingredients and equipment. Figure 1.35 shows a well-supplied sandwich station.
Ingredients

Many sandwich ingredients must be prepared ahead of time. This is called *mise en place:* everything needed to prepare a particular item or for a particular service period is ready and at hand. Depending on the sandwich, this could mean separating and cleaning lettuce leaves, slicing tomatoes, preparing garnishes, slicing meats and cheeses, mixing fillings, or preparing spreads.

Arrange and store the ingredients to reduce hand movement. All the items should be within reach so you can work quickly and safely.

In a busy sandwich station, every second counts. Portion sliced items by count and by weight. Portion fillings by weight as well. To keep recipes accurate, each ingredient must be counted or weighed properly. As always, following the recipe is essential to maintaining the quality of the sandwich and meeting the expectations of the customer.

Pizza should have its own preparation area, because the flour needed could contaminate other ingredients. Ingredients on the pizza should be evenly distributed across the top of it. The sauce and other ingredients should come to within a half inch to an inch of the edge of the pizza, depending on the size of the pie.

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**Why Do Sandwiches Get a Bad Rep?**

Many people don’t think of sandwiches as a low calorie, nutritious meal. How many people do you know who opt for a salad at lunch? Are sandwiches inherently a “less” healthful choice?

Of course not! Sandwiches can be hearty and nutritious—a great source of energy. Not all sandwiches are overstuffed, filled with mayonnaise or butter, or loaded with high-fat cheese and large amounts of meat. You can use whole-grain breads or flatbreads, olive oil as a spread, and vegetables, grilled chicken, or meats and cheeses that are low in saturated fat and sodium as fillers.

So, if you want a “bigger” sandwich, add more lettuce, tomato, onions, and pickles.

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Equipment

The type of equipment needed in a sandwich station depends on the size of the menu and the operation. An efficient sandwich station makes it easier to prepare sandwiches in large quantities. Most stations have the following:

- **Work table:** It must be big enough to spread out ingredients and do work.
- **Storage facilities:** This includes refrigeration equipment for cold ingredients, a steam table for hot ingredients, and dry storage for breads and dry goods as well as paper products, plates, etc.

- **Storage materials:** This includes plastic wrap, deli paper, and labels.

- **Hand tools:** This includes a spreader, spatula, serrated knife, chef’s knife, cutting board, and power slicer (power slicer may be needed for any slicing not done ahead of time).

- **Portion-control equipment:** This includes scoops for fillings and a portion scale for measuring ingredients.

- **Cooking equipment for hot sandwiches:** This includes griddles, grills, broilers, deep-fryers, and microwave ovens.

Pizza equipment is similar to that of sandwich equipment but varies based on cooking needs. Conveyer ovens, deck ovens, or wood-fired pizza kilns/ovens can all be used. Metal or wooden peels (as shown in Figure 1.36) for moving the pizzas in and out of the ovens are needed, as well as cutting equipment for finished pizzas. There are several methods and knives to choose from to cut pizza. Possibilities include a rotary cutter (pizza wheel) or a large curved pizza knife that cuts across the entire pizza at once. Let the pizza rest for a brief time before cutting or slicing to allow the ingredients to set. Quick, clean cuts are best. Slices should be even in size.

![Figure 1.36](image.png)

*Figure 1.36:* A pizza peel is used to transfer pizza in and out of the oven.
**Essential Skills**

*Sandwich Presentation*

Except for hamburgers and hot dogs, sandwiches are usually cut before serving. Cutting a sandwich in half makes it easier to hold and eat. Cutting a sandwich also makes a more attractive presentation. Cut sandwiches diagonally to create a more angular, sharp look. Cut large, multi-decker sandwiches or very thick sandwiches into quarters, with each section held in place with a toothpick. The customer can easily see the ingredients, and the sandwich looks appealing and appetizing. Serve hamburgers and other uncut sandwiches open-faced to showcase their ingredients.

Pizzas are normally cut before serving as well. Cut smaller, personal-sized pizzas into quarters and larger pizzas into eighths (cut four times across instead of two). For the most attractive presentation, always serve pizza piping hot from the oven when the cheese is still bright and bubbly.

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**Essential Skills**

*Making a Sandwich (the Basics)*

1. Pick a type of bread. It can be white, wheat, whole grain, rye, a roll, pita bread, or any other selection. If desired, toast the bread. See Figure 1.37a on the following page.

2. Choose a spread that will make the bread stick together. Margarine, mayonnaise, or avocado are some choices. Combine the spreads for a different taste. See Figure 1.37b.

3. Assemble the filling(s). Jam, peanut butter, ham, cheese, lettuce, tomato, vegetables, pickles, bacon bits, onions, turkey, beef, and chicken are just some options. The fillings of the sandwich are really up to the chef’s imagination and preference. See Figure 1.37c.
Essential Skills

Cutting a Club Sandwich

1. Place four long, frilled toothpicks in the middle of each side of the sandwich.
2. Cut the sandwich into quarters from corner to corner. Place the sandwich with the points facing upward. See Figures 1.38a and 1.38b.

Figure 1.38a: Step 2—Cut the sandwich into quarters from corner to corner.
Figure 1.38b: Step 2—Place the sandwich with the points facing upward.

When you finish putting together the foods, slice the sandwich for easier handling. See Figure 1.37d.
Essential Skills

Some Guidelines for Making Canapés

1. Pre-preparation is essential. All bases, spreads, and garnishes must be ready ahead of time.

2. Use quality ingredients. These do not necessarily have to be expensive, but they must be purchased, stored, and prepared with an eye to creating the best-tasting and most attractive-looking product possible.

3. Assemble canapés as close as possible to serving time. Bases quickly become soggy, and spreads and garnishes dry out easily. As trays are completed, they can be covered lightly with plastic and refrigerated for a short time. Always follow time and temperature rules for safe foodhandling.

4. Keep spreads and garnishes simple and neat. Elaborate garnishes can fall apart on the tray or in the guests’ hands.

5. Use flavor combinations in spreads and garnishes that are appealing both in taste and in appearance. The ingredients must blend well together and look attractive.

6. Use spicy or flavorful ingredients. Offer a variety of canapés, including vegetarian and low-fat options to meet the needs of all guests.

7. Arrange the canapés carefully and attractively on trays. See Figure 1.39.

Essential Skills

Tips for Keeping Bread Fresh

1. Bread should be delivered daily, if possible. See Figure 1.40a on the following page.

2. Keep bread wrapped in moisture-proof wrapping until it is used. See Figure 1.40b.

3. Store bread between 75°F and 85°F rather than in a refrigerator.

4. Use French bread and other hard-crusted bread the day it is delivered or baked. See Figure 1.40c.
If bread must be kept more than one day, store it in the freezer. Thaw frozen bread inside its wrapping.

Day-old bread can be used for toasting without loss of quality. See Figure 1.40d.

Summary

In this section, you learned the following:

- There are two basic kinds of sandwiches—hot and cold. There are three primary components to all sandwiches—bread, spread, and filling.

- The bread serves as an edible container for the food inside and provides bulk and nutrients. The spread prevents the bread from soaking up the filling and adds flavor and moisture. The filling is the main attraction and is generally the primary flavor of the sandwich.

- Every sandwich station needs two basic things: ingredients and equipment. If possible, ingredients should be prepared ahead of time to cut down on preparation time and hand movement. Equipment should include a work table, storage facility, hand tools, portion-control equipment, and heating equipment.
Section 1.3 Review Questions

1. What three purposes does the spread in a sandwich serve?
2. List three pieces of equipment that should be included in an efficient sandwich station.
3. Why should ingredients in a sandwich station be prepared ahead of time if possible?
4. Why is it important that the pizza station be separate from the traditional sandwich station?
5. Chef Nims chose her favorite sandwich, a Grilled Reuben, because of the mix of flavors. What sandwich would you create that would also offer a mix of flavors? Be specific about the ingredients in the sandwich.
6. For Kabob’s new brunch menu, Miguel really wants to offer a pizza item. If you could only put one pizza on the menu, what kind would you put together? Why?
7. What is the origin of the “sandwich”? Why are there classic sandwiches, like a “patty melt” or a “BLT”? What is the role of creativity and innovation in sandwich making?
8. Sometimes in an operation, you must make choices based on budget and availability. Keeping that in mind, reexamine the main components of the typical sandwich station. If you had to go without two of the items listed, which would they be? Why did you select the items you did? What would be your work-around for not having access to these tools?
Section 1.3 Activities

1. Study Skills/Group Activity: Jigsaw Sandwich

In groups, for homework or in the school kitchen, set up rotating sandwich ingredient stations (bread station, meat station, spread section, cheese station, vegetable/other station, etc.). These could be hypothetical stations with paper “ingredients” if necessary. Each group should determine the options offered at each station. Then, see what sorts of sandwiches could be created by assembling components from each station. Your group should create a table or chart for sandwich suggestions.

2. Activity: Sandwich Flowchart

Create a flowchart that illustrates the most efficient way to make a hot sandwich, such as the Monte Cristo, and a cold sandwich, such as a multi-decker club. Your chart should start with the initial prepping of main ingredients and progress to final assembly of the sandwich on the plate. Where would the components be, and how would they be arranged? How would you control temperatures? How much space would be required?

3. Critical Thinking: One-Cook Show

Imagine you are the sole owner and employee of a sandwich shop. Because you are the only one who can handle all the orders, you need a limited menu that you can serve efficiently. Your menu consists of four sandwiches: two hot sandwiches and two cold sandwiches. Obviously, since your menu is so small, the menu items must be of the best quality while also appealing to a broad range of people. What four sandwiches would you choose to put on your menu and why? Make sure to take into consideration such factors as preparation time, cost, taste appeal, trends, health and nutrition, etc.
At the beginning of the chapter, we mentioned that Kabob wanted to open for brunch. Miguel was very excited about the idea, but Chef Kate was more skeptical.

1. What can Kabob do to make sure the menu still has a healthful, nutritious look and appeal even though some breakfast item selections will necessarily present challenges toward that end?

2. What do you feel are the biggest obstacles and concerns in putting together a brunch menu?

3. Do you tend to agree more with Miguel’s optimism or Chef Kate’s skepticism in opening for brunch? Why?

4. What steps would you suggest they take to keep their costs down?

5. Before they even open their doors for brunch, what practical steps can they take to increase their chances of getting off to a fast start?
Apply Your Learning

Pricing a Sandwich

As with the price of any menu item, the price of a sandwich takes into account far more than just the ingredients. List all the different elements that go into the price of a sandwich. Then surf the Web for three popular sandwich shops and delis in your area to find the price of a basic cold turkey sandwich, a cold cheese sandwich, and a hot grilled chicken sandwich at each one. Is there a difference in price between the types of sandwiches? If so, what factors account for any differences you find? Is there a difference in the price of the same sandwich at different shops? If so, what factors might account for those differences?

The Many Faces of Pizza

Pizza used to be fairly standard fare: dough, tomato sauce, cheese, and maybe an additional topping or two. But in recent years, pizza has become one of the most versatile food items in the world. Research one specific aspect of this diverse food. Look into its origins, regional differences, sauces, toppings, latest trends, types of crust, cooking methods, etc. Then, write a report on what you find.

Green Eggs and Chem

Eggs have iron in the egg yolk, while the protein of the egg has some amino acids that contain sulfur. The sulfur is released during cooking. Free sulfur reacts with the iron to form a green compound called “iron sulfide.” When an egg is hard-cooked, the longer the egg simmers in the cooking water, the more sulfur is liberated. This drives the reaction and the greenish iron sulfide appears at the borders of the yolk. The discoloration can be avoided by using correct cooking times for the altitude, removing the eggs promptly to a pan of cold water, and peeling them as soon as they can be handled. Cook three hard-cooked eggs. Cook one exactly as recommended, and then move the egg to cold water. Cook another three minutes longer. Cook another the correct amount of time, but simply remove the pan from heat, leaving the egg in the hot water. After all three eggs have cooled, peel them and observe any differences in the color of the yolk.
Critical Thinking  
**Restaurants and Consumer Health**

What responsibility do restaurants have for the health of consumers? Some American cities have banned the use of trans fats in all restaurants. Food options and cooking methods, for breakfast foods in particular, can be very high-fat and high-calorie, especially short-order cooking with fat on the grill. Should nutritional information be provided alongside every menu item? If so, what information should be given? How should foodservice industry professionals balance the role of flavor, texture, and enjoyment of food when it might conflict with consumer health? For an example, consider a 1,000+ calorie egg, sausage, and hash brown breakfast.
## Exam Prep Questions

1. The purpose of pasteurizing milk is to
   A. kill pathogens.
   B. break down milkfat.
   C. add vitamins and minerals.
   D. prevent spoilage by sunlight.

2. Two nondairy milk options are
   A. rice and soy milk.
   B. skim and rice milk.
   C. soy and lactose-free milk.
   D. lactose-free and evaporated milk.

3. All milk products should be received and stored at what temperature?
   A. 41°F or lower
   B. 43°F or lower
   C. 47°F or lower
   D. 51°F or lower

4. What is the difference between ripened and unripened cheese?
   A. Ripened cheese is typically sweeter than unripened cheese.
   B. Ripened cheese is better for cooking than unripened cheese.
   C. Ripened cheese is aged with bacteria, while unripened cheese is fresh.
   D. Ripened cheese is processed and pasteurized, while unripened cheese is not.

5. Most recipes are based on what size of egg?
   A. Small
   B. Medium
   C. Large
   D. Extra large

6. Pooled eggs should be stored at
   A. 41°F or lower.
   B. 43°F or lower.
   C. 47°F or lower.
   D. 50°F or lower.

7. Baking is typically used in the cooking of which two types of eggs?
   A. Shirred eggs and soufflés
   B. Souffles and coddled eggs
   C. Poached and shirred eggs
   D. Scrambled eggs and omelets

8. The two traditional breakfast meats that hold the best for service are
   A. ham and bacon.
   B. fish and sausage.
   C. sausage and bacon.
   D. bacon and Canadian bacon.
What is the optimal water temperature for brewing coffee?

A. 175°F to 180°F
B. 185°F to 190°F
C. 195°F to 200°F
D. 210°F to 215°F

The two basic components of an efficient sandwich station are

A. bread and meat.
B. condiments and containers.
C. ingredients and equipment.
D. a refrigerator and a microwave.
Farmer-Style Omelet with Asparagus and Mushrooms

Yield: 10 servings

Ingredients

<table>
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<tr>
<th>Quantity</th>
<th>Ingredient</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 oz</td>
<td>Bacon, diced</td>
</tr>
<tr>
<td>10 oz</td>
<td>Onions, minced</td>
</tr>
<tr>
<td>20 oz</td>
<td>Mushrooms, sliced</td>
</tr>
<tr>
<td>10 oz</td>
<td>Asparagus, cooked and sliced</td>
</tr>
<tr>
<td>30 eggs</td>
<td></td>
</tr>
<tr>
<td>1 tsp</td>
<td>Salt</td>
</tr>
<tr>
<td>½ tsp</td>
<td>Ground black pepper</td>
</tr>
</tbody>
</table>

Directions

1. Render 1 ounce bacon in a small nonstick skillet until crisp.
2. Add 1 ounce of onions and 2 ounces of mushrooms. Sauté over medium heat, stirring occasionally until light golden brown, about 10–12 minutes.
3. Add 1 ounce of asparagus. Sauté until hot, 5 minutes or more.
4. Beat 3 eggs together and season them with salt and pepper to taste. Pour over ingredients in skillet and stir gently.
5. Reduce heat to low, cover skillet, and cook until eggs are nearly set.
6. Remove cover and place skillet under the broiler to lightly brown the omelet. Serve immediately on a heated plate.

Recipe Nutritional Content

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<th>Value</th>
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<tr>
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<td>Calcium</td>
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</tr>
<tr>
<td>Iron</td>
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</tr>
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<td>Vitamin A</td>
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<tr>
<td>Vitamin C</td>
<td>10%</td>
</tr>
</tbody>
</table>

Nutritional analysis provided by FoodCalc®, www.foodcalc.com
# French Toast

*Yield: 10 servings*

**Ingredients**

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Ingredient</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>Slices challah or brioche (¼ to ½ in thick)</td>
<td></td>
</tr>
<tr>
<td>1 qt</td>
<td>Milk</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Eggs</td>
<td></td>
</tr>
<tr>
<td>2 oz</td>
<td>Sugar</td>
<td></td>
</tr>
<tr>
<td>1 pinch</td>
<td>Ground cinnamon</td>
<td></td>
</tr>
<tr>
<td>1 pinch</td>
<td>Ground nutmeg</td>
<td></td>
</tr>
<tr>
<td>½ tsp</td>
<td>Salt</td>
<td></td>
</tr>
<tr>
<td>3 fl oz</td>
<td>Melted butter or vegetable oil</td>
<td></td>
</tr>
</tbody>
</table>

**Directions**

1. Lay slices of bread in single layers on sheet pans and allow to dry overnight, or in a 200°F oven for 1 hour.
2. Combine the milk, eggs, sugar, cinnamon, and nutmeg. Add salt, and then mix well with a whisk until smooth. Refrigerate until needed.
3. Heat a skillet or nonstick pan over medium heat and brush with a small amount of butter or vegetable oil.
4. Dip bread slices into batter, coating them evenly. Cook slices on one side until evenly browned, then turn and do the same thing on the other side.
5. Serve at once on heated plates.

NOTE: You may garnish with powdered sugar, cinnamon sugar, or berries, should you choose.

<table>
<thead>
<tr>
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<th>250 mg</th>
<th>Protein</th>
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Nutritional analysis provided by FoodCalc®, www.foodcalc.com
Open-Faced Turkey Sandwich with Sweet and Sour Onions
Yield: 10 servings

Ingredients

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<tr>
<th>Quantity</th>
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<tbody>
<tr>
<td>1 lb 4 oz</td>
<td>Onions, sliced</td>
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<tr>
<td>4 fl oz</td>
<td>Clarified butter</td>
</tr>
<tr>
<td>4 fl oz</td>
<td>Soy sauce</td>
</tr>
<tr>
<td>8 fl oz</td>
<td>Plum sauce (prepared)</td>
</tr>
<tr>
<td>4 fl oz</td>
<td>Water</td>
</tr>
<tr>
<td>½ tsp</td>
<td>Garlic powder</td>
</tr>
<tr>
<td>½ tsp</td>
<td>Ground ginger</td>
</tr>
<tr>
<td>½ tsp</td>
<td>Salt</td>
</tr>
<tr>
<td>¼ tsp</td>
<td>Ground black pepper</td>
</tr>
<tr>
<td>10 slices</td>
<td>White Pullman bread</td>
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<tr>
<td>2 lbs 8 oz</td>
<td>Roasted turkey, thinly sliced</td>
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<tr>
<td>20</td>
<td>Tomato slices</td>
</tr>
<tr>
<td>1 lb 4 oz</td>
<td>Swiss cheese, thinly sliced</td>
</tr>
</tbody>
</table>

Directions

1. Sauté the onions in clarified butter until translucent.
2. Add soy sauce, plum sauce, and water. Simmer until onions are fully cooked and dry.
3. Season with garlic powder, ginger, salt, and pepper to taste.
4. For each sandwich, spread some of the onion mixture on a slice of toast.
5. Cover with about 4½ ounces of turkey.
6. Spread additional onion mix over turkey.
7. Place 2 slices of tomato on top of onion mix, then cover with 2 ounces of Swiss cheese.
8. Bake in 350°F oven until sandwich is heated through and the cheese is melted.

Recipe Nutritional Content

<p>| | | | | |</p>
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Nutritional analysis provided by FoodCalc®, www.foodcalc.com
Chapter 2
Nutrition
Case Study **Eating Right**

Recently, more customers have been asking detailed questions about the menu items at Kabob. Servers are used to questions about ingredients, since many people have allergies. But these questions concern the nutrition content of the food. Are specific dishes heart healthy? Do they offer any strict vegetarian selections? Do they have vegan selections?

Miguel and Chef Kate agree that it might be a good idea to hire a nutrition consultant to help analyze and modify some of the recipes. Chef Kate simply doesn’t have the time to create all of the alternatives requested. So, Miguel also is thinking about purchasing some software to help Chef Kate create new, healthier menu items and vegetarian menu items.

As you read this chapter, think about the following questions:

1. Can some dishes meet multiple needs? For instance, can a dish be heart healthy, vegetarian, and vegan?
2. Can any of the popular dishes currently on the menu be easily modified to meet a vegetarian request?
3. Should Kabob redo the menu to indicate heart-healthy or vegetarian choices?
I always liked to cook and bake and loved trying new recipes. As I got older I became more health conscious. I worked in a test kitchen for a few years when I first graduated from college, after majoring in Foods in Business, which strengthened my culinary skills. I enjoyed the culinary path but also wanted to learn more about nutrition and how to eat well and help others do the same. After my job in the test kitchen, I went back to school for a degree in nutrition—a B.S. in human nutrition and dietetics. This helped link my interests in food and nutrition and started me on my current career path.

My career started out in a test kitchen developing recipes. This was a great first job and it helped to develop my culinary skills. But I wanted my career to have a health focus. After I graduated with a degree in nutrition and dietetics, I realized my education had prepared me for a job in clinical dietetics, which I knew wasn’t the right fit for me. I wanted to incorporate the knowledge I had gained about nutrition in the food industry. And I also wanted to be my own boss.

Laura started her career in the test kitchens of The Pampered Chef working as a Certified Home Economist developing recipes and cookbooks.

But I knew that before opening my own business I needed experience to build my skill set and help me figure out my strengths and weaknesses. So, I started working on weekends as an outpatient dietitian to keep up my clinical skills while working full-time in a nontraditional job in the dietetics field.

I worked very hard at jobs I didn’t really like that much. But I knew that they were just part of the plan. I gained invaluable experience, and that is what I needed to run my own business.

Looking back on my path, I am thankful I took each of these jobs seriously even though they weren’t my dream jobs. I always gave 100 percent because I knew that these were building blocks to get me to where I wanted to be.

Remember to always try your best—whether you are washing dishes, taking orders, or doing any job. You just never know who you may meet or what skill you might develop along the way. My earlier jobs were not ideal for me, but they helped me develop a varied skill set, learn how to interact with others, and make a lot of contacts along the way. This has served me well in my business. I would certainly not be where I am today without the experience of yesterday.
SECTION 2.1 THE BASICS OF NUTRITION

What is food? People often think of food as a way to satisfy their hunger or give them pleasure. But food also provides the body with essential nutrients for energy. Without these nutrients, the body would not be able to function. In the restaurant and foodservice business, having a basic knowledge of proper nutrition and its importance will help in giving customers food that tastes good and is good for them.
Study Questions

After studying Section 2.1, you should be able to answer the following questions:

■ Why is nutrition important to the restaurant and foodservice industry?
■ What are the six basic types of nutrients found in food?
■ How do phytochemicals and fiber function in the body?
■ What role do carbohydrates have in people’s diets?
■ What is the role of fats in people’s diets?
■ What is the role of proteins in people’s diets?
■ What is the role of vitamins and minerals in people’s diets?
■ What is the role of water in people’s diets?
■ What are food additives and how do they function in food?
■ What is the role of digestion in nutrition and health?

The Importance of Nutrition

After restaurant and foodservice employees learn about nutrition, they can begin to plan menus and recipes that incorporate nutrition principles and meet customers’ expectations for healthy, tasty cuisine. People need certain nutrients on a regular basis to maintain health and prevent disease. The roles of the different types of nutrients vary. The body needs nutrients to do the following:

■ Provide energy
■ Build and repair cells
■ Keep the different systems in the body working smoothly, such as breathing, digesting food, and building red blood cells

Nutrition is the study of the nutrients in food and how they nourish the body. Nutrients are components of food that are needed for the body to function. After consuming nutrients, people digest, absorb, transport, and use them to build and maintain the body. People receive nutrients almost entirely through the food they eat.
Did You Know…?
Daily metabolism issues are primarily those concerning carbohydrates (CHO) and water. Protein and fat also contribute to daily, even hourly, management of blood sugar. Water-soluble vitamins are needed daily, but not for survival. A day without vitamin C will not be risky if it isn’t the norm. But we do need CHO and water on a daily basis to stay healthy.

Everyone needs to receive nutrients on a regular basis and in the correct amounts. This does not have to occur at each meal. It can happen over a period of time, such as several days or a week. Malnutrition is caused by a lack of nutrients or an imbalance of nutrients. Malnutrition can lead to the following:

- Decreased energy
- Developmental problems
- Decreased focus
- Long-term disease
- Death

Nutrients Provide Energy
Eat the nutrients that provide energy (fat, carbohydrate, and protein) in balance with energy demands every day. Bodies are constantly burning fuel and need a steady supply. Not enough fuel, and the body burns muscle for fuel. Too much, and the body stores fat. Also, drink an adequate supply of water daily. Dehydration can be dangerous. Provide the other nutrients (vitamins, minerals, and fiber) adequately over a longer period. Eat well every day, but recognize that the body can store some vitamins and minerals for later use. Too long without a particular nutrient, and problems will begin.

What people eat is usually a matter of choice. Most people in the United States eat food from a restaurant or foodservice operation at least five times a week. Almost all Americans depend on restaurant and foodservice operations for some of their meals. As a result, restaurant and foodservice professionals supply at least some of the nutrients that people need. To do this well, they need to understand the nutritional needs of their customers. This allows restaurant and foodservice professionals to help their customers follow a balanced, nutritious diet plan. However, no one can force their customers to choose food wisely and balance their diets. Each person has the responsibility to make smart food choices. The good news is that today’s operations can and often do provide menu items that make balanced, nutritious choices possible. Figure 2.1 on the following page shows a family dining together at a casual foodservice operation. It is important to be well nourished emotionally as well. Family dinner is one way to provide this, either at home or in a restaurant.
Increasingly, restaurants are adding more options that fit into a healthy lifestyle. Some restaurants use marketing to highlight the nutrients in their meals. “Low calorie,” “heart healthy,” “low fat,” “high fiber,” and “low sodium” are all examples of some of the claims a restaurant and foodservice operation might make about a menu item.

![Figure 2.1: Families can get nutritious, healthy meals at foodservice operations.](image)

**Heart-Healthy Menu Symbols**

The American Heart Association can certify products that provide fewer than 3 grams of fat, less than 1 gram of saturated fat and fewer than 20 milligrams of cholesterol per serving. A product with a heart-check designation must be consistently reliable to meet these criteria.

Customers also want food that is aromatic, colorful, and flavorful. They need nutritious food, but they don’t want to compromise taste. Healthful, fresh food filled with nutrients is a feast for both the eye and the palate. When restaurant and foodservice professionals understand how to combine nutrition science and culinary arts, they are able to provide food that is both delicious and healthful. Nutritious cooking also sells well when it looks and smells appetizing.

The opportunities for providing nutritious, tasty menu selections will only continue to grow. This may, however, require some operational adjustments.
An operation must balance processes that help provide healthier options with the need to make a profit. For example, an operation that decides to switch from canned fruit and vegetables to fresh items might need to do the following things:

- Increase refrigerated storage space
- Schedule more frequent deliveries
- Add equipment, such as a steamer
- Hire another employee to help with prep

Sales can increase when an operation provides healthier options, but management must also consider the costs to make sure the dishes will still make a profit.

Scientific knowledge continues to grow as scientists learn more about food and nutrition. Each advance has changed the way people look at food, not only for pleasure, but for good health. It is challenging to follow advances in nutrition, but it is necessary. Understanding and staying current on the latest nutrition principles will help you to meet the growing demands of customers for healthy, tasty food. Relying on reputable information sources and resources can help avoid confusion as nutrition science continues to evolve.

**Nutrients**

There are six basic categories of nutrients that are important to the body:

- Carbohydrates
- Lipids (fats)
- Proteins
- Vitamins
- Minerals
- Water

All six groups are necessary for good health, and all must work as a team. Each nutrient plays an essential role. Each individual is his or her own nutrition coach and must choose the food that will provide all the nutrients his or her body needs. If just one nutrient category is missing in a day, the rest of the team cannot work properly. Figure 2.2 shows the six major nutrient categories.
Other important substances are in food, including fiber and chemical substances called phytochemicals. Fiber promotes digestive health and regularity. It is found in plant food, such as whole grains, fruit, vegetables, nuts, and legumes.

Phytochemicals (also known as phytonutrients) are chemicals that aid the body in fighting or preventing diseases. Phytochemicals can be identified by the color pigment they provide to certain types of food, such as the anthocyanins in blueberries.

Nutrients, phytochemicals, and fiber are found in food items in different amounts. No food contains all the nutrients that people need. People who want to be well nourished must eat a diet with a large variety of food items. Figure 2.3 shows a variety of fresh, colorful fruits and vegetables.

Keeping Purple Food Purple
Get ready for a new word—anthocyanins (an tho-SI-a-ninz). Cyan, part of the word, means “blue.” These are naturally occurring blue nutrient chemicals in a group called phytochemicals. Phytochemicals are nonnutritive plant chemicals that have protective or disease-preventing properties. Many of the bright purple, red, yellow, orange, and green colors of fruits and vegetables are caused by phytochemicals. Eating lots of fresh, colorful produce can ensure that you receive plenty of these phytochemicals.

Not too many foods are actually “blue;” even blueberries are sort of purple. Most anthocyanin foods are purple. They are also subject to change depending upon handling. When cooked in a mild acid, they turn magenta pink. When cooked in a mild alkali, they turn very blue and even can go turquoise. Try soaking a little cooked red cabbage in either vinegar or baking soda-water solution and see what happens. Take care to avoid anything alkaline in the preparation of anthocyanin foods, or they will lose their pretty purple color.

Carbohydrates
Carbohydrates are the body’s main energy source. They help the body use protein and fat efficiently. Sugar, starch, and fiber are the main forms of these
carbohydrates. Carbohydrates, except fiber, provide the body with 4 kilocalories of energy per gram of food eaten. A kilocalorie is the energy needed to heat 1 kilogram (about 2.2 pounds) of water by approximately 39°F. In nutrition, the unit of measurement for energy is the kilocalorie, but it is more commonly called a calorie. In addition to calories, carbohydrate food items add vitamins, minerals, and fiber to the diet.

Some examples of foods that are good sources of carbohydrates are following:

- Pasta
- Rice
- Tortillas
- Cereal
- Baked potato
- Honey
- Table sugar

Figure 2.4 is a graphic of a long, branched carbohydrate molecule of starch.

**Figure 2.4:** The branched carbohydrate molecule helps make up rice, wheat, and corn, which are the major sources of starch in the human diet.
Did You Know...?

The number of calories per pound is 3,500. This is for a pound of stored body fat. Not all flesh on a human body is fat. Water, muscle, bone, and other tissues comprise most of a healthy, non-obese person’s body weight.

If a person consumes 3,500 more dietary calories than the body needs for energy, the body stores it as one pound of fat. To lose the pound of fat, the body must burn all the food eaten plus a few other things, and then go after the fat stores—3,500 calories worth. Losing this pound won’t happen overnight no matter how badly a person wants to lose it.

The two types of carbohydrates are simple carbohydrates and complex carbohydrates. Carbohydrates are differentiated by their chemical structure. Figure 2.5 shows examples of simple and complex carbohydrates.

**Simple Carbohydrates**

Simple carbohydrates contain one or two sugars. Sugars are called simple carbohydrates because their chemical structure is relatively simple compared to starch and fiber, which are complex carbohydrates. Sugars are found in fruit, milk, and the simple carbohydrates that are used in the kitchen or bakery, such as white sugar, brown sugar, molasses, and honey. Simple carbohydrates are digested and absorbed quickly. They provide a short burst of energy.
Glucose is a very important simple sugar. It is the primary source of energy. It's also the only source of energy for the brain and nervous system. Good sources of glucose are fruit, vegetables, and honey. Figure 2.6 is a graphic of glucose and sucrose.

![Glucose and Sucrose](image)

**Figure 2.6a:** Glucose, also known as monosaccharide, has this molecular structure.  
**Figure 2.6b:** Sucrose, also known as disaccharide, has this molecular structure.

### Everyone Likes Sugar!
Glucose is the source of energy for all animals. Even bacteria use glucose to meet their requirements. Ants are attracted to table sugar. Roaches want to feed on crumbs of bread. Weevils want pasta and flour. Bacteria will ferment juices to alcohol or vinegar. These organisms are competing with humans (you!) for glucose.

Don't let them win in the commercial kitchen:
- Store starch and sugar foods properly so that the competition does not get a chance.
- Keep shelves and cupboards clean and free of crumbs.
- Keep sugar, flour, and other carbohydrate foods in covered and closed containers.
- Keep opened juices refrigerated or frozen.
- Store food in the storeroom at least 6 inches off of the floor.

### Hormones
Hormones are special chemical messengers made by bodies that regulate different body functions. The digestive process is not possible without a hormone called insulin, which is produced in the pancreas. It allows glucose, or blood sugar, to travel throughout the body for energy use. Problems with insulin production and blood sugar levels can be symptoms of diabetes or other diseases that put stress on the body, causing weakness and fatigue.

### Complex Carbohydrates
Complex carbohydrates contain long chains that include many glucose molecules. They are found in plant-based foods such as grains, legumes, and
vegetables. They provide a long-lasting source of energy. Complex carbohydrates take longer to digest than simple carbohydrates. Good sources of complex carbohydrates include the following:

- Dry beans and peas
- Starchy vegetables, such as potatoes and corn
- Rice
- Grits
- Pasta
- Oatmeal
- Cornmeal
- Breads and cereals

Starch is also found in some fruit, such as bananas. To maintain good health, it is important to eat lots of complex carbohydrates every day.

Fiber is found only in plant food along with starch and sugar. It is the part of the plant that cannot be digested by people. Because it cannot be broken down, fiber is not absorbed in the intestines and is eliminated. Fiber is a chemical cousin to complex carbohydrates, but cannot be digested for energy needs. High-fiber food includes bran, legumes, fruit, vegetables, and whole grains. Like nutrients, dietary fiber is essential for good health. The two types of fiber each provide a valuable function:

- **Soluble fiber** dissolves in water. When we eat foods that contain soluble fiber, we feel full for a longer time. Soluble fiber also slows down the release of sugar into the blood and helps lower cholesterol levels in the blood.

- **Insoluble fiber** does not dissolve in water. It was once referred to as roughage (RUFF-ij) because it is rough. It acts like a stiff broom to clean and scrub the digestive tract so we can eliminate wastes from our systems more easily.

Figure 2.7 shows an array of high-fiber foods.

**Figure 2.7:** High-fiber foods include celery, wheat, oats, and apples.
Although in recent years carbohydrates have been identified as the source of many people’s weight problems, this is not entirely true. Most people shouldn’t fear carbohydrates as a food category. If a person uses all of the energy from the calories he or she eats, it’s unlikely that the person will gain weight when eating normal amounts of carbohydrates. Excess calories from all nutrient sources and a lack of exercise are the actual causes in weight gain.

**Lipids**

*Lipids* is another word for fat. Lipids are a group of molecules that include fats, oils, waxes, steroids, and other compounds. Many people want to reduce the amount of fat in their diets, although a certain amount of fat is needed for good nutrition. Fat usually refers to both fats and oils, although basic differences exist between the two. Fats are solid at room temperature and often come from animals. Oils are liquid at room temperature. Fat is an essential nutrient with many functions, including the following:

- Carrying vitamins A, D, E, and K through the body
- Cushioning the body’s vital organs
- Protecting the body from extreme temperatures
- Providing a reserve supply of energy (when the body stores it)
- Supplying nutrients called essential fatty acids, such as omega 3-fatty acid (linolenic) and omega-6 fatty acid (linoleic)

The three types of fatty acids are the following:

1. Saturated
2. Monounsaturated
3. Polyunsaturated

All fat in food is made up of different combinations of the three types of fatty acids. Some foods have no saturated fats. If a food contains mostly saturated fatty acids, it is considered a saturated fat. If a food contains mostly polyunsaturated fatty acids, it is a polyunsaturated fat. Animal fats generally are more saturated than liquid vegetable oils. Food such as seafood, poultry, and meat contain saturated fats. Polyunsaturated and monounsaturated fats are found in vegetable oils and foods such as peanuts, olives, and avocados. Figure 2.8 on the following page shows examples of the different types of foods with fatty acids.
Essential fatty acids are just a few specific ones that are required for good nutrition. They are used to make substances that regulate vital body functions, such as blood pressure, muscle contraction, blood clotting, and immune responses. They are also needed for normal growth, healthy skin, and healthy cells.

Oxidation is a chemical process that causes unsaturated fats to spoil. Heat, light, salt, and moisture help speed up oxidation. It is best to store fats and oils in tightly closed containers kept in a refrigerator or a cool, dark place.

Cholesterol is a white, waxy substance that helps the body carry out its many processes. Cholesterol is made in the liver. It's an important part of all cell membranes and is found in large amounts throughout the nervous system. In the body, cholesterol also helps to make substances such as bile acids, vitamin D, and hormones. Cholesterol is a natural component of the body. People don’t need it in the food they eat.

Cholesterol is found only in animal foods such as egg yolks, dairy products, meat, poultry, seafood, liver, and other organ meats. Although cholesterol is essential for body functions, high levels of cholesterol in the blood are linked with heart disease. The greatest concern with cholesterol is absorbing extra amounts from the diet into the bloodstream.

Trans fatty acids are the result of taking a liquid fat and making it solid. This is achieved through a process called hydrogenation. Hydrogenation of fats alters their physical properties and makes them stay fresh longer. This is beneficial from a merchandising standpoint. Hydrogenation also increases the smoking point, which makes these fats suitable for frying. The disadvantage of hydrogenation is that it may be more harmful to a person’s health than saturated fats in relation to the development of heart disease. Processed food, especially baked goods, can be sources of trans fat. Table 2.1 on the following page shows food sources of fats and cholesterol.
### Table 2.1: Food Sources of Fats and Cholesterol

<table>
<thead>
<tr>
<th>Type of Fat</th>
<th>Food Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Saturated fat</td>
<td>Meat, poultry, fish, dairy products, butter, lard, palm oil, palm kernel oil, coconut oil</td>
</tr>
<tr>
<td>Monounsaturated fat</td>
<td>Olive, canola, peanut, avocado, and nut oils</td>
</tr>
<tr>
<td>Polyunsaturated fat</td>
<td>Safflower, sunflower, soybean, corn, cottonseed, and sesame oils and fish oils</td>
</tr>
<tr>
<td>Cholesterol</td>
<td>Egg yolk; liver and other organ meats such as brains, kidneys, and tongue; whole milk and whole milk cheeses; cream; ice cream; butter; meat; poultry; fish; and some shellfish</td>
</tr>
</tbody>
</table>

### Saturated Fat and Unsaturated Fat

Fats are long molecules made of carbon and hydrogen. Long chains of carbon and hydrogen are called "hydrocarbons." Hydrocarbons exist in automobile fuel, but people don't often think about them in the oils and fats they eat. However, it is the same type of molecule. A lot of energy is stored in carbon chains. Fats are an important part of a healthy diet.

When hydrogen exists in every single place on the chain, it is "saturated fat" and is solid at room temperature. Remove one hydrogen atom or more, and it becomes "unsaturated" and more flexible.
Most food sources of fat have a mixture of both kinds, unless they have been specially prepared to exclude one. For example, no saturated fat exists in polyunsaturated liquid vegetable oil. But, both kinds of fat occur in salmon, butter, or steak. Most fats from animal sources are saturated. Most fats from vegetable sources are not.

Health-wise, saturated fats can take a toll on the heart. It’s best to limit the use of these fats. Unsaturated fats are usually better. But the bottom line is that a high-fat diet is not healthful for most people. Reducing total dietary fat is a good strategy. Increasing unsaturated fats while decreasing saturated fats within the lower-fat target are additional positive strategies.

**Protein**

**Proteins** are another class of nutrients that can supply energy to the body. They are needed to build new cells and repair injured ones. Proteins provide the building blocks, in the form of amino acids, that the body uses for a variety of things, including muscles, tissues, enzymes, and hormones. Proteins are large complex molecules that contain long chains of amino acids. If used for energy, proteins can provide four calories of energy per gram to the body.

**Did You Know...?**

Most Americans eat much more protein than their bodies actually need. Most healthy adults need about 50 milligrams a day (a little less for women, a little more for men). That is roughly the amount in one 6-ounce cut of meat. There are 6 grams of protein in a single egg, 8 grams in a cup of milk, 28 in a 3-ounce (small) portion of meat. Any extra protein the body doesn’t need in a day is stored as fat, not as muscle.

**Amino acids** are chemical compounds that have special functions in the body. One of the primary functions of amino acids is to supply nitrogen for growth and maintenance. Amino acids also maintain fluids, keep the body from getting too acidic or basic, and act as transporters when in the form of lipoproteins (molecules combining a lipid and a protein). Twenty amino acids can be found in food. Only nine of them, known as **essential amino acids**, have to be obtained from food each day. The others can be made by the body.
Proteins can be found in large quantity in meat, eggs, cheese, beans, nuts, legumes, and milk. Vegetables and grains also contain protein. Vegetarian customers may want diets that draw mostly or solely from these vegetables and grains. Figure 2.9 shows protein sources.

Skin, hair, nails, muscles, and tendons are all made of protein. When tissues are destroyed—for example, when someone gets burned, has surgery, or has an infection—more protein than usual is needed. Extra protein is also required during pregnancy and times of physical growth.

Did You Know…?

About one-fifth of your body’s total weight is protein. Some of the body parts that are protein-based include muscle, brain cells, skin, hair, and nails. Interestingly, the human body can’t store protein. It has to be supplied on a daily basis from the foods we eat.

Complete proteins are called complete because they contain all the essential amino acids in the right amount. Good sources of complete proteins are meat, poultry, fish, eggs, and dairy products.

Incomplete proteins lack one or more of the essential amino acids. Foods from plant sources are incomplete proteins. Dried beans, dried peas, grains, and nuts have more protein than other vegetables and fruits. To get complete proteins from plant food, combine them with other food. For example, combine cooked dry beans or peas with a grain product (such as lentils and rice), or combine a plant food with an animal protein (such as macaroni and cheese).

Complementary proteins are two or more incomplete protein sources that together provide adequate amounts of all the essential amino acids. Examples of complementary proteins include peanut butter sandwich, macaroni and cheese, tofu with rice, and beans and tortillas.
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**Complementary Proteins in Traditional Cuisines**
Long before vegetarianism was a personal philosophy in the United States, ancient cultures the world over discovered complementary proteins. To have meat and animal products required a successful hunt, which didn't always happen. The rest of the time, protein needs were met by combining vegetable (crop) foods—beans and corn, peanut butter and bread, soy and anything. All of the necessary amino acids for protein needs must be eaten at the same meal to be useful. However, this does not mean they need to be eaten in the same food.

**Vitamins and Minerals**

Vitamins and minerals help in growth, reproduction, and the operation and maintenance of the body. In addition, certain minerals, such as the calcium in bones, provide some of the body’s structure.

Without the right amounts of vitamins and minerals, people may become deficient and develop deficiency-related diseases. Food should be the primary source for vitamins and minerals. If this isn’t possible, a vitamin-mineral supplement may be helpful. However, too great an amount of a vitamin can be toxic.

**Vitamins** are chemical compounds found in food. They’re needed for regulating metabolic processes, such as digestion and the absorption of nutrients. They are essential for life. Vitamins must be obtained from food because the human body makes insufficient amounts or, in some cases, none at all. The amounts of vitamins and minerals needed by the body are very small when compared to its need for carbohydrates, proteins, and fats. However, vitamins help carbohydrates, proteins, fats, and minerals to work properly. The two types of vitamins are water soluble and fat soluble. Water-soluble vitamins mix only with water, and fat-soluble vitamins mix only with fat:

- **Water-soluble vitamins** (vitamins C and B) are found in food such as oranges and grapefruit. The body needs these vitamin sources every day. These vitamins are vulnerable to cooking and may be destroyed by heat or washed away by steam or water.

- **Fat-soluble vitamins** (vitamins A, D, E, and K) are found in food containing fat. They’re stored in the liver and body fat. The body draws on these stored vitamins when needed.

Figure 2.10 on the following page shows water-soluble and fat-soluble vitamins.
Minerals are classified as major or trace, according to how much is needed in the diet. Some examples of major minerals are calcium, phosphorus, potassium, sodium, and magnesium. Calcium and phosphorus help build strong bones and teeth. Potassium and sodium are needed for maintaining the body’s water balance. Iron, copper, zinc, and iodine are examples of trace minerals. Although they are as important as major minerals, only tiny amounts of trace minerals are required. Iron is essential for replenishing red blood cells. Even though some minerals are needed in very tiny amounts, getting the right amount is important to good health. Minerals are part of body structures and are also needed for body functions.

Vitamins work as chemical keys or triggers for body functions. Some of these involve a body’s energy. Vitamins do not provide any energy. The sources of energy, or calories, are carbohydrate, protein, and fat. In addition to all the other things vitamins do, they also help the body to use energy from food as fuel.

How much energy do carbohydrate, protein, and fat supply? Here is the breakdown:

- One gram of carbohydrate = four calories
- One gram of protein = four calories
- One gram of fat = nine calories

Did You Know…?

Early British sailors were called “limies” because they ate limes on board their ships. Eating limes, which are high in vitamin C, helped prevent scurvy, a disease caused by a lack of vitamin C. Scurvy produces spongy, bleeding gums, bleeding under the skin, and weakness and fatigue. Fresh fruit was not plentiful on ships, so sailors were very susceptible to this disease.
Water

Water is an essential nutrient, and its importance is often overlooked. Water is essential to all forms of life. People can’t live without it. See Figure 2.11. About 55 to 65 percent of the human body is water by weight. It enables a tremendous number of chemical reactions in the body to take place. Cells, tissues, and organs need water to function.

Did You Know…?

How much water should a person drink every day? Young adult males need 13 cups of fluid; young adult females need 9 cups of fluid. The remaining amount the body needs comes from food. Although all beverages count toward this fluid intake, make smart choices about what to drink, such as water or milk.

Water has many important roles, including the following:

- Helping with the digestion, absorption, and transportation of nutrients
- Helping with the elimination of wastes through the kidneys, colon, and lungs
- Distributing heat throughout the body and allowing heat to be released through the skin by evaporation (sweating)
- Lubricating joints and cushioning body tissues

Besides water itself, other beverages and some types of food (such as fruits and vegetables) contain water. The human body can live a long time without many other nutrients, but only a few days without water. As you can see, offering customers a cold glass or bottle of water is more than just a courtesy; it is important for their health.
Caffeinated Beverages

Although no “bad foods” exist—meaning everything can fit into a healthy diet plan if the serving sizes are appropriate—an alarming trend has occurred. The water craze of a few years ago (highly profitable, by the way) is giving way to an increase in caffeinated beverages, even caffeinated water. Caffeine has a diuretic effect, which causes the body to shed water through the urine, meaning more work and stress for the kidneys. Caffeine is addictive, so once introduced, the person can become dependent. In addition to being habit forming, it is also thirst forming, defeating the purpose of the beverage.
The Digestive System

Digestion is the process of breaking down food into its simplest parts so that it can be absorbed. It is carried out by the digestive system, which starts at the mouth and ends at the anus. Figure 2.12 shows the digestive system.

Start chewing food, and digestion begins in the mouth. The teeth grind it into smaller pieces and mix it with saliva. Swallow the food, and the stomach breaks it down with the aid of enzymes and acids, turning it into a fluid called chyme (KIME). The chyme moves to the small intestine, where the majority of digestion and absorption of nutrients occurs. Other organs help to digest the nutrients fully. For example, bile from the gall bladder helps to break down fats into fatty acids.

As the digestive system sends the nutrients to parts of the body to be used, the wastes of digestion are sent to the large intestine. The large intestine absorbs water and stores feces for elimination through the colon and anus.

The absorption of nutrients needed by the body is what nutrition is really about. Now you can see why people say, “You are what you eat.”

Food Additives

A food additive is a substance or combination of substances present in food as a result of processing, production, or packaging. An additive is a chemical, just as nutrients are chemicals. Many additives occur naturally or are extracted from food. For example, carotene (a form of vitamin A), which is used as a yellow food coloring, contains orange or red crystalline pigments found in plants.

Other additives are synthetic, but chemically identical to natural substances. For example, ascorbic acid (identical to vitamin C) is used as an antioxidant to prevent certain fruit from becoming brown when exposed to air.

Food additives include familiar ingredients such as salt, baking soda, vanilla, and yeast. However, most people tend to think only of other chemicals added
to food items as additives. All food additives are carefully regulated by the Food and Drug Administration.

Food additives perform many functions in food:

- Improve flavor, color, and texture
- Retain nutritional value
- Prevent spoilage
- Extend shelf life

Some of these additives perform functions that are often taken for granted. Because most people no longer live on farms, additives help keep food wholesome and appealing during transport to markets. Without additives, many food items would be less attractive, less flavorful, less nutritious, more likely to spoil, and more costly. Without them, people would not enjoy a variety of safe and tasty food items year-round, and many convenient food items would not be available.

**Did You Know...?**

The Food and Drug Administration of the United States compiles and maintains a list of food additives called the GRAS list. GRAS is an acronym for “Generally Recognized As Safe.” It is the work of the FDA’s Center for Food Safety and Applied Nutrition and governs preservatives, colors, flavors, conditions, thickeners, stabilizers, and artificial sweeteners. The database has been expanded to include “Everything Added to Food in the United States” (or EAFUS) and includes more than 3,000 ingredients. The safety of additives is determined scientifically to protect the U.S. population from harm. Individuals may still have sensitivities and allergies to any food component.

**A Healthy Diet**

According to the Dietary Guidelines for Americans, a healthy diet should have the following:

- An emphasis on fruits, vegetables, whole grains, and fat-free or low-fat milk and milk products
- Lean meats, poultry, fish, beans, eggs, and nuts
- Low amounts of in saturated fats, trans fats, cholesterol, salt (sodium), and added sugars

In the United States, nutrition professionals use standards and guidelines to teach people about and help them achieve a healthy diet. **Dietary Reference Intakes (DRIs)** are recommended daily nutrient and energy intake amounts.
(that is, what a person needs to consume) for healthy people of a particular age range and gender. They are the guides for nutrition and food selection.

Two important Dietary Reference Intakes are Recommended Dietary Allowances (RDAs) and Adequate Intakes (AIs). **Recommended Dietary Allowances** are daily nutrient standards established by the U.S. government, the average daily intakes that meet the nutrient requirement of nearly all healthy individuals of a particular age and gender group. The nutrients recommended are protein, eleven vitamins, and seven minerals. **Adequate intakes** are similar to RDAs. They also identify daily intake levels for healthy people. AIs are typically assigned when scientists don’t have enough information to set an RDA.

### Vegetarian Diets

People choose to eat vegetarian diets for many reasons, including the following:

- Religious beliefs
- Concern for the environment
- Economics
- Health considerations
- Animal welfare factors
- Ethical considerations related to world hunger issues

A **vegetarian** is a person who consumes no meat, fish, or poultry products. The different types of vegetarians include **lacto-vegetarians**, who consume vegetarian items plus dairy products, and **lacto-ovo-vegetarians**, who consume vegetarian items plus dairy products and eggs. A **vegan** follows the strictest diet of all and will consume no dairy, eggs, meat, poultry, fish, or anything containing an animal product or byproduct. They consume only grains, legumes, vegetables, fruit, nuts, and seeds.

A vegetarian diet can meet all nutrient requirements. Vegetarians need to eat a varied diet that includes enough calories to maintain weight. Most vegetarian diets have less fat, less cholesterol, and more fiber because no meat is included in the diet. Because vegans do not eat any animal-based foods and there are no natural plant sources of vitamin B, vegans need to supplement their diet with a source of this vitamin.

### Dietary Guidelines for Americans

**The Dietary Guidelines for Americans 2005** is a document published jointly by the Department of Health and Human Services and the USDA. This report offers science-based advice for healthy people over the age of two about food
choices to promote health and reduce risk for major chronic diseases. Like the recommended dietary allowances, these dietary guidelines apply to diets eaten over several days, not to single food items or meals.

If you do not follow a healthy diet, a number of conditions might occur.

**Diseases Caused By Malnutrition**

Malnutrition is a condition that occurs when a body does not get enough nutrients. It can result from not having enough of the right food or from making poor food choices, including eating too much food. Food insecurity, for example, is when circumstances do not allow people to get enough food to meet their nutritional needs. Major causes of disease and death in the United States are related to poor food choices and not getting enough exercise.

**Obesity**

Overweight and obesity are health problems that people can overcome with an improved diet and exercise plan. A person who is **overweight** or **obese** has a weight that is greater than what is generally considered healthy. These terms also identify ranges of weight that have been shown to increase the likelihood of certain diseases and other health problems. Figure 2.13 shows the growth of obesity rates in the United States.

Teen and childhood obesity continues to grow at an alarming rate. According to the U.S. Centers for Disease Control and Prevention (CDC), about 16 percent of U.S. children and teens, aged 6 to 19, are obese.

**Osteoporosis**

Osteoporosis is a condition in which the bones gradually lose their minerals and become weak and fragile. See Figure 2.14 on the following page. It is more prevalent in Asian and Caucasian women, although men can also get the disease. Factors that contribute to development of this disease include inadequate sources of calcium and vitamin D, heredity, lack of exercise, being underweight, and smoking.
Young adults have the ability to prevent osteoporosis. They can build strong bones and reach peak bone density by getting adequate sources of calcium and vitamin D and exercising daily.

**Bone Density**

The teen years through age 18 are the best time to make strong bones. The strength of bones depends upon their density. Density depends upon the amount of calcium held in a bone's protein framework. Calcium comes from the diet. Although other processes are involved, eating enough calcium during the teen years develops bones that will remain stronger all life long. Ninety-two percent of bone mass is present by the time you turn 19.

That said, calcium is continually replaced and recycled in those bones throughout your whole life. Therefore, it is important to eat enough calcium throughout the entire life cycle.

**Iron-deficiency Anemia**

Iron-deficiency anemia is a lack of iron in a person's blood. It is often caused by eating a diet poor in iron or having problems with absorption. Meat, fortified grains, eggs, and milk are products rich in iron. Iron-deficiency anemia causes weakness, irritability, headaches, pale skin, and sensitivity to cold temperatures. It is more common in women and children than men, and is a common condition in the world.
Eating a proper diet with foods high in iron and taking an iron supplement are ways to treat iron-deficiency anemia.

**Dental Cavities**

Tooth decay is a predisposition to cavities that can be caused by high-sugar diets and poor dental care. Dental fluoride treatments and fluoride in the water or in a supplement can help strengthen teeth.

**Cardiovascular Diseases**

**Cardiovascular diseases** affect the heart and blood vessels. They include hypertension, strokes, and heart attacks. Collectively, they are the number one cause of death in the United States. Risk factors for cardiovascular disease include the following:

- A sedentary lifestyle
- Smoking
- Overweight and obesity
- High cholesterol
- High saturated/trans-fat diets
- Diabetes

To decrease your risk for cardiovascular diseases, you should do the following:

- Stop smoking.
- Eat a healthy diet.
- Reduce blood cholesterol.
- Lower high blood pressure.
- Be physically active every day.
- Maintain a healthy weight.
- Manage diabetes.
- Reduce stress.
**Good and Bad Cholesterol**

LDL, low-density lipoprotein, is the “bad” cholesterol. When too much LDL circulates in the blood, it slowly builds on the inner walls of the arteries that feed the heart and brain. It then forms plaque, which are hard, thick deposits that narrow and irritate the arteries. If the plaque clots and blocks the artery, a heart attack or stroke is possible.

To decrease LDL, minimize intake of saturated fats and trans fat. Include foods with soluble fiber, soy proteins, omega 3-rich foods (salmon, fish oils, flaxseed), and garlic into your diet. Also, maintain a healthy weight and active lifestyle.

HDL, high-density lipoprotein, is the “good” cholesterol. HDL takes excess cholesterol away and carries it back to the liver to be excreted. High levels of HDL protect against heart attacks. Low levels of HDL increase the risk of heart disease. To maintain high levels of HDL, stay active, quit smoking, include omega 3-rich foods in your diet, and reduce total fat intake to less than 30 percent.

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**Diabetes Mellitus**

*Diabetes mellitus* is a condition in which the body cannot regulate blood sugar properly. Diabetes is on the rise in the United States. According to the Centers for Disease Control, approximately 23.6 million people, or 7.8 percent of the population, have this disease. Diabetes is treatable with diet, physical activity, and medication. If untreated or poorly treated, it can lead to blindness, seizures, kidney failure, heart disease, amputation of limbs, coma, and death.

Although not always the cause, obesity is a major contributor to both the incidence and severity of diabetes symptoms. Maintaining a healthy body weight through good nutrition and exercise is the best strategy for controlling the risk of diabetes. People who are diagnosed with diabetes should manage their dietary carbohydrates with the help of a registered dietitian in their clinic or hospital. They must also properly use their diabetes medications under the direction of their physician.

**Cancer**

Scientists are studying the role of nutrition in cancer prevention and treatment. The American Institute for Cancer Research believes obesity increases the likelihood of developing the following cancers:

- Breast
- Colon
- Endometrial (also known as uterine)
- Esophageal
Kidney
Prostate

To reduce the risk of cancer, eat a diet rich in fruits and vegetables, limit red meat, and be sure to exercise.

Proper nutrition is also important during and following a battle with cancer. Certain cancer therapies decrease appetite and produce nausea. Eating well, even when it’s difficult, helps the body fight the disease.

Summary

In this section, you learned the following:

- Nutrition is the study of nutrients in food and how they nourish the body. Nutrition is important to the restaurant and foodservice industry because people depend on restaurant and foodservice operations for some of their meals. Operations should strive to provide menu items that make balanced, nutritious choices possible.
- The six basic nutrients found in food are carbohydrates, proteins, lipids, vitamins, minerals, and water.
- Phytochemicals aid the body in fighting or preventing diseases.
- Fiber promotes digestive health and regularity.
- Carbohydrates provide the body with energy. They help the body use protein and fat efficiently.
- Fat carries vitamins A, D, E, and K through the body, cushions the body’s vital organs, protects the body from extreme temperatures, provides a reserve supply of energy when the body stores it, and supplies chemicals called essential fatty acids.
- Proteins supply energy to the body and provide the building blocks the body uses for muscles, tissues, enzymes, and hormones.
- Vitamins and minerals help in growth, reproduction, and the operations and maintenance of the body.
- Water is essential to the body. It helps with digestion, absorption, and transportation of nutrients; helps with elimination of waste through the kidneys, colon, and lungs; distributes heat throughout the body and allows heat to be released through the skin by evaporation; and lubricates joints and cushions body tissues.
Food additives improve flavor, color, and texture; retain nutritional value; prevent spoilage; and extend shelf life.

Digestion breaks down food into its simplest parts.

A healthy diet emphasizes fruits, vegetables, whole grains, and fat-free or low-fat milk and milk products. It includes lean meats, poultry, fish, beans, eggs, and nuts. And, it is low in saturated fats, trans fats, cholesterol, salt, and added sugars.

Malnutrition is the condition that occurs when your body does not get enough nutrients. The major diseases caused by malnutrition include the following:

- **Obesity**: Can be prevented by eating a healthy diet, exercising, and eating fewer calories.
- **Osteoporosis**: Can be prevented by building strong bones and reaching peak bone density by getting adequate sources of calcium and vitamin D and exercising daily.
- **Iron-deficiency anemia**: Can be prevented by eating a healthy diet of iron-rich foods.
- **Dental cavities**: Can be prevented by avoiding high-sugar foods and using fluoride.
- **Diabetes mellitus**: Can be prevented by eating a healthy diet and exercising.
- **Cancer**: May be partially prevented by eating a healthy diet and exercising.
Section 2.1 Review Questions

1. As a restaurant and foodservice professional, why should you be concerned about nutrition?
2. Why is water important to the body?
3. Describe the 6 groups of nutrients that are necessary for good health.
4. Why are carbohydrates important in a person’s diet?
5. Why does Laura Walsh believe that it is important to have an understanding of nutrition if you plan on a career in foodservice?
6. Chef Kate needs to create a 4-course dinner menu that is heart healthy. What are the criteria? Explain any modifications you would make to create a heart-healthy menu.
7. What is the difference between amino acids and protein?
8. How can a small amount of fat in a meal prevent you from overeating?
Section 2.1 Activities

1. Study Skills/Group Activity: Nutrient Jigsaw

Work with 5 other classmates to create a presentation that includes the type, major function, and a food source for each of the 6 main nutrient categories.

2. Activity: Food Journal

Begin a food journal and keep it for one week. Record everything you eat and drink, not just meals. Include calories, serving sizes, time of day, motivation for eating, where you were, and who you were with.

3. Study Skills/Group: What’s Good for You?

Should the government be allowed to decide what fats are used in a restaurant? Why or why not? Research this debate.
Eating a variety of foods is a good way to get all the nutrients the body needs. Nutrition experts have developed guidelines to help people make healthy food choices. But there’s more to nutrition than choosing the proper selection of foods. Cook the food properly, present it attractively, and vary choices.

Study Questions

After studying Section 2.2, you should be able to answer the following questions:

- What techniques for food preparation preserve nutrients?
- How can menus and recipes be more healthful?
- What are healthful substitutes for high-fat items?
- What recent developments in food production affect nutrition?

Food Preparation Techniques

Cooking foods changes their nutritional values. Sometimes the change is small, but other times it is quite significant. Healthy menus require techniques that keep as many nutrients as possible. Keeping food safe throughout the flow of food helps to preserve nutrients.

Purchasing and Receiving

Purchasing high-quality products is the first step toward providing nutritious meals. Maintaining the nutritional value of this food after it enters an operation
is critical. Long storage times and warm temperatures can be damaging to both safety and nutritional value. When receiving food, do the following:

- Make sure frozen products are received frozen.
- Receive cold food at 41°F or lower without signs of freezing.
- Receive dry goods and other food products, like onions and potatoes, at room temperature and in clean and dry condition.
- Check fruit and vegetables for insect infestation, mold, cuts, discoloration and dull appearance, and unpleasant odors and tastes.
- Make sure produce feels heavy for its size and is free from wilting and wrinkling.

**Storing**

Nutrients are destroyed by heat and light (oxidation) and humidity (causes ripening and decay). Over time, food in storage can dry, rot, or grow mold or fungus. The best way to prevent deterioration is to maintain a low inventory of food products and use a quick turnaround system. FIFO is a good way to make sure inventory is used efficiently. Figure 2.15 shows moldy, rotten strawberries.

As a general rule, order only what the restaurant or foodservice operation needs in the short term. When possible, have frequent, smaller deliveries rather than large, infrequent orders. It is important to maintain proper storage temperatures:

- Keep dry goods at a cool room temperature.
- Store food at 41°F for refrigeration.
- Keep frozen foods frozen at 32°F or less.

![Figure 2.15: Use the FIFO method to eliminate the risk of moldy and rotten food.](image-url)
Dry Storage
- Keep storerooms cool and dry. The temperature for the storeroom should be between 50°F and 70°F.
- Make sure storerooms are well ventilated. Keep temperature and humidity constant during storage.
- Store dry food away from walls and at least six inches off the floor.
- Keep dry food out of direct sunlight.

Refrigerated Storage
- Set refrigerators to the proper temperature. The setting must keep the internal temperature of the food at 41°F or lower. Check the temperature once during each shift.
- Monitor food temperature regularly. Use a calibrated thermometer placed in the warmest part of the unit to ensure proper temperature.
- Schedule regular maintenance for refrigerators.
- Do not overload refrigerators.
- Use open shelving.
- Keep refrigerator doors closed as much as possible.
- Wrap or cover all food properly.
- Store raw meat, poultry, and seafood separately from ready-to-eat foods.

Frozen Storage
- Set freezers to a temperature that will keep products frozen.
- Check freezer temperatures regularly.
- Place frozen food deliveries in freezers as soon as they have been inspected.
- Ensure good airflow inside freezers.
- Defrost freezer units on a regular basis.
- Clearly label food prepared on-site that is intended for frozen storage.
- Keep the unit closed as much as possible.

Prepping Food
When preparing vegetables, wash them quickly and thoroughly. Letting produce soak causes some vitamins to wash off or seep out and threatens food safety. Excessive trimming can also waste a lot of nutrients. For example, skins and leaves are rich in many vitamins and minerals. Using vegetable trimmings in stock or a soup base is one way to recover some of these nutrients.
In addition, cutting produce exposes surface areas to air and heat that destroy vitamin C. It is best to prepare vegetables and fruit close to serving time and to keep them intact as much as possible until ready for use. When cooking, try to use whole vegetables or cut larger pieces. Using sharp knives prevents bruising produce, which can quicken the loss of vitamin C.

**Nutrients and Heat**

During the processing of food, the nutrients are vulnerable yet still stable (unless you boil the food too long). Overboiling destroys the color, alters the fresh flavor, and reduces the vitamin content of some fresh foods. The foods do not become useless, but fresh, seasonal, and local is the best option. Some nutrients are more bioavailable when cooked than when raw and fresh. Careful cooking!

**Did You Know…?**

Clean, raw foods are often considered more whole or wholesome, and therefore more nutritious than cooked varieties. This is sometimes the case, but not always. Some nutrients are improved by cooking. Also, some anti-nutrients are deactivated by cooking. An anti-nutrient is a chemical that blocks the absorption of a nutrient from food. For example, oxalic acid (an anti-nutrient) is found in raw spinach and other green leafies. It “locks up” iron, calcium, magnesium, zinc, and other nutrient minerals, preventing them from being absorbed in the digestive system. When the greens are cooked, they may lose some fresh nutrients (like some vitamin C), but they become a better source of nutrient minerals. Figure 2.16 on the following page shows a photo of spinach being gently cooked.

**Cooking Food**

When cooking any food, remember that the lower the temperature and the shorter the cooking period, the less nutrient loss there will be.

A good adaptation can produce a dish that is not only acceptable, but potentially delicious. Using modifications sensibly and artistically can result in tasty fare that guests love. Think of healthy cooking as simply good cooking with good ingredients, rather than as an unwelcome adaptation of classical cooking.

**Cooking Grains and Legumes**

Be careful not to overwash grains. Some imported or bulk grains may contain dirt and impurities and will need to be rinsed. But washing can greatly affect vitamin content. For example, white rice can lose 25 percent of its thiamin, and brown rice can lose 10 percent. The best way to preserve vitamins in grains is by not overcooking them and keeping grains covered.
Some food products like rice, yucca, grains, and dry beans must be cooked to make their nutrients available to the body. For example, when the starch in these food items cooks, water is absorbed and the starch is gelatinized, making the item edible and nutritious.

**Cooking Meat, Fish, and Poultry**

Meat, fish, and poultry are at their best and most healthful when served close to the time they are cooked. During cooking, nutrients in meats are lost primarily through water, which evaporates or goes into the drippings. Protein losses are minimal. The longer meat is cooked, the more thiamin and vitamin B₆ are lost.

Other ways to optimize the flavor and nutritive qualities are to grill, broil, steam, bake, poach, or sauté these foods and then serve them immediately. Tough cuts are best when slowly cooked by either braising or using them in a soup or stew. They can be served with the broth, which is a good way to retain some of the nutrients lost in the cooking process. Cooking meat or vegetables in an acid sauce (such as a tomato sauce) in an iron pan is also useful, as it adds iron to the diet.

When cooking meat, fish, and poultry, the protein in the flesh **coagulates** (thickens and congeals) when heat is applied. With tender food like fish, shellfish, and chicken breasts, the protein coagulation as well as temperature...
indicates doneness. For tougher meat, the initial protein coagulation is only one step in the cooking process. When moisture is added, the tough connective tissue in the meat can break down to form gelatin. In addition, fat in the meat slowly melts, or renders, during the cooking process. This adds flavor and moistness. When adding fats to a dish, choose monounsaturated fats rather than saturated fats when possible and when consistent with the desired flavor of the dish. Avoid reusing cooking oil, because the fat becomes rancid and unhealthy with overuse. Figure 2.17 shows salmon served over a baby greens salad.

Cooking Fruit and Vegetables

Fruits and vegetables should be served raw where appropriate. When cooking, cook quickly in minimal liquid and serve immediately with the cooking liquid where possible. Steaming in the microwave or on the stove by pan-steaming are ideal methods of cooking fruits and vegetables. Pan-steaming is done by placing the vegetable in a sauté pan with a bit of water or stock and then covering and cooking over high heat until the vegetable is tender, but not soft.

Another way to maintain the maximum amount of nutrients is to season lightly. One common, but not advisable, practice is to add baking soda to enhance the color of green vegetables. While this works for color, it destroys the texture of the vegetable and the fragile vitamin C. Frying can be similarly damaging to vitamin C and other nutrients and, of course, adds fat to the dish.
With vegetables, the size of the vegetable and the amount of water used are also important. If less water is used, more vitamin B and C are retained. Stir-frying and brief steaming are good methods to use. Also, baking root vegetables in their skins retains nutrients better than peeling, cutting, and boiling. Figure 2.18 shows a cook stir-frying vegetables.

![Figure 2.18: Cooking fresh vegetables quickly reduces nutrient loss.](image)

**Holding**

The key to cooking nutritious food is to manage time and temperature so that food is cooked only as much as necessary and served as soon as possible. The longer the food sits on the stove or in the steam table, the fewer vitamins may remain for the guest. Multistage cooking, such as precooking vegetables, shocking them in water, chilling until service, reheating at service, and storing in a steam table, may be useful from a timing perspective, but it also causes a noticeable decrease in some vitamins. A noticeable decrease occurs because the vegetable is exposed to so much heat during two cooking periods and a potentially extended holding period. Heat breaks down many nutrients.

One way you might be able to avoid long holding times is to cook food in smaller batches. Figure 2.19 on the following page shows a cook preparing food in batches.
Batch cooking is the process of reheating or finishing a small batch of food, as needed, or preparing a small amount of food several times during a service period, so that a fresh supply of cooked items is always available. This process improves the nutritional value, flavor, color, and texture of food.

**Essential Skills**

*Batch Cooking for Vegetables*

1. Rinse, trim, and peel vegetables properly.
2. Cut vegetables into even pieces, as directed in the recipe. See Figure 2.20a.
3. Blanch or parcook vegetables by boiling or steaming them.
4. Shock vegetables in an ice bath. See Figure 2.20b.
5. Drain vegetables thoroughly. See Figure 2.20c.
6. Refrigerate blanched or parcooked vegetables until ready to prepare a batch.
7. Reheat small batches of vegetables in simmering water or sauté them.
Making Menus More Healthful

Many people think healthy cooking is only about removing less desirable ingredients from a menu item. But that’s simply not true. One easy way to make a dish more healthful is to modify its portion size. **Portion control** means controlling the quantity of particular foods by using appropriately sized servings. Consider offering a variety of portions, such as lunch, half, light, or senior sizes.

Healthy cooking also can be about adding healthful ingredients. Most people in the United States do not get sufficient fiber from their diet. Adding fresh fruit and vegetables, whole grains, and legumes to dishes is a good way to increase the nutrient content of food. It can increase fiber and add interest to a dish. For example, add amaranth, quinoa, or millet to a menu to accomplish these goals.

**Did You Know…?**
Tabouleh (tah-BOOL-lee) is a Middle Eastern salad made from finely chopped parsley, bulgur, tomato, scallions, mint, and other herbs with lemon juice, olive oil, and various seasonings. It is eaten around the world, especially in vegetarian or vegan cuisines.

Tabouleh is a national dish in Lebanon, where it is believed to have originated. In Lebanon, it is commonly scooped onto lettuce leaves from a large bowl and eaten.

After understanding the purpose of the ingredients, begin to modify recipes to be lower in fat, sugar, and salt. Figure 2.21 shows a small serving of a rich dessert with a low-calorie garnish on top.

*Figure 2.21:* A small serving of a rich dessert provides fewer calories.
Essential Skills

Modifications in Baking

1. Reduce half of the fat in many recipes by using fruit pureés such as applesauce in place of butter or oil. This results in a moist, denser cake, and the crumb will still be tender. See Figure 2.22.

2. To lower cholesterol, use an egg substitute instead of an egg. The rule of thumb is \( \frac{1}{4} \) cup of egg substitute equals 1 egg. Egg substitutes are egg whites with a small amount of vegetable oil added to replace the egg yolk. Yellow food coloring is usually added.

3. To lower sugar, replace it with a sugar substitute following the manufacturer’s directions.

Figure 2.22: Step 1—Replace butter with applesauce in many recipes to reduce fat.

Modifications in Soups, Sauces, and Gravies

Much culinary creativity and experimentation comes in the soup, sauce, and gravy categories. Classic sauces are flavorful but tend to have a lot of fat. Many are thickened with roux, a cooked mixture of fat and flour. Others are emulsion sauces, such as hollandaise and mayonnaise that consist of egg yolk and butter or oil. The result is a sauce made predominantly of fat.

There are several ways to reduce the fat content of soups, sauces, and gravies:

- Use a reduction of stock. Start with a stock made from vegetables, meat, poultry, or fish and simmer until it is about one-third of the original volume. Stock and broth are nearly fat free because the fat rises to the top and can be skimmed off. In the process of reduction, the stock will develop body and its flavors will intensify. Then, less thickener is needed.

- Use a slurry. In place of a traditional flour-and-fat roux, a slurry (a thin paste made from water or stock mixed with starch, such as cornstarch) can be a thickening alternative. To use a slurry, dissolve starch in cold water and incorporate it into the hot sauce.
Use skimmed stock. Rather than using a premade mother sauce (a classic sauce from which other sauces are made), make a sauce of pan drippings, wine, broth, or stock, and skim the fat from the top.

Use less oil in salad dressings by replacing bland salad oils with intensely flavored nut oils, olive oils, or infused oils (oils that have been heated with seasonings for flavor). Also, replace 25 percent of the oil with slightly thickened stock. Note: Remember to disclose the type of nut oil, in case of food allergies.

To mimic a creamy sauce for macaroni and cheese, for example, blend cottage cheese and strained yogurt, using corn starch as a thickener, if heating.

In place of heavy cream, use canned evaporated skimmed milk, which mimics the body of cream.

In a braise or soup, puréeing the vegetables in the cooking liquid thickens the sauce, retaining all the nutrients.

In place of gravy, fruit coulis (thick puréed sauces), salsas, and chutneys make excellent sauces for meats.

In béchamel sauce, use skim milk and trans-fat-free margarine.

Two teaspoons of sour cream or plain yogurt can be added as a garnish on low-fat cream soup to give it the mouthfeel of full-fat cream soup.

Vegetable jus (the French term for juice) and consommé make great sauces.

Remember that margarine has the same fat as butter, but doesn’t taste as nice.

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**Sauce Bourguignon**

A lot is said about sauces being a lavish extra that weight-conscious individuals should have on the side. However, a sauce is a beautiful, flavorful, and important part of a dish and its presentation. Some sauces improve the nutrition of an item. One is Sauce Bourguignon, which uses the red wine Bourgogne to deglaze.

In the deglazing and gentle cooking, the alcohol content of the wine is decreased. The nutrient content of the wine remains, boosting the nutrition of the entire dish, whether it is *boeuf bourguignon*ne or coq au vin. Red wine provides antioxidants, flavonoids (like anthocyanins), procyanidins, and resveratrol. These long-name chemicals fight both cancer and heart disease.
Essential Skills  
*Modifications for Meat*

1. Choose low-fat meat such as beef or pork tenderloin, beef eye of round, beef flank steak, beef sirloin steak, pork loin chops, turkey breast, ostrich, buffalo, venison, or rabbit.

2. Trim visible fat, and cook the meat using a low-fat cooking technique such as dry-sautéing, stir-frying, grilling, broiling, pan-smoking, or roasting. See Figure 2.23a.

3. For poultry, select white-meat chicken instead of the dark meat legs and thighs, which have a higher fat content.

4. When cooking chicken, leave the skin on and remove it just before serving. See Figure 2.23b.

5. If using a marinade, boneless, skinless chicken breast will work well.

![Figure 2.23a: Step 2—Trim visible fat from meat.](image1)

![Figure 2.23b: Step 4—Cook chicken with the skin on and remove it just before serving.](image2)

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Essential Skills  
*Modifications for Seafood*

1. Care should be taken not to overcook fish and seafood, thus ruining their delicate flavors.

2. Dry-sautéing, grilling, and poaching are the best cooking methods. See Figure 2.24a on the following page.

3. Using swordfish, mackerel, salmon, and tuna provides customers with omega-3 fatty acids, which may help prevent heart disease. See Figure 2.24b on the following page.

4. Shellfish, such as shrimp, lobster, and crawfish have high cholesterol but no saturated fat, so they are nutritious choices. See Figure 2.24c on the following page.
Essential Skills

Modifications for Vegetables

1. Instead of sautéing vegetables in oil, sweat them in a little stock. This extract flavor from the vegetables and is a good foundation for the rest of the dish. See Figure 2.25a.

2. To finish a vegetable, a small amount of butter or flavored nut oil can be added. See Figure 2.25b. Remember to disclose the type of nut oil in case of allergies.

3. Use any fat at the end, so its flavor still can be perceived.
Essential Skills

Modifications for Desserts

Know the function of a dessert’s ingredients. If an ingredient substitute will change the integrity of the dessert, then do not make the substitution, as in pie crust.

1. Use low-fat and fat-free cottage cheese, ricotta cheese, yogurt, or cream cheese. If fat-free items are used, it is important to use some type of starch to protect the proteins from heat when baking, or they will curdle. See Figure 2.26a.

2. The fat in a pie crust is there to make it flaky. To reduce or change the fat, it would be necessary to change the nature of the dessert from a pie to a strudel or a cobbler. If making a strudel, phyllo (also spelled filo) dough can be used as the pastry by spraying it with atomized oil before baking to reduce the fat significantly. If making a cobbler, little or no fat is needed. See Figure 2.26b.

Figure 2.26a: Use low-fat and fat-free cottage, ricotta, or cream cheese or yogurt.

Figure 2.26b: Step 2—Replace pie with a strudel or cobbler to reduce fat.

Essential Skills

Modifications for Garnishes

1. Instead of using small pieces of fried items, such as shallots or potatoes, use thinly sliced pieces of vegetables or microgreens. See Figure 2.27a on the following page.

2. Cheese adds nutrition but also fat and calories and should be computed with any calorie/nutrient analysis.

3. Foams: Make by aerating a sauce and spooning just the foam onto the dish. See Figure 2.27b on the following page.

4. Salsa: Bind perfectly brunoised fruit or vegetables with a light vegetable sauce so it can be shaped into a quenelle; crispy, savory tuile; or cracker.
Did You Know…?
To decrease salt but add a salty flavor, increase the use of herbs and spices. Use citrus and vinegar to season.

Types of Salt
The most commonly used types of salt include the following:

**Table salt** is the most common salt found on every table. It is refined to remove other minerals and impurities. It is processed to give it a fine, even grain, and a small amount of starch to keep it from forming clumps.

**Kosher salt** has no additives, so it has a purer flavor than table salt. It is usually coarser than table salt, which means it has larger crystals. To substitute kosher salt for table salt, use twice as much kosher salt as called for in the recipe. It is the most common salt found in professional kitchens.

**Sea salt** is extracted from the ocean using evaporation techniques. It is usually not refined, so it contains additional minerals and other elements found in sea water, which affect the flavor.

**Iodized salt** is table salt that has been enriched with iodine as a nutritional supplement.

**Rock salt** is less refined than table salt and not meant to be eaten. It is used in ice cream makers and as a bed for certain items, such as oysters or clams on their shells.
When making modifications, remember to keep flavor in mind at all times. If fat is the contributing factor to flavor, then a strong flavor alternative must be substituted. Be creative and use modifications as an opportunity to make food memorable.

**Reducing Excessive Fats**

Saturated fats (butter, lard, tropical oils) and trans fats (margarine, shortening) can be reduced by using less and replacing them with alternative products. For example, margarine made with saturated fats can be replaced by margarine made with monounsaturated fats, such as canola oil that hasn’t been hydrogenated. Fats are typically found in high amounts in food such as meat, full-fat dairy products, sauces, nuts, oils, salad dressings, and baked goods (often made with trans fats). Figure 2.28 shows foods that contain saturated fats.

Using high-quality lean meat is a good strategy for replacing the large amounts of fat found in prime cuts. For example, USDA Choice can be used in place of USDA Prime beef. Although USDA Choice is a leaner grade of beef because it has less fat marbling than USDA Prime, it is still of high quality and sufficiently juicy to broil or grill. USDA Select beef is lean because it has the least fat marbling. Prepare it by using a moist method of cooking to ensure tenderness. Maintain moisture in lean meat by cooking in parchment, foil, or vegetable leaves. Basting lean meat with stock will also prevent it from drying out when cooking and will keep the fat content of the resulting dish low. When sautéing, brush a little oil on the meat and cook it in a nonstick pan.

For some food items that can’t be changed, limit the frequency with which they are eaten or decrease the portion size that is served. When making substitutions to reduce fat in a dish, remember why the fat is in the dish in the first place. Butter, rendered bacon, duck fat, and goose fat have flavors that are appealing...
to consumers and cooking properties that are difficult to imitate. A pie crust can easily be made with lard or shortening. When substituting vegetable oil for shortening, it is difficult to obtain a comparable result. When making substitutions, remember the purpose for the substitution and the role that fat plays in the food item. Not all fats can be reduced, removed, or replaced. Table 2.2 is a list of common ingredient substitutions.

### Table 2.2: Recipe Substitutions

<table>
<thead>
<tr>
<th>Instead of:</th>
<th>Use:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Whole milk</td>
<td>2%, 1%, or fat-free milk</td>
</tr>
<tr>
<td>Eggs, whole or yolks</td>
<td>Egg whites or a commercial egg substitute, fruit or vegetable purée</td>
</tr>
<tr>
<td>Butter</td>
<td>Trans-fat-free margarine (some of these spreads are not appropriate for baking), olive oil, nut oils, avocado</td>
</tr>
<tr>
<td>Coconut and palm oil</td>
<td>Canola oil, soybean oil, safflower oil, grape seed oil, applesauce, low-fat plain yogurt</td>
</tr>
<tr>
<td>Cheese</td>
<td>Low-fat varieties</td>
</tr>
<tr>
<td>Yogurt</td>
<td>Low or non-fat</td>
</tr>
<tr>
<td>Bacon</td>
<td>Turkey bacon, Canadian bacon, lean ham</td>
</tr>
<tr>
<td>Sausage</td>
<td>Turkey sausage, seasoned ground turkey, soy crumbles</td>
</tr>
<tr>
<td>Ground beef</td>
<td>Ground sirloin, ground turkey breast, ground soy</td>
</tr>
<tr>
<td>Chocolate</td>
<td>Cocoa</td>
</tr>
<tr>
<td>Heavy cream</td>
<td>Equal portions of half-and-half and canned evaporated skim milk</td>
</tr>
</tbody>
</table>

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### Saturated Fats

In the 1980s, businessman Phil Sokolof was concerned about the levels of high-cholesterol and saturated fats in the U.S. food supply. He launched a media campaign about it, stating that these fats in foods were destroying the heart health of the American public. Through his efforts, saturated tropical oils and beef tallow (lard) were removed from many popular food preparations, like snack crackers and French fries. They were replaced with vegetable oils that were hydrogenated for processing. Unfortunately, processing foods with hydrogenated vegetable oils can create trans fats, which also are not healthy for the heart. The answer? Reduce total dietary fat, increase heart-healthy foods, and get some exercise.
Types of Produce (From a Grower’s Point of View)

Although a foodservice operation serves food that is safe, wholesome, and nutritious, some customers may be concerned about the following:

- **Pesticides**: Chemicals that kill insects and other plant pests
- **Herbicides**: Weed killers
- **Hormones**: Often injected into animals to make them grow
- **Antibiotics**: Medicines that prevent infections
- **GMOs**: Genetically modified organisms, which are plants or animals whose genetic makeup has been changed
- **Feed made from animal products**

These concerns aren’t actually new. For example, a chemical known as Alar, that helped apples to grow, was commonly used for decades. But in 1989, it was removed from the market when studies showed that it caused tumors in mice. See Figure 2.29.

Figure 2.29: Some people are concerned about the chemicals used to help produce grow.
Some of the products currently used in farming are now also being studied:

- If bovine growth hormone (BGH) is used to cause dairy cows to produce more milk, will drinking the milk pass the hormone to people’s bodies and cause harm?
- If bacteria become resistant to antibiotics, will eating an animal that has been given an antibiotic affect people’s resistance?
- If an animal is sick, will using its bones in animal feed cause other animals to get the same disease?

The answers to these kinds of questions are not yet clear. But many consumers take a “better safe than sorry” approach. They want food produced without using any of the products listed previously, and they will pay more money to get it.

To meet these needs, many restaurant and foodservice operations have started to choose organic food products. As a professional, it is important to know what this means. Restaurant and foodservice employees must be able to identify the differences among the various types of products available:

- **Conventional**: These products are grown using approved USDA and FDA agricultural methods. The methods allow the use of certain fertilizers, pesticides, hormones, and drugs that are recognized as safe. Most of the food in the supermarket and from restaurant and foodservice suppliers comes from conventional producers.

- **Organic**: Generally, these products have been produced without pesticides or synthetic fertilizers. Soil and water are also usually conserved. Animals don’t receive antibiotics or growth hormones.

- **Certified organic**: These products meet the requirements of their certifying organization. In the United States, the National Organic Program of the USDA certifies products as “100 percent organic,” “organic” (95 percent organic), or “made with organic ingredients” (70 percent organic). While all foods are technically “organic” as far as their chemistry is concerned, the term implies much more. The “certified organic” name applies to farming and processing techniques that are simple, nontoxic, and sustainable. If a label is USDA “certified organic,” it will apply to these standards.

- **Local**: Products made by local producers can be either conventional or organic.

- **Natural**: The term “natural” is legally meaningless. Food products labeled as “natural” may or may not have any organic ingredients or processing.
Figure 2.30 displays the USDA (United States Department of Agriculture) organic logo. This National Organic Program (NOP) develops and administers national production, handling, and labeling standards for organic agricultural products.

A common misperception about organic food products is that they have more nutrients than conventionally grown food. Another is that organic food products are made by small producers, while conventional food products are made by large producers. Actually, both large and small producers grow organic and conventional food products. Their finished food products are quite similar nutritionally. People also choose organic food because of its impact on the environment.

Genetically modified food organisms need a special mention in any discussion about today’s farming. **Genetically modified organisms (GMOs)** are plants or animals whose genetic makeup has been altered. This results in a change in the genetic code of the receiving plant or animal, which becomes permanent. In addition, the offspring of the plant or animal also has that altered genetic makeup.

What could be the benefits of a GMO? For plants, these might include the following:

- Better resistance to insects, weeds, or fungi
- Improved nutritional value
- Able to withstand extreme heat, cold, or drought
- Better resistance to specific herbicides or pesticides (most common)
- Better flavor
Of course, not all of these benefits are consistent. For example, tomatoes have been bred for storage and transport to the grocers. They have also been bred to reduce acidity. In the process, though, they have lost flavor and juiciness. Now, the industry is experiencing a demand for “heirloom” tomato seed stock, a high-acid juicy tomato.

Some consumers express concern about GMOs that are resistant to herbicides. If a plant, such as soybeans, is resistant to a specific herbicide, then the field may be sprayed with that herbicide to kill the weeds. However, this leaves the growing soybean plants with herbicide still on them. In the minds of these consumers, both the modification and the remaining herbicide are issues.

Genetic modification is one form of biotechnology and bioengineering. These fields of science apply technology to living organisms in order to produce something of use. A more common example is how biological organisms are put in fresh cheese to age it.

From a nutritional standpoint, genetically modified food products do not differ much from unmodified food products. In fact, some may have been modified to increase nutrients. No conclusive evidence shows that genetically modified food products are harmful to people’s health.

Ultimately, the products a restaurant or foodservice organization chooses to serve will depend on what their customers want.

**Summary**

In this section, you learned the following:

- Correctly purchasing, receiving, storing, prepping, cooking, and holding food helps preserve nutrients.
- Menus and recipes can be made more healthful by modifying portion size, adding healthful ingredients, and substituting healthier ingredients.
- Healthy substitutes for high-fat items include the following:
  - When baking, use fruit purées.
  - When cooking soups, sauces, and gravies, use a reduction of stock, slurry, skimmed stock, canned evaporated skimmed milk, or vegetable jus.
  - When cooking meat, choose low-fat meat, trim visible fat, cook meat using a low-fat cooking technique, use white-meat chicken instead of the legs and thighs, and leave the skin on chicken, and remove the skin just before serving.
• When cooking seafood, do not overcook fish, and use dry-sautéing, grilling, and poaching methods.

• When cooking vegetables, sweat vegetables in a little stock, and add a small amount of butter or flavored nut oil to finish vegetables. Use fat at the end (if necessary).

• When cooking desserts, use low-fat and fat-free cottage cheese, ricotta cheese, yogurt, or cream cheese.

• When using garnishes, use thinly sliced pieces of vegetables.

• When using salt, decrease salt and increase the use of herbs and spices.

• When making salad dressings, use less oil.

- Organic foods and genetically modified food are recent developments in food production that affect nutrition in different ways.
Section 2.2 Review Questions

1. How can you retain nutrients when cooking the following?
   a. Grains and legumes
   b. Fruits and vegetables
   c. Meat, fish, and poultry
2. What concerns do customers have about farming techniques that might affect their food choices?
3. Define genetically modified foods.
4. List 10 ways to reduce fat when cooking.
5. Do you think that Laura Walsh would prefer specific methods of cooking to retain nutrients? How might she choose to cook legumes? Fish? Vegetables?
6. Chef Kate is considering the purchase of different software applications. One helps formulate recipes and provides nutrition information for those recipes. Another prints the nutrition information of the order on the receipt. Still another suggests changes for vegan, heart healthy, hypoallergenic, and other modifications. Which applications do you think would be the best for Kabob?
7. Why is batch cooking a healthy cooking method?
8. What are the benefits of using organic foods? Is there a downside?
Section 2.2 Activities

1. **Study Skills/Group Activity: Nutritional Selling Points**

   With a partner, choose a regional cuisine of the United States and identify two signature foods of that area. Identify their nutrition selling points (strengths, such as “low in fat” or “complete protein”). Identify their nutrition shortcomings (weaknesses, such as “high in fat” or “high in sugar”).

2. **Activity: American Dietetic Association**

   Explore the Web site of the American Dietetic Association. What is its mission statement? What information is there on topics of nutrition? How is it accessed?

3. **Study Skills/Group: Diseases with Nutritional Implications**

   Choose a disease or condition that has nutrition implications (diabetes, heart disease, kidney disease, obesity, failure to thrive, and so on). Find three Web sources of diet and nutrition information pertaining to this condition. One of the sources should be the American Dietetic Association. Does the advice given from the three sources agree and align?
Case Study Follow-Up Eating Right

At the beginning of the chapter, Miguel and Chef Kate were discussing hiring a nutrition consultant to help analyze and modify some of the recipes. They wanted to know the following:

1. Will some dishes meet multiple needs? For instance, can a dish be heart healthy, vegetarian, and vegan?
2. Can any of the popular dishes currently on the menu be easily modified to meet a vegetarian request?
3. Should Kabob redo the menu to indicate heart-healthy or vegetarian choices?

What suggestions do you think the consultant might offer?
**Apply Your Learning**

**Fat Budget**

Since there are no bad foods, how do you include butter in the daily diet? The same way you include playtime in your busy school schedule or get a little spending money from your paycheck—a budget!

2. Then determine your daily proportion of those calories from fat (if you stay at or below 30 percent, you are being conservative).
3. Now, divide those fat calories, determine the number of grams of fat by dividing by 9 calories per gram of fat. Ten percent or less of those fat grams should come from saturated fat.
4. So, how many grams of butter, chocolate, bacon, or other saturated fat is that? It might not be very many, but it’s not zero. You are discovering your fat budget.

Using this same math technique, determine the number of grams of fat in a luncheon menu of your own design:

1. Determine the menu and recipes.
2. Research and total the number of fat grams of the entire menu.
3. Multiply this number by 9 kilocalorie/gram. This gives you calories from fat.
4. Research and total the number of calories in the entire menu.
5. Divide the number of fat calories by the number of total calories. This gives you the percentage of calories from fat.
6. Consider that you want your menu to provide no more than 15 percent of calories from fat.
7. Do you need to modify the menu to meet this goal?
8. Suggest menu changes and recalculate until you reach 15 percent of calories from fat.
Mercury in the Water

A bad environmental poison can damage generations of individuals. In Minamata, Japan, in the mid-twentieth century, a local industry dumped mercury-containing toxic waste into the local waters. Fish feeding in those waters carried mercury to all who consumed them. Local animals and children born during that time exhibited birth defects at a very alarming rate, traced to mercury poisoning. This led authorities to investigate and discover the problem. The problem still affects the local population of that Japanese bay community.

A safe food supply begins before the food ever arrives at the table. Write a report that answers the following questions:

- What environmental concerns do you have for your local food supply?
- Are these concerns local or global?
- Can you investigate whether or not they are valid concerns?
- How many differing opinions should you gather?
- What can you do to ensure that the food you consume is safe from toxins and pathogens?

Bone Density

The teen years are prime time for building the strong, sturdy bones you will need throughout your life. Bones are built with protein, calcium, vitamin D (the best source is sunlight), some phosphorus, minerals, vitamins, and exercise. The best exercises are those that require the long bones of the legs to bear weight: running, walking, team sports, and dancing. Bones are a protein “honeycomb” that continues to lengthen until the long-bone end-plates “close” and you reach your adult height. The little compartments of the honeycomb are filled with a crystal of calcium that makes them white and solid. They are not entirely solid. Nutrients, hormones, and red blood cells flow in and out of the center (marrow) of your bones all the time. However, the density of the calcium crystals is important. The denser, the better. Don’t worry about the marrow functions. They can squeeze through even the strongest bones. The key to building strong bones in childhood and teens is a healthy lifestyle. Two recommendations: Drink lots of milk and play outside.

Determine your personal needs for protein, calcium, and vitamin D on MyPyramid.gov. Determine how many servings of various foods you need each day to meet these goals. Compare this to your food journal and see how you are doing. Write a sentence about your actual intake as compared to your goal. Write down one goal you can use to improve your bone-health nutrition.
Take a look at your lifestyle. Write down any and all weight-bearing exercise activities you have participated in during the time you kept your food journal. Include walking to and from school and around the school, but total the number of minutes. How are you doing? Could you improve in this area as well?

**Critical Thinking**

**Substitutions to Reduce Fat and Sugar**

What substitutions would you be willing to live with to reduce your sugar and fat intake? Would you enjoy cream soup made with evaporated milk? Would you care if you had Canadian bacon and boiled eggs instead of fried bacon strips and eggs? Take a critical look at the high-fat foods in your food journal from your homework. Decide what you can change, what you can live without, and what you want to keep the same and account for in your fat budget. Do the same for the high-sugar foods in the journal (not all of them will be the same). Research and find one commercial restaurant or foodservice menu item that has been modified based upon fat-reducing ingredient substitutions. Write a paragraph about this item in your food journal.
Exam Prep Questions

1. A class of nutrients that includes starches, sugar, and dietary fiber is
   A. lipids.
   B. proteins.
   C. vitamins.
   D. carbohydrates.

2. The building blocks of protein are
   A. calories.
   B. vitamins.
   C. amino acids.
   D. carbohydrates.

3. What type of vitamin is vitamin C?
   A. Fat-soluble
   B. Fiber-soluble
   C. Water-soluble
   D. Phytochemical-soluble

4. What typically makes up 55 to 65 percent of the human body?
   A. Fat
   B. Water
   C. Vitamins
   D. Cholesterol

5. A vegetarian is best described as someone who does not eat
   A. dairy products.
   B. red meat and eggs.
   C. any animal products.
   D. meat, poultry, and fish.

6. What condition causes bones to gradually lose their minerals and become weak and fragile?
   A. Obesity
   B. Osteoporosis
   C. Diabetes mellitus
   D. Iron-deficiency anemia

7. What is the most common nutritional deficiency in the world?
   A. Vitamin C
   B. Vitamin D
   C. Diabetes mellitus
   D. Iron-deficiency anemia

8. At what temperature should cold, fresh food be received?
   A. 0°F with signs of freezing
   B. 32°F with signs of freezing
   C. 41°F with no signs of freezing
   D. 50°F with no signs of freezing
9 Which products have been produced without pesticides or synthetic fertilizers?
   A. Local
   B. Natural
   C. Conventional
   D. Certified organic

10 To function, the human body turns carbohydrates into
   A. fat.
   B. fiber.
   C. glucose.
   D. protein.
The following tables offer additional information on vitamins, minerals, and food additives.

### Table 2.3: Vitamins and Minerals

<table>
<thead>
<tr>
<th>Vitamin</th>
<th>Vegetable Sources</th>
<th>Animal Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Dark orange and green vegetables, sweet potatoes, mangos</td>
<td>Fortified milk or dairy products, liver, eggs</td>
</tr>
<tr>
<td>B&lt;sub&gt;1&lt;/sub&gt;</td>
<td>Whole grains, enriched products, fortified products, nuts, legumes</td>
<td>Pork</td>
</tr>
<tr>
<td>B&lt;sub&gt;2&lt;/sub&gt;</td>
<td>Whole grains or enriched grains</td>
<td>Milk and milk products</td>
</tr>
<tr>
<td>B&lt;sub&gt;3&lt;/sub&gt;</td>
<td>Whole grains, enriched products, nuts</td>
<td>Milk, eggs, meat, poultry, and fish</td>
</tr>
<tr>
<td>B&lt;sub&gt;5&lt;/sub&gt;</td>
<td>Most</td>
<td>Most</td>
</tr>
<tr>
<td>B&lt;sub&gt;6&lt;/sub&gt;</td>
<td>Green vegetables, green leafy vegetables, fruit, whole grains</td>
<td>Meat, fish, poultry</td>
</tr>
<tr>
<td>B&lt;sub&gt;7&lt;/sub&gt;</td>
<td>Most vegetable sources; people make small amounts in their intestines</td>
<td>Most animal sources</td>
</tr>
<tr>
<td>B&lt;sub&gt;9&lt;/sub&gt;</td>
<td>Green leafy vegetables, legumes, seeds, enriched products</td>
<td>Liver</td>
</tr>
<tr>
<td>B&lt;sub&gt;12&lt;/sub&gt;</td>
<td>None naturally; may be fortified in cereals</td>
<td>All</td>
</tr>
<tr>
<td>C</td>
<td>Citrus fruit, peppers, strawberries, tomatoes, potatoes</td>
<td>None</td>
</tr>
<tr>
<td>D</td>
<td>None, but made with the help of sunlight</td>
<td>Fortified milk, fatty fish, some fish-liver oils, eggs</td>
</tr>
<tr>
<td>E</td>
<td>Green leafy vegetables, mayonnaise made with vegetable oil, nuts, peanut butter, sunflower seeds, sea buckthorn berries, seeds, vegetables oils (palm, sunflower, canola, corn, soybean, and olive), wheat germ, whole grains</td>
<td>Fish, only small amounts in some, not a good source</td>
</tr>
<tr>
<td>K</td>
<td>Green, leafy cabbage-type vegetables, collards, spinach, also made by bacteria in the intestine</td>
<td>Minimal amounts in liver and eggs</td>
</tr>
</tbody>
</table>
### Mineral Function

<table>
<thead>
<tr>
<th>Mineral</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calcium</td>
<td>Bone health, helps maintain normal blood pressure, muscle contraction</td>
</tr>
<tr>
<td>Chloride</td>
<td>Maintains fluid and electrolyte balance in the body</td>
</tr>
<tr>
<td>Chromium</td>
<td>Required for carbohydrate metabolism</td>
</tr>
<tr>
<td>Copper</td>
<td>Part of various enzymes; used for electron transport</td>
</tr>
<tr>
<td>Fluorine</td>
<td>Bone and tooth health</td>
</tr>
<tr>
<td>Iron</td>
<td>Part of hemoglobin</td>
</tr>
<tr>
<td>Magnesium</td>
<td>Part of bones and teeth; makes protein; helps muscle activity; activates metabolism of carbohydrates, fats, and proteins</td>
</tr>
<tr>
<td>Manganese</td>
<td>Part of many enzymes</td>
</tr>
<tr>
<td>Molybdenum</td>
<td>Necessary for purine degradation and formation of uric acid and used in many enzyme reactions</td>
</tr>
<tr>
<td>Phosphorus</td>
<td>Part of the bones and teeth</td>
</tr>
<tr>
<td>Potassium</td>
<td>Maintains fluid and electrolyte balance in the body</td>
</tr>
<tr>
<td>Selenium</td>
<td>Antioxidant</td>
</tr>
<tr>
<td>Sodium</td>
<td>Maintains the fluid and electrolyte balance in the body</td>
</tr>
<tr>
<td>Zinc</td>
<td>Taste perception, coenzyme</td>
</tr>
</tbody>
</table>

### Table 2.4: Food Additives and Their Functions

<table>
<thead>
<tr>
<th>Food Additive</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antioxidants</td>
<td>Antioxidants slow the oxidation process that turns fats rotten. Some fats, especially vegetable oils, do not become rancid as quickly because they contain naturally occurring antioxidants such as tocopherol.</td>
</tr>
<tr>
<td>Benzoates</td>
<td>Benzoates are used as preservatives in acidic food items such as fruit juices and syrups, pie fillings, pickles, pickled vegetables, and sauces. Benzoates occur naturally in cranberries.</td>
</tr>
<tr>
<td>Colorants</td>
<td>Food colors (or colorants) fall into three groups: natural pigments extracted from plant materials, inorganic pigments and lakes (metals combined with organic colors), and synthetic coal-tar dyes.</td>
</tr>
<tr>
<td>Emulsifiers</td>
<td>Emulsifiers enable the formation of water-fat mixtures. They are a common ingredient in baked items because they help integrate the fat. Examples of some emulsifiers are gums, egg yolks, albumin, casein, and lecithin. All these substances help disperse oil in water uniformly. Emulsifiers also interact with fats to modify their crystal structure, which reduces viscosity or increases aeration (as in whipped cream). Emulsifiers interact with starch to reduce stickiness and to slow the staling of bread. They interact with gluten and improve the baking quality of wheat flour, resulting in better texture and volume in packed goods.</td>
</tr>
</tbody>
</table>
Table 2.4: Food Additives and Their Functions continued

<table>
<thead>
<tr>
<th>Food Additive</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gums</td>
<td>Gums are substances that form a sticky mass in water. Gums help to keep emulsions from separating into constituent parts and are widely used in salad dressings, processed cheese, and confections.</td>
</tr>
<tr>
<td>Monosodium glutamate (MSG)</td>
<td>MSG is probably one of the best known and widely used flavor enhancers. MSG occurs naturally in food items and is often added to canned soups and meats. MSG gives some people headaches and a bloated feeling.</td>
</tr>
<tr>
<td>Nitrates</td>
<td>Nitrates are natural constituents of plants and, together with nitrates, are used in the pickling of meats. Nitrate is converted into nitrite in the process.</td>
</tr>
<tr>
<td>Nitrites</td>
<td>Used in canned meats, nitrite is the essential agent in preserving meat by pickling. They slow the growth of Clostridium botulinum and prevent botulism. Nitrites also preserve the desirable color and flavor of canned meat products.</td>
</tr>
<tr>
<td>Phosphates</td>
<td>Phosphates are used widely within food processing and have several applications. For baked goods, phosphates are used as leavening agents. Phosphates are also used in the tenderizing of meats and in the processing of meats and seafood to improve texture.</td>
</tr>
<tr>
<td>Stabilizers</td>
<td>Stabilizers help maintain the structure of emulsions. They are often used in meringues and marshmallows to produce body and mouthfeel.</td>
</tr>
<tr>
<td>Thickeners</td>
<td>Thickeners add body to a food product without imparting flavor. Modified starches are used as thickeners in commercial baking, as they work well with acidic ingredients, tolerate high temperatures, and do not cause pie fillings to “weep” during storage.</td>
</tr>
</tbody>
</table>
Chapter 3
Cost Control
Chef Kate and Miguel, co-owners of Kabob, have recently been trying to expand and improve their operation. They started serving brunch, which has been fairly successful in terms of the amount of sales it’s generating. By successfully expanding their operation, they were thinking they would see a marked increase in profit, but that hasn’t been the case. Chef Kate and Miguel are both concerned and confused. How could they be increasing sales but not increasing profit?

When they started to look closely at their business, they realized that maybe they hadn’t planned the brunch expansion as efficiently as they could have. As a result, they are incurring higher costs for food and labor than they should be. After they started looking at their brunch service, they realized that they should evaluate all elements of their operation, from purchasing to service. While Chef Kate and Miguel know it will be a big undertaking, they feel that taking better measures to control costs will be well worth it when the difference shows up on their bottom line. The only question now is where to begin.

As you read this chapter, think about the following questions:

1. What additional costs could have arisen from their new brunch service?
2. How should the menus for each service be synchronized to eliminate waste and redundancies?
3. Have they properly calculated yields for newly added recipes, such as pancake batter?
4. What other aspects of their business might be made more efficient to control costs and increase profit?
Sherie Valderrama
Senior Director, Talent Acquisition
Sodexo

I love my profession. For me, work has always been about being able to make a difference in the world. Being able to help individuals find their dream jobs and build their careers has always been joyful. Then, seeing the impact that these individuals have on the company and the world at large is so satisfying.

I received my B.A. in international affairs and completed graduate coursework in economics. Then I began my career at George Washington University, advising students and alumni on how to develop job search strategies. I transitioned into working with a leading international development consulting firm, directing recruiting operations for its projects in more than 70 developing countries and transitioning economies.

Five years ago, I joined Sodexo, the leading food and facilities management company, which is very much in alignment with my service orientation. I chose this industry because of my passion for service and have now been able to combine it with my love of food.

To be successful in this field, you must have a passion for service and a commitment to excellence. I would suggest learning as much as possible about the industry and the various career paths it offers as well as the companies that are known for excellence. Research the companies that might be of interest to you to learn more about their services, their career opportunities, and the potential for professional and personal growth. Try to learn about the corporate culture, as each company has a distinct culture that can play a key role in professional satisfaction. To do this, you can research the company’s Web site, any company blogs, and its presence on social media sites such as Facebook, LinkedIn, YouTube, and Twitter.

You can also identify individuals currently working with the company and talk to them about their experiences and perceptions. Some questions to explore might include:

• How does this company value its customers and employees?
• Is this a company that embraces a diverse and inclusive workforce?
• Does this company invest in its employees through mentoring and professional development programs and tuition reimbursement?
• Does this company have a corporate social responsibility program?
• Does this company give back to society in the form of philanthropic activity?

Another consideration is the segment that the company represents. Many of you readily recognize the career opportunities in hotels and restaurants but have not
explored the exciting and varied opportunities that exist within contract management. For example, companies like Sodexo offer exciting hospitality careers within a contract management environment, working in hospitals, educational institutions, long-term career facilities, and private sector businesses.

After you have identified a company of interest, I would encourage you to seek out an internship opportunity with that company. That will help you to validate that the company truly fulfills your expectations. It will also position you for an offer of full-time employment upon graduation. Even if the company does not live up to expectations, you will still gain valuable industry experience, which will be an advantage in the job search.

Remember:

“*What I know is, that if you do work that you love, and the work fulfills you, the rest will come.*”

—Oprah Winfrey

And another favorite is:

“*We make a living by what we get; we make a life by what we give.*”

—Winston Churchill

About Cost Control

Cost control in our industry has many facets. The key is to understand your business needs and ensure the effective alignment and utilization of all of your resources—human, financial, and technology. So, we need to understand the optimum staffing needs for a unit, ensure careful attention to purchasing and supply chain management, and reduce the potential for waste. The key consideration when looking at cost control is to have the commitment to maintain quality and operate in a responsible and sustainable manner. Here are a few examples:

1. This year, we eliminated tray service at most of our college campuses. This decision resulted in a major reduction in the use of water and energy to wash the trays, but also had the added benefit of reducing food waste. We found that without the trays, students took fewer items and, therefore, wasted less.

2. Our Supply Management department focuses on efficient purchasing, inventory management, and effective invoicing. Utilizing technology to aid with uniform tracking and analysis has a major impact on our ability to contain costs, yet maintain the high quality of our products. It also helps to leverage our ability to negotiate with vendors, and therefore reduce our overall costs.

3. Our staffing model ensures that we have the right talent at the right levels within each unit. This helps us to control labor costs by ensuring that we are not overstaffed and that we have the correct mix of senior, midlevel, and entry-level talent to provide quality services to our clients and customers.
SECTION 3.1 INTRODUCTION TO COST CONTROL

Here's a little known secret about running a successful operation: You can put out a great product and have a really high sales volume, but if you don’t run the business with a great deal of efficiency, you still won't turn a profit. In the restaurant and foodservice industry, efficiency often translates as cost control. A successful operation must keep costs down to stay in business, but that's no easy task given the number of expenses a restaurant and foodservice operation incurs. Running a restaurant and foodservice operation requires kitchen staff, service staff, and people to manage them; food to serve and equipment to prepare it; and, of course, a place to serve the food. In addition to the mortgage or lease on the property, costs include all the insurance and utility expenses that go along with the property. In short, there are a lot of costs to consider and control. This chapter sets you on your way to doing just that.

Study Questions

After studying Section 3.1, you should be able to answer the following questions:

- What is cost control, and why is it important?
- What are the different types of costs?
- What is an operating budget?
Cost Control Overview

Every business needs to obey one basic principle in order to survive: it must make more money than it spends. In other words, its sales, or revenue, have to be higher than its costs. Revenue is the income from sales before expenses, or costs, are subtracted. Cost is the price an operation pays out in the purchasing and preparation of its products or the providing of its service.

If at any point a business’s costs are higher than its sales, that business is losing money. And if its costs remain higher than its sales for a long time, the operation will likely go out of business. In fact, a business can actually have a high sales volume—meaning, it is earning a lot of money—but still ultimately fail if it doesn’t properly manage its costs. This is why it is so important that an operation keep costs as low as possible. Cost control is a business’s efforts to manage how much it spends (see Figure 3.1).

Types of Costs

In the restaurant and foodservice industry, a successful operation needs to effectively manage and control many costs. The four main categories break down as follows (see Figure 3.2 on the following page):

1. Food costs
2. Beverage costs
3. Labor costs
4. Overhead costs
Food costs, beverage costs, and labor costs each have components that are related to sales levels. These are either variable or semivariable costs, which means that they can change based on sales. Because costs such as these are subject to change based on how the operation is doing, they are controllable costs; the operation has a certain amount of control in how it spends on these aspects of the operation.

The fourth cost on the list is the overhead cost, which is also a fixed or non-controllable cost. These costs can include insurance, utilities, or an operation’s lease or mortgage on the building. Such costs are fixed, meaning they need to be paid regardless of whether the operation is making or losing money. Fixed costs, in contrast to variable costs, do not change based on the operation’s sales. Because costs such as these do not change, they are often referred to as noncontrollable costs. Table 3.1 helps further illustrate and break down these costs.

<table>
<thead>
<tr>
<th>Controllable costs</th>
<th>Noncontrollable costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable and semivariable costs</td>
<td>Overhead/fixed costs</td>
</tr>
<tr>
<td>Food, beverage, and labor</td>
<td>Lease/mortgage, insurance, utilities</td>
</tr>
</tbody>
</table>

It’s very important for an operation to understand the differences in how all of these costs work and how these costs can (and cannot) be managed. This chapter discusses elements of both controllable and noncontrollable costs. The primary focus is on controllable costs, most notably food and labor costs. But before the discussion gets into the specifics of managing controllable costs, this chapter covers two broad methods by which operations monitor, assess, and try to control costs: the operating budget and the profit-and-loss report.
Examples of Cost Classifications

Controllable Costs

An example of a controllable cost is food cost. Management can control this cost by using standardized recipes or exercising standard procedures for portion control, menu listing, and pricing, or by one of several other restraints. For example, if the price of chicken increases and no action is taken, the restaurant’s food cost will increase. At this point, management can either raise the selling price of all chicken entrées, reduce portions, reposition the items on the menu, or eliminate chicken from the menu altogether. By taking action, management has controlled the effect of the increased cost of chicken, resulting in no increase in the restaurant’s food cost.

Another example of a controllable cost is the hourly wage portion of labor cost. By changing the number of hours worked on an employee’s schedule, a manager can affect labor costs. For example, if an operation’s workweek is reduced because of holidays and no other action is taken, payroll cost as a percentage of sales decreases. See Figure 3.3. By reducing the number of hours worked by employees, this percentage could be brought back into line.

Two subsets of controllable costs are variable and semivariable costs.

Variable Costs

Variable costs are those costs that go up and down as sales go up and down, and do so in direct proportion. An example of a variable cost is food cost. As sales go up, more food is purchased to replenish inventory. As sales go down, less
food is bought. If adequate cost controls are in place, little waste exists, and no theft occurs, then the amount of food used should be in direct proportion to sales. See Figure 3.4.

**Semivariable Costs**

Semivariable costs go up and down as sales go up and down, but not in direct proportion. Semivariable costs are made up of both fixed costs and variable costs. An example of a semivariable cost is labor. Management is normally paid a salary. The salary remains the same regardless of the operation’s sales volume. If the general manager, assistant manager, and chef are collectively paid $160,000 per year, they will receive that amount regardless of what the restaurant makes for a year. Thus, management’s salary is a fixed cost. That is, it remains the same regardless of volume.

On the other hand, staff members such as the waitstaff and line cooks are often paid an hourly wage and are scheduled according to anticipated sales. As a result, the cost of hourly employees goes up as sales go up and goes down as sales go down. If proper scheduling is used, the cost will go up and down in direct proportion to sales levels. Putting this all together, labor is considered a
semivariable cost because there is a fixed cost component (management’s salary) and a variable cost component (hourly staff wages).

**Noncontrollable Costs**

An example of a noncontrollable cost is insurance. After an insurance policy has been negotiated, management has no control over the cost of that policy. Another example is the operation’s lease or mortgage. After management signs the lease, it has virtually no control over this cost. A subset of noncontrollable costs is the fixed, or overhead, cost.

**Fixed Costs**

Fixed costs are those costs that remain the same regardless of sales volume. Insurance is an example of a fixed cost. As previously mentioned, after the insurance policies have been negotiated, the cost remains the same throughout the term of the policy. For example, if the cost of insuring the business is $1,000 per month, it will remain at $1,000 every month, regardless of how much money the operation makes or loses. That cost would not change because sales levels have changed.

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**Did You Know…?**

Restaurants can easily spend as much on the cost of food and beverages as they do on payroll. According to the National Restaurant Association, on average, restaurants operate on profit margins of 4 to 6 percent, which means every dollar saved is crucial to the health and sustainability of the operation.

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**Operating Budgets**

An operating budget is a financial plan for a specific period of time. It is an essential tool for managing an operation’s many costs. An operating budget lists the anticipated sales revenue and projected costs and gives an estimate of the profit or loss expected for the period. Management often prepares operating budgets monthly, but it can prepare them for shorter or longer periods depending on the structure of the organization. Operating budgets serve many purposes in the management of a restaurant or foodservice operation. These purposes include the following:

1. Analyzing controllable cost needs, such as labor, food and beverages, and supplies
2. Outlining operating goals and managers’ performance responsibilities
3. Measuring actual performance against anticipated performance
Although an operating budget is a necessary tool for restaurant and foodservice managers, preparing one is not a simple process. Putting together a useful and accurate budget requires time and care. See Figure 3.5 for a sample operating budget. An operating budget takes into account all aspects of an operation’s finances, including all sales, controllable and noncontrollable costs, employee benefits, and depreciation.

### Figure 3.5: Sample operating budget.

<table>
<thead>
<tr>
<th>Item</th>
<th>Amount</th>
<th>Cost/Unit</th>
<th>$/Cost/Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>$1,200,000</td>
<td></td>
<td></td>
<td>Final Sales: The amount of cash projected to be sold</td>
</tr>
<tr>
<td>Beverages</td>
<td>$300,000</td>
<td></td>
<td></td>
<td>Beverages Sales: The amount of beverages projected to be sold</td>
</tr>
<tr>
<td>Total Sales</td>
<td>$1,500,000</td>
<td></td>
<td></td>
<td>Total Sales: The combined total of beverage sales projected</td>
</tr>
<tr>
<td>Food Cost</td>
<td>$750,000</td>
<td></td>
<td></td>
<td>Food Cost: The amount of food and beverages purchased</td>
</tr>
<tr>
<td>Beverage Cost</td>
<td>$300,000</td>
<td></td>
<td></td>
<td>Beverage Cost: The amount of beverages purchased</td>
</tr>
<tr>
<td>Total Cost of Sales</td>
<td>$1,050,000</td>
<td></td>
<td></td>
<td>Total Cost of Sales: The combined total cost of sales</td>
</tr>
<tr>
<td>Gross Profit on Sales</td>
<td>$450,000</td>
<td></td>
<td></td>
<td>Gross Profit on Sales: The total sales minus the total cost of sales</td>
</tr>
<tr>
<td>Payroll</td>
<td>$250,000</td>
<td></td>
<td></td>
<td>Payroll: Wages and salaries projected to be paid to employees</td>
</tr>
<tr>
<td>Miscellaneous Supplies</td>
<td>$50,000</td>
<td></td>
<td></td>
<td>Miscellaneous Supplies: All non-wages and salary variable cost is to be paid to employees</td>
</tr>
<tr>
<td>Marketing</td>
<td>$20,000</td>
<td></td>
<td></td>
<td>Marketing: The projected cost to advertise and maintain the restaurant’s image</td>
</tr>
<tr>
<td>Maintenance</td>
<td>$15,000</td>
<td></td>
<td></td>
<td>Maintenance: The projected costs of capital items and special orders</td>
</tr>
<tr>
<td>Administrative Supplies</td>
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<td></td>
<td></td>
<td>Administrative Supplies: The projected costs of administrative supplies</td>
</tr>
<tr>
<td>Rent</td>
<td>$75,000</td>
<td></td>
<td></td>
<td>Rent: The projected cost of property tax</td>
</tr>
<tr>
<td>Utilities</td>
<td>$5,000</td>
<td></td>
<td></td>
<td>Utilities: The projected cost of property tax</td>
</tr>
<tr>
<td>Total Operating Expenses</td>
<td>$1,080,000</td>
<td></td>
<td></td>
<td>Total Operating Expenses: The combined cost of all operating expenses</td>
</tr>
<tr>
<td>Profit Before Occupational Expenses</td>
<td>$120,000</td>
<td></td>
<td></td>
<td>Profit Before Occupational Expenses: The gross profit on sales minus total operating expenses</td>
</tr>
<tr>
<td>Property Tax</td>
<td>$12,000</td>
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<td>Property Tax: The projected amount of property tax</td>
</tr>
<tr>
<td>Miscellaneous Supplies</td>
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<td></td>
<td></td>
<td>Miscellaneous Supplies: The projected cost of miscellaneous supplies</td>
</tr>
<tr>
<td>Insurance</td>
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<td></td>
<td>Insurance: The projected cost of insurance</td>
</tr>
<tr>
<td>Depreciation</td>
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<td></td>
<td></td>
<td>Depreciation: The projected cost of property tax</td>
</tr>
<tr>
<td>Total Occupational Expenses</td>
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<td></td>
<td></td>
<td>Total Occupational Expenses: The combined cost of all operating expenses</td>
</tr>
<tr>
<td>Excess Income</td>
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<td></td>
<td>Excess Income: The projected amount of excess income</td>
</tr>
<tr>
<td>Extraordinary Expenses</td>
<td>$20,000</td>
<td></td>
<td></td>
<td>Extraordinary Expenses: The projected cost of extraordinary expenses</td>
</tr>
<tr>
<td>Total Other Income/Expense</td>
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<td></td>
<td></td>
<td>Total Other Income/Expense: The total other income plus the extraordinary expenses</td>
</tr>
<tr>
<td>Profit Before Income Tax</td>
<td>$50,000</td>
<td></td>
<td></td>
<td>Profit Before Income Tax: The profit before occupation plus income and expense</td>
</tr>
</tbody>
</table>

Most operating budgets are based on forecasts. A forecast is a prediction of sales levels or costs that will occur during a specific time period. A variety of methods are used to forecast foodservice sales and costs, and most of them rely directly on having accurate historical data for the operation. To plan for the future, a manager must look at what has occurred in the past. The most common foodservice revenue forecasting techniques are based on the number of customers and average sales per customer, which are calculated by the total dollar sales divided by the total number of customers. Operational records, such as sales histories and production sheets, provide this valuable information.
A **sales history** is a record of the number of portions of every item sold on a menu. A **production sheet** lists all menu items that are going to be prepared for a given date (see Figure 3.6). The sheets will vary according to an operation’s individual needs and forecasts. Use these kinds of operational records to calculate what has happened in the past, including trends related to menu item popularity.

Several software products are available that can also help calculate sales forecasts. Most operations can run historical sales and production reports from their **point-of-sale (POS) systems**. Use the information on these reports to anticipate what is likely to occur moving forward. But be careful. Sales one week don’t necessarily translate into the same sales the next week. Outside factors, such as weather, time of year, local construction, and so on, always need to be accounted for as well.

One way to forecast in spite of such fluctuations is to use the **moving average technique**, also called the smoothing technique. Using this technique, sales information for two or three recent and similar periods is averaged together. The average can produce a forecast that is more likely to be accurate, since it is not based solely on one period that might have had unique circumstances.
Beverage Boon!
Offering alcoholic beverages to customers is an integral part of the dining experience at many restaurants. Many customers regard it as an enjoyable accompaniment to their food. If alcoholic beverage service is in keeping with the character of the operation, pairing items from the food and alcoholic beverage menus that complement each other can enhance the diners’ experiences. Offering alcoholic beverage service also plays a very important role in the profitability of an operation, so it comes as no surprise that many restaurants want to offer alcoholic beverage service to their guests.

Meeting the needs and expectations of customers is just as important to alcoholic beverage service as it is to the selection of food offerings. The alcoholic beverage menu may be limited or extensive and can be provided to customers in many ways, such as table tents, separate menus, or as part of the food menu (see Figure 3.7). Because beverage service makes such a strong contribution to the operation’s profit margin, the operation’s staff must be well trained and knowledgeable in the alcoholic beverages offered.

The average markup for alcoholic beverages typically falls between 300 and 400 percent; food items have a much lower markup, between 100 and 200 percent. Because of this substantially higher markup, alcoholic beverages generate much greater gross margin and net profit than food items. Additionally, when customers order alcoholic beverages, it is reflected in an increase in the total guest check. The result for the restaurant is greater revenues and higher profits.

Essential Skills
How to Develop an Operating Budget

Making a budget is the first step to planning a company’s financial future. Make this as accurate and realistic as possible. If the restaurant is in a small town, for instance, don’t expect 300 guests for dinner each night. Over the years, most managers refine their budgeting skills, perhaps through practice and experience, perhaps by taking classes in business management.
Refer back to Figure 3.5, and use this basic overview to get started:

1. Collect all available historical and demographic data: If this isn’t your first year in business, then you have records—invoices, sales information, and payroll figures—that you can look at when making a budget. If you are preparing to open a new business, look around the community for information. Ask the local Chamber of Commerce about other similar businesses, research property values and income levels in your community, and study the area to see where people live and work. The National Restaurant Association can also provide data about your area. (See the What’s New box in the “Profit-and-Loss Report” section.) A lunch-only restaurant near a number of offices might do very well; whereas the same restaurant might fail in a residential neighborhood. Do your homework!

2. Forecast revenues: Realistically predict how much money the business will earn in the coming year. Is the restaurant planning to cater a number of big events? Is a housing boom bringing newcomers to the area? Is a big marketing campaign in the works, or is the restaurant introducing a new menu concept? All of these can affect potential income. Make sure to create categories of revenue, such as dinner sales, wedding catering, and so on, and list realistic amounts of earnings in each category.

3. Forecast costs: Realistically predict how much money the business will spend during the coming year. Are wage increases due to the employees? Is the rent going up? What about the price of gas—will that affect delivery costs? Does the restaurant plan to expand the outdoor seating area? Again, all of these can affect costs. Create cost categories, like payroll, rent, and utilities and predict how much the operation will spend on each.

It may be difficult to make an accurate budget the first year of business, but each following year, as better historical data becomes available and management skills improve, the estimates will get better and better.

**Essential Skills**

*How to Forecast Sales Volume*

Forecasting means using previous experience to foresee future occurrences. Restaurants use forecasting to predict everything from next year’s budget to how busy Saturday night will be. These “guesstimates” help management and staff know what to expect so they can plan the work.
These are the steps involved in forecasting:

1. **Analyze the sales history:** Knowing what items were popular at what times yields a lot of information. Consider changing the menu price for an item that is consistently in high demand or removing a poorly selling dish. If Saturday nights are always slow in January, reduce inventory and schedule fewer staff members.

2. **Account for externalities:** If a blizzard is predicted, consider closing early. On the other hand, if the restaurant has air conditioning during an August heat wave, consider increasing supplies and scheduling more staff to account for more customers.

3. **Predict sales volume:** Based on all this information, estimate how busy the operation will be for a particular service or time period. Schedule staff and deliveries of perishables accordingly.

4. **Predict sales mix:** Anticipating how many the restaurant will sell of each menu item helps to plan work. For instance, if the seared duck breast accounts for 5 percent of dinner entrée sales and the restaurant expects 100 guests this evening, expect to sell five duck breasts. (Of course, have more than five prepared, just to be safe—this isn’t an exact science.)

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**Profit-and-Loss Reports**

Another way of helping an operation to manage and control its overall costs is through a profit-and-loss report (see Figure 3.8 on the following page). A profit-and-loss report is a compilation of sales and cost information for a specific period of time. This report shows whether an operation has made or lost money during the time period covered by the report. The profit-and-loss report, which is also called the income statement, is a valuable management tool. It helps managers gauge an operation’s profitability as well as compare actual results to expected goals. Carefully monitoring this information monthly or quarterly helps management determine areas where adjustments must be made to bring business operations in line with established financial goals. It is a useful tool in helping to assess how accurate an operation’s operating budget has been.

A profit-and-loss report lists sales income first and then lists all expenses. The end of the report reflects the amount of profit or loss for the period covered. For an operation to be profitable, sales must exceed costs.
Use the reports to judge the efficiency of an operation, to determine where costs have gotten out of line, and to make basic management decisions. For larger organizations, investors, owners, and managers use the reports to determine the profitability of an operation.

Take several approaches to analyzing a profit-and-loss report. When comparing a recent profit-and-loss report to the budget, company standards, industry standards, or historical trends, look for any variances or changes that have occurred. This is a good way to check how the operation is running and can prevent future problems by catching them early. As soon as he detects variances, a manager can analyze what happened and develop a plan of how to correct the problem. This is a little like using progress reports and report cards.
National Restaurant Association Industry Surveys
The National Restaurant Association regularly surveys its members to collect information about the American restaurant industry. Some of this material is used to develop ranges for certain costs, such as labor or utilities. These ranges serve as the general standards for the industry and can be used for an individual operation when analyzing its own profit-and-loss report.

For example, a recent survey found that full-service restaurants with an average check of under $15.00 spend between 28.4 and 37.8 percent of their total budgets on employee wages and benefits, with a median of 32.5 percent. If a restaurant or foodservice operation’s costs are significantly lower than 28.4 percent, they may not be attracting the best employees or might not have enough staff to perform the necessary work. On the other hand, if their costs are much higher than 37.8 percent, they might be paying out more in wages and benefits than the restaurant sales can support. The report gives similar information for both quick-service and full-service operations at a variety of price points, providing ranges for food costs, marketing expenses, profits, and other financial essentials.

It’s important to remember that restaurants should compare themselves to similar establishments when determining whether their costs fall within general industry standards. For instance, a quick-service restaurant with a check average of $10.00 is a radically different operation from a full-service restaurant with a check average of $50.00. One is not inherently better or worse than the other, but they are apples and oranges as far as labor, operational, and other costs.

Cost-Control Tools

Many tools are available to restaurant and foodservice managers to help them control foodservice costs. For example, in the kitchen, portioning equipment, such as ladles and scoops, helps to ensure consistent quality and portion sizes. Receiving and portion scales also serve the same purpose but for larger-volume items. To help control staffing and labor costs, time clocks and POS (point-of-sale) systems also can serve the same purpose. Cash registers and POS systems also keep track of sales during the day, and equipment-monitoring systems can help ensure that an operation’s equipment is functioning properly to keep efficiency high.

Advances in technology have also drastically increased the number of options available to operations in controlling costs. Email, the Internet, and numerous software programs all aid managers in closely monitoring sales. Full-line supplier companies (that is, one-stop shops that provide equipment, food, and supplies) have programs available to their customers that help with controlling
costs. Programs can be used to complete the calculations required in cost planning, controlling sales, controlling inventory, and focusing on the menu. Software programs can easily provide better access to information, more accurate and more convenient collection of information, and improved analysis of that information. See Figure 3.9.

But going overboard with all of the options available today can also be counterproductive. If not put to good use, they’ll amount to nothing more than additional costs to the operation, and some of this technology are expensive. When choosing technology, answer the following questions:

- Will it help enhance guest satisfaction?
- Will it help increase revenue?
- Will it help reduce costs?
- Will it increase employee or management productivity?
- Will it improve communication?

If used effectively, technology can be a real help in running an operation more efficiently and helping to reduce and effectively control costs. Changes and advances in what’s available on the market for this purpose are never ending, so operations need to continually stay up to date with the latest trends in both technological hardware and software.
Summary

In this section, you learned the following:

■ Every business needs to obey one basic principle in order to survive: it must make more money than it spends. In other words, its sales, or revenue, must be higher than its costs. Revenue is the income from sales before expenses, or costs, are subtracted. Cost is the price an operation pays out in purchasing and preparing products or providing services. Cost control is the process by which an operation tries to keep its costs as low as possible.

■ Food costs, beverage costs, and labor costs each have components that are related to sales levels. These costs are either variable or semivariable, which means that they can change based on sales. Because such costs are subject to change based on how the operation is doing, they are controllable; the operation has a certain amount of control in how it spends on these aspects of the operation. The overhead cost is a fixed or noncontrollable cost. These costs can include insurance, utilities, or a lease or mortgage on a building. Such costs are fixed, meaning they won’t change. Because fixed costs do not change, they are often referred to as noncontrollable costs.

■ An operating budget is a financial plan for a specific period of time. It lists the anticipated sales revenue and projected costs and gives an estimate of the profit or loss expected for the period. Operating budgets serve many purposes in the management of a restaurant or foodservice operation. They can be used to analyze controllable costs, such as labor, food and beverage, and supplies; to outline operating goals and managers’ performance responsibilities; and to measure actual performance against anticipated performance.

■ A profit-and-loss report is a compilation of sales and cost information for a specific period of time. This report shows whether an operation has made or lost money during the time period covered by the report. The profit-and-loss report, which is also called the income statement, is a valuable management tool. It helps managers gauge an operation’s profitability as well as compare actual results to expected goals.
Many tools are available to restaurant and foodservice managers to help them control foodservice costs. For example, the kitchen offers portioning equipment, such as ladles and scoops, to ensure consistent quality and portion sizes. Receiving and portion scales serve the same purpose but for larger-volume items. To help control staffing and labor costs, use time clocks and POS (point-of-sale) systems. Cash registers and POS systems keep track of sales during the day, and equipment-monitoring systems can help ensure that an operation's equipment is functioning properly to keep efficiency high. Email, the Internet, and numerous software programs all aid managers in closely monitoring sales. Programs can be used to complete the calculations required in cost planning, controlling sales, controlling inventory, and focusing on the menu.
Section 3.1 Review Questions

1. What is cost control?
2. What are two controllable costs?
3. Provide two examples of a noncontrollable cost.
4. List two ways in which an operating budget helps manage an operation.
5. Why would Sherie Valderrama agree that cost control is critical to the success of a restaurant or foodservice operation?
6. Given what you just learned in this section, what would you suggest to Chef Kate and Miguel regarding where they should start their cost-control efforts?
7. Try to list as many foodservice costs as you can according to whether they are controllable or noncontrollable.
8. What cost-control tools do you think you would rely on most if you were running a quick-service operation? Explain your answer.
Section 3.1 Activities

1. **Study Skills/Group Activity: Quick-Service Budgeting**
   Working with two or three other students, think of a quick-service restaurant with which you are all familiar. Then, begin to create an operating budget for that establishment. In doing so, highlight the top five factors that you would need to consider and explain your rationale in choosing them.

2. **Independent Activity: Profit-and-Loss Analysis**
   Imagine you are running your own operation. Briefly describe what it would be like. Then, consider the three methods of analyzing profit-and-loss reports. Which do you think would be most useful to you and why?

3. **Critical Thinking: Start-Up Costs**
   Select a city or town and research its characteristics: population, major industries, and other elements that affect its character. What kind of restaurant would succeed there? In what way would you try to allocate costs? For example, would you want to spend more on labor and better service, or more on food? Would you think allotting more money for overhead expenses like a lease or mortgage on a location would be more significant than either food or labor? Write a one-page proposal, detailing your broad cost outline.
SECTION 3.2 CONTROLLING FOOD COSTS

How can a burger and fries at one place cost $5.00 but cost $10.00 at another place. Why does one establishment charge $2.00 for a cup of coffee, while another shop down the road only charges $1.50? Why do prices vary so much for what seem like similar items?

The pricing of food is a complicated process. Sometimes the extra expense is fair and well worth paying for. The quality of ingredients, care in preparation, expertise in cooking, and quality of service can all add up to a higher, and just, price point on a menu. Sometimes, though, such quality isn’t evident at all. When that happens, either the operation is trying to compensate for inefficiencies somewhere else in the business, or it simply doesn’t understand how to correctly price its product. Neither adds up to a successful operation.

This section discusses the various elements that go into figuring out the price of food, how to accurately assess what recipes cost an operation, and how to properly value it on the menu. All three are essential skills in not only controlling food costs, but running a successful operation in general.

Study Questions

After studying Section 3.2, you should be able to answer the following questions:

■ What are the steps in the food flow process?
■ How is food cost determined?
Steps in Controlling Food Costs

Food costs must be controlled during all seven stages of the food flow process; from the actual purchasing of food items to how they are served to customers. Figure 3.10 shows a diagram of the food flow process. Following is a list of each of the seven stages:

- **Purchasing:** An operation must be spending wisely and getting good quality product for cost. Establishing quality standards is essential in acquiring and producing consistent, top-quality product. An operation that is spending too much for a product is wasting money and ultimately losing potential revenue. For more on purchasing, see Chapter 5: Purchasing and Inventory.

- **Receiving:** An operation must be sure that it is getting what it’s paying for, both in quality and quantity, from its vendors. Management or well-trained staff need to be in charge of receiving to ensure quality standards and accuracy of orders. For more on receiving, see Chapter 5.

![Figure 3.10: The seven stages of the food flow process.](image-url)
Storage: Proper storage of goods is essential. Storage facilities must be safe, sanitary, and efficient. Operations must continually monitor freezers and refrigerated storage units to make sure they are running as they should be. Improperly stored food will be wasted, and wasted food increases food costs. For more on storage, see Chapter 5.

Issuing: An efficient issuing system, also known as inventory control, allows operations to control food costs in a number of ways. It keeps a record of what product is being used most frequently (that is, what is selling), and it also helps prevent pilfering. For more on issuing, see Chapter 5.

Preparation: Efficient food preparation is crucial to controlling food costs. All product should be used to the fullest, so operations should have detailed specifications as to exactly how every food item should be prepared for cooking.

Cooking (production): The way in which food is prepared and portioned is obviously an important stage in the food flow process. Incorrectly cooked food goes to waste, and incorrectly portioned food also results in waste, both of which add to food costs.

Service (sale): Service is the final stage in the process, but no less important than the previous stages. Good service is crucial to moving product that needs to be moved, as well as correctly taking orders so that mistakes aren't made in the kitchen. Any mistakes made at the service level can both directly and indirectly contribute to increased food costs. For more on service, see Foundations of Restaurant Management & Culinary Arts, Level One, Chapter 10: Serving Your Guests.

Inefficiencies at any stage of the food flow process result in foodservice costs that go up, so it’s crucial for any operation to closely monitor all aspects of how the business functions.

Did You Know…? In the United States as a whole, an estimated 30 percent of food is wasted. This waste is from grocery stores (because of spoilage or blemishes), restaurants (food that isn’t used), and consumers (leftovers and food that is spoiling). That amounts to an annual loss of approximately $50 billion of food.
Determining Food Cost

**Food cost** is the actual dollar value of the food used by an operation during a certain period. It includes the cost incurred when food is consumed for any reason. Food cost includes the cost of food sold, given away, wasted, spoiled, incorrectly prepped, overportioned, overproduced, or pilfered. Fortunately, the formula for figuring food cost takes into account the multiple purchases and uses of food items in a typical operation.

Opening and closing inventory data are needed to determine the value of the food cost. **Inventory** represents the dollar value of a food product in storage and can be expressed in terms of units, values, or both. **Opening inventory** is the physical inventory at the beginning of a given period (such as the month of April). The **closing inventory** is the inventory at the end of a given period. Most operations do inventory and figure food cost monthly, but some do it weekly. Rarely is it done on a daily, quarterly, or annual basis.

The formula for calculating food cost starts with adding the opening inventory together with the purchases made during that period. The total of these two numbers equals the total food available, or the dollar amount of all food available for sale. Then, subtract the closing inventory from the total food available, resulting in the total food cost.

This method is the only accurate way to obtain an actual food cost:

\[
(\text{Opening inventory} + \text{Purchases} = \text{Total food available}) - \text{Closing inventory} = \text{Total food cost}
\]

Some operations further refine the cost of food sold to get a more accurate number of how all the food is being used. To do this, the operation subtracts these items from its cost of food sold:

- Employee meals
- Complimentary items to customers
- Transferring food to another location (used by hotels and chain operations)

Determining Food Cost Percentage

**Total food cost percentage** is the relationship between sales and the cost of food to achieve those sales. Food cost percentage is often the standard against which food cost is judged. Analyze food cost percentage by comparing it to company standards, historical costs, or even industry standards. In most cases, the standard food cost percentage is a target determined by management.
To determine the percentage, divide the total food cost by the sales. This sets it up as a ratio relationship. Doing the math and dividing it out makes it a percentage. By expressing the cost of food sold in percentages, it can be compared on a month-to-month or week-to-week basis regardless of any fluctuation in sales. Controlling the food cost percentage becomes the most important priority if the operation is to be profitable.

\[
\text{Total food cost} \div \text{Sales} = \text{Food cost percentage}
\]

Food cost is a variable cost, which means it should increase or decrease in direct proportion to an increase or decrease in sales if all of the standards and food controls are followed correctly. In contrast, if the cost controls are not followed correctly, food costs and sales will not be in proportion to each other. Therefore, if an operation meets its standard food cost percentage month after month, its standards are set properly, and the control system is working. If it does not meet its standard, then either the standards are set incorrectly, the controls are not working, or both.

**Establishing Standard Portion Costs**

Most every operation has standardized recipes that are followed every time a menu item is prepared. For every standardized recipe, an operation should establish a standard portion cost, which is the exact amount that one serving, or portion, of a food item should cost when prepared according to the item's standardized recipe.

A key control in getting the proper relationship between a menu item’s cost and its selling price is through the use of a recipe cost card. A recipe cost card is a tool used to calculate the standard portion cost for a menu item. See Figure 3.11 on the following page. It is a table of ingredient costs for each item in the standardized recipe. If recipe cost cards are not used, the selling price is nothing more than a guess. Operations must understand and use recipe cost cards since they are critical to the accurate figuring of selling prices.

As with the standardized recipe, a recipe cost card should exist for every multiple-ingredient item listed on the menu.
How to Determine Standard Portion Cost

Before you can decide how much to charge for an item on your menu, you must know how much it costs to make. Follow these steps to determine how much the ingredients to make a single portion of tomato sauce will cost, assuming you need 1 cup of tomato paste to make the recipe, which serves 6 people.

1. Using the standardized recipe, list all the ingredients.

2. For each ingredient, list both the amount needed and the unit of measurement you’ll use:
   - 1 cup tomato paste
   - (“1” is the amount needed, and “cup” is the unit of measurement you’ll use.)

3. For each ingredient, list the cost (the amount you paid) and the unit of measurement the seller used (these should be on the invoice from the seller):
   - $15/quart
   - (“$15” is the cost to purchase the tomato paste, and “quart” is the unit of measurement the seller used, so 1 quart of tomato paste costs $15.)
Convert the seller’s unit of measurement to your recipe’s unit of measurement:

1 quart = 4 cups.

(If 1 quart of tomato paste costs $15, then 4 cups of tomato paste also cost $15.)

Convert the cost for the seller’s unit of measurement to the cost of your unit of measurement:

$15 ÷ 4 cups = $3.75.

(“$15” is the cost of all 4 cups of the tomato paste, and “$3.75” is the cost of a single cup.)

Multiply the number of units needed for the recipe by the cost per unit:

1 cup × $3.75 = $3.75.

(So 1 cup of tomato paste costs you $3.75.)

Follow the same steps for all the other ingredients in the recipe. For instance, 8 ounces of basil costs you $12, and 1.5 pounds of onion costs you $0.96.

Add together all the costs you pay for the ingredients in this recipe.

For instance, $3.75 + $12 + $0.96 = $16.71.

If tomato paste, basil, and onion are the only ingredients in this recipe, then the recipe cost will be $16.71.

Divide the recipe cost by the number of portions the recipe yields:

$16.71 ÷ 6 = $2.785.

The standard portion cost of this recipe is $2.79.

As-Purchased versus Edible-Portion Costs

As mentioned earlier, standard portion cost is the exact amount that one serving, or portion, of a food item should cost when prepared according to the item’s standardized recipe. Two methods are used to determine the cost of ingredients in a standardized recipe: the AP method, which means “as purchased;” and the EP method, which stands for “edible portion.” A big difference between these two methods affects both the quality of the recipe and the costs of the ingredients. See Figure 3.12 on the following page.

The as-purchased (AP) method is used to cost an ingredient at the purchase price before any trim or waste is taken into account. In the AP method, all ingredient quantities are listed on the standardized recipe in the form in which
they are purchased. “Ten pounds of onion, diced” is an example of AP, as the recipe is calling for ten pounds of onion, as purchased. In this case, the chef would start with ten pounds of whole onion, then peel and dice it, and add the onion to the recipe. Ten pounds of onions wouldn’t actually be used in the recipe itself, which is why it falls under the AP method.

The edible-portion (EP) method is used to cost an ingredient after trimming and removing waste so that only the usable portion of the item is reflected. Using the EP method to cost an ingredient, the quantity is listed on the standardized recipe using only the edible portion of that particular ingredient. For example, “ten pounds of diced onion” involves taking some quantity of onion, and then peeling, dicing, and weighing the results until there are ten pounds of peeled, diced onion. This ingredient would be costed using the EP method because the recipe is based on the edible portion of the onion only.

To obtain a cost in this case, use the original weight of the product. If you started with eleven pounds of onion in order to obtain ten pounds EP of diced onion, you would use the cost for eleven pounds to determine the cost of the onion used in the recipe.

**Recipe Yields**

Occasionally a recipe will not yield the number of portions that it is supposed to yield, or an operation will opt to serve a different portion size than what is listed on the recipe card. In such cases, the operation needs to determine exactly what kind of yield the recipe is making or change the yield according to the operation’s needs. A **recipe yield** is the process of determining the number of portions that a recipe produces.
To determine how many portions a recipe yields, calculate the total yield of the recipe either by weight or by volume, depending on how the portion size is calculated. Weigh or measure only the major ingredients. Remember to take cooking loss into account, especially for meat, vegetables, and fruit. To determine the total number of eight-ounce portions available from a macaroni and cheese recipe, for example, an operation must first look at the recipe’s list of ingredients and their volume, such as the list for macaroni and cheese as shown in Figure 3.13.

3 pounds raw macaroni
2 quarts white sauce
2 cups grated cheese
4 ounces butter
1 tablespoon salt
1 teaspoon paprika
4 ounces breadcrumbs

In this particular recipe, only the volume of the macaroni and the white sauce must be calculated. The cheese is not calculated, since it is absorbed into the white sauce. Butter, salt, paprika, and breadcrumbs are negligible and also are not counted. Three pounds of raw macaroni yields 24 cups of cooked macaroni. On average, a cup of cooked pasta weighs between 5 and 6 ounces. Therefore, 24 cups of pasta multiplied by 5.5 ounces equals 132 ounces or 8.25 pounds of cooked macaroni. This converts to 192 fluid ounces. Two quarts converts to 64 ounces (32 ounces per quart, so $2 \times 32 = 64$).
The total volume of the macaroni and cheese recipe is:

\[192 \text{ fluid ounces macaroni} + 64 \text{ fluid ounces white sauce} = 256 \text{ fluid ounces of finished macaroni and cheese}.\]

Then, divide the total volume by the portion size to provide the yield of the recipe:

\[256 \text{ fluid ounces product} ÷ 8 \text{ ounces portion} = 32 \text{ servings}.\]

Understanding recipe yields is one of the keys to successful food preparation and controlling food costs. The measurements given in recipes must be followed exactly. If the number of portions a recipe yields is unknown, or if a recipe isn’t being portioned properly, it can cost an operation substantial amounts of revenue.

Finally, keep in mind that once a yield is known and properly followed, it’s easier to increase or decrease the size of the recipe based upon the operation’s changing needs. Most recipes, even those for baked goods, can be doubled successfully. Many recipes for casseroles and soups can be doubled, and even halved, tripled, and so on. See Table 3.2 on converting yields. Accurate recipe yields are crucial for an operation to effectively manage inventory, revenues, and costs.

### Table 3.2: Converting Recipe Yields

<table>
<thead>
<tr>
<th>Formula for increasing or decreasing recipe yields:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Decide how many servings you need (desired yield).</td>
</tr>
<tr>
<td>2. Use the following formula: Desired yield ÷ Original yield = Conversion factor (number to multiply ingredients by). For example, if your chili recipe serves 80 and you need to serve 40: 40 ÷ 80 = 0.5. The conversion factor is 0.5.</td>
</tr>
<tr>
<td>3. Multiply each ingredient amount by the conversion factor. This keeps all the ingredients in the same proportion to each other as they were in the original recipe.</td>
</tr>
<tr>
<td>4. As needed, convert answers to logical, measurable amounts. Think about the equipment you will use for measuring. For example: 6/4 cups flour = 1 ½ cups; 12 tablespoons brown sugar = ¾ cups.</td>
</tr>
<tr>
<td>5. Make any necessary adjustments to equipment, temperature, and time. The depth of food in a pan affects how fast it will cook. Use pans that are the right size for the amount of food—neither too large nor too small.</td>
</tr>
</tbody>
</table>
Recipe Tester

Ever tried out a recipe, even for something as seemingly straightforward as a grilled cheese sandwich, and considered various ways to make the finished product even better? This is the basic principle of a recipe tester’s job. These individuals work with recipes that are to be published in cookbooks, magazines, and newspapers to ensure that they are clear and easy to follow, produce consistent outcomes, and, of course, taste good.

A recipe tester needs good communication skills because he or she is the bridge between the chef who created the recipe and the consumer who will eventually read and try the published version at home. The tester must work hard to make sure everything in the recipe is easy to understand and can’t be confused or misread. Depending on what publication the recipe will appear in, the tester will provide more or less information to the reader. A newspaper’s food section may require brief, easy-to-prepare recipes geared to busy home cooks, while advanced cookbooks may need highly detailed material for professional chefs.

A typical day of testing may involve extended purchasing trips, several hours of cooking and note taking, and often meetings with editors and managers to taste and discuss the finished products. A broad range of education and career choices can be suited to this work.

Controlling Portion Sizes

Controlling portions is very important for a restaurant to meet its standard food cost. Portions can be controlled by weight, volume, or count: for example, an 8-ounce portion of steak, a 1-ounce ladle of dressing, or 12 shrimp. Although some staff in the kitchen may believe that they have a “feel” for exact portion sizes, it is important that staff use portion-control devices rather than guessing. Without using portioning equipment, staff may be serving portions that are bigger than the menu price has been calculated for, which will result in the operation losing money. On top of that, inconsistent portioning can lead to inconsistent products. Tools that are essential for accurate portion control include the following (see Figure 3.14 on the following page):

- Scoops
- Ladles
- Serving spoons
- Serving dishes
- Ramekins, bowls, cups, and so on
- Portion scales
Another mechanism for ensuring that portions are the right size is to preportion any item that can be preportioned before serving. For example, during a rush period, the cook’s line can get hectic, and errors are more prone to happen. Therefore, preportioning items will not only save time but will also improve accuracy. Deli meats, which can be precut, weighed, and sealed in plastic bags until used for sandwiches are a good example of preportioning. The more preportioning that can be done, the smoother the rush period will be, the fewer errors that will be made, and the more food costs will be controlled in both the short and long run.

**Monitoring Production Volume and Cost**

While not adhering to standard recipes is a major cause of increased food cost in production, preparing the incorrect amount of product is also a problem. Every operation should strive to produce quantities as close to the quantity actually needed in order to maintain standard food costs and sales. If the operation produces too much food, leftovers are the result.

Quite often, these leftovers aren’t suitable for sale because their appearance and taste do not meet company standards. Sometimes adding leftovers to other recipes, such as adding leftover beef to beef vegetable soup, can salvage the extra product. However, the leftovers rarely bring the same markup as the original product.

Conversely, not producing enough product and running out of an item can disappoint customers and runs the risk that they will not return to your establishment. Either of these situations is a lose-lose for the restaurant. Produce too much and food cost goes up; produce too little and sales are lost. The answer to this dilemma resides in the food production chart.
A food production chart (see Figure 3.15) is a form that shows how much product should be produced by the kitchen during a given meal period. A well-structured chart can ensure product quality, avoid product shortages, and minimize waste, spoilage, theft, energy costs, and administrative costs.

Sales history is critical in helping management forecast how many portions of each menu item to produce on a given day. Management determines what percentage of the total sales each menu item provides. Then management multiplies the percentages by the customer forecast to predict how many portions of each menu item to produce. For example, a restaurant runs these items every Monday on its menu:

- Chicken á la king in a puff-pastry shell
- Roast loin of pork with dressing
- Broiled salmon with lemon butter sauce
- Roast sirloin of beef au jus
- Vegetable lasagna
Having run these items for a while, the restaurant has a sales history. From the sales history, management knows that when this menu runs, the following percentages are sold:

- Chicken à la king in a puff-pastry shell 22 percent
- Roast loin of pork with dressing 18 percent
- Broiled salmon with lemon butter sauce 15 percent
- Roast sirloin of beef au jus 35 percent
- Vegetable lasagna 10 percent

Management then predicts how many customers will come in on that Monday. One hundred eighty customers are expected, so the following portions of each item should be produced:

- Chicken à la king in a puff-pastry shell \((180 \times .22) = 40\)
- Roast loin of pork with dressing \((180 \times .18) = 32\)
- Broiled salmon with lemon butter sauce \((180 \times .15) = 27\)
- Roast sirloin of beef au jus \((180 \times .35) = 63\)
- Vegetable lasagna \((180 \times .10) = 18\)

Total portions: 180

Of course, these are estimated projections, not exact figures. So an operation would want to make slightly more or less depending on the circumstances at that exact time (for example, weather, construction, time of season, and so on).

**Menu Pricing**

The menu is the primary sales tool in most restaurant and foodservice operations. Since food costs influence what goes on the menu and how those menu items are priced, operations must be aware of all the factors that affect food costs. The menu would ideally reflect the overall cost of running the operation. That means the price of an item should include all of the costs needed to purchase, prepare, and serve it, along with other costs such as labor, rent, utilities, etc. In short, the success of the operation hinges on proper menu pricing. A manager can use a number of methods in menu pricing:

- Contribution margin method
- Straight markup pricing
Chapter 3 | Foundations of Restaurant Management & Culinary Arts

- Average check method
- Food cost percentage method

**Contribution Margin Method**

A *contribution margin* is the portion of dollars that a particular menu item contributes to overall profits. To use the *contribution margin method* of pricing a menu, an operation must know the portion costs for each item sold. This is why recipe portion cost cards are so important. Then an operation can determine the average contribution margin needed to cover overhead and yield a desired profit at an expected level of sales volume. Let’s say 30,000 customers are served in the following example:

\[
\begin{align*}
\text{Gross food sale} & = \$100,000 \\
\text{Cost of food sold} & = \$40,000 \\
\text{Gross profit (total contribution margin)} & = \$60,000 \\
\text{Overhead/fixed costs} & = \$50,000 \\
\text{Net profit} & = \$10,000
\end{align*}
\]

Each customer spent an average of $3.33 ($100,000 sales / 30,000 customers) and contributed an average of $2.00 (60,000 total contribution margin / 30,000 customers) to overhead and profit. Using the contribution margin method, the operation would then price each menu item at $2.00 above cost.

**Straight Markup Method**

In the *straight markup pricing method*, multiply raw food costs by a predetermined fraction. For example, if an operation pricing a menu item with a raw food cost of $0.63 uses a straight two-thirds markup, the menu is calculated as follows:

\[
\begin{align*}
0.63 \times \frac{2}{3} & = 0.42 \\
0.42 & + 0.63 = 1.05
\end{align*}
\]

**Average Check Method**

With the *average check method*, the total revenue is divided by the number of seats, average seat turnover, and days open in one year. The average check gives managers an idea of the price range of items on the menu. Use this range, along with an approximate food cost percentage, to determine each item's selling price.
Food Cost Percentage Method

As discussed earlier in the chapter, the food cost percentage is equal to the food cost divided by food sales. If an operation projects monthly food costs to be $18,000 and monthly food sales to be $62,000, the food cost percentage will be 29 percent ($18,000 / $62,000). Based on this figure, an operation can price all food items on the menu. For example, if an item costs $1.12, determine its selling price using this pricing formula:

\[
\text{Item cost} \div \text{Food cost percentage} = \text{Price}
\]

\[
$1.12 \div 0.29 = 3.86 \text{ (which can be used to price the item at $3.86, or rounded up to $4.00)}
\]

(Note: .29 is the decimal equivalent of 29 percent.)

Summary

In this section, you learned the following:

- Food costs must be controlled during all seven stages of the food flow process, from the actual purchasing of food items to how they are served to customers. The seven stages are purchasing, receiving, storage, issuing, preparation, cooking, and service.

- Food cost is the actual dollar value of the food used by an operation during a certain period. It includes the cost incurred when food is consumed for any reason. Food cost includes the cost of food sold, given away, wasted, spoiled, incorrectly prepped, overportioned, overproduced, or pilfered. Opening and closing inventory data is needed to determine the value of the food cost. Inventory represents the dollar value of a food product in storage and can be expressed in terms of units, values, or both. Opening inventory is the physical inventory at the beginning of a given period (such as the month of April). The closing inventory is the inventory at the end of a given period. The following method is the only accurate way to obtain an actual food cost:

\[
(\text{Opening inventory} + \text{Purchases} = \text{Total food available}) - \text{Closing inventory} = \text{Total food cost}
\]

- Food cost percentage is the relationship between sales and the cost of food to achieve those sales. Food cost percentage is often the standard against which food cost is judged. Analyze food cost percentage by comparing it to company standards, historical costs, or even industry standards. In most cases, the standard food cost percentage is a target determined by management. By expressing the cost of food sold in percentages, it can be compared on a month-to-month or week-to-week basis regardless of any fluctuation.
in sales. Controlling the food cost percentage becomes the most important priority if the operation is to be profitable. The food cost percentage formula is as follows: Food cost ÷ Sales = Food cost percentage.

- Most every operation has standardized recipes that are followed every time a menu item is prepared. For every standardized recipe, an operation should establish a standard portion cost, which is the exact amount that one serving, or portion, of a food item should cost when prepared according to the item's standardized recipe. A key control in getting the proper relationship between a menu item's cost and its selling price is through the use of a recipe cost card. A recipe cost card is a tool used to calculate standard portion cost for a menu item. It is a table of ingredient costs for each item in the standardized recipe. If recipe cost cards are not used, the selling price is nothing more than a guess. It is essential that operations understand and use recipe cost cards since they are critical to the accurate figuring of selling prices.

- Two methods used to determine the cost of ingredients in a standardized recipe are the AP method, which means “as purchased,” and the EP method, which stands for “edible portion.” Use the as-purchased (AP) method to cost an ingredient at the purchase price before any trim or waste is being taken into account. In the AP method, list all ingredient quantities on the standardized recipe in the form in which they are purchased. “Ten pounds of onion, diced” is an example of AP, as the recipe is calling for ten pounds of onion, as purchased. In this case, the chef would start with ten pounds of whole onion, then peel and dice it, and add the onion to the recipe. Use the edible-portion (EP) method to cost an ingredient after trimming and removing waste so that only the usable portion of the item is reflected. Using the EP method to cost an ingredient, list the quantity on the standardized recipe using only the edible portion of that particular ingredient. For example, “ten pounds of diced onion” involves taking some quantity of onion, and then peeling, dicing, and weighing the results until there are ten pounds of peeled, diced onion.

- A recipe yield is the process of determining the number of portions that a recipe will produce. To determine how many portions a recipe yields, calculate the total volume of the recipe either by weight or by volume, depending on how the portion size is calculated. Weigh or measure only the major ingredients. Remember to take cooking loss into account, especially for meat, vegetables, and fruit.
Controlling portions is very important for a restaurant to meet its standard food cost. Portions can be controlled by weight, volume, or count; for example, an 8-ounce portion of steak, a 1-ounce ladle of dressing, or 12 shrimp. It is important that staff use portion control devices rather than guessing. Without using portioning equipment, staff may be serving portions that are bigger than the menu price has been calculated for, which will result in the operation losing money. In addition to that, inconsistent portioning can lead to inconsistent products. Tools that are essential for accurate portion control include scoops, ladles, serving spoons, serving dishes, ramekins, bowls, cups, and portion scales.

Every operation should strive to produce quantities as close to the quantity actually needed in order to maintain standard food costs and sales. If the operation produces too much food, leftovers result. Conversely, not producing enough product and running out of an item can disappoint customers and runs the risk that they will not return to the establishment. Either of these situations is a lose-lose for the operation. Produce too much and food cost goes up; produce too little and sales are lost. The answer to this dilemma resides in the food production chart.

A food production chart is a form that shows how much product should be produced by the kitchen during a given meal period. A well-structured chart can ensure product quality, avoid product shortages, and minimize waste, spoilage, theft, energy costs, and administrative costs.

The menu is the primary sales tool in most restaurant and foodservice operations. Since food costs influence what goes on the menu and how those menu items are priced, operations must be aware of all the factors that affect food costs. The menu would ideally reflect the overall cost of running the operation. That means the price of an item should include all of the costs needed to purchase, prepare, and serve it, along with other costs such as labor, rent, utilities, and so on. In short, the success of the operation hinges on proper menu pricing. Use a number of methods in menu pricing: contribution margin method, straight markup pricing, average check method, and food cost percentage method.
Section 3.2 Review Questions

1. What is the formula for determining actual food cost?
2. Why is determining food cost percentage important?
3. Why is it important to control portion sizes?
4. Use the straight markup method to determine the price of a menu item with a raw food cost of $0.50 at a two-thirds markup.
5. Sherie Valderrama noted that the supply management department focuses on efficient purchasing, which has a major impact on their ability to contain costs, yet maintain the high quality of their products. Why is this true?
6. Chef Kate and Miguel never sat down and made up recipe cards for their new brunch menu. Write up a recipe card for one of the following three dishes to get them started: eggs Benedict; omelet with spinach, feta, and tomato; or Belgian waffle with fresh blueberries.
7. How does using a standard portion size affect a restaurant’s costs and profits? What if an operation does not use a standard size?
8. Look at the four methods of menu pricing and determine which you think would be the most effective. Which would you use if you were managing an operation? Why? Explain your rationale in two paragraphs.
Section 3.2 Activities

1. Study Skills/Group Activity: Cost-Control Poster

Working in small groups, create a poster showing the various steps in the food flow process at which you can control food costs in your restaurant. Include two or three methods for controlling costs at each step.

2. Independent Activity: A Tale of Two Recipes

Find a recipe online and write it two ways: edible-portion and as-purchased. When do you think it would be better to use each version?

3. Critical Thinking: Converting Recipes

Select a recipe from this book. Using a conversion factor of 2.3, convert the recipe to the new yield.
SECTION 3.3 CONTROLLING LABOR COSTS

A foodservice manager can know a location or an area for an operation really well. They can also know food really well. And if he or she has expert knowledge in both of these foodservice costs, they’re off to a great start. But in some ways that’s the easy part because there aren’t an endless number of variables to account for. For example, T-bone steaks don’t call in sick, one broccoli floret can’t decide to be less productive than another broccoli floret, and locations don’t suddenly and unexpectedly move away without notice. When it comes to location and food products, the foodservice manager has a certain amount of control. The same consistency can’t necessarily be said for the staff.

People and their productivity levels can vary greatly with regard to experience, motivations, personalities, and overall work ethics. People need guidance and training, both in general foodservice skills and the particular rules and procedures of a specific operation. Any deviation from established skill sets or operation specifications can cost the business money, which is why controlling labor costs can be so difficult, but also so important. It’s not as easy to quantify how much an operation is getting for its money, so it needs to be vigilant in establishing goals, keeping lines of communication open, and being flexible to the needs of its staff. These aspects of controlling labor costs are covered in this section.
Budgeting Labor Costs

As discussed earlier in the chapter, labor is a semivariable, controllable cost. Labor costs are tied to sales, but not directly. Most operations have full-time staff, such as a manager and chef, and also part-time staff, such as servers, greeters, and sometimes line cooks (see Figure 3.16). Full-time employees are often salaried, so they will work and be paid regardless of how busy the operation is on a daily or weekly basis. But part-time employees are staffed according to sales volume, or how busy or slow an operation is at a given time or during a particular season.

Operations must be aware of the fluctuations in their sales so as to have just the right amount of staff on hand to handle customers efficiently. Having too few staff results in poor quality product and service. Having too many staff results in money wasted. Additionally, inefficient and/or inconsistent staffing on the part of management will likely lead to disgruntled employees, which could then result in even more cost-control problems, such as increased employee turnover.

For an operation to achieve its budgeted profit, the sales projections listed in its budget must be met. Additionally, the operation’s costs must be held to its standards,
which is the budgeted dollar amount or percentage for each type of cost. It is an important part of the management function to make sure that payroll cost is in line with the budgeted standard. If the cost goes below the standard, the quality of food or service could suffer, resulting in lost sales. If the cost is above the standard, the profit suffers. In short, an operation must know all of the factors that contribute to labor costs as well as how to create effective schedules for all employees.

In Figure 3.17, the blue line represents the restaurant’s ideal labor cost. Of course, the restaurant can rarely stick to that exact ideal on any given day: more or fewer customers arrive than are expected, a new employee may be less skilled and therefore slower than the long-term employee he or she has replaced, employees call in sick, and so forth. So, usually a restaurant will spend either a little above or a little below the line—as represented by the red line.

![Figure 3.17: The X-axis represents hours worked and the Y-axis represents wages paid.](image)

If the restaurant spends too much on labor—in other words, if it is spending money above the blue line—then it is losing profit by paying more staff than are needed to perform the necessary work. If the restaurant spends too little on labor—if it is spending money below the blue line—then the quality of the employees’ work will deteriorate because there are too few staff members to perform the necessary work.

The ideal labor cost is the standard the restaurant uses to budget for staffing needs; it represents what the restaurant management predicts will happen. The actual labor cost varies above or below the ideal cost from day to day, since the management’s prediction cannot be 100 percent accurate.
Factors Contributing to Labor Costs

Many factors go into the labor costs. All of the following affect labor costs:

- Business volume
- Employee turnover
- Quality standards
- Operational standards

**Business volume**, or the amount of sales an operation is doing for a given time period, impacts labor costs. When business volume increases, the fixed elements (salaried employees such as managers) of labor cost decrease by a percentage (see Figure 3.18). The variable elements of labor cost go up and down in direct relation to sales volume. An increase in sales means more hours needed; a decrease in sales means fewer hours. Staffing needs to correspond to the given need of the operation for it to function efficiently and cost effectively.

![Figure 3.18: As business volume increases, fixed labor cost decreases as a percentage of business volume because salaried employees are paid the same regardless of how many hours they may work.](image)

Labor cost has both fixed and variable components. As business volume increases, fixed labor costs *decrease* as a percentage of business volume because employees who are on salary can be required to work more hours for the same pay. But variable costs as a percentage of business volume may increase or decrease. If employees who are paid hourly work more hours to deal with increased business volume, then variable labor costs will *increase* as a percentage of business volume. But what if management wants to take greater advantage of the increased business volume? They might choose to keep the same...
amount of hourly labor as before and rely on salaried employees to take more shifts. This will decrease the amount of total labor costs (fixed and variable).

The period just before Valentine’s Day at Julio’s Bistro can be a useful illustration. Julio knows that business volume will increase significantly as guests celebrate the holiday. He also knows that his salaried staff can be asked to work more hours during that time. In this case, Julio’s fixed labor costs decrease as a percentage of business volume. The more sales Julio makes, the less his salaried employees cost him. In Figure 3.18 on the previous page, the X-axis represents business volume and the Y-axis represents months of restaurant activity. See the green line that represents fixed labor costs as a percentage of business volume.

Julio has two options regarding his hourly employees. He can increase their hours (and therefore their paychecks) to cope with the increased business volume; or he can keep their hours (and therefore their paychecks) the same, and rely on his salaried employees to handle the increased business volume. In the first scenario, these variable labor costs will increase as a percentage of business volume. In the second scenario, these variable labor costs will decrease as a percentage of business volume. In Figure 3.19, the X-axis represents business volume and the Y-axis represents variable labor costs.

**Figure 3.19:** If hourly employees work more to meet the demands of increased business volume, then variable labor costs may increase as a percentage of business volume. If hourly workers work the “normal” amount of hours, or fewer hours, despite increased business volume, then variable labor cost will decrease as a percentage of business volume.
Employee turnover is the number of employees hired to fill one position in a year’s time. It directly impacts labor cost. Typically, the higher the turnover rate of a given operation, the higher the labor costs. This results primarily from the training costs involved in bringing on new staff. For example, an operation’s current employees are often responsible for teaching and tutoring new trainees; at the same time, the new trainee is getting paid for very little or no productivity while learning the ins and outs of the operation. Every time an operation hires someone, labor costs go up because it takes a new employee a period of time to achieve the productivity level of an experienced employee.

Quality standards also affect labor cost. As discussed in Chapter 5, quality standards are the specifications of the operation with regard to products and service. The type of operation and the type of menu it has determine the number of staff and the skill level required of that staff to meet the operation’s needs. For example, a fine-dining operation might have higher menu prices and higher service specifications than a quick-service restaurant. Employee skill levels will then need to be higher, which will require more training, more experience, and, consequently, higher labor costs.

Regardless of the operation’s quality standards for service, it also must meet operational standards. If an employee does not prepare a product that meets the operation’s standards, the item must be redone. This costs money, not only in terms of wasted product that increases food cost, but also in terms of productivity that increases labor cost. If a line cook at a fine-dining steakhouse, for example, overcooks one steak priced at $30.00 on the menu, all of that potential revenue is wasted. Likewise, if a quick-service line cook overcooks an entire batch of fries, that would yield 10 servings at $3.00 a serving, $30.00 in potential revenue is lost. The quality standards for these establishments are likely different, but the operational standards for each were not met, resulting in lost revenue and, ultimately, increased labor costs to compensate for mistakes made.

Did You Know…?
The restaurant industry employs approximately 13 million people nationwide in the United States. It is the nation’s biggest employer outside of the government. By 2019, the restaurant industry is expected to add another 1.8 million jobs.
Scheduling

Scheduling depends greatly on how much revenue an operation is bringing in and how much revenue an operation is expected to bring in. Such sales projections are an estimate of future sales based largely on historical sales records. The historical sales records are used as a baseline. This baseline is either increased or decreased based on current, local, and national trends.

As projected sales increase, the number of employees will increase, and as projected sales decrease, the number of employees will decrease. Therefore, a master schedule is based on a norm (see Figure 3.20). It is a template, usually a spreadsheet, showing the number of people needed in each position to run the restaurant or foodservice operation for a given time period. List no names on the master schedule, simply the positions and the number of employees in those positions. Create it with the idea that a certain sales level will likely be reached. As sales change from that norm, either up or down, adjust the master schedule accordingly.

For example, if a new office park is slated to open across the street from a restaurant, project lunch sales to show an increase over the previous year. Conversely, if a manufacturing plant in town is expected to shut down, lower the projections, as some residents will have little or no income to spend on eating out.

An operation needs to examine more than just the previous year's sales information when calculating future sales projections. To make the best estimates for a reasonable master schedule, it also needs to consider current trends. Although
local trends are more important than national ones, the latter should not be overlooked. The economy, unemployment, and other national and international events all affect a person's desire or ability to eat out. For example, in 2008-09, the national financial crisis impacted restaurant and foodservice operations across the country. If an operation failed to account for this national economic downturn, perhaps by cutting back on hourly staff, it likely suffered more financially throughout this period.

After determining the anticipated sales, management must determine the payroll dollars, which are the number of dollars available for payroll for a scheduling period. After the dollars available for labor scheduling are known, management can begin to create a crew schedule. A crew schedule is a chart that shows employees' names and the days and times they are to work. Figure 3.21 is a sample crew schedule. Create the crew schedule by using the master schedule as a template. Develop it with flexibility in mind. Employees are unhappy when their schedule conflicts with important events in their personal lives. It will often seem to the employees as if their needs and concerns are being disregarded by management. Likewise, managers become unhappy when an employee cannot, or will not, work a shift when he or she is desperately needed. Most of these types of situations can be avoided by having clear policies, making the schedule far enough ahead so that your employees can plan, and maintaining open, two-way communication in the scheduling process.

<table>
<thead>
<tr>
<th>Crew Schedule</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Week of 10/2/10</strong></td>
</tr>
<tr>
<td><strong>S = Server</strong></td>
</tr>
<tr>
<td><strong>Saturday</strong></td>
</tr>
<tr>
<td>Michele</td>
</tr>
<tr>
<td>Ron</td>
</tr>
<tr>
<td>Aliisa</td>
</tr>
<tr>
<td>Marcia</td>
</tr>
<tr>
<td>Randy</td>
</tr>
<tr>
<td>Maxwell</td>
</tr>
<tr>
<td>Claire</td>
</tr>
<tr>
<td>Manuela</td>
</tr>
<tr>
<td>Hunter</td>
</tr>
<tr>
<td>Jacob</td>
</tr>
<tr>
<td>Isabella</td>
</tr>
<tr>
<td>Ethan</td>
</tr>
<tr>
<td>David</td>
</tr>
<tr>
<td>Meghan</td>
</tr>
<tr>
<td>Zachary</td>
</tr>
<tr>
<td>Hannah</td>
</tr>
</tbody>
</table>

**Figure 3.21:** A sample crew schedule.
Of course, things don’t always go according to plan, so develop a contingency plan. Such a plan helps the operation remain efficient and productive even during adverse conditions, such as power outages, weather issues, employee absences, and so on. A good contingency plan should include the following:

- **Cross-training employees:** These employees can handle responsibilities in sections of the operation aside from their primary work responsibilities.

- **Identifying shift leaders:** Train new hires and take the lead when plans need to change on the fly during the course of a work shift.

- **Having on-call employees:** A certain number of employees must call their operation at a predetermined time to find out whether they have to work that day; this way an operation will have staff ready and available should a particular work shift require more hands, regardless of the reason why (see Figure 3.22).

Having all of these provisions in place will lead to properly staffed operations with happy crews and contented management. Such conditions will invariably produce lower labor costs overall, as turnover, negligence, and pilfering will be down, while productivity will be up—the ideal cost-controlling scenario.

### Essential Skills

*How to Develop a Contingency Plan*

Contingency plans give both managers and employees peace of mind by providing roadmaps to resolve any unusual situation. These plans are especially valuable in case of emergency, such as a fire or an outbreak of foodborne illness, which requires working with outside agencies. The following components should all be involved:

- Make a telephone tree. These make it easier to contact all staff, including on-call employees, in a short period of time. See Figure 3.23.

  *Note:* Depending on the establishment, you might use a mass voice-mail, email, or text message that reaches everyone simultaneously.
• Cross-train employees. Every recipe, technique, or task used in the establishment should be practiced and understood by at least three employees.

• Create and test an emergency plan. See *Foundations of Restaurant Management & Culinary Arts, Level One, Chapter 3, Workplace Safety.*

• Identify and train leaders. Do this among different shifts or kitchens.

• Develop an employee handbook. This will codify emergency and contingency plans.

• Communicate with staff. Be sure everyone understands what he or she should do in case problems arise.

**Scheduling Staff and Calling “Audibles”**

Managers who make up the crew schedule are sometimes like quarterbacks in football: they may have to change plans and call an “audible” at the last minute to adapt to new situations. Both employees and employers need some flexibility in scheduling. We’re all human, and personal and working lives can change quickly. Accordingly, many restaurant and foodservice establishments have carefully developed staffing policies to help prepare for unexpected situations, such as staff illnesses and lower-than-anticipated business. One common component is the audible, the ability either to call staff members in to work or to cancel their shifts without much notice in order to meet changing needs. Often, front-of-the-house members will be on call for certain shifts, usually days on which little business is expected. This flexibility allows restaurants and managers to control their labor costs without sacrificing customer service.
In this section, you learned the following:

- Operations must be aware of the fluctuations in their sales so as to have just the right amount of staff on hand to handle customers efficiently. Having too few staff results in poor-quality product and service. Having too many staff results in money wasted. Inefficient and/or inconsistent staffing on the part of management will likely lead to disgruntled employees. This could then result in even more cost-control problems such as increased employee turnover.

- For an operation to achieve its budgeted profit, the sales projections listed in its budget must be met. Additionally, the operation’s costs must be held to its standards, which is the budgeted dollar amount or percentage for each type of cost. It is an important part of the management function to make sure that payroll cost is in line with the budgeted standard. If the cost goes below the standard, the quality of food or service could suffer, resulting in lost sales. If the cost is above the standard, the profit will suffer.

- Four primary factors affect labor costs:
  - Business volume, or the amount of sales an operation is doing for a given time period, impacts labor costs. The variable elements of labor cost go up and down in direct relation to sales volume (increase in sales means more hours needed; a decrease in sales needs fewer hours).
  - Employee turnover is the number of employees hired to fill one position in a year’s time. It directly impacts labor costs. Typically, the higher the turnover rate of a given operation, the higher the labor costs. This results primarily from the training costs involved in bringing on new staff.
  - Quality standards also affect labor costs. Quality standards are the specifications of the operation with regard to products and service. The type of operation and the type of menu it has determines the number of staff and the skill level required of that staff to meet the operation’s needs.
  - Operational standards also need to be met. If an employee does not prepare a product that meets the operation’s standards, the employee must redo that item. This costs money, not only in terms of wasted product that increases food cost, but also in terms of productivity and increasing labor cost.
Scheduling depends greatly on how much revenue an operation is bringing in and how much revenue an operation expects to bring in. Such sales projections are an estimate of future sales based largely on historical sales records. The historical sales records are used as a baseline. This baseline is either increased or decreased based on current, local, and national trends. As projected sales increase, the number of employees will increase; and as projected sales decrease, the number of employees will decrease. Therefore, a master schedule is based on a norm. It is a template, usually a spreadsheet, showing the number of people needed in each position to run the restaurant or foodservice operation for a given time period. List no names on the master schedule, simply the positions and the number of employees in those positions. It is created with the idea that a certain sales level will likely be reached. After determining the anticipated sales, management must determine the payroll dollars, which are the number of dollars available for payroll for a scheduling period. After the dollars available for labor scheduling are known, management can begin to create a crew schedule. A crew schedule is a chart that shows employees’ names and the days and times they are to work. The crew schedule is created by using the master schedule as a template. Develop it with flexibility in mind.
Section 3.3 Review Questions

1. What could happen if the payroll cost falls out of line with the budgeted standard?
2. List the four factors that influence labor costs.
3. How does a master schedule differ from a crew schedule?
4. What are two strategies that can be included in a contingency plan?
5. Sherie Valderrama noted that Sodexo’s staffing model ensures that it has the right talent at the right levels within each unit. Why is this critical to the success of an operation?
6. Part of the problem that Chef Kate and Miguel discovered is that they are often overstaffed, and so while the service is good, their labor costs are very high. Present them with options as to how to go about controlling their labor costs. Write a one-page proposal of your ideas.
7. What factor affecting labor costs do you think is the most important to control? Why? Explain your answer in a two-paragraph report.
8. Why is cross-training important? Are there any disadvantages to it? Would you use it in your operation? Explain your rationale.
Section 3.3 Activities

1. Study Skills/Group Activity: Creating a Crew Schedule

Working with two or three other students, create a one-week crew schedule for a restaurant open six days a week for lunch and dinner that employs eight full-time cooks, four part-time cooks, two full-time dishwashers, and two part-time dishwashers. Assume all the cooks are equally skilled and that the restaurant’s service periods are 11:30 a.m. to 2:00 p.m. for lunch, and 5:30 p.m. to 9:00 p.m. for dinner.

2. Independent Activity: Employee Policies and Cost Control

Research the employee policies of two different restaurant or foodservice operations. What do they offer employees in terms of scheduling, benefits, and pay? Write a paragraph for summarizing each of the two employee policies, and then, in an additional paragraph, explain which one you think is better in terms of controlling labor costs and why.

3. Critical Thinking: Turning Around Turnover

Your restaurant suffers from a high turnover rate, which is increasing your labor costs and bringing down productivity. As the manager, you need to solve this problem. Put together a one-page plan that will address the turnover issue. What steps can you take to reduce turnover in your restaurant or foodservice establishment?
As mentioned earlier in the chapter, take cost-control measures in all aspects of the food flow process, from purchasing to service. In order to control costs through all of these stages, establish quality standards and strictly follow them for each and every step. This section discusses the quality standards to be implemented for not only food production, but also receiving and storing food and taking accurate inventory. An operation’s demand for high quality standards is the surest way to reduce costs across all facets of foodservice.

**Study Questions**

After studying Section 3.4, you should be able to answer the following questions:

- How can quality standards for purchasing, receiving, and storing help control costs?
- How can quality standards for food production and service help control costs?
- How can quality standards for inventory help control costs?
Quality Standards for Purchasing, Receiving, and Storing

**Purchasing**

Prior to ordering, receiving, and storing quality products, consider where the products were grown or produced. Even the best receiving and storing policies and procedures cannot make a poor-quality product better after it is in the establishment. So, choosing a credible supplier is key. Those with purchasing responsibility should seek suppliers who are considered to be ethical, reliable, and financially stable or deemed to be part of an approved supplier list, based on food safety, product quality, and price.

Understanding what items are necessary for an operation stems from ensuring that the item’s intended use is clearly defined. The intended use describes how a product or service is meant to be used, developed, or consumed. A product’s intended use is its most important characteristic to consider when specifying quality standards. The way a product is to be used drives all decisions for selecting the product and its supplier. Draw up specification sheets according to these criteria.

**Receiving**

Once purchase orders have been made, the next step is to receive the item in the most efficient, safe, and effective way possible. Deliveries should be designated to times when the operation is slow. An operation does not want staff to worry about receiving and putting away products at the same time they are serving customers. Proper delivery timing can only be accomplished by establishing a good relationship with vendors so that an operation can count on them to consistently deliver food when wanted. Figure 3.24 shows an employee checking a delivery.

The frequency of deliveries can help preserve food quality. Some food must be delivered daily, while other food can safely be delivered weekly. An operation

![Figure 3.24: An employee inspects a delivery.](image)
may need to weigh the advantage of daily and weekly deliveries for freshness against the added time that receiving takes. The menu and service style of the operation factor into decisions such as these. Following are guidelines for delivery specifications:

- **Fish:** Fresh fish should be delivered daily. Frozen fish can be delivered only weekly.
- **Produce:** Certain fresh produce should be delivered daily. Bulk and hardy vegetables should be delivered weekly.
- **Specialty produce:** Delicate or specialty produce, such as wild mushrooms, mesclun mix lettuce, and tropical fruit (mangoes, kumquats) with a short shelf life, should be ordered daily according to its specifications sheet.
- **Dried goods:** Specialty products exist that are shelf stable and do not need to be ordered daily. Gain a financial advantage by bulk ordering some specialty sauces or specialty items for the pastry department, such as chocolates, flours, and decorations. But when ordering bulk, an operation also must consider financial savings versus storage space and the potential loss due to pilfering or pest infestation.
- **Meat:** Regardless if it is dry- or wet-aged, meat should be ordered and delivered at least two or three times per week. This will depend mostly on the establishment’s usage and storage capacity.
- **Dairy:** Order dairy product at least twice a week. Milk and eggs have a good shelf life, but do not stretch the time too far. Most cheeses are very shelf stable as long as they are kept in the cooler.

Well-defined receiving procedures ensure that an operation receives only the products that meet its established standards for quality and quantity and rejects product that does not meet these standards. The operation’s manager has the responsibility for establishing appropriate procedures for receiving and storing food, training the designated staff members in these procedures, and monitoring the receiving function. Implementing appropriate procedures helps to prevent product deterioration that can lead to spoiled food and a higher food cost for the operation. Such procedures can include the following:

1. Have the delivery person put the order in a designated “receiving area” of the kitchen. The receiving area should be clean, well lit, and easily accessible.
2. Obtain a copy of the purchase order.
3. Have a copy of the purchasing specifications available.
4. Check the delivery quantity against both the purchase order and *invoice*, which is a document from a vendor that lists such details as items purchased, date of order, purchaser, and sales price. An invoice is also called a bill. Find out whether any unauthorized items were added to the order by checking the purchase order and invoice. See Figure 3.25.

![Image of an invoice](image-url)

**Figure 3.25:** A sample invoice.

5. If the items are purchased by count, count them. If purchased by weight, weigh them, particularly meat and produce.

6. Open the shipment boxes and check for freshness and accuracy for all items.

7. Compare the prices on the invoice to those on the purchase order to ensure that they match. Check the math on the invoice, even if it is a computer-generated invoice.
8. If everything is in order, sign the invoice. If something must be returned, have the driver write out a credit memo for the item or circle the item on the invoice and state the reason for the return. Use the same procedure if an item is missing. The driver may want to rush through this procedure. Do not rush! The objective here is to ensure you have the correct product, quality, and quantity at the correct price. If any of these elements are missing, the food cost will likely increase, and the profit will subsequently decrease.

9. Put the goods away promptly: dairy, meat, fresh poultry, and fresh seafood first; then frozen food, produce, and dry goods. Prompt storage protects against food spoilage and theft. Secure the storage area when everything is in its place.

10. Process the paperwork by sending copies of the signed purchase order and the signed invoice to the accounting department.

**Storing**

After purchasing and properly receiving orders, safely store them. Poor storage procedures and facilities can greatly increase food costs due to waste and increased labor costs, so it’s critical that operations create quality standards for proper storage.

Obviously, monitor perishable food daily to preserve its quality. Some food items have manufacturer’s recommendations for storing the product. One example is a recommended storage temperature. Air circulation in any storage area is critical to keep food cool or frozen or to prevent food from getting moldy. Store food with proper labels and rotate all products in storage following the FIFO (first in, first out) system. Each establishment should have inventory schedules for the freezer, cooler, and dry goods sections of its storage. Schedules should be followed regularly to ensure that every product is being used safely and efficiently and so that no product is going to waste.

In addition to checking the food in the storage facilities, the storage facilities themselves should be checked regularly to make sure they are clean and functioning properly and efficiently. Following is a list of items to monitor for each storage unit:

- **Freezers**: These must be at a temperature that will keep food frozen solid. Freezers are usually either walk-in or have front door or trunk openings. Walk-in freezers should have speed racks, or shelving, to provide enough space for items to have enough room to freeze properly. Air movement is crucial in both the freezer and cooler. Clean freezers at least once a week.
Chapter 3 | Cost Control

■ **Coolers:** These must be able to hold food at 41°F or lower. Coolers and freezers have a fan blowing the cold air around in the room. Again, it is very important to keep the air moving between products. Avoid placing product on sheet pans, since this hampers air circulation. The cooler should be monitored on a daily basis to ensure cleanliness.

■ **Temperature:** Both freezers and coolers must be tested for the correct temperature regularly. Establishments with a HACCP program might test freezer and cooler temperatures every two hours or at least twice a day.

■ **Dry storage:** Moisture and heat are the biggest dangers to dry and canned food. The temperature of the storeroom should be between 50°F and 70°F. Keep relative humidity at 50 to 60 percent, if possible. All shelving in any of the areas must be at least 6 inches off the ground. This space is necessary to make access difficult for rodents and to provide enough space to clean underneath the shelving on a daily basis.

**Quality Standards for Food Production and Service**

As discussed earlier, standard portion sizes, standardized recipes, and standard portion costs are all food production standards. Such standardizing of food production helps to ensure quality standards as well because each item is measured against one standard. Customers receive the same quality of food on each visit to the operation, which, in turn, helps ensure the success of the business by building the operation’s reputation and creating regular customers. It also helps to keep costs consistent. It is important that managers ensure these standards are met throughout the foodservice cycle, from menu planning to table service. In larger operations with multiple locations, these standard procedures ensure that the meal served in one location is comparable to the same meal in another location with regard to quality, taste, and presentation.

But having these standards doesn’t guarantee that mistakes won’t get made from time to time. So it is important that operations have quality assurance measures in place right up to the service stage of the food flow process. Prior to service, managers should taste each item to ensure it meets the operation’s standard. For any item that could suffer a quality problem during holding (such as a sauce breaking), check periodically to verify its quality. Check the appearance of a dish before serving it. Visual evaluation before serving a dish catches problems that can be corrected easily, such as a lack of garnish or a dish that has not been held at a specified serving temperature (see Figure 3.26 on the following page). Some operations have specifications for exactly how a plate should look when it leaves the kitchen. Another reason visual evaluation is important is that it is
usually the first clue that there may be a larger problem to be solved.

The key to identifying deviations from standard recipes and presentations is regular monitoring and the understanding by the staff that it is the responsibility of everyone in the establishment to ensure quality. Constantly monitoring food quality is not difficult to do, but it may take time to turn it into a habit for everyone. It is also essential that all staff—management, the executive chef, waitstaff, front-of-the-house staff, and kitchen staff—are involved and that their opinions are considered and valued.

When a problem’s cause or causes are discovered, the manager must work with the entire staff to implement the correction. It is important to discover the root cause, or true cause, of a problem. A problem can be internal or external, meaning it might be caused by something happening inside the operation or by something happening outside the operation, such as a vendor delivering the wrong item. Failure to identify the root of a problem will lead to increased costs by way of food waste, lower staff productivity, and perhaps even loss of customer base. If everyone is responsible for the product being delivered, then the chances are greater that deviations from quality standards will not occur; or if a deviation does occur, that it will be corrected more quickly.

Examples of corrections could include revising product specifications, revising a procedure, revising a recipe, or selecting a new vendor. The faster a problem is identified and a correction is made, the more costs will be kept under control.

**Quality Standards for Inventory**

Taking inventory is yet another way to ensure quality standards that will ultimately serve as a cost-control measure. Taking **physical inventory** means counting and recording the number of each item in the storeroom. Literally count each item or scan bar codes with handheld scanners (see Figure 3.27 on the following page).
Closely monitor inventory to ensure that products are ordered more efficiently as they are needed. Operations are less likely to run out of product, which could disrupt food production and, ultimately, the satisfaction of the guests’ experience. Closely monitoring inventory also helps ensure that no product goes to waste. Operations that know what products have been purchased, when they were purchased, and how long they’ve been in-house are more likely to effectively use the FIFO system. Minimizing waste keeps costs down as the use of only the freshest products helps keep sales up.

Determine actual food costs by opening and closing inventories for a given period. These costs can’t be properly calculated without an operation closely monitoring the products being purchased and used. At the start, or opening, of a given inventory period, calculate total values of each item by multiplying the unit cost of the item by the number of items in inventory. For example, if 18 cans of peaches are in inventory and each can costs $2.38, the total value of canned peaches is $42.84 (18 \times 2.38 = 42.84).

After calculating a total count for each inventory item, calculate the closing inventory or the total dollar value of the inventory at the end of a period. The value of the closing inventory can be determined using any of the following four methods:

1. **Latest purchase price (FIFO):** Multiply the number of units of each item by the most recent price paid for the item.

2. **Actual purchase price:** Multiply the number of units of each item by the price actually paid for each unit.
3. **Weighted average purchase price**: Multiply the number of units of each item in the opening inventory and later purchases by the price actually paid for each unit, add the prices all together, and divide by the total number of items.

4. **Last in, first out (LIFO)**: Multiply the number of units of each item by the earliest price paid for the item.

It is important to note that closing inventory values will usually differ slightly, depending on which method is used.

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**Cost of Food Sold Does Not Equal “Sold” Food**

The true cost of food is not the same as the cost of the ingredients that go into the menu items that a restaurant may sell on a given day. That's because a lot of the food that the operation purchases never makes it onto a customer's plate. For instance, some ingredients are made into employee meals or become special items for favored guests. Other foods, like herbs and fruit, are used to create specialty drinks at the bar. Unfortunately, some food is wasted through burning or being allowed to spoil, or it may even be pilfered. The restaurant's food cost must account for all this extra food somehow.

That means that the prices on the menu must be high enough to pay for not only the components used to create each dish—ingredients, labor, electricity, and so on—but also for this extra food. And remember, the restaurant must also make a profit! That's why the manager in charge of inventory needs to closely monitor both inventory and sales. Only in this way can the operation know whether the menu prices are both high enough to cover costs and low enough to attract customers. Inventory may seem like a mundane part of the business, but good control of inventory is the only way an operation can stay in business.

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**Did You Know...?**

The National Restaurant Association estimates that nearly 75 percent of all inventory shortages are due to employee theft. That amounts to approximately 4 percent of total restaurant sales. Many operations are using sophisticated, computerized, point-of-sale (POS) registers to keep track of inventory and food costs and to monitor when and how food is issued from the kitchen, but management still needs to monitor the situation carefully.
Summary

In this section, you learned the following:

- It is important to take cost-control measures in all aspects of the food flow process, from purchasing to service. In order to control costs through all of these stages, establish and strictly follow quality standards for each and every step. Quality standards for purchasing, receiving, and storing all contribute to cost control. An operation’s demand for high-quality standards is the surest way to reduce costs across all facets of foodservice.

- Understanding what items are necessary for an operation stems from ensuring that the item’s intended use is clearly defined. The way a product is to be used drives all decisions for selecting the product and its supplier. Draw up specifications sheets according to these criteria. After making purchase orders, the next step is to receive product in the most efficient, safe, and effective way possible. Designate deliveries to times when the operation is slow. The frequency of deliveries can help preserve food quality. Some food must be delivered daily, and other food can safely be delivered weekly. An operation may need to weigh the advantage of daily and weekly deliveries for freshness against the added time that receiving takes. After purchasing and properly receiving an order, safely store the product. Poor storage procedures and facilities can greatly increase food costs due to waste and increased labor costs, so it’s critical that operations create quality standards for proper storage.

- Standardizing food production helps to ensure quality standards because each item is gauged on one standard. Customers receive the same quality of food on each visit to the operation. This in turn helps ensure the success of the business by building the operation's reputation, creating regular customers, and keeping costs consistent. Managers ensure these standards are met through the foodservice cycle, from menu planning to table service. In larger operations with multiple locations, these standard procedures ensure that the meal served in one location is comparable to the same meal in another location with regard to quality, taste, and presentation. But having these standards doesn't guarantee that mistakes won't be made from time to time, and it is important that operations have quality assurance measures in place right up to the service stage of the food flow process. Prior to service, managers should taste each item to ensure it meets the operation’s standard. For any item that could suffer a quality problem during holding, check periodically to verify its quality.
■ Closely monitor inventory to ensure that products will be ordered more efficiently as they are needed. This means that operations are less likely to run out of product, which could disrupt food production and, ultimately, the satisfaction of the guests’ experience. Closely monitoring inventory also helps ensure that no product goes to waste. Operations that know what products have been purchased, when they were purchased, and how long they’ve been in-house, are more likely to effectively use the FIFO system. Minimizing waste keeps costs down just as the use of only the freshest products helps keep sales up—this is a recipe for a successful operation.
Section 3.4 Review Questions

1. Provide one way in which quality standards help with cost control for each of the following aspects of foodservice:
   a. Purchasing
   b. Receiving
   c. Storing

2. When receiving orders, why is it a good idea to check the delivery against the purchase order and the invoice?

3. Why is standardizing food production a good quality control measure?

4. Explain one way that closing inventory can be taken.

5. Do you think that Sherie Valderrama would agree that closely monitoring inventory is important? Why?

6. Chef Kate and Miguel haven’t implemented a standard way of doing inventory. Of the four methods you learned about, which would you suggest to them and why?

7. What kind of procedure would you employ for quality assurance when food is already plated? Who would you have check the dish? Would you utilize multiple people? Write a paragraph summarizing your thoughts on this.

8. If you had to focus your attention on one of the following aspects of the food flow process, which would it be and why? Receiving or storing? Explain your answer in a two-paragraph report.
Section 3.4 Activities

1. Study Skills/Group Activity: Cost Controls for Purchasing, Receiving, and Storing

Working with two or three other students, consider the purchasing, receiving, and storage process. What are some ways you can manage your restaurant to make this part of the food flow process more cost effective and efficient? Write a flowchart with your group that will detail the entire process and provide specifications for each stage.

2. Independent Activity: Comparing Inventory Methods

Your closing inventory includes 20 pounds of all-purpose flour purchased at $4.00 per pound and now selling for $4.50 per pound. Calculate the value of this flour based on the first-in, first-out method (FIFO) and the last-in, first-out method (LIFO). How do your results differ?

3. Critical Thinking: Taking Inventory of Your Home

Take a physical inventory of a kitchen cupboard in your home. First, guess the total cost of the contents. Then, begin taking your inventory. What information do you need to obtain for each item? Create a detailed list for your inventory and calculate the total cost. Was your guess higher, lower, or right on target with the actual cost?
Case Study Follow-Up **Costly Costs**

At the beginning of the chapter, Chef Kate and Miguel of Kabob were not making more money even though they had more sales. They determined that they needed to look more closely at cost-control measures.

1. Suggest a new menu item to Miguel and Chef Kate that is completely accounted for in terms of ingredients, recipe yield, total recipe cost, and menu price.

2. If you had to suggest one aspect of the food-flow process on which Chef Kate and Miguel should focus, what would it be? Why? Explain your rationale in a two-paragraph proposal.

3. With the new changes in terms of the brunch menu and now with new cost-control measures, Chef Kate and Miguel are nervous that their staff is getting frustrated. Write a two-paragraph proposal of how to address their labor concerns. What would you do to maintain a well-educated, loyal, and contented staff?
Apply Your Learning

Converting Marinara Sauce

Calculate the number of 4-ounce portions of spicy marinara sauce yielded by the following recipe:

<table>
<thead>
<tr>
<th>Amount</th>
<th>Ingredient</th>
<th>Purchase price</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 pounds</td>
<td>Canned crushed tomatoes</td>
<td>6-pound can = $9</td>
</tr>
<tr>
<td>2 tablespoons</td>
<td>Dried basil</td>
<td>8-ounce jar = $16</td>
</tr>
<tr>
<td>2 tablespoons</td>
<td>Dried oregano</td>
<td>8-ounce jar = $14</td>
</tr>
<tr>
<td>1 tablespoon</td>
<td>Salt</td>
<td>3-pound box = $2.50</td>
</tr>
<tr>
<td>4 ounces</td>
<td>Celery</td>
<td>1 pound = $0.98</td>
</tr>
<tr>
<td>4 ounces</td>
<td>Carrot</td>
<td>1 pound = $0.47</td>
</tr>
<tr>
<td>8 ounces</td>
<td>Onion</td>
<td>1 pound = $0.39</td>
</tr>
<tr>
<td>2 tablespoons</td>
<td>Olive oil</td>
<td>1 gallon = $24</td>
</tr>
<tr>
<td>1 tablespoon</td>
<td>Crushed red pepper</td>
<td>8-ounce jar = $12</td>
</tr>
</tbody>
</table>

Now, calculate the cost of each 4-ounce portion. Where ingredient amounts are given as volume, weigh the ingredients if necessary to determine the cost of each item.

Research the Expenses of a National Chain

Research a national restaurant or foodservice operation. Write a report covering the following:

- The organization’s mission
- The type of food it serves
- The service style it employs
- Its budget for labor
- Its budget for food
- The locations it generally seeks out
The Weight of Food

Most cooking processes change the ingredient—its color, appearance, size, texture, and taste. After all, that’s a big part of why we cook. But cooking an item can also change its weight and/or volume in important ways, which can make significant differences in your recipe costing and portioning.

Weigh the following raw ingredients:

- 1 cup long-grain white rice
- 1 cup long-grain brown rice
- 1 cup polenta
- 1 cup barley
- 1 chicken breast
- 1 hamburger patty
- 1 slice of bacon
- 1 fish fillet

Write two paragraphs (one on the starches, one on the proteins) on the changes in weight and volume that you anticipate will occur in these ingredients during cooking. Now cook the items and weigh the finished products; also measure the volume of the cooked starches. Do your results match your predictions? Write two paragraphs describing your findings.

Critical Thinking

AP versus EP

It is critical to understand whether a recipe calls for as-purchased (AP) or edible-portion (EP) ingredients. Listed here are an AP and an EP version of each of three ingredients. How could using one or the other option change a recipe?

- 10 pounds white onion versus 10 pounds diced white onion—for a chili recipe
- 8 pounds watermelon versus 8 pounds watermelon balls—for a fruit salad
- 4 pounds apples versus 4 pounds apple purée—for a cake

Write one paragraph on each variation, explaining how the finished dishes could differ, based on the AP or EP ingredient.
Exam Prep Questions

1. Revenue is defined as income
   A. used only for advertising.
   B. lost by poor cost-control measures.
   C. from sales after expenses are subtracted.
   D. from sales before expenses are subtracted.

2. Food and labor can be designated as what cost?
   A. Fixed
   B. Overhead
   C. Secondary
   D. Controllable

3. Taking sales information for two or three recent and similar periods and averaging it together is a forecasting method called
   A. the 3-2-1 strategy.
   B. the median method.
   C. consolidated budgeting.
   D. the moving average technique.

4. Total food cost is calculated by what formula?
   A. \( \frac{\text{Opening inventory} / \text{Purchases} = \text{Total food available}}{\text{Closing inventory}} \)
   B. \( \frac{\text{Opening inventory} \times \text{Purchases} = \text{Total food available}}{\text{Closing inventory}} \)
   C. \( \frac{\text{Opening inventory} - \text{Purchases} = \text{Total food available}}{\text{Closing inventory}} \)
   D. \( \frac{\text{Opening inventory} + \text{Purchases} = \text{Total food available}}{\text{Closing inventory}} \)

5. Food cost \( \div \) \________ = Food cost percentage.
   A. Labor
   B. Sales
   C. Gross profit
   D. Overhead cost

6. A tool used to calculate standard portion cost for a menu item is called a
   A. vendor invoice.
   B. production sheet.
   C. recipe cost card.
   D. food production chart.

7. What form shows how much product should be produced by the kitchen during a given meal period?
   A. Vendor invoice
   B. Production sheet
   C. Recipe cost card
   D. Food production chart

8. Which method calculates a menu price by multiplying raw food costs by a predetermined fraction?
   A. Check average
   B. Straight markup
   C. Contribution margin
   D. Food cost percentage
9. At what temperature should foodservice freezer units be held?
   A. 0°F
   B. 15°F
   C. 25°F
   D. 32°F

10. A document that a receiving employee uses to verify a delivery is called a
    A. vendor invoice.
    B. production sheet.
    C. recipe cost card.
    D. food production chart.
Chapter 4
Salads and Garnishing
Case Study   **Looks Can Be Appealing**

Miguel and Chef Kate of Kabob recently gathered customer feedback from their patrons in an attempt to increase efficiency and raise profits. The feedback they received indicated that customer service and food quality were good, but that the restaurant didn’t have enough light and healthful menu options. Some patrons noted that the presentation of the food was mediocre. As one patron said, “This reminds me of home. I want to feel eating out is a treat.”

Miguel and Chef Kate now have some tough decisions to make. Miguel wants to focus on changing the menu, but Chef Kate is equally concerned with the presentation of food. She knows that eating involves more than just taste. How can they make the menu healthier without diminishing food quality and taste? And how can they add more visual appeal to their menu options without spending more money on each dish? The purpose of the customer feedback was to raise profits, not cut into them.

As you read this chapter, think about the following questions:

1. What types of food items can Kabob put on the menu to respond to customer preferences?
2. How can healthier food be attractive in terms of both taste and flavor?
3. How can food presentations be made more attractive without increasing costs?
I have a passion for food and have always worked in restaurants. When I went to college, I majored in food science with a minor in food packaging. I was originally interested in nutrition and didn’t even know that menu development was a career option.

Since the discipline of culinology has emerged, blending both culinary arts and food science, we’ve seen many new career opportunities for those interested in this industry. The whole approach of this science is to make food taste better, be more consistent and safer. So, start working. Go to work, continue your education, and keep an open mind.

I started in menu development at Arby’s Incorporated and remained there almost seven years. After that position, I joined Hardees Food Systems. Currently, and for the past 13 years, I’ve been with Golden Corral. It’s a privately held company run by a president/CEO who knows and loves food. He pays a lot of attention to details, even down to the recipes. And that’s helped to bring Golden Corral from a steak-and-potatoes chain to the largest buffet in the United States in about 30 years.

I love that I work with someone who is innovative. I love that we don’t waiver on quality. That’s important to me. We do a lot in the back of the house so that we maintain versatility and control. For instance, we don’t buy processed meat—we do a lot of our own butchering.

My personal focus is to ensure that the R&D prototype menu options approved in development can be equally successful in mass production so that all of our stores can duplicate it. There’s such an excitement in developing products that are tested and then rolled out nationally…products that then drive the business! Our company mission is “Making pleasurable dining affordable.” It’s something I believe in. So, as you look ahead, find something that you believe in…and go for it.

About Salads and Garnishes

Salads are an interesting focus for me—creating recipes that add value, stimulate interest, and offer both traditional and nontraditional choices. Considering that the hot bar drives business 80 percent of the time, we need to add other menu items that both complement the hot bar and offer alternatives. Salads can be a side or a main meal; if they’re a main meal, they need to fill you up!
We prepare our salads daily—hand chopping the lettuce for freshness. We focus on fresh and seasonal produce. That’s not something that all restaurants do. We even make three of our dressings on-site.

I think salads offer versatility and healthy options. So, I want them to be tasty, attractive, and creative—in our restaurants, we use ingredients such as fresh spinach, spring salad, pine nuts, raisins, mandarin oranges, watermelon, and strawberries.

SECTION 4.1 SALADS

Do you think of salads as iceberg lettuce with tomato wedges and rings of green pepper? That’s what the idea of a side salad used to bring to mind. But salads are one of the most versatile menu offerings. Today they can be served for any course and can include anything from vegetables to fruits and nuts, to meat and fish.

In this section, the main ingredients and parts of a salad are discussed first. Then the major types of salads are explained. After that, the kinds of salads that can be served during various courses of a meal are covered. And finally, the section concludes by illustrating the proper way to clean and store salads and salad greens.

Study Questions

After studying Section 4.1, you should be able to answer the following questions:

- What are the ingredients and parts to a salad?
- What are the various types of salad?
- What are the different types of salad that can be served throughout the courses of a meal?
- What is the best way to clean and store salad?
Ingredients and Parts of a Salad

Most salads consist of a lettuce base, but a wide variety of ingredients can go into a salad. Meat, fish, vegetables, fruits, and starches, such as potatoes or pasta, can all go into a salad. A salad is defined as a single food or a mix of different foods accompanied by or held together with a dressing.

The three keys to ensuring a quality salad, regardless of the ingredients used, are as follows:

- The freshness of ingredients
- Having all the ingredients blend together in harmony
- Making sure the salad is appealing to the eye

Always consider freshness, flavor, and eye appeal when making any type of salad. See Table 4.1 for examples of salad green types.

<table>
<thead>
<tr>
<th>Table 4.1: Kinds of Salad Greens</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Salad Green</strong></td>
</tr>
<tr>
<td>-----------------</td>
</tr>
<tr>
<td>Arugula</td>
</tr>
<tr>
<td>Belgain endive</td>
</tr>
<tr>
<td>Butterhead lettuce</td>
</tr>
<tr>
<td>Crisphead lettuce</td>
</tr>
<tr>
<td>Curly endive</td>
</tr>
<tr>
<td>Escarole</td>
</tr>
<tr>
<td>Green cabbage</td>
</tr>
<tr>
<td>Leaf lettuce</td>
</tr>
<tr>
<td>Micro greens</td>
</tr>
</tbody>
</table>
Table 4.1: Kinds of Salad Greens continued

<table>
<thead>
<tr>
<th>Salad Green</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Napa cabbage</td>
<td>Milder flavor than Savoy cabbage</td>
</tr>
<tr>
<td>Raddichio</td>
<td>Common chicory; Italian variety of chicory; crunchy texture; slightly bitter flavor; generally used in a mixture with other greens for flavor and color; can be cooked like collard or other greens</td>
</tr>
<tr>
<td>Red cabbage</td>
<td>Slightly tough leaf; mild flavor</td>
</tr>
<tr>
<td>Savoy cabbage</td>
<td>Milder flavor than green cabbage</td>
</tr>
<tr>
<td>Sorrel</td>
<td>Contains oxalic acid yielding a slightly acidic and bitter flavor; smaller leaves are preferred for their milder flavor</td>
</tr>
<tr>
<td>Spinach</td>
<td>Good alone or mixed with other greens; must be washed very thoroughly; remove coarse stems before service; baby spinach is highly regarded for its mild, fresh flavor</td>
</tr>
<tr>
<td>Watercress</td>
<td>Pungent, peppery flavor; used as garnish and in salads</td>
</tr>
</tbody>
</table>

Although salads are made up of many ingredients and vary greatly in appearance, the four basic parts to most any salad follow (see Figure 4.1 on the following page for the basic parts of a salad):

1. **Base**
2. **Body**
3. **Garnish**
4. **Dressing**

The base of a salad is usually a layer of salad greens that line the plate or bowl in which the salad will be served. Use smaller leafy greens, cup-shaped Boston lettuce, or iceberg lettuce leaves to give height to salads and form edible containers. Also use romaine, Belgian endive, and leaf lettuce as a salad base.
The body of the salad consists of the main ingredients. The body can be a mixture of vegetables, such as lettuce, tomatoes, carrots, etc.; meats, such as turkey breast or ham; or cheeses and various fruits, such as mandarin oranges or apples. Use mayonnaise-based salads, such as tuna salad or crabmeat salad, as a salad body placed on a base of lettuce. Salad ingredients can vary by season or occasion, but freshness is always important.

Garnish enhances the appearance of the salad while also complementing the overall taste. A garnish should be something that will be eaten with the body, functioning as a flavor component. Simple garnishes are the best. Mix them with the other salad ingredients or add garnishes at the very end. For example, mix shredded carrot or a fine julienne of red bell pepper with salad greens, or lightly toss them with seasoning and then place them on top of the greens. This garnish is decorative as well as tasty. Always consider the components and overall taste of the salad when choosing a garnish.

Salad dressings are liquids or semiliquids used to flavor salads. They act as a sauce that holds the salad together. Dressings can range from mayonnaise for potato- or macaroni-based salads to vinaigrettes for lettuce-based salads. Sometimes dressings are called cold sauces because their purpose is to flavor, moisten, and enrich food. Use tart or sour dressings for green salads and vegetable salads. Use slightly sweetened dressings for fruit salads. Mix some dressings with the ingredients ahead of time, such as for “bound salad.” Add some dressings at plating and service to bring an additional flavor aspect to the final product.

See Table 4.2 on the following page for examples of traditional salad vegetables.
## Table 4.2: Other Traditional Salad Vegetables

<table>
<thead>
<tr>
<th>Salad Vegetable</th>
<th>Description</th>
</tr>
</thead>
</table>
| **Bulbs**       | Garden beets: Thickened lower part of the stem and upper part of the root; sweet, pungent flavor; may be used in addition to baby beet leaves  
                  Onion: Edible bulb; pungent flavor and aroma; sweet varieties increasing in availability and popularity; are the most widely used bulb to add flavor  
                  Scallion: Can be any shoot from the white onion variety pulled before the bulb has formed |
| **Celery**      | Long stalk; mild flavor and crisp texture |
| **Cucumber**    | Botanically a berry, more than 20 different species; mild, slightly watery flavor with light melon notes  
                  European or English cucumbers: Seedless, lighter green in color; 2 to 2 1/4 inches in diameter  
                  Japanese cucumber: Mild flavor, slender, deep green color, bumpy, ridged skin |
| **Fruits**      | Berries and citrus fruits |
| **Mushrooms**   | Wide variety available with varying textures, colors, and flavors; includes common mushroom, enoki, portabella, crimini, cepe, morel, shiitake, chanterelle; mushrooms are used in raw, cooked, or pickled forms |
| **Peppers**     | Sweet/mild peppers and hot/pungent categories; sweet/mild are traditionally associated with salads  
                  Sweet/mild peppers:  
                  Bell pepper: Crisp juicy flesh; most are a rich, bright green when young. As they ripen, the color changes and the flesh sweetens; colors include yellow, orange, purple, red, and brown  
                  Pimiento: Familiar red stuffing found in green olives  
                  Banana pepper: Long banana shape |
| **Tomato**      | A berry, pulpy; contains one or more seeds and no stones; vary in shape and flavor; wide variety of small, younger variations coming to market |
| **Tuber**       | Carrot: Early summer carrots are long and cylindrical; winter carrots have a large fleshy root  
                  Radish: Commonly round, red bulb; other varieties include bicolored or white and have longish, blunt, or pointed roots (called daikon); mild to peppery flavor |

![Images of Celery, Cucumber, Garden Beets, Mushrooms, Radish, Sweet/Mild Peppers, Tomato](images)
Did You Know…?
Arugula, roquette, rocket, and rucola are all names for the same thing—a slightly peppery/bitter green found in salads all over the world!

Greens and Oxalic Acid
Raw, green leafy vegetables are a great source of minerals, such as magnesium, iron, and calcium. In the world of chemistry, these minerals occur as ions that carry a 2+ charge. So they should be a great source of nutrients, right? Not necessarily.

An acid in the same kinds of vegetables prevents all of the nutrients from being absorbed by the body. Raw greens like sorrel and spinach contain this acid, known as oxalic acid. Unfortunately, oxalic acid latches on to minerals with a 2+ charge, preventing absorption in the intestine and making the minerals useless as nutrients.

So what’s the answer? How do you get these valuable minerals into your body? Cook the vegetables! A little heat releases the minerals from the acid and allows them to be absorbed into our digestive system.

This doesn’t mean that you should never eat raw spinach. Lots of nutrients are in the raw leaf. Some are even better raw than cooked. Just remember to use variety in the things you eat and the cooking methods you use to eat them.

Types of Salad
Because salads are not cooked, it is especially important to be extra careful about proper handwashing when preparing them. Remember that many health departments require single-use gloves to be worn—and changed frequently—whenever working with products that will not be cooked before service. Figure 4.2 on the following page shows the main types of salad:

- Green—tossed and composed
- Bound
- Vegetable
- Fruit
- Combination
Chapter 4 | Salads and Garnishing

The two types of green salad are **tossed** and **composed** (or mixed). Prepare all ingredients individually for either salad. Mix (toss) together the ingredients of a tossed green salad prior to plating. Place a tossed salad on a base or serve without further garnish. Do not toss together the ingredients for a composed salad. Arrange the ingredients on the base separately to create the desired taste experience and achieve a high level of visual appeal.

Prepare the **bound salad** from cooked primary ingredients such as meat, poultry, fish, egg, or starch such as potato, pasta, or rice. The ingredients are “bound” with some type of heavy dressing such as mayonnaise.

Prepare a **vegetable salad** from cooked and/or raw vegetables. Use a heavy dressing to bind this type of salad or toss with a lighter dressing. For example, bind the cabbage for coleslaw with a heavier mayonnaise-based dressing or a lighter vinegar and oil dressing. As part of the preparation, allow the ingredients in a vegetable salad to rest for a period of time to increase flavor and change texture in the mixture of ingredients.

Prepare a **fruit salad** from fruit using a slightly sweet or sweet/sour dressing to enhance the flavor. Handle the fruit carefully, and prepare the salad close to service to prevent the cut fruit from softening, browning, or losing moisture.

**Figure 4.2:** Salad is a combination of raw or cooked ingredients that is served cold or warm.
A *combination salad* incorporates a combination of any of the four salad types discussed previously. When making a combination salad, prepare the different components according to their individual guidelines. Be sure to follow the guidelines for attractive salad arrangement.

### Essential Skills

*Designing an Attractive Salad*

1. Look at the plate or bowl as a picture frame. Select the right dish for the portion size. Keep the salad off the rim of the dish.

2. Maintain a good balance of colors. Spark up plain iceberg lettuce with shredded carrots, red cabbage, another colored vegetable, or darker greens. Remember, three colors are usually enough. Too many colors are unappetizing.

3. Height makes a salad more attractive. Ingredients that are mounded on a plate are more interesting and appealing than if they are spread flat over it. Place tomato or fruit wedges so that they overlap or lean on each other.

4. Always cut the ingredients neatly and uniformly.

5. Make sure every ingredient can be easily identified. Cut every ingredient into large enough pieces so that the customer can recognize them immediately. Use bite-sized pieces unless the food item can be cut with a fork.

6. Finely chop items used as seasoning, such as onions.

7. Keep the arrangement of ingredients simple. Using too many ingredients in an effort to make a salad more visually attractive may end up muddling the taste of the salad. See Figure 4.3.

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**Figure 4.3a:** A good salad presentation: pasta and scallop salad.

**Figure 4.3b:** A better salad arrangement: garden vegetables and pasta salad.

**Figure 4.3c:** The best arrangement of salad: fresh tuna pasta salad niçoise.
Did You Know…?
The average 10-ounce tossed salad dressed with oil and vinegar has approximately 170 calories.

**Essential Skills**  
*Preparing a Green Salad*

1. Choose the ingredients. Try using one or more types of greens with flavors that will enhance the combination: some sweet and some bitter; some crisp and some soft; and some light in color and some dark in color.
2. Wash and clean ingredients. Discard all withered, wilted, moldy, discolored, or rotten pieces. See Figure 4.4a.
3. Remove all bitter and/or woody stems and cores. See Figure 4.4b.
4. Use a salad spinner to spin the ingredients completely dry.
5. Cut as required, making sure the cuts are uniform. See Figure 4.4c.
6. Store any ingredients that you aren’t using immediately.
7. Tear or cut the greens into bite-size pieces. Customers should not have to cut the greens. The preferred serving size for a piece of lettuce is about the size of half of a dollar bill. If time does not allow for tearing greens, be sure to use sharp, stainless-steel knives to cut them.

*Figure 4.4a:* Step 2—Discard wilted or rotten pieces.  
*Figure 4.4b:* Step 3—Remove stems and cores.  
*Figure 4.4c:* Step 5—Make uniform cuts.
When ready for assembly:

Tossed Green Salad

1 Combine all ingredients in a stainless-steel bowl and toss gently (being careful not to break apart delicate items) until well blended. Toss the greens gently until they are uniformly mixed. It’s acceptable to add a nonjuicy raw vegetable garnish, such as julienne of green pepper or carrot shreds. Cut the garnish into broad, thin slices or shreds. See Figure 4.5a.

2 Garnish with tomato wedges, cherry tomatoes, cucumber slices, radishes, and pepper rings, as desired. Garnishes that will become soggy or discolored, such as croutons or avocados, should be added just before service.

3 Refrigerate.

4 Dress the greens appropriately with only enough dressing to lightly coat the greens as close to service time as possible. The normal ratio is one-third ounce of dressing per ounce of greens.

5 Place the salad on cold plates, using a base if necessary. Avoid putting salad ingredients on plates more than an hour or two before service, because they will wilt or dry. See Figure 4.5b.

6 Serve chilled with chilled fork and dressing as required. See Figure 4.5c.

Composed Green Salad

1 Place desired base on a chilled plate or bowl. See Figure 4.6a on the following page.

2 If serving immediately, pre-toss each ingredient with a small amount of dressing or olive oil and lightly season. If not serving immediately, skip this step to avoid wilting and loss of color. The flavor of the finished dish will not be as complete, but the texture and color of the ingredients will be fresher.
Place ingredients as planned.

Garnish and dress in accordance with the recipe or service need.

Serve chilled with a chilled fork. See Figure 4.6b.

Figure 4.6a: Step 1—Place base on chilled plates.

Figure 4.6b: Step 5—Serve chilled.

Essential Skills
Preparation Vegetable Salads

1. Gather all ingredients, including dressing.

2. Cut all ingredients neatly. The shapes of the vegetables are important to the appearance of the salad (see Figure 4.7a on the following page):
   - Cut vegetables in a uniform size.
   - Cut the fresh vegetables as close to service time as possible.

3. Cooked vegetables should be firm, with a crisp texture and good color.

4. Cook vegetables in accordance with the recipe, but always protect the color and texture.

5. Thoroughly drain and chill cooked vegetables before mixing them with the other ingredients.

6. Toss all ingredients in a stainless-steel bowl and chill thoroughly. See Figure 4.7b on the following page.
Essential Skills
Preparing Bound Salads

1. Cook main ingredients correctly:
   - Ensure pasta is cooked al dente.
   - Ensure potatoes are cooked until soft in the center, but not falling apart.
   - Ensure proteins are fully cooked, but still moist and tender.

2. Cut cooked and raw ingredients to a uniform size. See Figure 4.8a on the following page.

3. Cut ingredients in attractive shapes to enhance the appearance of the finished dish.

4. Ensure all dressing is well-blended and seasoned.

5. Keep all ingredients chilled during preparation:
   - Make sure that cooked ingredients are well chilled before mixing with mayonnaise or mayonnaise-based dressing.
   - Keep the completed salad out of the temperature danger zone at all times to avoid any danger of foodborne illness.

6. Ensure all dressing is well-blended and seasoned.

7. Plate on a chilled plate or bowl with base and garnish in accordance with recipe or service need (see Figure 4.7c):
   - Do not plate vegetable salads in acidic dressings too far ahead of time.
   - Use sturdy, crisp greens for the base—iceberg, romaine, or endive—because these greens will not wilt easily.

Figure 4.7a: Step 1—Cut all ingredients in a uniform size.
Figure 4.7b: Step 6—Toss all ingredients.
Figure 4.7c: Step 7—Place on a chilled plate or bowl.
6. Add crisp foods for flavor and interest, such as celery, carrots, green peppers, chopped pickles, onions, water chestnuts, or apples. Be sure that the flavors complement each other.

7. Marinate potatoes and seafood in light vinaigrette before mixing with other salad ingredients. Be sure to drain excess liquid first.

8. Fold in thick dressings gently to avoid crushing or mashing the main ingredient, as with potato or egg salad.

9. Portion cooked salads with a utensil such as a scoop to provide portion control and give height and shape to the salad.

10. Serve on chilled plates with an appropriate base and garnish in accordance with the recipe and service needs. See Figure 4.8b.

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**Essential Skills**

*Preparing Gelatin Salads*

1. Use the right amount of gelatin for the volume of liquid in the recipe:
   - Basic proportions for unflavored gelatin are below:
     - 2 ounces of dry, unsweetened gelatin per gallon of liquid (19 grams per liter) for a soft gel (molded gelatins)
     - 8 ounces dry, unsweetened gelatin per gallon for medium texture (sliceable)
     - 2½ ounces dry, unsweetened gelatin per gallon for hard texture (glazing only)
   - Basic proportions for sweetened, flavored gelatin are 24 ounces of gelatin per gallon of liquid (180 grams per liter).
2. Altering the standard recipe in any way (using fruit, whipping, etc.) changes the way gelatin sets. Test each recipe before using it on the menu.

3. Gelatin dissolves at about 100°F, but will dissolve faster at higher temperatures. To dissolve unflavored gelatin, stir it into cold liquid to avoid lumping. Let it stand for 5 minutes to absorb water. Heat it until dissolved, or add hot liquid and stir until dissolved. To dissolve sweetened, flavored gelatin, stir it into boiling water. Use half cold water or crushed ice for a quick set.

4. Raw pineapple or papaya contains enzymes that dissolve the gelatin; the gelatin will not set. Cooked or canned pineapple or papaya may be used.

5. Add solid ingredients when the gelatin is partially set to keep them evenly mixed and prevent settling to the bottom.

6. Always drain canned fruit well. Measure the drained liquid and include in the added liquid.

7. Pour into pans or individual molds and allow to set. Then cut into equal portions and garnish.

8. To unmold gelatin:
   - Run a thin knife blade around the top edges of the mold to loosen the salad.
   - Dip the mold three-quarters of the way into hot water (120°F to 140°F) for one or two seconds only.
   - Quickly wipe the bottom of the mold. Invert the salad plate over the mold and carefully flip the plate and mold over together.

9. Always refrigerate gelatin salads until just before serving to keep them firm (see Figure 4.9):
   - Add unflavored gelatin to vegetable or fruit salads, such as shredded cabbage and carrots to achieve a desired texture and appearance. Although flavored, sweetened gelatins can be used with fruits, unflavored gelatin does not compete with the natural flavor of the vegetable or fruit. Gelatin is also essential in aspics and other savory creations.

Figure 4.9: Step 9—Refrigerate gelatin salads until serving.
Essential Skills
Preparing Fruit Salads

1. Fruit salads may be either tossed or composed.
2. Save the best pieces of fruit for the top. Place broken or less attractive pieces of fruit on the bottom of the salad. See Figure 4.10a.
3. Some fruit discolors after it is peeled and cut, such as bananas and apples. Dip these fruits in a combination of lemon juice and water to keep their fresh appearance. Do not soak the fruit in the mixture or it will ruin the flavor of the fruit.
4. Fruit does not hold well after it has been cut and peeled. Prepare fruit salads as close to service as possible.
5. Drain canned fruit well before mixing it into a salad. Some of the liquid can be saved and used in fruit salad dressings or in other preparations.
6. Dressings for fruit salads are usually sweet, but a little tartness gives additional flavor. Use fruit juices in the dressings. See Figure 4.10b.

Salads and Service

Today the salad section on most menus goes beyond the simple dinner salad. The salad, once typically served as a first course, is now also a main entrée at either lunch or dinner. Salads can incorporate various types of meat and fish, pastas and potatoes, as well as cheeses, vegetables, and fresh fruit.
Salads can be used in five different ways during the service courses (see Figure 4.11 for visual examples of each):

1. Starter (or appetizer)
2. Accompaniment
3. Main course
4. Intermezzo (palate cleanser before dessert or cheese course)
5. Dessert

A **starter salad**, served as an appetizer to the main meal, is smaller in portion and consists of light, fresh, crisp ingredients to stimulate the appetite. Generally, salad greens and other vegetables lightly coated with a tangy, flavorful dressing work well as starter salads. A starter salad can also include small portions of protein such as seared tuna. A satisfying, attractive salad can set the tone for the rest of the meal.

**Figure 4.11**: Salads contain many ingredients and can be more than just the first course.
Serve an **accompaniment salad**, also known as a side salad, with the main course of the meal. Make it light and flavorful, but not too rich. It should balance and complement the main course. For example, never serve a starchy salad, such as potato salad, when the main entrée also contains a starch (potatoes, rice, or pasta). Sweet fruit salads can accompany ham and pork. Lighter vegetable salads are good choices for hearty meals. Serve heavier salads, such as potato or pasta salad, only if the main entrée is light. For example, a small portion of potato salad is a good complement to a sandwich.

**Main course salads** are large enough to serve as a full meal and also contain protein ingredients, such as meat, poultry, seafood, egg, beans, or cheese. Main course salads provide a well-balanced meal, both visually and nutritionally. In addition to protein ingredients, the main course salad can contain a variety of vegetables, greens, and/or fruits. It is a menu staple for many restaurants. Such salads range from the very traditional chef’s salad, containing mixed greens, raw vegetables, strips of meat, and cheese, to very popular Caesar salads with grilled chicken or shrimp. Figure 4.12 shows *mise en place* for a main course salad.

The **intermezzo salad** is intended to be a palate cleanser after a rich dinner and before dessert. Often served in classic French meals, it refreshes or stimulates a person’s appetite for the dessert or next course. This salad must be very light, such as Bibb lettuce or Belgian endive lightly dressed with vinaigrette or a small fruit salad. Use slightly acidic dressings, such as lemon or vinaigrette with flavored vinegar; the acid helps to clear the palate of previous flavors.

**Dessert salads** are usually sweet and often contain fruits, sweetened gelatin, nuts, cream, and whipped cream. These salads are often too sweet to be served at any other point in the meal. They are popular for buffet service and meals served family style because the colors make an attractive visual presentation.
Cleaning and Storing Salads

As discussed earlier, a key to preparing good-tasting, interesting, attractive salads is to start with clean, fresh ingredients. Always thoroughly wash greens, because dirt can lodge between leaves. When preparing salads, be careful not to handle ingredients too much.

Essentials Skills

*Plating Salads*

What does the foodhandler use to serve an intermezzo salad? A platter? A bowl? A plate? It all depends upon the salad. The most important thing is to make it easy for the customer to eat gracefully.

Using the proper plate and utensil, a customer should never have to put his/her fingers in a salad when eating. Whatever the dish, it should be large enough to “frame” the food on top of it. This means that the outside rim of the plate should be free of food. Present the salad neatly within the frame created by the plate rim. See Figure 4.13.

If the salad is very large, the serving plate should be larger. Mound a bound salad like a crab Louis on a flat plate; the customer can eat it easily with a fork. A large composed salad like a cobb salad is difficult to mix and eat if the lettuce is piled onto a flat plate with the other ingredients stacked there as well, so use a large flat soup bowl or a plate with curved sides, which still displays the salad. The sides of the bowl give the customer someplace to contain the pieces and leverage the fork for graceful, hands-free dining.

*Figure 4.13: Proper plating for an intermezzo salad.*
Storing Loose Salad Greens

1. Place clean greens on metal or plastic trays or tubs.
2. Cover the greens loosely with lightly dampened paper towels. See Figure 4.14.
3. Date, label, and refrigerate at 41°F or lower, but not lower than 36°F, for quality reasons.
4. Remember that all salads/greens are highly perishable. Hold them for no more than 24 hours.
5. Don’t store greens with tomatoes, apples, or fruit that emits ethylene gas. This gas causes the greens to wilt.

Figure 4.14: Step 2—Cover greens with lightly dampened paper towels.

Storing Freshly Prepared Salads and Prepackaged Salads

Prepared Salads

1. After preparation of a salad is complete, immediately place the salad in a suitably sized container with a tight lid. See Figure 4.15.
2. Make sure the container is shallow enough to allow rapid chilling.
3. Date, label, and refrigerate at 41°F or lower.

Prepackaged Salads

1. Store in the original container at 41°F or lower until opened.
2. Monitor the expiration date and rotate stock to make sure that product is used prior to its expiration date. Follow FIFO.

Figure 4.15: Step 1—Place the salad in a suitably sized container with a tight lid.
After the greens are clean, proper storage is essential to keeping them fresh. Proper storage ensures the quality of the product served to the guest. Remember, the quality of the salad is determined just as much by its wholesomeness (if it is safe to eat) and freshness, as by the quality of its ingredients and preparation.

Figure 4.16 shows prepackaged greens in a commercial kitchen.

All labels on stored containers should include the name of the item, weight, date received, name of person storing the product, and the original use-by date, if any. Do not open the containers of produce until you are ready to use them. Unopened produce can be stored for two to three days. Always test the quality of the product before serving it to customers.

[what’s new]

Drying Greens on Spin Cycle: The Salad Spinner

Drying salad greens can be a long, tedious chore. In the past, chefs had to lay the greens out flat on a counter and pat them dry with paper towels, which not only takes a lot of time, but also creates a lot of paper waste. Both lost time and excess waste cost money. In addition, the irregular shapes and textures of salad greens make it difficult to get all of the leaves completely dry with even the best effort. If greens are not dried completely, any remaining water on the leaves prevents the salad dressing from clinging properly to the leaves. This results in soggy salads with diluted flavors.

A much easier solution to drying greens is the salad spinner (see Figure 4.17), and it couldn’t be easier to use. Put wet greens into a basket with holes in it (like a colander). Place the basket inside a solid plastic container, and then add the lid with a spinning mechanism on top. The mechanism spins the basket around inside the plastic container, creating centrifugal force. Centrifugal force is the outward pressure created from the center of a spinning object. The pressure created from the spinning motion forces all of the loose droplets of water from the leaves and into the solid plastic container. After a few short spins, only dry greens are left in the basket, and all the water is dumped into the plastic container. Fully dried greens in less than a minute!
**Essential Skills**

*Cleaning Greens*

1. Keep greens refrigerated until they are ready to be prepared and served. Cover them with a damp paper towel to keep them crisp and fresh.

2. When ready to use, greens need to be cleaned thoroughly.

3. Remove the outer leaves and discard.

4. Pull greens completely apart into separate leaves.

5. Rinse each leaf thoroughly until all traces of dirt, grit, and insects are completely removed. See Figure 4.18a.

6. Water should be a little warmer than the greens being washed.

7. If possible, avoid soaking greens because they tend to absorb water.

8. Dry the greens as thoroughly as possible after rinsing. Spinning the greens in a salad spinner is highly recommended. Water on the greens will not allow dressing to adhere to the leaf and will dilute the consistency and flavor of the dressing, so it’s important that leaves are completely dry. Using a colander or patting with paper towels are also options. See Figure 4.18b.

9. Remove any tough stems or wilted spots. Tearing is preferred for delicate greens, but be careful not to bruise the leaves.

10. When the greens have been rinsed and dried, you can refrigerate them for a few hours. Sturdy greens, such as iceberg lettuce or romaine lettuce, can be held for as long as 24 hours.

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**Figure 4.18a**: Step 5—Thoroughly wash all greens.

**Figure 4.18b**: Step 8—Dry greens after rinsing and pat them with paper towel.
Summary

In this section, you learned the following:

- Lettuce is frequently used as a salad base, but any number of ingredients can be used in a salad, including meat, fish, starches (such as pasta or potatoes), vegetables, cheeses, and fruit. The basic parts of a salad are the base, the body, the garnish, and the dressing.

- The five basic types of salad are green salads (tossed or composed), bound, vegetable, fruit, and combination.

- The five basic salads that can be served throughout the course of a meal are starter, accompaniment, main course, intermezzo, and dessert. Starter salads are small, light salads that stir the appetite for the main meal. Accompaniment, or side, salads are small salads served along with the main meal. These salads balance and complement the main ingredients of the meal. Main course salads are larger salads that can be main meals in themselves. Main course salads often have a protein along with a variety of vegetables, cheeses, greens, and even sometimes fruit. Intermezzo salads are small salads used to clear the palate for the next course. Dessert salads are sweeter than the others and often consist of fruit as the primary ingredient.

- To clean salads, remove the outer leaves of greens, pull apart the remaining leaves, and rinse them thoroughly to remove any and all dirt, grit, and insects. Rinsing is preferred to soaking because leaves can absorb water, making the lettuce soggy. Store loose greens with dampened paper towels at a temperature between 36°F and 41°F. Store prepared salads in a tightly sealed container that is shallow enough to allow for rapid chilling. Properly label and rotate the greens for service using the FIFO method for all salad ingredients.
Section 4.1 Review Questions

1. What are the four parts of any salad?
2. What are the five basic salad types?
3. Describe the different kinds of salad that can be served during the course of a meal.
4. Explain the proper way to clean lettuce for salads.
5. Debra Olson notes that she finds it interesting to create salad recipes that add value, stimulate interest, and offer both traditional and nontraditional choices. Research a traditional and nontraditional salad recipe that are interesting and that use reasonably priced produce.
6. How can salads help Miguel and Chef Kate meet the demands of their customers? Create a salad for each of the five courses that would be tasty, healthy, and have eye appeal.
7. How does timing affect fruit salad production? What must be considered when making a fruit salad? What are the nutritional differences between fresh and canned fruit salads?
8. Why do you think salad greens should not be stored below a temperature of 36°F? How might lower temperatures affect the product?
Section 4.1 Activities

1. Study Skills/Group Activity: The Classics

In a small group, have each member research a classic salad. Some examples include salade niçoise, waldorf salad, crab Louis, coleslaw, German potato salad, and caprese salad. Feel free to think of others. Learn the ingredients and preparation of this salad and a little of its history. Then, present your findings to the class as a group.

2. Independent Activity: Bowl or Platter?

Some composed salads are served in a bowl, and others are served on a platter. Present an opinion piece about this. What are the pros and cons of each? Then, based on your analysis, propose a plate presentation for three of the classic salads researched for the Group Activity.

3. Critical Thinking: Choosing Salads

This section reviewed the five kinds of salads that can be served during the course of a meal: starter, accompaniment, main course, intermezzo, and dessert. If you were running a restaurant, on which kinds of salads would you focus when making your menu? Choose two and explain your reasoning.
SECTION 4.2 SALAD DRESSINGS AND DIPS

You don't often think of salad without thinking of salad dressing. A well-seasoned dressing added in the right proportions can lift a salad to new heights. A bland dressing added to excess can completely ruin a salad. Striking the right balance is key. In order to do that, knowledge of the consistency and ingredients of the main salad dressing types is very important, as are the types of ingredients with which each dressing is best paired. The same is true of various kinds of dips. In this section, you learn about both. First, you learn about the major types of dressings, how they’re made, and what they’re made of. Then, you learn about the basic kinds of dips, their ingredients, and what the best pairings are.

Study Questions

After studying Section 4.2, you should be able to answer the following questions:

- What are the different types of dressings?
- What is the emulsion process?
- What is the difference between an emulsion and a suspension mixture?
- How are the different types of dressings used?
- What is a dip, and how is it like a salad dressing?
- What are some different kinds of dips?

Types of Dressing

The flavor of a salad dressing complements or enhances the salad ingredients. For example, when working with a slightly bitter green such as arugula or radicchio, give the dressing a hint of sweetness (as well as a slight acidity) to work with the bitterness of the green. The type of dressing also depends on the texture of the salad ingredients. Use lighter dressings on more delicate ingredients; use heavier dressings on more robust, heartier ingredients.
Dressings can be made from a number of different ingredients, but the primary dressings are listed below:

- Vinaigrette
- Emulsified vinaigrette
- Mayonnaise-based
- Mayonnaise

**Vinaigrette** (vin-uh-GRETT) dressing in its simplest form is made of oil and vinegar. Vinaigrettes are lighter, thinner dressings often used on more delicate ingredients, such as greens and vegetables. The standard recipe for a basic vinaigrette is three parts oil to one part vinegar. Substitute acidic juices like lemon, lime, or orange for part or all of the vinegar. When shaken together, these ingredients form a suspension. A **suspension** is a temporary mixture of ingredients that eventually separates back into its unique parts. The ingredients in vinaigrette will separate after nonuse; remix them before every service.

Figure 4.19 is an illustration of oil and vinegar.

Use certain vinegars with sharp flavors, such as tarragon or balsamic vinegar, sparingly. Strongly flavored oils, such as extra virgin or virgin olive oils (which are made from the first pressing of the olives) and nut oils, contribute a flavor of their own and can overpower the other flavors in the dressing and the salad if not used in moderation. Generally, add other flavoring ingredients to the vinegar and oil mixture. Table 4.3 on the following page lists the types of oil and vinegar.
Table 4.3: Types of Oil and Vinegar

<table>
<thead>
<tr>
<th>Types of Oil</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canola</td>
<td>Light in color and very mild in flavor; very low in saturated fat; high in monounsaturated fat content; has a good omega-3 fatty acid profile.</td>
</tr>
<tr>
<td>Corn</td>
<td>Light golden color; nearly tasteless.</td>
</tr>
<tr>
<td>Cottonseed Soybean Safflower</td>
<td>Bland; nearly tasteless.</td>
</tr>
<tr>
<td>Olive</td>
<td>Distinctive, fruity flavor; greenish color; not an all-purpose oil, but brings a distinctive flavor.</td>
</tr>
<tr>
<td>Peanut</td>
<td>Mild but distinctive flavor; somewhat expensive; must disclose use in menu items because of allergies.</td>
</tr>
<tr>
<td>Walnut</td>
<td>Distinctive flavor; expensive; used mostly in elegant restaurants with specialty salads; must disclose use in menu items because of allergies.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Types of Vinegar</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Balsamic</td>
<td>Special wine vinegar aged in wooden barrels for 4–50 years; dark brown color and sweet taste; sticky consistency due to high sugar content.</td>
</tr>
<tr>
<td>Cider</td>
<td>Made from apples; brown color; slightly sweet taste.</td>
</tr>
<tr>
<td>Flavored</td>
<td>Have flavor of other products added to them, such as tarragon, garlic, or raspberries.</td>
</tr>
<tr>
<td>Sherry</td>
<td>Made from sherry wine; has sherry flavor.</td>
</tr>
<tr>
<td>Specialty</td>
<td>Malt, rice vinegar, and vinegars flavored with fruits, such as raspberry; sometimes lemon juice or other citrus juices are used in place of or in addition to vinegar in some salad dressings.</td>
</tr>
<tr>
<td>White or Distilled</td>
<td>Distilled and purified to give it a neutral flavor.</td>
</tr>
<tr>
<td>Wine or Champagne</td>
<td>White or red color; usually made from wines.</td>
</tr>
</tbody>
</table>

Compared to the suspension mixture of regular vinaigrettes, emulsified (uh-MUL-si-fide) vinaigrettes have gone through the emulsion process. An emulsion is a mixture of ingredients that permanently stays together, unlike a suspension that eventually separates. In order to create an emulsion, you
need an emulsifier. An emulsifier is an ingredient that can permanently bind dissimilar ingredients, such as oil and vinegar, together on a molecular level. Eggs are good emulsifiers. Eggs bind together oil and vinegar permanently, so these three ingredients make up the base of many emulsified vinaigrettes. Emulsified vinaigrettes are thicker than suspension vinaigrettes and coat ingredients more heavily. They are good dressings for salads containing sturdier, more robust ingredients, such as pastas, meats, or fish.

**Essential Skills**

*How to Make Vinaigrette Dressing*

1. Combine the vinegar and seasonings in an appropriately sized stainless-steel bowl.
2. Slowly whisk in the oil until a homogeneous mixture is formed (the suspension). See Figure 4.20.
3. Serve the dressing immediately or refrigerate it.
4. Before dressing the salad, thoroughly recombine all of the ingredients by stirring or shaking vigorously.

![Figure 4.20: Step 2—Whisk together the oil until mixture is formed (suspension).](image)

**Did You Know...?**

The trend in restaurants is to use balsamic vinegar with brown sugar on fruit salads. This is probably because the flavor of the balsamic vinegar is rich and sweet. The finest grades are the product of years of aging in a successive number of casks made of various types of wood (including oak, mulberry, chestnut, cherry, juniper, ash, and acacia). It is a perfect complement to fruit.
Mayonnaise-based dressings are typically creamy dressings, such as Russian, thousand island, and blue cheese. They are often thicker than emulsified vinaigrettes (but not always). These dressings are versatile in that foodhandlers can use them to dress lighter greens or heartier proteins. Apply them like the vinaigrettes, as close to service as possible.

**Essential Skills**  
*How to Make Emulsified Vinaigrette Dressing*

1. Beat the egg yolks until they are frothy. Add a little water if the yolks are very thick.
2. Add a small amount of the vinegar or lemon juice.
3. Gradually mix in two-thirds of the oil, whisking the mixture constantly. See Figure 4.21a.
4. Add the remainder of the vinegar or lemon juice and blend well.
5. Gradually mix in the remainder of the oil and any additional seasonings or flavoring ingredients.
6. Serve the dressing at once or store it in refrigeration. See Figure 4.21b.

*Figure 4.21a:* Step 3—Mix two-thirds of the oil.  
*Figure 4.21b:* Step 6—Serve the dressing immediately or refrigerate.
Mayonnaise is the most stable and thickest emulsified dressing. It contains a higher ratio of oil to vinegar and a greater quantity of egg yolks than is required for emulsified vinaigrette. Use mayonnaise to bind and hold together heartier ingredients, such as potatoes, tuna, or chicken. Use it in the preparation of a salad before service. Add other ingredients to the mayonnaise to create different flavor profiles. Mustard is a common addition to mayonnaise dressings, as are fresh herbs and garlic.

Also use other ingredients, such as sour cream, yogurt, and fruit juices as the main dressing ingredients. Since most salad dressing is served fresh, without cooking, the dressing quality depends directly on the quality of ingredients used to prepare it. Higher-quality ingredients typically improve the overall quality of the dressing, and lower-quality ingredients detract from the overall quality. Table 4.4 on the following page matches dressing with the appropriate salad greens.
### Table 4.4: Matching Dressing and Salad Greens

<table>
<thead>
<tr>
<th>Dressings</th>
<th>Greens</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vinaigrette dressing made with vegetable or olive oil and vinegar or lemon juice</td>
<td>Any greens: Iceberg, romaine, leaf lettuce, butterhead lettuce, escarole, curly endive, Belgian endive, radicchio, baby lettuces, sorrel, arugula, dandelion</td>
</tr>
<tr>
<td>Vinaigrette dressing made with nut oil and balsamic vinegar</td>
<td>Delicate greens: Butterhead lettuce, Bibb lettuce, Belgian endive, radicchio, baby lettuces, arugula, watercress</td>
</tr>
<tr>
<td>Emulsified vinaigrette dressing</td>
<td>Any greens: Romaine, iceberg leaf lettuce, butterhead lettuce, escarole, curly endive, Belgian endive, radicchio, baby lettuces, sorrel, arugula, watercress</td>
</tr>
<tr>
<td>Mayonnaise-based dressing</td>
<td>Hardy greens: Iceberg, romaine, leaf lettuce, escarole, curly endive, sorrel, dandelion greens</td>
</tr>
</tbody>
</table>

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**Did You Know...?**

One tablespoon of mayonnaise has approximately 90 calories and ten grams of fat, which is approximately 15 percent of the recommended daily allowance for fat.

**Dressing on the Side?**

Guests began ordering “dressing on the side” as a strategy to reduce the fat calorie content of salads. A fresh vegetable and greens salad might contain only 50 calories. Depending on the type, salad dressing can add up to 600 calories to the dish. Since that defeats the purpose of some people choosing salad entrées, dietitians began suggesting that customers request dressing in a separate container “on the side.” Customers then can dress the salad themselves without worrying that the kitchen would overdo it.

Although these strategies sometimes save fat calories, they may also prove to do the opposite. Some guests may end up consuming more dressing doing it themselves “on the side” than had the foodhandler applied it for them in a well-proportioned amount. In addition, having the guest order the dressing “on the side” does not do justice to a fine salad dressing recipe nor reward establishments that take pride in serving delicious and healthful menu items.

Many eating establishments offer tossed salads with low-fat, great-tasting, fresh dressing that very lightly coats the greens. The patron gets a low-calorie and low-fat option, and the chef can display some creative culinary magic.
Essential Skills

How to Make Mayonnaise

1. Place egg yolks in an appropriately sized stainless-steel bowl.
2. Add dry ingredients and whisk until frothy and well blended. See Figure 4.22a.
3. Drizzle oil slowly into mixture, whisking rapidly.
4. As mixture thickens, slowly alternate adding small amounts of vinegar or lemon juice and oil until all are used.
5. Check seasoning.
6. Serve the dressing at once or refrigerate it. See Figure 4.22b.

Although house-made mayonnaise is fresh-tasting, it is usually best to use commercially prepared mayonnaise in a restaurant or foodservice operation because the acidity in commercially prepared versions has been raised to make them less susceptible to pathogen growth. If using house-made mayonnaise, use pasteurized yolks.

Figure 4.22a: Step 2—Whip the eggs until frothy.

Figure 4.22b: Step 6—Serve the dressing immediately or refrigerate.
Did You Know…?

Oil and water don’t mix—unless, that is, they’re in an emulsifier. An emulsifier is a molecule that attracts water to one of its ends (hydrophilic) and oil to the other end (lipophilic). A common emulsifier is lecithin in egg yolk. Soy beans also have some emulsifying qualities. The emulsifier molecule permanently mixes the two liquids that could not otherwise stay mixed. See Figure 4.23.

Without the emulsifier, two liquids of different densities, like oil and vinegar, will not stay mixed. But shake them together, and they are mixed temporarily in a suspension, like a vinaigrette dressing. Tiny droplets of oil are suspended throughout the vinegar for awhile. Before long, the oil drops float to the top and join into an oil layer once again. See Figure 4.24.

A colloid is similar to a suspension, but the droplets are much smaller and cannot usually be seen with the naked eye. The mixture occurs on the molecular level. Many colloids exist among food products, including whipped topping, homogenized milk, marshmallows, and gelatin. Given enough time, colloids can separate. Usually, the colloidal food grows stale before this happens. See Figure 4.25.

A solution is a mixture that is not going to separate. It is chemically changed and cannot be changed back without a chemical reaction, often involving heat. For example, after salt has dissolved into water, it’s pretty tough to get the salt crystals back out. They do not settle to the bottom because they have chemically changed. See Figure 4.26.

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**Dips**

A dip is a flavorful mixture that accompanies certain food items. Like salad dressings, dips should complement or enhance a food’s flavor. Depending on their ingredients and purpose, dips can be served hot or cold. Cold dips often
use mayonnaise, sour cream, or cream cheese as a base. Make cold dips the same way as mayonnaise-based salad dressings, although dips are normally thicker than salad dressings. Thin many cold dips for use as salad dressing.

It's important for a dip to have the proper consistency. Any dip should be soft enough to scoop up with a cracker, chip, or vegetable, but thick enough to stay on it. Serve each dip at the proper consistency and serving temperature. Most dips become thicker as they are held in the refrigerator. Some dips are heated in the oven or microwave before serving.

Ethnic variations of special salads and accompaniments are very popular as dips. Some examples include the following:

- **Guacamole** (gwah-kuh-MOE-lee): This is an avocado dip (of Aztec origin).
- **Salsa**: This is made from peppers, such as jalapeño or serrano, onions, and tomatoes (from Mexico).
- **Hummus**: This is made with chick peas, garlic, and tahini (from the Middle East).

Their texture and flavors are bold and unique, as well as nutritious. See Figure 4.27 for examples of each.
Summary

In this section, you learned the following:

- Many ingredients can be used to make salad dressings, but the four main salad dressings are vinaigrette, emulsified vinaigrette, mayonnaise-based, and mayonnaise.

- An emulsion is the permanent blending of dissimilar ingredients, such as oil and vinegar. An emulsion requires an emulsifier, an ingredient that can permanently bind ingredients together on a molecular level. Eggs are good...
emulsifiers and are often used in emulsified vinaigrettes to permanently bind oil and vinegar together. A suspension is a temporary blending of unlike ingredients, such as oil and vinegar. In a suspension, the ingredients will eventually come apart and separate. Vinaigrette is a suspension mixture, and mayonnaise is a classic emulsion.

- Vinaigrettes are lighter dressings used on more delicate ingredients, like salad greens. Emulsified vinaigrettes tend to be thicker and can be used on increasingly sturdier ingredients. Mayonnaise-based dressings are often thicker and creamy and can be used on heartier lettuce, proteins, and pastas. Finally, mayonnaise is the sturdiest emulsion and is used to bind ingredients, such as meat, fish, and starches together.

- A dip is a mixture served as an accompaniment to certain food items. Like salad dressings, dips are meant to complement or enhance the food items they are served with, not hide the flavor of the food.

- Salsa, guacamole, and hummus are examples of popular ethnic dips.
Section 4.2 Review Questions

1. What are the four primary types of salad dressing?
2. Explain what an emulsion is and how the process of emulsion works.
3. List and differentiate between three different types of oil and three different types of vinegar.
4. What are the three main ingredients that make up mayonnaise?
5. Debra Olson says that, currently, Golden Corral makes three dressings on-site. Why would a restaurant choose to make its own dressings rather than purchase prepared products?
6. Most of Kabob’s salad dressing choices are high in fat and calories. The lack of more healthful dressing options is one reason why the customers aren’t as happy as they could be. Add five new low-fat and low-calorie dressing options to Miguel and Chef Kate’s menu. Provide nutritional information for each of the five items.
7. Many people naturally associate dips with chips. But what are some other, more healthful food items that can be paired with dips? Come up with 10 items that might make an attractive menu option.
8. Vinaigrettes are often paired with greens. But what other food items might pair well with vinaigrette? Try to think of three types of salad that might go well with a vinaigrette but do not have greens as the main ingredient.
Section 4.2 Activities

1. Study Skills/Group Activity: Demonstrating Colloids

Fill a 250 mL beaker with distilled water (or use a clear measuring cup with 250 mL capacity, or approximately 1 cup). Shine a laser beam or laser pointer beam through the water. Observe. Add one drop of milk to the water and stir with a clean spoon or glass rod. Shine the laser beam through the water again. What do you observe this time? The molecules of milk should be finely dispersed throughout the water as a colloid. Eventually, they will fall to the bottom. After observing, fill another beaker or clear cup with tap water. Shine the laser through. What does this tell you about tap water?

2. Independent Activity: Digging into Hummus

Do some research on hummus. What is hummus? Where did it originate? How is it made? What is its nutritional value? Write a one-page report on your findings.

3. Critical Thinking: The Skinny on Dressings

Dressings are often made with ingredients that are higher in fat, such as oil and mayonnaise. This, of course, makes the dressing higher in fat. But increasingly, tasty lower-fat, lower-calorie alternatives are becoming available. How is this being done? What in these dressings allows them to be low in fat, but still taste good? Look into the ingredients of three popular low-fat, low-calorie dressings at your local supermarket. What are the common ingredients? How do the ingredients of low-fat dressings differ from regular dressings?
SECTION 4.3 GARNISHES

The way to a diner’s stomach often starts through his or her eyes. Enjoyment of a meal depends greatly on how it looks. In this section, you learn about garnishes: why and how they’re used, as well as the best ways to garnish desserts and soups.

Study Questions

After studying Section 4.3, you should be able to answer the following questions:

■ Why and how is garnish used?
■ How should desserts be garnished?
■ What are the three ways that soups can be garnished?

Garnishing: Why and How

Enjoyment of the meal is more likely if the food has eye appeal. If food is unattractive, the customer is more likely to expect a poor meal. This is why garnishing properly is essential when presenting food.

Proper garnish complements the main dish in color, flavor, and texture. The placement of extraneous items on a plate just to add color and heighten appearance is not proper garnishment. Garnish should enhance the flavor of a dish as well its eye appeal.

For example, finishing an item with a sprinkle of micro greens may sound good, but if the flavor of the greens does not enhance the food being served, then the goal has not been achieved. Adding the stronger flavor of watercress or arugula to a delicate dish does nothing to enhance the dining experience.

Finishing a side of broccoli with lightly sautéed red pepper enhances both its eye appeal and flavor. On the other hand, sprinkling brunoise (BROON-wah)—cuts of uncooked, unseasoned red pepper—adds color, but does nothing to enhance the flavor.
Preparation of garnishes is not an “extra” part of a dish. It is an essential part of the dish. Some garnishes can be prepared in bulk for use when plating and finishing both hot and cold items. (See Figure 4.30 on the following page.) Examples of these include the following:

- Lettuce, tomato, onion, etc., served on the side of the plate for a sandwich
- Finely minced herbs used to top items at service
- Micro greens used to top items at service
- Glazed nuts, grated cheese, or grated vegetables used to finish salads for service
- Sautéed vegetables used to top proteins and vegetables at service
- Sauces used to finish proteins and vegetables at service

**Essential Skills**

**Garnish as an Important Part of the Complete Dish**

Garnishing brings new personality to a dish.

1. Always garnish dishes right before serving.
2. Remember that one of the purposes of a garnish is to add personality to a plain dish. See Figure 4.29a.
3. Use contrasting colors of the food and garnish for a beautiful presentation. See Figure 4.29b.
What garnish to use depends not only on the food being served, but also on how the food is laid out on the plate. Plate presentation is something of an art. The question becomes, “to KIS or not to KIS,” and the answer is definitely, “KIS.” KIS stands for, “Keep It Simple.” The purpose of plate presentation is to enhance the eye appeal of the food. Poor plate presentation diminishes rather than enhances the appeal of the food. The goal is simple, but elegant. Build appetizing, elegant, easily consumable food presentations, not architectural wonders. For a list of basic plate presentations guidelines, see Table 4.5. Used properly, garnish “brings the dish together,” both to the palate and to the eye.

**Figure 4.30:** Types of garnish: radish flowers, cucumber fans, and onion bush.

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**Table 4.5: The Basics of Plate Presentation**

<table>
<thead>
<tr>
<th>Color</th>
<th>• Variety</th>
<th>• Balance</th>
<th>• Freshness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shapes</td>
<td>• Variety</td>
<td>• Complementary</td>
<td>• Balance</td>
</tr>
<tr>
<td>Texture</td>
<td>• Variety</td>
<td>• Physical: smooth, coarse, solid</td>
<td>• Visual: puréed, speckled, patchy</td>
</tr>
<tr>
<td>Plate, bowl, platter</td>
<td>• Appropriate size</td>
<td>• Appropriate color</td>
<td></td>
</tr>
<tr>
<td>Design</td>
<td>• Appropriate to time and temperature constraints</td>
<td>• Appropriate for available equipment, staff, and facility</td>
<td>• Easy for guest to eat</td>
</tr>
</tbody>
</table>

*continues*
### Table 4.5: The Basics of Plate Presentation continued

| Principles of arrangement | • Keep food off the rim of the plate. The well of the plate is where the food is meant to be. If too much food exists for the well of the plate, get a larger plate or reduce the amount of food.  
• Arrange the food in unity. The plate should look like one meal made up of several items. Do not have the food spread to all parts of the plate. The customer’s eye should focus on the center of the plate, not the edge.  
• Place food on the plate in the most attractive manner possible.  
• Place the best side of the meat forward.  
• Face the back part of the duck or chicken half away from the customer.  
• Face the bone of a chop away from the customer.  
• Sauces can improve plate presentation when used properly. See Figure 4.31 on the following page.  
• In arranging the plate, do the following:  
  Serve sauce around or under food.  
  Do not disguise or mask products that are served in the sauce.  
  For sauce meant to be put on top of a meat or vegetable, place a thin ribbon for color and serve additional sauce on the side.  
  Be careful not to oversauce. Sauce is meant to complement and enhance the flavor of food, not hide the flavor.  
  Sauces should be kept light and more natural, not thick and pasty.  
• Refrain from using the same pattern over and over again. Particularly for buffet presentation, variety in platter arrangement is as important as color variation.  
• Use nonintegral garnish only when necessary. Only add a garnish to a plate or platter for balance; it must be functional.  
• Simplicity is the key. |
| --- | --- |
| Adding height to your plate or platter | • Use the gross piece, natural bone, or add a seasoned cracker to achieve height. See Figure 4.32 on the following page.  
• Relishes or marinated vegetables can be used to create ramps to elevate slices on platters and plates.  
• Utilize vegetable cuts or seasoned croutons to achieve height in salad presentations.  
• Mold or shape starches and vegetables to achieve height in plate and platter presentation. Possibilities include the use of the following:  
  A vegetable timbale (tim-buh), which is a kind of dish of various ingredients baked in a round mold  
  A dauphinoise (doh-fan-WAZ) potato (baked with cream, garlic, and cheese, also called French gratin) cut into rounds or triangles  
  Duchesse potatoes (doo-CHEZ), potatoes that have been boiled and mashed, and then baked with butter and egg yolks  
  Piped puréed vegetables  
  Shredded potatoes formed as a basket and fried  
  Bundles of vegetables such as haricot vert and yellow pepper tied with leek strips |
Table 4.5: The Basics of Plate Presentation continued

- Use the natural shapes of bones, such as a chop or breastbone, to achieve height in the plate presentation of entrées and appetizers.
- Cut vegetables to achieve height, such as a tourner (tour-nyay), a football or barrel shape that forms six or seven sides on the length of the vegetable.
- Building a composite plate by placing the starch or vegetable under the entrée can bring height to a plate presentation.

Tips

- Respect the food.
- Respect the borders of the plate.
- Balance colors, textures, shapes, and flavors.
- Allow the guests to see what they are eating.
- When appropriate, try to garnish with ingredients with which the particular dish is prepared.

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Figure 4.31: Sauces improve plate presentation.

Figure 4.32: Natural bone adds height to a plate.

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Essential Skills

Preparing Common Garnishes

Many ingredients can be used as garnish, and there are many ways to prepare each one. Following are some common garnish preparations. The key is to practice with each one, and then practice some more! Garnishes not only add flavor and eye appeal to a dish, they can also become a chef’s signature.

Fried Parsley

1. Separate sprigs and remove coarse stems. See Figure 4.33 on the following page.
2. Wash and dry thoroughly.
3. Deep-fry at about 375°F for just a few seconds, until crisp but still green.
Drain on absorbent paper. Serve immediately.

**Figure 4.33:** Step 1—Separate sprigs and remove coarse stems.

**Fried Leeks**

1. Clean and slice leeks fine julienne. See Figure 4.34a.
2. Dust with corn starch.
3. Deep-fry at about 375°F for just a few seconds, until crisp.
4. Drain on absorbent paper. Serve immediately. See Figure 4.34b.

**Cucumbers**

1. For slices, score unpeeled cucumber with a fork or flute with a channel knife, and then slice. See Figure 4.35a on the following page.
2. For twists, cut slices three-fourths of the way across, twist open, and stand them on a plate. See Figure 4.35b.
3. For cups, cut fluted cucumber in 1-inch sections, hollow them out slightly with a melon ball cutter or spoon, and fill them with an appropriate condiment sauce. See Figure 4.35c.

NOTE: A cucumber is a good item on which to practice. See Essential Skills “Cucumber Fans” for a step-by-step tutorial on cucumber garnish.
Figure 4.35: Step 1—Peel the cucumber in strips with a channel knife.

Figure 4.35b: Step 2—Cut slices three-fourths of the way across.

Figure 4.35c: Step 3—Hollow out slightly with a melon ball cutter.

Mushroom Caps

1. Cut the stem out and scoop out any remaining stem without breaking the cap. See Figure 4.36.

2. To keep mushrooms white, simmer 2 to 3 minutes in salted water with a little butter and lemon juice.

Radishes

1. Radishes can be cut in many ways to make decorative garnishes. See Figure 4.37.

2. After cutting, soak the radishes in ice water until they open.

NOTE: This is a good item on which to practice.
**Scallion Brushes**

1. Cut off the root ends of the scallions, including the little hard core. Cut the white part into 2-inch sections.
2. With a thin-bladed knife, split both ends of the scallion pieces with cuts ½-inch deep. Make enough cuts to separate the ends into fine shreds. See Figure 4.38.
3. Soak in cold water until the ends curl.

![Figure 4.38: Step 2—Split both ends of scallion pieces.](image)

**Pickles**

1. To make fans, with the stem end of the pickle away from you, make a series of thin vertical slices the length of the pickle, but do not cut through the stem end.
2. Spread the pickle into a fan shape. See Figure 4.39.

![Figure 4.39: Step 2—Spread the pickle into a fan.](image)

NOTE: This is a good item on which to practice.

**Frosted Grapes**

1. Separate grapes into small bunches.
2. Brush with water.
3. Sprinkle with granulated sugar. See Figure 4.40 on the following page.
4. Let them dry before serving.
Lemons

1. Cut fluted lemon slices and twisted slices in the same way as cucumbers. Cut slices placed directly on fish or meat from peeled lemons. See Figure 4.41a.

2. Dip half the lemon slice in paprika or finely chopped parsley for a colorful effect. For just a line of paprika down the center, bend the lemon slice between the fingers and dip lightly in paprika.

3. Wedges are often more attractive if the ends of the lemons are cut off first. For added color, dip the edge of the lemon wedge in paprika.

4. For lemon halves, first cut a thin slice from each end of the lemon so the halves will stand straight. Then, cut the lemon in half. Cut a long strip of rind from the outer edge of the lemon half but do not detach it. Tie a decorative knot in the strip, being careful not to break it, or cut two strips, one from either side, and make two knots. Decorate with parsley. See Figure 4.41b.

5. For a sawtooth edge, cut a sawtooth pattern, piercing all the way to the center of the lemon with the knife. Separate the two halves. Decorate with parsley, or dip the points of the teeth in paprika. See Figure 4.41c.

NOTE: This is a good item on which to practice.
Essential Skills
Garnishing Platters

Platter garnish does not have to be elaborate to be effective. A simple assortment of colorful fresh vegetables, cooked to perfection, is an elegant garnish to the most sophisticated platter presentation. A succulent roast beef adorned with a colorful variety of fresh garden vegetables is always appealing for banquet crowds. The arrangement of the main food item, complete with accompaniments of colorful vegetables and starches, may not require additional garnish. Always avoid cluttering a plate. See Figure 4.42.

Figure 4.42: Succulent beef with crisp, bright vegetables.

Plating and Garnishing Hot Platters

1. Vegetables should be arranged in ways that are simple and practical. A mound of peas on a platter is unattractive and difficult to serve. Instead, choose vegetables that are available in easy-to-handle pieces, such as cauliflower, broccoli, whole green beans, etc.

2. Arrange the garnishes around the platter for the best effect, emphasizing different sizes and colors.

3. Be careful that the platter garnish isn’t too elaborate. The attractiveness of the main food item should not be overshadowed by garnish.

4. Any extra sauce or gravy should be served in a sauce boat. Only use a small amount of gravy or sauce when preparing a platter of meat, fish, or poultry.

5. Serve hot food on a hot platter. Serve cold food on a cold platter.
**Essential Skills**

**Cucumber Fans**

1. Select a firm, blemish-free cucumber.
2. Wash and dry.
3. Using a channel knife, score the cucumber vertically from end to end. Space the cuts evenly around the cucumber.
4. Cut off both ends with a chef’s knife.
5. Begin slicing 1/8-inch to 1/4-inch-thick slices, but don’t cut all the way through the cucumber. Leave 1/4-inch of the flesh connected on the side to hold the rounds together.
6. Slice off the length of fan you want and place on a plate, spreading the fan open. See Figure 4.43 for how it should look when finished.

*Figure 4.43: Step 6—Cucumber fan.*

**Coloring the Appetite**

Color plays a big role in nutrition. The compounds that give fruits and vegetables yellow, orange, green, and purple tones are nutrients called phytochemicals. In addition, the visual color of food can enhance or diminish the appetite. Warm food colors are instinctively inviting. Brown, red, orange, yellow, green, and warm reddish-purple are all appealing to the appetite centers of the brain. Bluish or cool tones are not instinctively seen as food colors. Use this knowledge when designing garnishes. Grated cheddar cheese, finely chopped red pepper, brown chocolate shavings, and red strawberries all enhance the visual impact of the food, which improves the appetite and encourages nourishment.
Did You Know…?
Classical French garnish is what many modern chefs call accompaniments, or side dishes, to a main entrée. Accompaniments include potatoes, rice, or vegetables, to name just a few. During the eighteenth and nineteenth centuries, one French handbook listed more than 209 classical garnishes. Some of these classic terms have carried over to the modern professional kitchen.

The classical French terms for garnishes that are listed here have been revised to refer to a specific type of vegetable used to garnish an item, rather than the original complete side dish. An example of this is the use of the term *doria*. Often today, to state that a dish is *à la doria* is to indicate that it has been garnished with cucumber. The actual classical garnish *doria* consists of cucumber slices trimmed in an olive shape and stewed in butter combined with sliced, peeled, and depipped lemon. This preparation was used as a garnish for fish prepared *à la meunière*. In a truly classical French kitchen, these terms are applied as originally created. Use caution when using French terms, because they usually indicate specific ingredients and techniques relating to the food being prepared.

<table>
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<td>Crécy</td>
<td>Carrots</td>
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<tr>
<td>Doria</td>
<td>Cucumbers cooked in butter</td>
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<tr>
<td>Dubarry</td>
<td>Cauliflower</td>
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<tr>
<td>Fermière</td>
<td>Carrots, turnips, onions, and celery cut into uniform slices</td>
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<td>Spinach</td>
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<td>Forestière</td>
<td>Mushrooms</td>
</tr>
<tr>
<td>Jardinière</td>
<td>Garden vegetables</td>
</tr>
</tbody>
</table>
Garnishing Desserts

As with any course, consider the flavor, texture, and appearance of the item being garnished when garnishing desserts. For example, using chocolate string work to garnish a piece of apple pie may create a striking appearance, but does not achieve the goal of enhancing the apple pie’s flavor and eye appeal. Garnishing a piece of apple pie with shredded cheddar cheese and a small dollop of applejack brandy whipped cream, however, can achieve the goal.

Numerous items can be used to properly garnish desserts, including the following:

- Fruit coulis in many varieties
- Whipped cream, flavored and unflavored
- Frosted mint leaves
- Chocolate work in the form of string work or formed pieces
- Spun sugar work
- Sweet sauces

The overall impact of the garnish on the appearance of the dessert is driven by the way the garnish is presented. To simply place a pool of raspberry coulis on a plate and set a piece of cheesecake in the middle achieves enhanced flavor but does not greatly enhance the appearance. Creating a design on the plate with the coulis and napping (drizzling a design) the cheesecake with the coulis improves both flavor and appearance. Application techniques include the following:

- String work (a design made with very fine piping) with a single item on the plate surface
- Artistic design work with one item placed in another item on the plate’s surface
- String work done separately and then transferred to the plate
Piping of cream or other accompaniments directly on the plate or the dessert item

Placement of multiple types of dessert items on the plate, each with its own garnish or an interconnecting garnish

Figure 4.44 illustrates these application techniques.

Additional garnishes for dessert that add to both the appearance and flavor include the following:

- Herbs, such as mint and tarragon
- Thin slices of fruit
- Citrus curls, sugared rinds, and segments
- Chocolate shapes, curls, and shavings
- Glazes added to poached fruits used in tarts and tortes add sheen to the finished product and protect the fruit
- Roasted fruits enhance natural flavors, textures, and the final appearance
- Slightly broiled meringue peaks on lemon meringue pie

Did You Know...?
Newborn infants prefer sweet tastes over sour or bitter ones. The next time you feel guilty about your love of desserts, take comfort in the fact that it’s not your fault. You were born to love sweets!
Garnishing Soups

Garnishes for soups are classified into three groups:

- Garnishes in the soup
- Garnishes topping the soup
- Garnishes that accompany the soup on the side

Garnishes in the soup are the actual ingredients. For example, the vegetables in a clear vegetable soup are considered garnish. All garnishes must enhance both the flavor and appearance of the soup. **Consommés** (CON-suh-mays), rich, clarified stocks or broths, are named after their garnishes. For example, consommé julienne is made of carrot, celery, and onion or leeks cut into julienne shapes. Vegetable cream soups traditionally are garnished with carefully cut pieces of the vegetable that is the main ingredient.

Add toppings to soups as a garnish as well. Toppings for thick soups (such as cream of potato, cream of mushroom, and cream of leek) may include the following:

- Chopped parsley or chives
- Toasted, sliced almonds
- Grated cheese
- Sieved egg yolks
- Chopped hard-cooked eggs
- Croutons
- Crumbled bacon
- Paprika
- A swirl or dollop (DOLL-up) of sour cream or whipped cream
- Toasted seeds, such as pumpkin or squash
- Fresh herbs and dried herbs

Place any topping on the soup immediately before service because it will either melt or sink to the bottom. Be sure the flavor of the topping is appropriate to the flavor of the soup.

Garnishes in the form of accompaniments with soups include crackers, melba toast, corn chips, breadsticks, cheese straws, whole-grain wafers, and **gougères** (GOO-jere) (small, finger-sized pastries, filled with ingredients such as mushrooms, beef, or ham). Figure 4.45 on the following page shows examples of each of these three types of soup garnishes.
Fresh Flowers: On the Table and Now in the Plate

Thirty-five years ago, few besides the extremely creative chef Alice Waters of Chez Panisse used real flowers in salads and garnishes. Now it is becoming an industry trend, even reaching out into home cuisine. Small edible flowers are beautiful on a plate, colorful, and delightful.

Not every flower is suitable. Some make people ill when ingested, so only work from a list of edible flowers with suitable flavors. Pansies, nasturtiums, and calendulas all work well. The flowering tops of edible field greens, like arugula and basil, are also edible. Add the flowers of the onion family, like chive blossoms, to food items for an onion-y appeal. Purchase or raise only culinary flowers that are completely free of pesticides.

Keep in mind that even though this is a trend, using flowers as food is not necessarily new. Broccoli and cauliflower are flowers as well!

Squirt Bottles and Scoops: Not Just for Ketchup and Ice Cream Anymore

Outside of the commercial kitchen, squirt bottles with pointed tips are for mustard and ketchup. In the commercial kitchen, they are for anything with the right viscosity (thickness) for staying in a bead. Easily dispense a fruit coulis, a chocolate sauce, a salad dressing, or thickened syrup through a squirt bottle. Use the tip the same way as a frosting tip on a pastry bag—to make designs or “write.”

Outside the commercial kitchen, a half-globe scoop is used for ice cream. In the commercial kitchen, the scoop is used for anything viscous enough to mound up and stick to a spoon. Dispense bound salads, mashed potatoes, and portions of unbaked dough with a scoop. Scoops come in various standard sizes to aid in portion control. They create a dimensional and attractive dome shape on the plate. And, they can be operated with one hand to allow for multitasking.
Summary

In this section, you learned the following:

■ Enjoyment of a meal is affected by how it looks. If food has eye appeal, then enjoyment of the meal tends to increase. This is why garnishing properly is essential when presenting food. The garnish will complement the main dish in color, flavor, and texture. Garnish enhances the flavor of a dish as well its eye appeal.

■ As with any course, garnishing desserts requires consideration of the flavor, texture, and appearance of the item being garnished. Garnish should not be added for eye appeal alone. It should enhance the flavor of the dessert as a whole.

■ Garnishes for soups are classified into three groups—garnishes in the soup, garnishes topping the soup, and garnishes that accompany the soup on the side. Garnishes in the soup may be the vegetables in a clear broth. Some examples of garnish topping a soup are grated cheese, croutons, or a dollop of sour cream. And garnishes that frequently accompany soup are crackers, melba toast, and breadsticks.
## Section 4.3 Review Questions

1. What are the two primary reasons to garnish?
2. List five popular garnishes.
3. Name three popular items that can be used to garnish dessert.
4. Describe the three ways in which to garnish a soup.
5. Debra Olson would agree that presentation is important in buffet service. If the food is well prepared, then why would it be necessary to garnish food served on a buffet?
6. As Miguel and Chef Kate know, some customers were dissatisfied with the presentation of food at Kabob. Comments overheard included that the food was “drab” and the appearance “lackluster.” Provide Miguel and Chef Kate with five low-cost garnishing ingredients that can be applied to a number of different dishes and courses to enhance taste and eye appeal. Remember, they don’t want to increase costs, so you’ll have to pick staple ingredients that Kabob might have stocked already.
7. Taco salads are sometimes served in a large, golden brown, bowl-shaped, fried flour tortilla. Is this the base, the bowl, or the garnish? Make an argument for each.
8. Create the perfect garnish for a plate of lightly pan-fried fillet of sole with butter-tossed steamed wide green beans and wild rice pilaf. What would complement the presentation?
Section 4.3 Activities

1. Study Skills/Group Activity: 16-Carrot Gold!
In teams of two or three, using a few carrots for each team, make as many garnishes from carrots as you can, safely using any hand tool in the kitchen. You have a 15-minute time limit. Score a point for every idea you successfully create. The team with the most points wins.

2. Independent Activity: Stringing Dessert Along
Working alone, practice chocolate string-work garnishes on a dessert, or even on an empty dessert plate. Experiment with various shapes, techniques, and styles. Share your best creation with the class.

3. Critical Thinking: Keeping Garnish Afloat
How can you garnish a soup without having the garnish sink to the bottom? List five strategies for successful soup garnishing. How would each garnish be made?
Case Study Follow-Up  *Looks Can Be Appealing*

At the beginning of the chapter, you found out that Kabob received poor customer feedback with regard to healthy menu options and visual appeal of food. Miguel and Chef Kate were trying to figure out what to do.

1. Put together a three-course prix fixe menu for Kabob that would focus on healthful food options and visual appeal. Provide two options for each course.

2. Chef Kate received high marks for the quality of her soups but low marks for how they were presented. Give suggestions on how to garnish the following three soups:
   - French onion
   - Cream of broccoli
   - Chicken noodle

3. Miguel and Chef Kate have decided to add a fruit salad to their dessert menu. They're thinking this would be a healthier alternative to their usual options, but they're not sure what fruits to include or how to present it. Help them by suggesting a complete fruit salad proposal from ingredients to garnish to plate choice. Be sure to explain why you made the choices that you did in your proposal.
Apply Your Learning

Pricing Cobb Salad
The Brown Derby’s cobb salad was first invented and served out of a culinary necessity from items in the refrigerator. It met with rave reviews and was put on the menu after many requests. How would you price a cobb salad? Research cobb salad, its ingredients, dressing, and traditional plating. Determine a price and outline your reasoning.

Visiting Florentine
“Florentine” is the name of something from Florence, Italy. It is also a culinary term. How did the name come to be used for food? What does it mean? How is it used? What are some examples of dishes? Write two paragraphs about it.

Oil Salesperson
Research canola oil. Create a brochure about canola oil as if you owned a canola oil company and wanted to sell your product to a restaurant supply broker. Present as much information as possible in a visually appealing way. When researching, consider the following questions: What type of oil is it? Where is it from? How is it used? What does it taste like? What types of fatty acids are in a molecule of canola oil, and why is this important? Is it healthy? How can canola oil be used in a commercial establishment?

Critical Thinking The Main Event
You’re creating a new section on your menu for main-course salads. You want them to be lower-fat, lower-calorie alternatives to your traditional main courses, but you still want them to taste great. Come up with three main-course salads to be served on this menu. Remember, main-course salads must be a meal in themselves. Detail all aspects of these new menu options, including main ingredients, dressing, garnish, base, and plate. Why did you choose the salads that you did?
Exam Prep Questions

1. The part of a bound salad that holds everything together is the
   A. body.
   B. base.
   C. garnish.
   D. dressing.

2. Which part of a salad is the main ingredient?
   A. Body
   B. Base
   C. Garnish
   D. Dressing

3. Which type of food typically makes up the base of a salad?
   A. Unleavened bread
   B. A creamy dressing
   C. Leafy or heartier greens
   D. A protein, such as chicken

4. The three keys to a quality salad are
   A. texture, taste, and cost.
   B. sweet, bitter, and tart flavors.
   C. eye appeal, cost, and heartiness.
   D. freshness, flavor, and eye appeal.

5. Which salad most often uses slightly sweeter or sweet/sour dressing to enhance its flavor?
   A. Fruit
   B. Bound
   C. Starter
   D. Tossed

6. Which salad is served after dinner and before dessert?
   A. Intermezzo
   B. After dinner
   C. Intermediate
   D. Accompaniment

7. Salads are best stored between
   A. 33°F–38°F.
   B. 36°F–41°F.
   C. 39°F–44°F.
   D. 41°F–46°F.

8. The four basic types of salad dressing are
   A. mayonnaise, mayonnaise-based, vinaigrette, and cheese vinaigrette.
   B. braised vinaigrette, vinaigrette, mayonnaise, and emulsified vinaigrette.
   C. vinaigrette, emulsified vinaigrette, mayonnaise-based, and mayonnaise.
   D. emulsified vinaigrette, braised vinaigrette, vinaigrette, and cheese vinaigrette.

9. What is most likely to happen to a dip the longer it is held in a refrigerator?
   A. It will curdle.
   B. It will get runny.
   C. It will evaporate.
   D. It will get thicker.

10. The purpose of garnishing is to
    A. mask bland-tasting food.
    B. increase the price of a meal.
    C. show off a chef’s culinary skills.
    D. enhance food’s taste and eye appeal.
Creamy Coleslaw
Cooking time: 20 minutes
Yield: 8–10 servings

Ingredients
8 oz Mayonnaise
4 oz Sour cream
1 oz Granulated sugar
1 oz Cider vinegar
1 clove Garlic (minced)
1 lb Green cabbage (shredded)
8 oz Red cabbage (shredded)
4 oz Carrot (shredded)
To taste Salt and pepper

Directions
1. Combine the mayonnaise, sour cream, sugar, vinegar, and garlic in a bowl; whisk together.
2. Add the shredded cabbages and carrot to the dressing and mix well. Season to taste with salt and pepper.

Recipe Nutritional Content
Calories 240 Cholesterol 15 mg Protein 2 g
Calories from fat 200 Sodium 330 mg Vitamin A 50%
Total fat 22 g Carbohydrates 10 g Vitamin C 55%
Saturated fat 4.5 g Dietary fiber 2 g Calcium 6%
Trans fat 0 g Sugars 7 g Iron 4%

Nutritional analysis provided by FoodCalc®, www.foodcalc.com
Basic Vinaigrette Dressing

*Cooking time: 5 minutes*
*Yield: 1 quart*

**Ingredients**
- 8 fl oz Wine vinegar
- 24 fl oz Salad oil
- 2 tsp Salt
- To taste Pepper

**Directions**
Combine the vinegar, salt, and pepper and mix well. Whisk in the oil gradually. Store at room temperature.

**Recipe Nutritional Content**

|  |  
|---|---|
| Calories | 120 |
| Calories from fat | 120 |
| Total fat | 14 g |
| Saturated fat | 1 g |
| Trans fat | 0 g |
| Cholesterol | 0 mg |
| Sodium | 100 mg |
| Carbohydrates | 0 g |
| Dietary fiber | 0 g |
| Sugars | 0 g |
| Protein | 0 g |
| Vitamin A | 0% |
| Vitamin C | 0% |
| Calcium | 0% |
| Iron | 0% |

Nutritional analysis provided by FoodCalc®, www.foodcalc.com
Raspberry Sauce

Cooking time: 15 minutes
Yield: 1 quart

Ingredients

2 lb  Raspberries, fresh or IQF (individually quick frozen)  
1 lb  Granulated sugar  
1 fl oz  Lemon juice

Directions

1. Purée the berries and strain through a fine chinois.
2. Stir in the sugar and lemon juice.
3. Adjust the flavor with additional sugar if necessary.

Recipe Nutritional Content

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Nutritional analysis provided by FoodCalc®, www.foodcalc.com
Chapter 5
Purchasing and Inventory
Case Study **Purchasing More Profit**

Chef Kate and Miguel share the buying duties for Kabob Restaurant. As the buyers, they know what to expect in terms of volume of business, regulations, production, processing, and safety. Ever since a downturn in the economy, the volume of customers has gone down. Fewer people are going out for dinner. They’ve tried various promotions, but nothing seems to be working. They’ve spoken to people who used to be regulars, and they all say the same thing: people simply don’t have as much money to spend on eating out right now.

So Chef Kate and Miguel are now looking at the internal workings of Kabob—namely, their purchasing practices. They are trying to find ways to cut expenses but also maintain the quality of the food. To do so, they’ll need to carefully examine their entire system of purchasing, from what goods and services they buy, to how they make their purchasing decisions, to how they store and track those purchases. It won’t be easy, but by reevaluating the purchasing process, they may be able to maintain the quality of food and service while still making a better profit during this tough economic time.

As you read this chapter, think about the following questions:

1. Why is it important for Chef Kate and Miguel to understand the economic factors that affect product price?
2. How will quality standards affect pricing and consistency?
3. How can a reevaluation of their relationships with suppliers help Chef Kate and Miguel cut costs?
Al Gaylor

Vice President, Industry Relations and Diversity
Sysco Corporation

Professionally, I’ve always had a very strong interest in marketing and marketing-related functions. My current and previous assignments have allowed me the opportunity to work with in all of the disciplines involving the marketing function.

I received a BS in marketing from Southern University and an MBA from Central Oklahoma State University. As a student, I had a keen interest in the food business, and upon graduating from college, started my career with a consumer package goods food company. Later, I transitioned to the foodservice/distribution side of the business and have enjoyed working with foodservice operators, manufacturers, and Sysco operating companies.

For students interested in this field, remember to stay abreast of overall evolving consumer food trends. However, you should remain focused on the specific segment that you are serving. Make sure that you offer customers value for the dollars they spend, especially in today’s difficult economic environment.

Above all, be careful not to go into this industry for the wrong reasons. This is a difficult business, and everyone who enters it will not become a celebrity chef.

Remember:

“*For every one customer who communicates to you concerning a problem, four customers will not....they will simply not return to your restaurant. You must find a way to stay in touch with customers and determine their impressions of your operation.*”

**About Purchasing and Inventory**

Operators—especially independent restaurant owners—often place a primary focus on the culinary aspect of their business while relegating purchasing to a secondary position. Purchasing, by its very nature, is a key driver in successfully operating a profitable restaurant.
One key to developing a successful purchasing strategy is establishing a positive relationship with a limited number of distributor/supplier partners. Be certain at least one of the distributors is a “full-service,” broad-line supplier; and work with your suppliers to clearly understand all of your purchasing-related costs, including menu costs, inventory costs, labor costs, and more.

Professional distributors employ highly trained and knowledgeable associates that can assist you. Additionally, there are valuable foodservice purchasing resources that are available online, either free from food manufacturers and distributors, or for a nominal cost from foodservice consultants. Again, whether you are an experienced operator or just getting started in the restaurant business, effective purchasing is critical to the long-term success of any operation.

**SECTION 5.1 INTRODUCTION TO PURCHASING**

Some people think that restaurant and foodservice purchasing is like shopping at a mall—just make a list of things you want, go buy them, and you’re done. Easy, right? In reality, it’s not quite that simple. In fact, the purchasing process is a lot more complex than that, and smart restaurant and foodservice managers know this. The successful operation must fully understand its budget, identity, standards, storage capacity, and customers’ wants and needs, to name just a few factors. An operation must also be able to develop and maintain strong vendor relationships for goods as well as services. In short, there’s a lot more to the purchasing process than might initially meet the eye. This chapter is dedicated to giving you a behind-the-scenes look at the processes and procedures that make for smart purchases and successful operations.

This section will start by providing an overview of the purchasing process in general and then discuss in greater detail goods and services, and finally buyers, offering a glimpse at the buying process.
Study Questions

After studying Section 5.1, you should be able to answer the following questions:

■ What are the five major steps in the purchasing process?
■ What are the four basic goals of purchasing?
■ What are the main layers in the channels of distribution?
■ What are the major categories of goods and services?
■ What does a buyer do?

Purchasing Overview

The purchasing process is everything involved in buying products and services for an operation. This process has five major steps that we will discuss in detail throughout this chapter. The basic procurement steps are listed here and illustrated in Figure 5.1 on the following page:

1. Determine what an operation wants and needs to buy. Buyers work with managers to understand what they should order. This step usually happens on a regular basis. It includes products that need to be ordered frequently as well as major, one-time purchases like new ovens.

2. Identify quality standards. Buyers and managers determine standards for the quality of the products and services based on the operation's goals. The standards help to build product specifications, or specs, which suppliers need to provide the right products and services.

3. Order products and services. The way an operation orders products and services depends on its size. Independently owned restaurants might place orders by phone. Larger companies have more formal procedures, which might include using computer software and purchase orders.

4. Receive deliveries. A foodhandler must check all deliveries before they are either accepted or refused. Receiving employees must verify that the products being delivered meet the operation's specifications. Buyers need to schedule deliveries to ensure that someone will be available to check them.

5. Store and issue products. The employee who receives products must store them as quickly as possible to prevent food safety problems and spoilage. An issuing system helps an operation track which areas are using which products. It also helps to control theft. Many operations use requisitions that managers must approve.
How effective an operation is in executing these steps directly affects its success. The number of factors involved in purchasing decisions can be confusing, and it's easy for even a seasoned buyer to lose focus. So, it's good to have a few clear goals to keep in mind whenever considering the purchase of any item. Having a set of goals will help keep buyers focused on making only smart purchases. The four goals are listed here and illustrated in Figure 5.2:

1. Maintain the right supply of products and services.
2. Maintain the quality standards of the operation.
3. Minimize the amount of money the operation spends.
4. Stay competitive with similar operations.
Maintain the Right Supply of Products and Services

There aren’t many things more disappointing to diners than ordering an item only to be told, “I’m sorry. We’re out of that right now.” The first goal of purchasing is to make sure that an operation has enough product to sell.

There are many tools available to help purchasers buy the right amount of product:

- **Customer-count histories**: This tracks how many customers an operation has served during specific time periods in the past.
- **Popularity index of items sold**: This identifies which menu items have been most popular.
- **Vendor delivery schedules**: This tracks how frequently or infrequently a particular vendor makes deliveries.
- **Availability of items from vendors**: This tracks when a vendor has particular products available for sale.
- **Recognizing outside influences that might affect an operation**: Being aware of this helps identify what events or conditions might help or hurt an operation during a particular time period (for example, conventions, festivals, weather forecasts, construction, etc.).

Maintain the Quality Standards of the Operation

Every item an operation produces must meet that operation’s standards for quality. A guest who enjoyed a cheeseburger last week expects the same cheeseburger this week. Substituting ground beef of an inferior grade this week will directly affect this customer’s experience and satisfaction. Consistency is the key to drawing repeat customers, and consistency often starts with consistently purchasing high-quality product.

An operation therefore must have established **quality standards** for each item or service and clearly communicate these standards to potential vendors in the form of **specifications**, or **specs**. Specifications are set by the chef, manager, and/or owner, and are easy to follow when purchasing brand-name items such as alcohol or condiments. Fresh food, however, can be challenging. Freshness, seasonality, and availability frequently change.
Minimize the Amount of Money an Operation Spends

No operation has unlimited funds. An operation must carefully weigh the value of a potential purchase against the operation’s cash position—the amount of funds available to it at any given time. Tying up large amounts of money in products that will make a profit at a date too far in the future can cripple a restaurant or foodservice operation’s ability to function in the present. Buying too much product can be just as damaging as buying too little. To minimize spending, an operation needs to consider some important factors:

- **Customer-count forecasts**: This is the number of customers expected for a given time period.
- **Available storage capacity for new product**: Only purchase what you are able to store and use.
- **Forecasts of future costs of particular products**: For example, fresh produce prices may go up or down seasonally, so an operation needs to take such price fluctuations into account when making purchases.

Stay Competitive with Similar Operations

Most people shop around for the best prices for products they want to buy. For example, there is no reason to buy a new flat-screen TV from Store A when Store B sells the same TV for $100 cheaper. Restaurant and foodservice purchasers look for good deals on the market, too, but they must also compete against one another for the best prices on goods and services.

For any operation, all costs must be controlled and the restaurant must be able to attract customers. This is how an operation maintains its competitive position with other operations. If Restaurant A can get better pricing and/or services than Restaurant B for similar items, Restaurant A will have a competitive advantage because it is spending less money for the supplies it needs. Although simple in concept, achieving this advantage in practice is difficult. Competitors rarely talk about their costs. Vendors often have different pricing levels among operations. Larger, higher-volume clients typically have an advantage in pricing and added services.

For an operation to stay competitive in such a market, it must do the following:

- Shop around for vendors who will provide the best combination of price and service for the operation’s needs. Vendors sell more than products. They sell their services—frequency of delivery, emergency and odd-hour deliveries, flexible payment terms, low minimum orders, and consistency. Some larger vendors also include added services such as menu printing, free samples, and consulting services.
Try to get the lowest possible edible-portion (EP) price (the cost of an item after all trimming and fabrication but before cooking) or as-served (AS) price (the cost of an item as it is served to the customer). EP and AS can vary considerably from the as-purchased (AP) product.

Try to get the maximum yield, or the total utilization, from products purchased.

**Channels of Distribution Flow**

So how do products get from the farm or manufacturing plant to the restaurant? Distribution refers to the journey products make as they move from where they are grown or made to their final destination in a restaurant. Many businesses are involved in this effort. A channel of distribution includes the particular businesses that buy and sell a product as it makes its way from its original source to a retailer. The channel of distribution for a crate of tomatoes is different than the channel for a box of cereal, and both are different than the channel for a fax machine.

There are three main layers in any channel of distribution:

- Primary sources
- Intermediary sources
- Retailers

Knowing the function of each layer will help in making better purchasing decisions. See Table 5.1 for examples of each of the three layers in the channel of distribution.

<table>
<thead>
<tr>
<th>Table 5.1: Channels of Distribution</th>
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<tbody>
<tr>
<td><strong>Primary Sources</strong></td>
</tr>
<tr>
<td>• Farmers</td>
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<tr>
<td>• Ranchers</td>
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<tr>
<td>• Manufacturers</td>
</tr>
<tr>
<td>• Distillers</td>
</tr>
<tr>
<td><strong>Intermediaries</strong></td>
</tr>
<tr>
<td>• Wholesalers</td>
</tr>
<tr>
<td>• Distributors</td>
</tr>
<tr>
<td>• Suppliers</td>
</tr>
<tr>
<td><strong>Retailers</strong></td>
</tr>
<tr>
<td>• Restaurants</td>
</tr>
<tr>
<td>• School cafeterias</td>
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<tr>
<td>• Caterers</td>
</tr>
</tbody>
</table>
Primary sources include the farmers and ranchers who raise produce and livestock. This group also includes manufacturers (businesses that make products like kitchen equipment from raw materials) and distillers (businesses that produce alcoholic beverages from raw materials like grapes and grains).

Intermediary sources include wholesalers, distributors, and suppliers. These various businesses are sometimes referred to as middlemen because they don't actually alter the products in any way. Instead, these businesses buy products from primary sources and sell them to their final destination: the retailer. Figure 5.3 shows a typical distributor’s warehouse.

Retailers sell their products directly to the public. All restaurants are considered retailers. Most restaurant and foodservice operations deal directly with primary sources only when they are buying new equipment or locally grown specialty foods. Otherwise they use intermediary sources. Following are specific examples of how purchasing works in various operations:

- Karen Giotto learned purchasing from one of the best buyers in the business—her father. Her control over the business is typical of most independent restaurant or foodservice operations. Karen’s two brothers each operate their own versions of Giotto’s in the suburbs. A few years back, the three businesses began combining their orders to get lower prices from their suppliers. This type of working together is often called cooperative, or co-op, buying.
Bob’s Burgers is a highly successful quick-service chain. Like other chains, Bob’s Burgers benefits from its economies of scale—the savings that a multiunit business creates for itself by sharing the cost of purchasing expenses. In the case of Bob’s Burgers, its size allows the company to maintain a central commissary—a distribution warehouse that provides goods to each individual location. A director of purchasing is responsible for keeping the commissary filled with Bob’s Burgers products. When a Bob’s Burgers location needs hamburger, the store manager contacts the commissary to place an order.

Sonny’s Morning Café is a popular chain of breakfast-based restaurants. A franchise is a legal business relationship in which an independent owner buys the right to use a company’s name, products, and logo. Franchise examples include Boston Market, McDonald’s, and KFC. Franchise restaurant and foodservice operations can choose to buy from a central commissary run by the franchisor or from any supplier that meets the company’s standards.

Farm-to-Chef Programs

Not so long ago, a chef wishing to add heirloom tomatoes or Berkshire pork to a menu had to build relationships with individual farmers, a challenging and time-consuming task, especially in urban areas. Today, however, “farm-to-chef” programs across the country are changing the way restaurant and foodservice operations purchase ingredients. These programs, now found in a number of states, serve as the intermediary between farmers and chefs, giving farmers a new market for their crops and chefs a source of new ingredients.

Many benefits arise from these new relationships. For one thing, restaurants can offer unique, high-quality ingredients to their diners. In some cases, a chef can even have a particular farmer grow a specialty crop for a single restaurant, which can be a great attraction for customers. Additionally, giving farms new markets gives them a stronger economic base: the increased demand helps them stay in business and keep rural areas healthy. Finally, when the farms are named directly on menus, diners feel a stronger connection to the food they are about to eat and a closer connection to their community. This is a winning situation for farmers, chefs, and consumers alike!
Did You Know...?
Recent studies have found that approximately 25 percent of new restaurants fail in the first year and that 50 percent of restaurants fail within the first three years. An entirely separate general business study has found that over 80 percent of small businesses fail as a result of forces within the control of the operation—meaning that owners and operators truly do control their own fates. And part of that control is understanding the purchasing process.

Goods and Services: What’s Being Purchased

When thinking about restaurant and foodservice purchases, it makes sense that one might automatically think of buying food. But in fact, food is just one of many goods and services that a successful operation needs to function efficiently. Having an understanding of each category and how they are all connected is essential not only to making smart purchases, but to running the operation as a whole. The major categories of purchases are outlined and described in this section:

- Food and beverages
- Nonfood items
- Smallwares and equipment
- Technology
- Furniture, fixtures, and equipment
- Business supplies and services
- Support services
- Maintenance services
- Utilities

Food and Beverages

These are items that operations actually prepare and sell. This is to say that these items are what goes into the profit-making aspect of a given restaurant or foodservice operation. Quality and consistency are absolutely key to delivering a desirable product that will attract repeat customers. Purchasing lower- or inconsistent-quality food items can quickly lead to the failure of an operation. Table 5.2 lists some examples of the kinds of food that operations might purchase.
Table 5.2: Food and Beverages that Restaurant and Foodservice Operations Purchase

<table>
<thead>
<tr>
<th>Beverages, alcoholic</th>
<th>Spirits (liquor)</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Beer</td>
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<td></td>
<td>Wine</td>
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<tr>
<td>Beverages, nonalcoholic</td>
<td>Soda (pop)</td>
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<td></td>
<td>Coffee and tea</td>
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<td></td>
<td>Juices</td>
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<td></td>
<td>Bottled waters</td>
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<tr>
<td>Food items</td>
<td>Meat</td>
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<td></td>
<td>Poultry</td>
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<tr>
<td></td>
<td>Eggs</td>
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<tr>
<td></td>
<td>Processed food</td>
</tr>
<tr>
<td></td>
<td>Fish</td>
</tr>
<tr>
<td></td>
<td>Dairy</td>
</tr>
<tr>
<td></td>
<td>Produce</td>
</tr>
<tr>
<td></td>
<td>Dry and canned goods</td>
</tr>
</tbody>
</table>

Nonfood Items

These items are *directly* tied to the sale of food and beverages. For example, operations use linen, candles, and flowers for tabletops, and paper bags and plastic containers for take-out orders. This is a particularly tricky category for an operation to negotiate because service style, or what an operation wants its service style to be, comes into play. Purchasers need to ask a lot of questions when making purchases in this category. How much is enough? If an operation is a full-service restaurant, is it casual, semiformal, or upscale? And then how does the purchaser support that atmosphere? What will the costs be in the long run for using linen tablecloths instead of a bare tabletop? Is it worthwhile to provide a sturdier plastic take-out container or is a plain, foldable container sufficient? There are a lot of hidden costs in the answers to these questions, and an operation needs to be aware of them all. Figure 5.4 shows some examples of nonfood items a restaurant or foodservice operation might need to purchase; some of these are listed here as well:

- Linen and uniforms
- Bar supplies
- Paper goods
- Cleaning supplies
- Menus and beverage lists
Smallwares and Equipment

Smallwares and small equipment are items that an individual can generally move from location to location easily and that require replacement fairly often—but how often is a key question here. Is an operation better off buying cheaper equipment but replacing it more frequently, or should the operation buy more expensive equipment that will last longer? To answer this question, an operation will likely have to consider how often the equipment will be in use, how important the product is to the operation, and what the long-term costs of the cheaper products will be against the up-front costs of the more expensive products. Here are some examples of smallwares and catering equipment:

- China and glassware
- Silverware
- Kitchen utensils and supplies
- Tabletop mixers
- Blenders
- Food processors
Technology

Management and employees use technology throughout the modern restaurant or foodservice operation, from the computer in the office to the printer for the point-of-sale (POS) system in the kitchen. A crucial question here is whether implementing technology will improve the bottom line of the operation. When considering any new technology, a purchaser must calculate how soon, or whether, the savings an operation gets from the new tool will exceed its cost. Here are some examples of purchases that fall in this category:

- Computers
- Printers
- Fax machines
- Point-of-sale systems
- Phone systems
- Credit card processing systems
- Security systems

Furniture, Fixtures, and Equipment

This category is also known as FFE, or capital expenditures. An operation might purchase or lease some of the items in this category, as is often the case with warewashing machines, ice machines, and beverage dispensing equipment. These big-ticket appliances require a lot of maintenance and expensive repair. To reduce up-front expenses (especially during the start-up phase) and future maintenance and repair costs, many operations choose to lease these items rather than buy them. This list includes some other examples of FFE, and Figure 5.5 on the following page illustrates the issue:

- Tables, chairs, and barstools
- Lighting fixtures
- Bars
- Cooking equipment
- Refrigeration
- Plumbing fixtures
- HVAC
Business Supplies and Services

These supplies and services support the management or marketing of an operation. The size of the operation is often a factor in what services an operation may use. Management might make the decision to use an outside marketing service, for example, based on the amount of capital, or assets, an operation has at its disposal. As with any purchase, purchasers must carefully weigh the potential profit of such an investment (the use of money for future profit) against the costs. Here are some examples:

- Office supplies and equipment
- Financial and legal services
- Insurance
- Marketing and advertising

Support Services

These support services are tied to the operational aspect of the business. As with nonfood item purchases, many of the support service options have to do with an operation’s chosen service style and how far that operation wants to go in emphasizing that service style. For example, if an operation wants fresh-cut flowers on every table, is it more cost efficient to manage this in-house, or
would hiring a flower service be a wise purchasing decision? The service will obviously be more costly, but it could free up employees of an operation to do other, more productive, things. Here are some examples of support services:

- Credit card processing service
- Linen and uniform rental
- Garbage removal
- Flower services
- Music services
- Pest control
- Parking and valet services

**Maintenance Services**

Maintenance services help keep the facility in good shape. These are often overlooked by start-up operations, but many of these services are essential to the efficient functioning of an operation. Like any of the other categories discussed, maintenance service costs need to be accounted for on both short-term and long-term bases. Here are some examples:

- Point-of-sale (POS) system support
- Security system support
- Cleaning services
- Plumbing and heating maintenance and repair
- Groundskeeping
- Painting and carpentry
- Equipment repair and maintenance
Utilities

In many areas of the country, operations can choose among competing utility suppliers. Careful negotiation of the various utilities in a given area will end up saving an operation money. Cutting costs on utilities frees up money that might be better spent on other aspects of the operation. Figure 5.6 shows a utility service person. Here is a list of the utilities that most operations will use:

- Gas
- Heat
- Electricity
- Telephone
- Internet service

Essential Skills

Vendor Shopping

When selecting a vendor, you need to do your homework! This isn't simply a matter of getting the best price: as in any other situation, quality can be expensive—and worth it. There are a lot of other things an operation should consider when shopping around. There are three main steps in the process:

1. Consider your establishment’s needs:
   - Quality standards
   - Type of restaurant
   - Number of guests
   - Service periods
   - Availability of skilled labor
   - Budget and menu pricing
Once you know your needs, you can research vendors. Some areas to investigate include the following:

- Price ranges for items you use frequently
- Quality of customer service
- Delivery schedule plus availability of emergency deliveries
- Ease of ordering
- Satisfaction level of long-term customers

Finally, start building relationships with the vendors that look promising:

- Try out sample products.
- Talk with your peers and check references.
- Make small orders at first to see how they deliver.

**Buyers: Who’s Doing the Purchasing**

In independent or single-unit operations, the **buyer** of an operation’s product might be the owner or manager. In some medium-sized independent operations, purchasing may be divided among the owner and various unit managers. For example, the owner might be responsible for purchasing food items, while the bar manager might be responsible for beverage purchasing. The purchasing structure in chain operations might include a purchasing vice-president, director, or agent. This person in some cases performs all purchasing activities. Other times, the individual in this position reviews purchasing decisions and provides assistance with purchasing for all units and/or franchisees. **Franchisees** are those people who are granted a franchise to market a company’s goods or services in a certain area.

Buyers engage in two types of purchasing methods: formal or informal, as illustrated in Figure 5.7 on the following page. Hotels, large restaurants, and chains use the **formal purchasing method** to order goods and services. In the formal purchasing method, buyers prepare purchase specifications for the items they want. These specifications are then sent to several suppliers for bids. **Bids** are specialized, written price lists created for the restaurant by a supplier. Smaller operations use an **informal purchasing method**. For example, when the owner of a small diner needs a new supplier, he or she simply asks for verbal price quotes from a variety of suppliers before making a decision. A **quote** is notice of a price that a supplier gives to a buyer during the purchasing process.
Like any other position in the restaurant and foodservice industry, a good deal of training may be required to become a buyer. A buyer must know everything about the operation—from the items on the menu and their current prices to the expected volume of business. Buyers must also understand federal and state regulations that oversee food quality, production, processing, labeling, transportation, and safety. For an operation to run effectively, buyers must have a full understanding of the purchasing process and be familiar with the technology available for simplifying and improving the process.

Purchasing decisions affect all of an operation’s employees. Anyone responsible for purchasing must cooperate and communicate with other employees to be sure he or she buys the right goods and services. For example, a chef or production manager who purchases fruit and other food items for the entire operation should check with the bar manager to see what that area needs. Likewise, the bar manager might purchase the wines and spirits used in the kitchen and should check with the chef to see what’s needed. Making assumptions about what other aspects of an operation want or need can often result in having too much or too little of an item, or even getting the wrong products altogether. Cooperation in purchasing is very important.

A buyer must also have integrity. Most operations have a written code of ethics that buyers must agree to follow. These rules help guide a buyer’s behavior if he or she faces a situation that threatens the honesty of the relationship to the vendor or with the operation itself. One type of this situation is illustrated in Figure 5.8 on the following page. **Kickbacks** are money or other goods received by a person in exchange for purchasing from a specific vendor. Receiving a
kickback is obviously wrong (and illegal). Some vendors may offer buyers gifts without an express expectation of an order. But accepting a gift from a generous vendor might cause a buyer to feel obligated to that company, even if he or she didn't feel that way at the time the gift was accepted. The best course of action for buyers, therefore, is to follow the operation's code of conduct and to avoid anything that might cause a personal conflict. Ethical behavior is not an option; it is necessary for any operation to run successfully.

Figure 5.8: Kickbacks are payments or an offering of services with the intent to influence or gain something from a company or a person.

Buyers: Responsibilities, Education, and Skills

Larger restaurant organizations and other foodservice establishments often hire buyers to handle business relationships with outside vendors. These individuals are responsible for purchasing perishable and nonperishable goods and services, while maintaining appropriate quality standards and adhering to a budget. Buyers negotiate contracts with suppliers, often working with vendors to provide novel or unusual products. While it is important for buyers to find good deals, it is equally important to build good relationships with vendors. Internally, buyers work with research and development teams and marketers as well as chefs and managers to coordinate business needs.

Typically, a bachelor's degree is required to become a buyer, though this is not always the case. More importantly, a buyer must have excellent communication and negotiation skills and must work well with a variety of personality types. Financial skills, especially accounting and budgeting, are also key.
Summary

In this section, you learned the following:

- There are five basic steps to the procurement process: determine what an operation wants and needs to buy; identify quality standards; order products and services; receive deliveries; and store and issue products.

- There are four major goals of purchasing: maintain the right supply of products and services, maintain the quality standards of the operation, minimize the amount of money the operation spends, and stay competitive with similar operations. Purchasers need to fully understand and strive to achieve these purchasing goals to run a successful operation.

- There are three main layers in any channel of distribution: primary sources, intermediary sources, and retailers. Primary sources are the producers, such as farmers, manufacturers, and distillers. Intermediary sources include wholesalers, distributors, and suppliers. These businesses buy products from primary sources and sell them to their final destination: the retailer. Retailers sell their products directly to the public. All restaurants are considered retailers.

- There are nine major categories of goods and services: food and beverage; nonfood items; smallwares and equipment; technology; furniture, fixtures, and equipment; business supplies and services; support services; maintenance services; and utilities. Restaurant and foodservice operations need to carefully negotiate what they spend money on in each of these categories, looking closely at both the short-term and long-term costs for each purchase.

- A buyer must know everything about an operation—from the items on the menu and their current prices to the expected volume of business. Buyers must also understand federal and state regulations that oversee food quality, production, processing, labeling, transportation, and safety. For an operation to run effectively, buyers must have a full understanding of the purchasing process and be familiar with the technology available for simplifying and improving the process. Buyers engage in two types of purchasing methods: formal or informal.

- Buyers must have integrity to avoid forming relationships with vendors that could either compromise the relationship with that vendor or compromise the best interests of the operation the buyer is making purchases for.
### Section 5.1 Review Questions

1. Pick two of the four goals of purchasing and explain why each is important, using an example for each to illustrate your point.

2. Give an example of a primary source, an intermediary source, and a retail source.

3. Name four of the nine goods and services categories, and provide an example of a good or service for each category you name.

4. Explain a situation in which a buyer’s integrity might be compromised and how a buyer might avoid such a situation.

5. Al Gaylor comments that “purchasing, by its very nature, is a key driver in successfully operating a profitable restaurant.” Do you agree that this is true? Why or why not?

6. In going over the purchases, Miguel and Chef Kate found that they are spending way too much on nonfood items. Kabob has a classy, intimate feel, and they want to keep that atmosphere. Can you think of ways to achieve that style without spending a lot of money?

7. Of the four major objectives of the purchasing function, which do you believe is the most important and why?

8. You are the owner of a medium-sized restaurant. You often do the buying for the restaurant, but you also have assistant managers who sometimes do the buying as well. What kind of purchasing method would you implement—formal or informal? Explain your decision.
Section 5.1 Activities

1. Study Skills/Group Activity: Buyers Beware!

Working with two or three other students, take the information you learned in this chapter about the buying process and what buyers do, and develop a written code of ethics for buyers to follow. Then share your list of ethics with the rest of the class.

2. Activity: Two Tools

Review the various tools available to maintain the right supply of products and services. What two tools do you think would prove most effective? Write a one-page report explaining your rationale.

3. Critical Thinking: An Interlude with an Intermediary

Research a real-life example of an intermediary source. First, discuss the role of the intermediary in the distribution channel. Then, look into how your example functions and the service it provides its customers. Then, prepare a three-minute presentation to explain your findings to the class.
SECTION 5.2 MAKING PURCHASING DECISIONS

Everyone makes purchasing decisions every day. The questions are endless: Buy lunch out, or bring it from home? Buy this bottle of water, this candy bar, this apple? Or, save the money for something down the road? Do I need a new pair of jeans, or are mine okay for a few more months? Should I go to this movie in the theater, or should I just wait until it comes out on DVD? The purchasing decisions we make for ourselves will hopefully lead to happier, healthier, more satisfying lives. We all have our own set of quality standards that guide our decisions, but it’s a delicate balance.

The same is true for the life of restaurants and foodservice operations. The purchasing decisions an operation makes will ultimately affect whether it is healthy and successful, or not. Just as with an individual’s purchasing decisions, a restaurant or foodservice operation needs to strike a good balance. Buying too much or too little of something can affect the health of the business in other areas, or, worse yet, it can affect its potential for long-term success. This section discusses the major elements of making restaurant and foodservice purchasing decisions: quality standards, product specifications, and the ordering process.

Study Questions

After studying Section 5.2, you should be able to answer the following questions:

■ What are the factors that go into determining quality standards?
■ What needs to be considered in writing product specifications?
■ What is a make-or-buy analysis?
■ What tools do operations use to help determine what to purchase?
■ What are the typical ordering forms?
■ What factors influence food prices?
Determining Quality Standards

One of the keys to purchasing the right products is **quality standards**. Quality, in this sense, refers to the value or worth that customers place on a product or service. For example, no one expects the highest grade of beef in a $2.00 hamburger. But people do expect the $2.00 hamburger to be cooked properly and to taste good. So, an operation that wants to sell this kind of hamburger needs to have a quality standard for the beef it uses that meets its customers’ expectations while controlling costs.

Establishing solid quality standard specifications helps an operation create the consistency that customers grow to expect when they purchase their favorite food items. Successful operations select the best products early on by determining the quality standards for every product purchased and used at the operation. Putting together quality standards is a complex process. Managers and buyers usually work together to create them, along with input from vendors and other employees. The following are some of the factors that need to be taken into account when figuring out an operation’s quality standards:

- Item’s intended use
- Operation’s concept and goals
- The menu
- Employee skill level
- Budgetary constraints
- Equipment constraints
- Customers’ wants and needs
- Seasonal availability
- Storage capacity

**The Item’s Intended Use**

Knowing how an item will be prepared and served is the most influential factor in determining quality standards. For example, fruit used for accenting or garnishing plates should be a different quality than that used to make dessert sauces. That is, chefs choose fruit used for garnishing based on its appearance; it needs to look good on the plate. Chefs can use fruit that is overripe or even damaged in a sauce, though, because it won’t be used in its natural form.
The Operation’s Concept and Goals

The overall concept and goals of the operation guides all decisions. Figure 5.9 illustrates how operations with different concepts have different equipment in their kitchens. For example, if an operation is a fast-casual restaurant, it must serve premium items in a fraction of the time it takes at an upscale dining restaurant. Such an operation is promising speed, convenience, reasonable prices, and premium menu items. So which products will help to achieve these goals? One option might be an impinger oven—a conveyor-belt-style oven used to toast bread products. These ovens quickly toast sandwiches, bagels, and small pizzas. This type of oven may get rid of the need to employ a full-time baker, which will cut labor costs and allow the operation to provide a lower price to its customers. A buyer must consider these kinds of goals before creating quality standards.

The Menu

If the menu specifies “whole Cornish hens,” the buyer must specify in the quality standard, “whole Cornish hens.” If a name brand is mentioned on the menu, then the buyer must specify only the name-brand item on the operation’s list of quality standards. The section Writing Product Specifications covers this in more detail.
Employee Skill Level

If an operation offers items that require extensive preparation, the operation will need highly skilled employees. Of course, higher skill levels mean higher wages. When employees have lower skill levels, an operation must buy easy-to-use or easy-to-prepare convenience products. Although an operation can pay less-skilled employees lower wages than highly skilled employees, it will likely be paying more for such easy-to-prepare convenience products, which often come with higher costs. So again, an operation needs to look at all the different angles of how it is spending its money.

Budgetary Constraints

Operations in highly competitive markets may need to include cost limits in their quality standards. Restaurant or foodservice operations can’t change prices on the menu every week to reflect the changing costs of the items it purchases. Their prices should be fairly consistent or customers will get upset, and they have to stay competitive with their competitors’ prices. Operations may need to avoid purchasing products whose prices go up and down wildly. Drastic changes in an item’s price can cut into the business’s profit and make budgets difficult to project.

Customers’ Wants and Needs

It’s very important to look closely at what customers want and why they choose to eat at an operation. Analyze and track trends by providing surveys and feedback forms. Smart operations respond to their customers’ wants and needs by providing goods and services that meet those needs and produce a profit. In many cases, these wants and needs are influenced by industry and consumer trends. Purchasers and management may need to update quality specifications from time to time to reflect these trends.

Seasonal Availability

The seasonal nature of produce and other items affects price and availability, as illustrated in Figure 5.10 on the following page. The need for certain products (especially produce) may more than double during certain months. Managers and chefs will need to determine if the season will affect a change in quality standards. Some operations may also change menus to reflect the seasonal availability of some products.
Storage Capacity

An operation’s storage space limits the amount of product it can purchase. If an operation has limited freezer space, a limited amount of food can be maintained at the required temperature levels. Purchasers may prefer to order fresh, ready-to-use products if additional freezer storage is not bought. On the other hand, if plenty of shelf space in dry storage is available, some items, such as corn, may be ordered in a can instead of frozen—which may then affect the quality of some menu items.

Did you Know…?

A recent study published in the Cornell Hotel and Restaurant Administration Quarterly determined that restaurants are more likely to succeed when the operation has a clear concept that it executes consistently. This same study found that maintaining and fostering connections with customers and the community proved to be more valuable to an operation’s success than spending money on advertising and promotions.

Writing Product Specifications

Once managers and purchasers decide on quality standards, they need to create product specifications. Product specifications, or specs, describe the requirements for a particular product or service that an operation wants to buy. Specifications include the details that help a product or service meet the operation’s quality standards. Operations should always document product specifications. Smaller operations may use informal specifications that include only a few details. But specifications in larger companies are usually formal and precise. It’s also important to remember that buyers should always work with approved, reputable suppliers.
Buyers must be very familiar with the operation’s quality standards and product specifications. They also must communicate these standards and specifications to both staff and vendors. Managers and receiving employees must then be trained to make sure that vendors have followed product specifications, so that the quality standards are met.

Example:

Quality standard: Crushed tomatoes

Product specification: Finley® crushed tomatoes, six to a case, #10 can

Well-written specifications, like the one shown in Figure 5.11, prevent buyers from receiving low-quality or wrong items. Possible specifications are shown in Table 5.3 on the following page. However, it’s possible to write specs that are too rigid. Demanding an out-of-season melon may force a supplier to ship by air and greatly increase the price. Instead, a buyer should review the menu or allow for substitutions. But, keep in mind that customers will easily notice changes in some products. Substitutions shouldn’t mean a drop-off in quality.

Many suppliers have their own product code numbers, which helps to ensure that customers are receiving specifically what they need. The product code numbers relate to particular quality standards and name brands.
Table 5.3: Possible Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acceptable substitutes</td>
<td>• List alternative products that an operation will accept if an order can’t be filled.</td>
</tr>
<tr>
<td></td>
<td>• Providing acceptable substitutes saves time and money and prevents last-minute menu changes, but it also takes time to identify alternatives that don’t compromise the operation’s quality standards.</td>
</tr>
<tr>
<td>Acceptable trim</td>
<td>• Indicate the maximum amount of waste acceptable in a received product.</td>
</tr>
<tr>
<td></td>
<td>• Use for fresh products like lettuce, which may have some rotting on its outer layers.</td>
</tr>
<tr>
<td>Brand name</td>
<td>• Brand names often indicate a quality level.</td>
</tr>
<tr>
<td></td>
<td>• Packer’s brand names are the supplier’s own labeled products. These products often have many quality levels available. Packer’s brands usually place a high value on consistency, and they’re also the most familiar brands among produce suppliers.</td>
</tr>
<tr>
<td>Color</td>
<td>• If an item is available in different colors, then the buyer must specify the right color. Green beans and yellow beans are one example. Be aware that color can also mean a different flavor, which is important in recipes. For example, green grapes are sweeter than red grapes.</td>
</tr>
<tr>
<td>Exact name</td>
<td>• Prevent confusion by listing the exact name of the product desired; for example, saying “grapes, Thompson seedless” is better than just saying “grapes.”</td>
</tr>
<tr>
<td>Intended use</td>
<td>• Describe how a product will be used, prepared, or consumed.</td>
</tr>
<tr>
<td></td>
<td>• Intended use drives all selection decisions.</td>
</tr>
<tr>
<td>Market form</td>
<td>• Market forms identify how an item has been processed before being packaged. For example, “shredded” is a market form of carrots. Other types of market forms include fresh, canned, and dried.</td>
</tr>
<tr>
<td>Packaging</td>
<td>• Intended use is the most important factor for choosing packaging; for example, a take-out lunch counter needs packets of ketchup, not bottles.</td>
</tr>
<tr>
<td></td>
<td>• Some packaging is standardized based on product needs. For example, eggs need special protective packaging.</td>
</tr>
<tr>
<td>Place of origin</td>
<td>• This is important to note for products that have textures and flavors specific to a region.</td>
</tr>
<tr>
<td></td>
<td>• Some operations’ policies may require that products come from certain places, such as local farms.</td>
</tr>
</tbody>
</table>
### Table 5.3: Possible Specifications continued

<table>
<thead>
<tr>
<th>Specification</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pricing</td>
<td>• List the maximum amount an operation will pay for an item. If an</td>
</tr>
<tr>
<td></td>
<td>item exceeds the maximum price, then the vendor can’t ship it to</td>
</tr>
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<td></td>
<td>the operation.</td>
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<tr>
<td>Size</td>
<td>• Identify size in terms of weight, volume, or count (quantity).</td>
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<tr>
<td></td>
<td>• Specify some items in exact weights, such as the flour for baking.</td>
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<td></td>
<td>Order other items, such as a whole turkey or a side of beef, using</td>
</tr>
<tr>
<td></td>
<td>an acceptable range of weights.</td>
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<td></td>
<td>• Buyers and suppliers must work together to decide what kinds of</td>
</tr>
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<td></td>
<td>units are listed in product specifications. One supplier may provide</td>
</tr>
<tr>
<td></td>
<td>150-count boxes, while another provides 12-dozen boxes.</td>
</tr>
<tr>
<td>Temperature</td>
<td>• Identify the temperature requirements for receiving an item.</td>
</tr>
<tr>
<td></td>
<td>For example, an operation may specify that all fresh poultry must</td>
</tr>
<tr>
<td></td>
<td>be delivered at 39°F.</td>
</tr>
<tr>
<td></td>
<td>• Train all managers and receiving employees to check temperatures</td>
</tr>
<tr>
<td></td>
<td>of deliveries.</td>
</tr>
<tr>
<td>USDA grade of the item</td>
<td>• The USDA grades over 300 food and agricultural items. Different</td>
</tr>
<tr>
<td></td>
<td>terms are used for different products. For example, the best beef is</td>
</tr>
<tr>
<td></td>
<td>Prime, but the best milk is Grade A.</td>
</tr>
<tr>
<td></td>
<td>• Grading stamps are not the same as inspection stamps. USDA</td>
</tr>
<tr>
<td></td>
<td>inspections are required for some types of food, but USDA grading</td>
</tr>
<tr>
<td></td>
<td>is voluntary.</td>
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</tbody>
</table>

### Ordering

#### Make it or Buy it?

Before placing an order, operations first need to figure out what items they can make themselves versus what items it makes more sense to purchase. To do this, buyers conduct a **make-or-buy analysis** to decide if an operation should make an item from scratch or buy a ready-made version. This analysis helps to balance how much food a kitchen produces with the quality standards of the operation.

There are advantages to buying a ready-made product. Such a product will likely provide consistency; a buyer will know exactly what the operation is getting with each purchase. It also reduces prep time and labor costs. And finally, it reduces the need for certain types of equipment and storage space that might be otherwise necessary to make something from scratch.
Of course, ready-made products cost more money than items that must be prepared, and such items may also have other drawbacks. Many operations pride themselves in making specialty dishes that require more prep time.

Ultimately, the decision to make or buy must be based on which option provides the most benefits to the operation. To decide whether to make or buy an item, a buyer must first determine the total cost of making the item in-house. This calculation must include all ingredients, processing, labor, and any other directly associated costs. The total of these costs should then be closely compared to the best price of the ready-made item.

**Determining What to Order**

Determining whether to make an item or buy one ready made is just the start of the ordering process. Knowing exactly what and when to order is at the center of purchasing. Operations don’t place orders daily. They have to buy products with some understanding of what they’ll need in the days, or perhaps even a week, ahead. So, how does the buyer or manager predict the future? While no method is absolutely certain, quality forecasting, based on good data, greatly reduces errors. Buyers and managers use production records to forecast their buying needs. Production records include three elements:

- Production sheets
- Daily food cost sheets
- Sales mix records

By combining this information with years of personal experience, buyers can effectively plan their restaurant’s purchasing needs.

In most restaurant and foodservice operations, the chef fills out production sheets for the upcoming weeks. A production sheet lists all menu items that the chefs will prepare on a given day. At the end of the day, the chef adjusts the information to reflect actual production and gives the sheets to the buyer. Compiled over a period of time, production sheets become a very important forecasting tool.

Buyers also use production sheets to spot signs of stockouts (running out of a menu item) and overproduction (making too much food). Overproduction often leads to food waste, which affects food cost percentage. Figure 5.12 on the following page illustrates the problem of stockouts and overproduction.
One of the most important ways managers try to limit food waste is by keeping accurate daily food cost sheets, or ongoing records of daily and monthly food costs for an operation. Daily food cost is determined by adding up the requisitions from the storeroom and the daily purchases. This number, divided by the daily sales figure, is the daily food cost percentage.

Managers use this information to compare costs over a period of time. Most managers try to stay at or below 33 percent, as shown in Table 5.4. While minor fluctuations do occur, a large change will help a manager quickly identify problems such as overproduction, food waste, or theft.

Managers also keep sales mix records that track each item sold from the menu. This can be done on a daily, weekly, or monthly basis. This record shows which items sell well, called leaders, or ones that don’t sell well, called losers. By recognizing leaders and losers, buyers can order more effectively.
Sales mix records help managers determine an item’s popularity. When sales for a popular chicken entrée drop off suddenly, a manager might use the sales mix record to explore possible causes. Does the meal sell better in the summer? Are production problems or poor sales techniques responsible? The sales mix record gives managers clues to answer these important questions.

Many operations use the par stock approach to ordering. Par stock levels are the ideal amounts of inventory items that an operation should have at all times. Over time, operations learn their customers’ demands and can predict these levels so that they never run out of anything. To use the par stock approach, operations must do the following:

1. Agree to the supplier’s ordering process and delivery schedule. This is the simplest way to avoid extra costs for changing delivery times or making special requests.
2. Determine a par stock level for each inventory item. This can be done by using sales projections to estimate how much product the operation needs.
3. Calculate what to order by subtracting what is currently in stock from the par stock. Par stock – Amount in stock = Amount to be ordered

Another way to ensure that an operation always has the proper level of stock on hand is to establish a reorder point, or ROP, for each item. If the reorder point for 50-pound sacks of flour is 2, and there are only 2 sacks left in the storeroom, then the buyer knows that he or she has to order more flour. A reorder point is like a warning bell; it alerts an operation to make orders immediately. The reorder point can be used with the par stock figure to help maintain proper inventory when suppliers do not deliver regularly.

Managers should decide which inventory tracking method is most appropriate for their operation and then maintain it very carefully to avoid overpurchasing or underpurchasing.

**Ordering Forms**

A purchase order is a legally binding written document that details exactly what the buyer is ordering from the vendor. Figure 5.13 shows an example of a purchase order form. Buyers place purchase orders in a number of ways. Some buyers phone in an order, others use the Internet, and still others fax their orders.
Every purchase order should include the following pieces of information:

- Operation’s name, address, and phone number
- Buyer’s name
- Supplier’s name, address, and phone number
- Supplier’s contact person
- Date of the order
- Desired date of receipt/how long the purchase order is good
- Shipping method
- Quantity for each item
Brief description of each item
Size of each item
Unit price for each item
Total price for all items
Total price for entire order (including sales tax, shipping, and any other special charges)
Any special information regarding the item or delivery

Keeping track of all this information helps the buyer control products and services. Purchase orders are generally less detailed than specs, but remember: purchase orders are legal contracts between buyers and suppliers.

Occasionally, an operation will need to purchase expensive new equipment. In large restaurant and foodservice organizations, upper management must approve the purchase before the buyer can order the item. For instance, if the chef believes that a deep-fat fryer should be replaced, the chef must first fill out a requisition (WREK-kwi-ZI-shun) form that lists the item or service needed and send it to company headquarters. Once headquarters approves the purchase and notifies the buyer, then the buyer can place the order.

**Knowing Food Prices**

Part of the homework a buyer must do is understanding and keeping track of the factors that affect food prices. There are many economic factors that influence the price of an item. As a product moves through the channels of distribution, such factors as time, form, place, transportation, and service can all affect its value:

- **Time value:** The price retailers pay for the convenience of selecting the time of delivery from suppliers.
- **Form value:** The price savings created when a buyer purchases bulk quantities of food instead of individually portioned servings. For example, blocks of butter cost less than individual pats because less packaging and processing goes into making the block of butter.
- **Place value:** The price differences of a product depend on where it needs to be shipped. Delivering fresh fish from New England to a market in Kansas City is more expensive than having that same fish delivered to a market in New York.
Chapter 5 | Purchasing and Inventory

- **Transportation value**: The cost of choosing a quick but expensive form of transport to get goods delivered. Shipping seafood by air is much more expensive than by truck, but the increased price may be worth the added freshness of the product.

- **Service value**: Additional convenience services that a vendor provides to its customers. This could include customer services that make ordering easier, such as a 24-hour, toll-free number, or it might include things that streamline kitchen prep like pre-coring lettuce or providing special cuts of meat. These services often result in higher prices for an item, but these higher prices are often offset by reduced food-preparation costs.

Less obvious factors can affect food prices as well. Political efforts both in this country and abroad often affect price. Federal laws permitting or banning certain imported products will directly affect prices. Weather can also be a factor. A bad coffee crop in Brazil will decrease the supply of coffee beans. While the supply decreases, the number of buyers who want these goods remains the same. As a result, the price of coffee goes up. This imbalance is an example of an economic reality known as supply and demand, as illustrated in Figure 5.14.

![Figure 5.14: Example showing supply and demand.](image-url)
Supply and demand can also drive prices down. Strawberries sold in June are less expensive than those sold in January because June is the time of year when most farmers’ crops are ready for picking. In January, only warm climates like California or Florida are able to grow the crop, and the price of the fruit goes up.

Ordering Software Systems

Advances in computer technologies have made it easier than ever for restaurant and foodservice operations to order goods and services from their vendors. Some of these options are provided by the vendors themselves.

Several major suppliers offer secure Web sites where buyers can place orders, track the delivery truck, monitor their purchase and payment histories, and control inventories. Alternately, ordering software can be installed on a chef's or manager's own computer that can communicate directly with a supplier. In addition to offering many of the same benefits as supplier Web sites, ordering software can be used to build recipe databases, cost menu items, and calculate nutritional data. Some of these software packages are available directly from restaurant and foodservice suppliers, while others can be purchased from software companies.

Larger organizations may have multiple service points. Ordering software can enable one person to order all the inventory that is needed without having to place separate orders for each outlet. One person can then possibly handle all the administrative tasks involved with routing invoices and payments. Ordering all at once may also enable the buyer to take advantage of bulk discounts.

Essential Skills

Conducting a Make-or-Buy Analysis

Chefs conduct make-or-buy analyses when they need to decide whether it makes better financial sense to purchase a ready-made product or to make the item from scratch. The chef will need to consider the following questions in the decision-making process:

- Is the quality of the ready-made item equal to or superior than the item my staff can make?
- What is the true cost of buying the raw materials and making the item here, bearing in mind the cost of labor and the time taken away from other tasks?
- Do I have enough storage space for the ready-made item or for the ingredients to make it?
How frequently would the item have to be either purchased or made, given the level of business in the restaurant?

• Are my employees skilled enough to make this product consistently each time?

The answers to these questions will vary, depending on the item needed or the situation. For instance, a chef may feel comfortable making a quart of mayonnaise every day or so to meet a restaurant’s needs, but he or she might choose to order a five-gallon bucket of mayonnaise to cater a large picnic. Be aware, and be flexible!

Summary

In this section, you learned the following:

- Quality standards refers to the value or worth that customers place on a product or service. Establishing solid quality standard specifications helps an operation to create consistency. Successful operations select the best products early on by determining the quality standards for every product purchased and used at the operation. Putting together quality standards is a complex process. Managers and buyers usually work together to create them, along with input from vendors and other employees. The following are some of the factors to consider when establishing quality standards: item’s intended use, operation’s concept and goals, the menu, employee skill level, budgetary constraints, customers’ wants and needs, seasonal availability, and storage capacity.

- Product specifications describe the requirements for a particular product or service that an operation wants to buy. They include the details that help a product or service to meet the operation’s quality standards. Buyers should always document product specifications. Smaller operations may use informal specifications that include only a few details. But specifications in larger companies are usually formal and precise. It’s also important to remember to purchase products from approved, reputable suppliers.

- Buyers conduct a make-or-buy analysis to decide if an operation should make an item from scratch or buy a ready-made version. This analysis helps to balance how much food a kitchen produces with the quality standards of the operation. There are advantages to buying a ready-made product, such as consistency, reduced prep time and labor costs, and reduced needs for certain types of equipment and storage space. But ready-made products cost more money than items that must be prepared, and such items may
also have other drawbacks. Ultimately, the decision to make or buy must be based on which option provides the most benefits to the operation.

- Buyers use production sheets, daily food cost sheets, and sales mix records to help with purchasing decisions. A production sheet lists all menu items that chefs will prepare on a given day. At the end of the day, the chef adjusts the information to reflect actual production and gives the sheets to the buyer. Compiled over a period of time, production sheets become a very important forecasting tool. Daily food cost sheets are ongoing records of daily and monthly food costs for an operation. Daily food cost is determined by adding all the requisitions from the storeroom and the daily purchases. This number, divided by the daily sales figure, is the daily food cost percentage. Sales mix records track each item sold from the menu on a daily, weekly, or monthly basis. This record shows which items sell well, called leaders, or ones that don’t sell well, called losers. By recognizing leaders and losers, buyers can order more effectively.

- There are many economic factors that influence the price of an item. As a product moves through the channels of distribution, such factors as time, form, place, transportation, and service affect the value of an item.
Section 5.2 Review Questions

1. What is the relationship between quality standards and product specifications?
2. What is one advantage and one disadvantage to buying a ready-made product?
3. List the three tools used in helping to make purchasing decisions, and then explain how one of them works.
4. List three factors that influence food pricing.
5. Al Gaylor notes that “one key to developing a successful purchasing strategy is establishing a positive relationship with a limited number of distributor/supplier partners.” Why is this important?
6. Miguel and Chef Kate prided themselves on knowing food prices—at least, they used to know food prices. They realized in looking at their supplier invoices that they’re spending far more than they used to. Look at the five factors that affect food pricing and suggest ways to cut costs on fish, meat, and produce, all ingredients that Kabob uses in its menu.
7. How can product specifications affect a restaurant’s costs?
8. Look back at the five factors that can affect food prices. Write a one-page plan explaining how you would get the best price for your produce, detailing how you would account for each of the five factors.
Section 5.2 Activities

1. Study Skills/Group Activity: Product Specifications for a Vegetarian Menu Item

Working in small groups, imagine you’re the buyers for a vegetarian restaurant. Do some research on the various ways to make and season a popular vegetarian meat substitute. Then, pick a recipe and write product specifications for your recipe. Make sure to account for every ingredient in the dish. Use Table 5.3, the list of possible specifications criteria, on p. 312 to assist you. Compare and contrast your specifications with those of other groups.

2. Independent Activity: Make-or-Buy Analysis for a Lunch Menu

You run a hot dog and burger joint. Make up a lunch menu of five items, making sure to list every ingredient you will use, including the condiments. Then look at your menu and do a make-or-buy purchasing analysis. Divide your ingredients into those that you will make yourself and those that you will buy ready made. Share your menu and your analysis with the class.

3. Critical Thinking: Purchase Order for a Cobb Salad

You own a 200-seat fine-dining restaurant that is renowned for its cobb salads. Write a purchase order for spring mix lettuce.
Did you ever make a purchase at a drive-thru window, drive away without checking the order, and then find out later that it’s all wrong? Perhaps you were missing an order of French fries, or a few tacos were left out, or a container of soup was improperly packed and leaking all over the inside of the bag. It’s a frustrating experience and one that ultimately cost you money. You’re easily out five bucks or maybe even more.

Now, think about the amount of money that a restaurant or foodservice operation could lose by being shorted 20 pounds of poultry, or if it orders pork tenderloin but finds out right before dinner service that it received pork shoulder instead. Or, think about buying an entire crate of steaks and then storing them incorrectly so that they all spoil before ever being used. The money adds up fast, as does the damage to a restaurant or foodservice operation that doesn’t properly manage its purchases. Making smart purchases is very important, but it won’t matter at all if foodhandlers do not take care to properly receive, store, and inventory the products. This section discusses all three of those aspects in detail.

**Study Questions**

After studying Section 5.3, you should be able to answer the following questions:

- What are the best guidelines for receiving purchases?
- What are perishable versus nonperishable items?
- What are proper storage guidelines?
- What are the two basic methods of taking inventory, and why is taking inventory important?
Receiving Orders

Receiving means inspecting, accepting, and, in some cases, rejecting deliveries of goods and services. The first, and perhaps most important, step in setting up good receiving procedures is to make sure that only employees who have been trained in proper receiving techniques do the job. With nearly 40 percent of annual revenue spent on food and supplies, a restaurant or foodservice operation cannot afford to allow products to go to waste, disappear, or be delivered in substandard form. Any savings generated by the most careful purchasing can quickly be erased if an operation's receiving and storage procedures are sloppy or inconsistent. Successful operations establish receiving procedures and strictly follow them before accepting any product. If all trained employees are busy when a delivery shows up, have the delivery person wait.

A written invoice should accompany every delivery. The invoice is the supplier’s bill listing the actual goods delivered by the supplier. The person responsible for receiving at the operation—the receiver—should always check the invoice against the operation’s original purchase order to make sure that the quantity and cost of the goods has not changed. The receiver should also have a copy of the original specs to confirm that the delivery meets the operation’s quality standards. Any discrepancies on the invoice should be noted and signed by both the receiver and the delivery person.

A restaurant or foodservice operation should have a clean, well-maintained receiving area, like the one shown in Figure 5.15. Here are some additional guidelines for efficient receiving procedures:

![Figure 5.15: A clean, well-maintained receiving area.](image-url)
Plan ahead for shipments. Have clean hand trucks, carts, dollies, and containers available in the receiving area. Make sure enough space is available in walk-ins and storerooms before receiving times. If products need to be washed or broken down and rewrapped, make work space available as close to the receiving area as possible.

Inspect and store each delivery before receiving another one. This will prevent time-temperature abuse in the receiving area.

Inspect deliveries immediately. Visually inspect items to count quantities, check for damaged products, and look for items that might have been repacked or mishandled. Spot-check weights of items such as meats and take sample temperatures of all refrigerated food. Check product expiration dates. Always check the lower layers in a package to make sure they are of the same quality as the top layers.

Record items on a receiving sheet. This helps to keep inventories accurate. See Figure 5.16 for a sample receiving sheet.

Correct mistakes immediately. If any products are damaged, at the wrong temperature, or of the wrong quality, do not accept them.

Put products away as quickly as possible. This is especially important for cold or frozen TCS food.

Maintain the receiving area. Keep the area clean and well lighted to discourage pests.

<table>
<thead>
<tr>
<th>Date</th>
<th>Time Delivered</th>
<th>Quantity</th>
<th>Invoice #</th>
<th>Supplier</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/3/10</td>
<td>7:10 a.m.</td>
<td>3.00</td>
<td>2864</td>
<td>ABC</td>
</tr>
<tr>
<td>3/4/10</td>
<td>8:30 a.m.</td>
<td>2.00</td>
<td>K314</td>
<td>Eastern</td>
</tr>
<tr>
<td>3/5/10</td>
<td>7:45 a.m.</td>
<td>4.00</td>
<td>9881</td>
<td>Smith</td>
</tr>
</tbody>
</table>

Figure 5.16: Sample receiving sheet.

Receivers have the right to refuse any delivery that doesn't meet the operation's standards. All receiving employees should know and follow the company's policy on returns. Figure 5.17 on the following page illustrates the kinds of items that should be refused.

Follow a basic procedure to reject a product or shipment:

- Set the rejected item aside. Keep it separate from other food and supplies.
- Tell the delivery person exactly what is wrong with the rejected item. Use the purchase agreement with the supplier and company standards to back up a decision to reject the product.
Get a signed adjustment or credit memo from the delivery person. A **credit memo** is a written record that ensures the vendor will credit the operation for the rejected item. After receiving the memo, allow the delivery person to remove the rejected item or throw it away.

Log the incident on the invoice. Note the item involved, the standard that wasn’t met, and the action that was taken.

Remember, the buyer must identify the terms of service with a supplier *before* placing an order. Establish delivery schedules, product consistency, and specifications for substitutions in a contract. It’s then up to the buyer to keep track of how the vendor is doing to make sure that the operation is getting what it asked for. Talk with the receiving employees regularly. They’re the best source of information for how a vendor is doing—if trucks are on time, delivery temperatures are safe, etc. Stay in contact with the vendor, and be sure to report any issues with shipments.

Finally, insist on good service from suppliers. If they cannot deliver to the operation’s standards, there is almost always another supplier who can.

**Did You Know…?**

According to the CDC, there are approximately 325,000 hospitalizations and 5,000 deaths from foodborne-related diseases every year in the United States.

---

**Figure 5.17:** From left to right, you should reject the moldy strawberries and accept the clean, colorful ones. You should also accept the clean, sealed bag of flour and reject the water-stained bag.
## Receiving: Rules and Guidelines

Reject frozen food for these reasons, because any one of these may be signs of thawing and refreezing:

- Fluids or frozen liquids in case bottoms
- Ice crystals on the product or the packaging
- Water stains on the packaging

Follow these steps to check the temperature of packaged food:

1. Open the package and insert the thermometer stem or probe into the food.
2. Immerse the sensing area fully into the food.
3. Do not let the stem or probe touch the packaging.

Reject any food or nonfood items with the following packaging problems:

- Tears, holes, or punctures
- Cans with swollen ends, rust, or dents
- Broken cartons or seals
- Dirty wrappers

## Storing Orders

After a receiver accepts a delivery, he or she must then move the goods to either the kitchen production area or the storage facility. When items go into storage, foodhandlers must follow proper storage procedures. Proper storage management requires good planning. Health requirements for storing food items are very exact, and cleanliness is essential at all times.

The most basic aspect of storage starts with an understanding of what needs to go where. More specifically, foodhandlers must know what needs to be refrigerated, what needs to be frozen, and what can go into dry storage. There are two major categories here: perishable versus nonperishable products.

**Perishable products** are food products sold or distributed in a form that will spoil or decay within a limited period of time. They can be damaged by bacteria, light, or air. Perishable products include meat, fish, poultry, dairy, eggs, produce, and alcoholic beverages. Operations purchase these items more often than nonperishable items. Buyers should purchase perishable items in a JIT (“just in time”) format whenever possible. This means that buyers should take great care to determine the amount needed prior to the next delivery, with the goal that the chefs will have used up the majority of the previous order by the time the new delivery arrives. The difficulty is solidly predicting the point at
which the operation will *almost run out* without actually *running out*. Buyers must keep very good records and practice careful forecasting of food use.

**Nonperishable products** are items that, generally due to packaging or processing, do not readily support the growth of bacteria. They include processed and canned or bottled products and dried goods. Buyers generally purchase nonperishable food in large quantities and less often than perishable food. The price of nonperishable items fluctuates with the market (because of availability and demand) but less often than the perishable items. Restaurants often purchase many of these items weekly, biweekly, or monthly to streamline the buyer’s activities.

Most operations have three types of storage areas in their facilities:

- **Refrigerated storage**: These areas typically hold TCS food at 41°F or lower.
- **Frozen storage**: These areas hold frozen food at temperatures that will keep it frozen.
- **Dry storage**: These areas hold dry and canned food.

**Refrigerated Storage**

Foodhandlers should remember several things when storing items in refrigerated storage:

- Set refrigerators to the correct temperature. The setting must keep the internal temperature of the food at 41°F or lower. Check the temperature of the unit at least once during a shift. See Table 5.5 for proper food storage temperatures and humidity levels.
- Monitor food temperature regularly. Take temperatures of coolers regularly, in different parts of the cooler.
- Schedule regular maintenance of coolers.
- Don’t overload coolers. Storing too many products prevents good airflow and makes units work harder to stay cold.
- Use open shelving. Lining shelves with aluminum foil, sheet pans, or paper restricts circulation of cold air in the unit.
- Keep cooler doors closed as much as possible. Frequent opening lets warm air inside, which can affect food safety and make the unit work harder.
- Wrap or cover all food properly. Leaving food uncovered can lead to cross-contamination.
### Table 5.5: Food Storage Temperatures and Humidity Levels

<table>
<thead>
<tr>
<th>Item</th>
<th>Temperature</th>
<th>Humidity Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meat and poultry</td>
<td>41°F or lower</td>
<td>75% to 85%</td>
</tr>
<tr>
<td>Fish</td>
<td>41°F or lower</td>
<td>75% to 85%</td>
</tr>
<tr>
<td>Live shellfish</td>
<td>45°F</td>
<td>75% to 85%</td>
</tr>
<tr>
<td>Eggs in shell</td>
<td>45°F or lower</td>
<td>75% to 85%</td>
</tr>
<tr>
<td>Dairy products</td>
<td>41°F or lower</td>
<td>75% to 85%</td>
</tr>
<tr>
<td>Most fruits and vegetables</td>
<td>41°F or lower</td>
<td>85% to 95%</td>
</tr>
</tbody>
</table>

### Frozen Storage

Foodhandlers should remember several things when storing items in frozen storage:

- Set freezers to the correct temperature. The setting must keep all products frozen.
- Check freezer temperatures regularly.
- Place frozen food deliveries in freezers as soon as they have been inspected. Never leave these items at room temperature.
- Ensure good airflow inside freezers. Use open shelving, avoid overloading, and keep the door closed as much as possible.
- Defrost freezers on a regular basis if necessary. They will operate more efficiently when free of frost. Move food to another freezer during defrosting.
- Clearly label food prepared on-site that is intended for frozen storage.
**Dry Storage**

Foodhandlers should remember several things when storing items in dry storage:

- Keep storerooms clean and dry. For the best quality and to assure safety, the temperature of the storeroom should be between 50°F and 70°F.
- Make sure storerooms are well ventilated. This will help to keep the temperature and humidity (the amount of water moisture in the air) constant throughout the area.
- Store dry food away from walls and at least six inches off of the floor.
- Keep food out of direct sunlight.

Here are some important general points to remember when storing goods:

- Store food in containers intended for food. The containers should be durable, leakproof, and able to be sealed or covered. Never use empty food containers to store chemicals. Never put food in empty chemical containers.
- Create proper air circulation around goods by keeping shelves about six inches from the floor, ceiling, and walls.
- Keep food stored far away from soaps, pesticides, chemicals, etc.
- Try to purchase **staples** (items for which the demand is constant) in airtight containers.
- Transfer items purchased in unsealed containers into airtight containers to protect them against insects and **vermin** (small disease-carrying animals, such as lice, fleas, or mice that are difficult to control).
- Use strong shelving for all nonperishables.
- Clean and sweep storage areas daily to eliminate spoiled food and to discourage insects and vermin.
- Have a professional pest control operator come in and spray regularly.
- Store perishable food, such as meat and produce, at its proper temperature and humidity level. **Humidity** refers to the amount of water moisture in the air or in a contained space such as a refrigerator. Different areas of a cooler have different levels of humidity. Areas close to the cooler’s blower have higher humidity levels, while areas away from it have lower humidity levels.
Preventing Spoilage and Cross-Contamination

Preventing spoilage and cross-contamination are the two primary goals of proper storage. All food should be wrapped or covered. If possible, ready-to-eat foods should be stored separately from raw meats, seafood, and poultry. If such items must share the same refrigerated space, ready-to-eat items should be shelved separately and above raw meat, seafood, and poultry. Figure 5.18 shows food organized properly in a refrigerator. The items sharing refrigerated space should be stored in the following order from top to bottom:

- Top shelf: Ready-to-eat foods
- Then: Seafood
- Then: Whole cuts of beef and pork
- Then: Ground meat and ground fish
- Bottom: Whole and ground poultry

Taking Inventory

An inventory is a record of all products an operation has in storage and in the kitchen. Ideally, a restaurant or foodservice operation will have only the amounts of food and nonfood items it needs to meet customer demand. Having too little inventory means customers don't get what they want. Having too much inventory means food spoils and storage costs go up.

There are two common methods for purchasing nonperishable food:

- Physical inventory method
- Perpetual inventory method
In the **physical inventory method**, the entire stock is physically reviewed on a regular basis. From this review, the operation determines the reorder point for each inventory item. In the **perpetual inventory method**, employees record items when they are received and then when they are used up. This information is kept on receiving and issuing sheets or logs, or electronically on a combined form. Figure 5.19 shows a screen shot of an electronic form.

<table>
<thead>
<tr>
<th>November 10</th>
<th>Units/cs</th>
<th>Cost/cs</th>
<th>Cost/unit</th>
<th>Selling $</th>
<th>COS</th>
<th>Beginning</th>
<th>Purchased</th>
<th>Ending</th>
<th>Sales</th>
<th>Variance</th>
<th>Variance $</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canned Tomatoes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Whole</td>
<td>12</td>
<td>$37.00</td>
<td>$1.22</td>
<td>$6.10</td>
<td>16.92%</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>0.00</td>
<td>0.00</td>
<td>$1.12</td>
</tr>
<tr>
<td>Paste</td>
<td>12</td>
<td>$21.00</td>
<td>$1.12</td>
<td>$7.00</td>
<td>27.36%</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>0.00</td>
<td>0.00</td>
<td>$52.64</td>
</tr>
<tr>
<td>Chopped</td>
<td>12</td>
<td>$25.00</td>
<td>$1.92</td>
<td>$7.00</td>
<td>27.36%</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>0.00</td>
<td>0.00</td>
<td>$53.67</td>
</tr>
<tr>
<td>Chopped with basil</td>
<td>12</td>
<td>$28.00</td>
<td>$1.92</td>
<td>$7.00</td>
<td>27.36%</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>0.00</td>
<td>0.00</td>
<td>$57.00</td>
</tr>
<tr>
<td>Crushed</td>
<td>12</td>
<td>$44.00</td>
<td>$3.67</td>
<td>$6.00</td>
<td>61.11%</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>0.00</td>
<td>0.00</td>
<td>$0.00</td>
</tr>
<tr>
<td>Sun-dried</td>
<td>12</td>
<td>$45.00</td>
<td>$1.25</td>
<td>$6.00</td>
<td>20.83%</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>0.00</td>
<td>0.00</td>
<td>$43.75</td>
</tr>
</tbody>
</table>

Figure 5.19: Sample combined form used in the perpetual inventory method.

A very important difference between physical inventory and perpetual inventory is that a physical inventory is an **actual** count of all items in stock while a perpetual inventory is not. Therefore, managers use physical inventory to calculate reliable financial data such as actual costs and inventory value. In contrast, the perpetual inventory is an **estimate** of stock on hand, based on data entry. Managers should not use perpetual inventory to calculate actual costs or inventory value. There are computer programs available for managing purchasing and inventory control. There are also programs that integrate the information from inventory and point-of-sale to provide a constantly updated perpetual inventory.

All items in the storeroom need to be accounted for when foodhandlers take them from the storeroom and use them in the restaurant. **Issuing** refers to the official procedures employees use when taking an item out of the storeroom and putting it into production. In a standard issuing situation, kitchen employees fill out product requisition forms indicating exactly what items they need, and then give the forms to the manager or whoever is in charge of inventory. Employees should observe the first in, first out (FIFO) system of stock rotation, both when the items first go into stock and when they are issued. In the FIFO system, foodhandlers place the oldest stock in front of or on top of the newer stock. FIFO makes sure that chefs use older items before newer items.

Many large restaurants and foodservice operations use a formal issuing procedure both as a way to keep accurate inventory records and to prevent pilfering. **Pilfering** is stealing (see Figure 5.20 on the following page). It is when employees illegally take inventory items for their personal use. In the restaurant and foodservice industry, pilfering is both a serious problem and a serious offense. Employees caught pilfering are usually fired. In more extreme cases, employees have been arrested and convicted of theft.
Calculation of Usage

Using an inventory system helps a buyer calculate product usage, food cost, and losses.

Tracking the amount of a product used during a set period of time helps the buyer calculate how much of the item needs to be ordered and how often. The first step is to select the period for the calculation (for example, day, week, month). Then, a buyer will follow these steps:

1. Note the amount of the item in inventory at the start of the period.
2. Note all new orders of the item received during the period.
3. Finally, note the amount of the item in inventory at the end of the period.
4. To figure out usage, add the starting inventory to the amount of the item received, and then deduct the ending inventory from the total.
5. The sum of the calculation is the amount of the item used. Here is an example of the calculation:

   Beginning inventory of item: 18 cases
   Amount received: +22 cases
   Total: 40 cases
   Ending inventory: -32 cases
   Total use for period: 8 cases
Calculate Food Cost

Buyers calculate the total cost of food for the restaurant or foodservice operations the same way they calculate item usage, except that they use the figures for total restaurant food inventory value. An example calculation is shown here:

09/01/11  Beginning Inventory: $32,333
09/07/11  Cost of Goods Received: +$ 8,563
09/14/11  Cost of Goods Received: +$10,265
09/21/11  Cost of Goods Received: +$11,378
09/28/11  Cost of Goods Received: +$ 9,245

Total: $71,784

10/01/11  Ending Inventory: -$30,577
(09/01/11–09/30/11)  Total Cost of Food: $41,207

A buyer would use this figure to calculate the food cost percentage for the restaurant for the month of September. For example, if the restaurant had $125,000 in food sales, the food cost for the period would be 33 percent (cost of food divided by food sales).

Calculate Loss

It is also possible to determine if a restaurant or foodservice operation is operating at a loss or potential profit based on food sales. In the previous example, the total cost of food for September was $41,207. If sales of food for the period equal less than the cost of food sold, then the operation is operating at a loss. For example, if the restaurant had food sales of $39,866 for September, the loss in just food cost would be $1,341. However, based on the previous example of $125,000 in sales, the restaurant has a gross profit (profit on this portion before all other costs are deducted) of $83,793.

Another type of loss that managers can calculate using inventory value and receiving and issuing information is inventory shrinkage. This is the difference between the total cost of food and the cost of goods issued during the period. Managers determine the value of goods issued by auditing issuing records. Here is an example calculation:

Total Cost of Food: $41,207
Total Cost of Food Issued: -$40,763
Difference (+/-): -$444
Management must then account for the difference between the value of goods gone from inventory and the value of goods issued.

Remember that taking inventory, calculating inventory usage, compiling food costs, and determining potential losses or profits are critical management tools for restaurant and foodservice operations. Proper inventory management contributes to the success of any operation. Table 5.6 reviews the ten steps of purchasing.

**Table 5.6: Summarizing the Ten Steps of Purchasing**

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Begin the purchasing process:</td>
</tr>
<tr>
<td></td>
<td>• Review or plan all menus.</td>
</tr>
<tr>
<td></td>
<td>• Determine the quality and quantity needed to produce menus.</td>
</tr>
<tr>
<td></td>
<td>• Determine purchase amounts needed to maintain par stock levels.</td>
</tr>
<tr>
<td></td>
<td>• Review, approve, or write specifications.</td>
</tr>
<tr>
<td>2.</td>
<td>Check inventory records to determine supplies on hand and supplies that need to be reordered.</td>
</tr>
<tr>
<td>3.</td>
<td>Request written price bids or verbal quotes from suppliers.</td>
</tr>
<tr>
<td>4.</td>
<td>Select the supplier based on three factors:</td>
</tr>
<tr>
<td></td>
<td>• Supplier services</td>
</tr>
<tr>
<td></td>
<td>• Optimal price</td>
</tr>
<tr>
<td></td>
<td>• Product quality</td>
</tr>
<tr>
<td>5.</td>
<td>Prepare purchase order(s) and place the order(s).</td>
</tr>
<tr>
<td>6.</td>
<td>Use proper receiving procedures when an order is delivered:</td>
</tr>
<tr>
<td></td>
<td>• Review the invoice to check quantity, quality, and price of items delivered.</td>
</tr>
<tr>
<td></td>
<td>• Accept delivery and sign or initial the invoice, or reject items and get a request for a credit memo.</td>
</tr>
<tr>
<td></td>
<td>• Record each item in the receiving log. Date perishable food. Remember to save seafood tags in case of a foodborne illness.</td>
</tr>
<tr>
<td>7.</td>
<td>Store items properly, observing all sanitation guidelines.</td>
</tr>
<tr>
<td>8.</td>
<td>Store items properly, using the FIFO principle for stock rotation.</td>
</tr>
<tr>
<td>9.</td>
<td>Have employees fill out requisition forms as they need supplies.</td>
</tr>
<tr>
<td>10.</td>
<td>Following par stock guidelines, reorder supplies and begin the process again.</td>
</tr>
</tbody>
</table>
Preventing Pilfering Before It Starts

Employee pilfering is a major problem in all businesses, and the restaurant and foodservice industry is no exception. Good managers can take steps to prevent pilfering before it starts by opening up lines of communication with employees. No manager can stop all pilfering, of course, but below are proactive steps that can help keep it to a minimum:

• Do thorough research on employees during the hiring process, including background checks.
• Make it difficult to steal by keeping precise inventory records and holding employees accountable for doing the same.
• Train employees on how to spot pilfering and actions to take if they do spot it.
• Be sure to periodically revisit the operation’s policy on pilfering, and make sure to underscore that no one—even management—is exempt from it.
• Serve as a role model. Don’t take advantage of your position. Obey the same rules that you communicate to all employees.
• Last but not least, be accessible. Make sure employees know that they can come to you if they are having problems outside of work. Employees are less likely to feel as if they have no other choice if you provide them with one.

Essential Skills

Formal Issuing Procedures

Operations with multiple foodservice outlets, such as conference centers or country clubs, typically have one buyer and one centralized storage space from which food and other items are issued to the other kitchens and preparation areas. Developing formal issuing procedures helps maintain inventory while reducing waste and theft. There are various ways to issue product; the following is one method:

• Create a product requisition form.
• Identify the individual from each shift and each kitchen or preparation area responsible for completing and submitting the requisition form and for collecting the items required.
• Identify a manager who will accept the completed requisition forms and oversee the collection process.
• Identify the individual who will gather the requisitioned items.
• Train all employees on the requisition process.
• Develop a policy for emergency requisitions.
If properly developed and observed, formal issuing procedures can save time and money. However, once put in place, employees must follow them consistently.

**Summary**

In this section, you learned the following:

- Receiving means inspecting, accepting, and, in some cases, rejecting deliveries of goods and services. The first step in setting up good receiving procedures is to make sure that only employees who have been trained in proper receiving techniques do the job. A written invoice should accompany every delivery. The invoice is the supplier’s bill listing the actual goods delivered by the supplier. The person responsible for receiving at the restaurant—the receiver—should always check the invoice against the restaurant’s original purchase order to make sure that the quantity and cost of the goods has not changed. The receiver should also have a copy of the original specs to confirm that the delivery meets the operation’s quality standards. Any discrepancies on the invoice should be noted and signed by both the receiver and the delivery person. Additional guidelines include the following:
  - Plan ahead for shipments.
  - Inspect and store each delivery before receiving another one.
  - Inspect deliveries immediately.
  - Record items on a receiving sheet.
  - Correct mistakes immediately.
  - Put products away as quickly as possible.
  - Maintain the receiving area.

- Perishable products are food products sold or distributed in a form that will spoil or decay within a limited period of time. They can be damaged by bacteria, light, or air. Perishable products include meat, fish, poultry, dairy, eggs, produce, and alcoholic beverages. These items are purchased more often than nonperishable items. Perishable items should be purchased in a JIT (just in time) format whenever possible. This means that great effort must be taken to determine the amount needed prior to the next delivery with the goal that when the new delivery arrives, the majority of the previous order has been used. Nonperishable products are items that, generally due to packaging or processing, do not readily support the growth of pathogens. They include processed and canned or bottled products and dried
goods. Nonperishable food is generally purchased in large quantities and less often than perishable food.

- Food should be stored according to whether it's perishable or nonperishable. There are three types of storage available in most foodservice establishments: refrigeration, freezer, and dry storage. Other guidelines for storage include the following:
  - Store food in containers intended for food.
  - Create proper air circulation around goods by keeping shelves about six inches from the floor, ceiling, and walls.
  - Keep food stored far away from soaps, pesticides, chemicals, etc.
  - Try to purchase staples (items for which the demand is constant) in airtight containers.
  - Transfer items purchased in unsealed containers into airtight containers to protect them against insects and vermin.
  - Use strong shelving for all nonperishables.
  - Clean and sweep storage areas daily to eliminate spoiled food and to discourage insects and vermin.
  - Have a professional pest control operator come in and spray regularly.
  - Store perishable food, such as meat and produce, at its proper temperature and humidity level.

- An inventory is a record of all products an operation has in storage and in the kitchen. Ideally, a foodservice operation will have only the needed amounts of food and nonfood items it needs to meet customer demand. Having too little inventory means customers don't get what they want. Having too much inventory means food spoils and storage costs go up. The two most common methods for purchasing nonperishable food are the physical inventory method and the perpetual inventory method. In the physical inventory method, the entire stock is physically reviewed on a regular basis. From this review, the operation determines the reorder point for each inventory item. The perpetual inventory method is the recording of items when received and again when issued.
Section 5.3 Review Questions

1. Why does the receiver use an invoice in the receiving process?
2. How does a nonperishable item differ from a perishable item, and how does the storage of each differ accordingly?
3. List three guidelines for food storage, and explain why each is important.
4. How does the physical inventory method differ from the perpetual inventory method?
5. Al Gaylor says that it helps if at least one of the distributors is a "full-service," broad-line supplier. How might a full-service distributor help you manage your purchases?
6. Lately, Chef Kate and Miguel have been letting their employees do the receiving, but they're wondering if these employees are doing it correctly. Chef Kate and Miguel have decided they need written guidelines. Write up a list of receiving guidelines they can use for their employees.
7. If you were in charge of receiving at a restaurant, what three receiving guidelines would you make sure you always followed? Explain why you chose these three.
8. A vendor drops off a delivery that has many mistakes and unacceptable products. You like this vendor, which is normally reliable and delivers items correctly and in good condition. Explain what you should do to address the situation constructively.
Section 5.3 Activities

1. **Study Skills/Group Activity: Going with the Flow—Charting the Purchasing Process**

Working in a small group, create a detailed flow chart that illustrates the entire purchasing process. Share the chart with the rest of the class. The class will vote on which chart explains the process the best.

2. **Independent Activity: The Effects of Pilfering**

You’re working at a restaurant where a lot of pilfering is going on. Explain how pilfering affects each of the following groups:

a. Other employees
b. The owner
c. The managers
d. The guests

3. **Critical Thinking: Investigating Shortages**

In the past three months at your 50-seat, fine-dining restaurant, you’ve seen a consistent and alarming gap between what you expected to have in your food and beverage inventory and what you actually physically counted. Most of your kitchen staff has been with the restaurant for a long time, but two of your servers are new. Additionally, you’ve recently added three new entrées to the dinner menu.

Considering these factors and what you learned in this chapter, identify three possible reasons why you have a gap in your expected inventory. Then, draft new policies for your operation to follow to help close the gaps in future months.
Case Study Follow-Up

Purchasing More Profit

At the beginning of the chapter, we mentioned Miguel and Chef Kate were trying to cut costs by looking closely at their entire purchasing process.

1. After having read this chapter, do you think it’s possible for an operation to significantly cut costs without reducing food quality? Why or why not? Explain your answer.

2. If you had to suggest one aspect of the purchasing process for Miguel and Chef Kate to focus on, which aspect of purchasing would it be? Why? Explain your answer.

3. Obviously, Chef Kate and Miguel got into some bad habits in their purchasing procedures. Based on what you’ve learned from this chapter, which three aspects of purchasing do you think could be most frequently overlooked in a restaurant? Why do you feel this would be so?
Apply Your Learning

Make or Buy Caesar Dressing?

Your restaurant is known for its excellent Caesar salads, made with your secret salad dressing recipe. The recipe takes about 15 minutes to prepare, and the cook who usually makes it is paid $12.00/hour. One of your trusted specialty suppliers, who understands your high standards and attention to detail, brings you a sample of a prepared Caesar dressing to try. Both the prepared product and the homemade recipe are of similar quality, although the flavor is somewhat different. Conduct a make-or-buy analysis to determine which product is a better financial deal. Regardless of the cost, which dressing do you choose to use and why?

<table>
<thead>
<tr>
<th>Jacqui’s Famous Caesar Dressing: makes 1.5 quarts</th>
<th>Freshmaker Direct Caesar Dressing (Purchased from vendor) $32/gallon</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amount</td>
<td>Ingredient</td>
</tr>
<tr>
<td>2 tablespoons</td>
<td>Pasteurized egg yolk</td>
</tr>
<tr>
<td>1 cup</td>
<td>Olive oil</td>
</tr>
<tr>
<td>3 cups</td>
<td>Canola oil</td>
</tr>
<tr>
<td>½ ounce</td>
<td>Garlic</td>
</tr>
<tr>
<td>2 each</td>
<td>Anchovies</td>
</tr>
<tr>
<td>1 teaspoon</td>
<td>Dijon mustard</td>
</tr>
<tr>
<td>½ each</td>
<td>Lemon</td>
</tr>
<tr>
<td>4 ounces</td>
<td>Parmesan cheese</td>
</tr>
<tr>
<td>To taste</td>
<td>Hot sauce</td>
</tr>
<tr>
<td>To taste</td>
<td>Worcestershire sauce</td>
</tr>
<tr>
<td>To taste</td>
<td>Black pepper</td>
</tr>
</tbody>
</table>
2008 Food Shortages

During 2008, there were a number of concerns about worldwide food shortages, especially of staples like corn and rice. These fears affected the prices of these foods. Research an ingredient that was expected to be in short supply during that year and write three paragraphs about why a shortage was feared, how the price was affected, and what the current availability and price of the item is now.

The Science of Rejection

In this chapter, we discussed the reasons for rejecting damaged deliveries in the context of food safety. But why would we reject damaged items from a scientific standpoint? How has the food itself changed? For example:

■ What is freezer burn?
■ Why do canned goods sometimes bulge?
■ How does milk turn sour?

Select one of these or another reason for rejecting a damaged food item and research the underlying science behind the rejection. Be sure to cover both food safety concerns and physical changes to the product in your response, which should be one page in length.

Critical Thinking Finding Time in the Day

Developing quality standards and writing product specifications is an important part of maintaining consistency, but it can be time consuming. How can busy chefs and managers integrate this work into their busy schedules? Write a paragraph for each.
Exam Prep Questions

1. The three main layers in the channel of distribution are
   A. peripheral, central, and focal.
   B. primary, secondary, and tertiary.
   C. peripheral, retail, and secondary.
   D. primary, intermediary, and retail.

2. The buying process that smaller operations tend to use is a(n)
   A. formal method.
   B. informal method.
   C. allocated method.
   D. three-pronged method.

3. The goods and services category that includes gas or heating is
   A. utilities.
   B. technology.
   C. maintenance service.
   D. smallwares and equipment.

4. Storage capacity, budgetary constraints, and an operation’s concept and goals are some factors that go into establishing
   A. quality standards.
   B. employee scheduling.
   C. inventory procedures.
   D. the name of a restaurant.

5. A production sheet lists all of the items that will be prepared
   A. daily.
   B. weekly.
   C. monthly.
   D. bimonthly.

6. The ideal amount of inventory items that an operation should have at all times is called
   A. par stock.
   B. optimal stock.
   C. premium balance.
   D. storage equilibrium.

7. The legally binding written document that details exactly what the buyer is ordering from the vendor is called a(n)
   A. invoice.
   B. daily cost sheet.
   C. purchase order.
   D. issuing statement.

8. In the restaurant and foodservice industry, the term receiving refers to the process of
   A. servers taking plated food from the kitchen line.
   B. accepting bids from various vendors for an operation’s business.
   C. working directly with primary sources for goods and services.
   D. inspecting and accepting or rejecting deliveries of goods and services.
9. The temperature of the dry-storage area should be between
   A. 40°F and 60°F.
   B. 50°F and 70°F.
   C. 60°F and 80°F.
   D. 70°F and 90°F.

10. The official procedures employees use when taking an item out of the store-room and putting it into production is called
    A. issuing.
    B. receiving.
    C. invoicing.
    D. expediting.
Chapter 6
Meat, Poultry, and Seafood
Miguel and Chef Kate of Kabob are worried about the number of restaurants that have been opening in their area lately. Many offer similar menu items to Kabob, and these new establishments seem to have more start-up money for marketing and advertising. In short, Miguel and Chef Kate are worried that the new competition will take away their customers if they don’t find a way to differentiate themselves.

One suggestion is to become a specialty restaurant, focusing on one particular protein—meat, poultry, or seafood. Miguel finds the higher menu prices that come with high-quality meat or seafood very appealing. But Chef Kate is worried about storage space and high initial purchasing costs, so she likes the idea of specializing in poultry. Miguel, on the other hand, doesn’t feel that poultry carries the same status or profitability. He worries this focus will not help them stand out enough to accomplish their goals.

As you read this chapter, think about the following questions:
1. In what ways do you feel Miguel is right?
2. In what ways do you side with Chef Kate?
3. Do you think this is a good idea or a bad idea? Why?
4. How would you help these two resolve this issue?
Owning a restaurant is really my fifth career. When I graduated high school, I joined the U.S. Army and served seven years, including assignments in West Germany and South Korea. My educational background is in speech communication. I’ve also been in the retail business and taught elementary school. So, I certainly have diverse interests!

I began catering in the 1990s. In 2006, when searching for a commercial catering kitchen, I decided to open a restaurant.

I’ve always thought, in any endeavor, that you begin by selling yourself. If your customers trust and believe in you, all the rest is easy. As a matter of fact, I took this philosophy further than just my customers. When I applied for the restaurant’s liquor license, I decided to speak for myself instead of hiring a lawyer as many other establishments do. The board members were a bit taken aback by this and they asked me, “If we don’t grant you a liquor license, are you still going to open a restaurant?” I was speechless for a bit since it never entered my mind that anything would deter me from opening. I told them that nothing would stop me. You open a restaurant to serve food. Wine and cocktails are menu items that enhance the enjoyment of the dining experience. Your restaurant operations begin as soon as a diner comes through the front door. This means an inviting foyer, a sincere welcome, and congenial greeting. The ambiance in the restaurant must also be welcoming and comfortable. The restaurant and restrooms must be clean. The servers must be attentive, knowledgeable, and courteous. Food preparation and presentation are also integral, as customers first enjoy the food with their eyes.

I also believe in a personal touch and try to visit each table and talk with the customers at some point during the meal. The kitchen staff is the foundation for the food service and must be prepared to operate efficiently and correctly any time the restaurant doors are open. I’m also a firm believer in using local ingredients and resources whenever possible. I purchase many of my fruits and vegetables (in season) from local growers, use local wineries on my wine list, and buy from local bakeries and coffee roasteries.

People in this industry must be passionate about what they do; whether it be the front or back of the house. Without passion, the food industry is just another job. You must also do your homework to learn everything you can about your role in the industry.
Remember:

“If you can’t stand the heat, stay out of the kitchen!”

About Meat, Poultry, and Seafood

I love the versatility and variety of all three of these groups. They can be used as entrées, soups, parts of salads, appetizers, and accompaniments. They can be cooked in innumerable ways: baked, fried, poached, raw (sometimes), grilled, and any way your imagination takes you. They are also adaptable to many cuisine styles: Low Country (as in my restaurant), Asian, European, Tex-Mex, etc. The variations are endless. All groups can be served at breakfast, lunch, or dinner.

In the meat category, I’m particularly fond of braised short ribs. They are easy to prepare, hearty, and can presented in a variety of ways with a variety of accompanying vegetables and starches. They’re ideal in the winter season and surprise diners when they appear on the menu.

In the chicken category, I am partial to fried chicken. It’s a great comfort food when accompanied by mashed potatoes. You can season them in a variety of ways and even serve them with waffles.

In the seafood category, I return to my South Carolina roots with a strong preference for shrimp and grits. This is a signature dish in my restaurant and can be prepared in any number of ways. It’s particularly good at breakfast, but works well as a dinner entrée also. If preparing it for yourself, you can customize the grits to your personal style. You can also vary the shrimp preparation, either choosing to flour coat it or not. You can also vary the aromatics and other meat (for example, sausage or bacon) that compose the gravy that you place atop the grits with the shrimp. This is a truly unique and versatile dish.
SECTION 6.1 MEAT

Foodservice industry professionals use “meat” to refer to beef, veal, lamb, mutton, or pork. A T-bone steak or pork tenderloin is almost certain to be the main attraction of any plate on which it appears, so it is crucial that the product on the plate is of high quality and is properly prepared. The main dish determines the success of most meals. If that dish is prepared well, the meal will likely be a success.

Study Questions

After studying Section 6.1, you should be able to answer the following questions:

■ What are the grades of meat?
■ What are the primary cuts of meat?
■ What factors go into purchasing meat?
■ What is the best way to cook and prepare meat?

Grades of Meat

Meat inspection is mandatory in the United States. The Food Safety and Inspection Service, a division of the USDA, conducts these inspections. It ensures that meat is wholesome and that the processing facilities and equipment meet food safety standards. Products that pass inspection receive a USDA stamp, which means that the product is approved for wholesomeness and is safe for people to eat. See Figure 6.1 for a picture of what the stamp looks like.
Only meat products that are approved for wholesomeness may be graded. Grading refers to the meat’s quality. The quality of meat is based primarily on its overall flavor characteristics and tenderness.

Although it is voluntary, many processors and packers pay a fee to the USDA to have meat products graded to ensure their quality. USDA grades are based on nationally uniform federal standards. The USDA assigns two grades for most types of meat:

- Quality grade
- Yield grade

Some types of meat may have one of these grades, and other types may have both.

**Quality grade** measures the flavor characteristics of meat products. The USDA evaluates meat for traits that indicate its tenderness, juiciness, and flavor. Quality grades for beef, lamb, and veal can include Prime, Choice, Select, Standard, Commercial, Utility, Cutter, Cull, or Canner. Unlike other types of meat, pork does not receive a quality grade. Although the USDA inspects pork for wholesomeness, pork is graded only for yield and receives a yield grade stamp. See Table 6.1.

**Yield grade** measures the proportion of edible or usable meat after it has been trimmed of bones or fat. You can get yield grades for beef, pork, and lamb products. This is helpful because the differences in the amount of fat on the outside of the meat can cause the yield of usable product to vary.

Use the lower grades to make ground beef and other processed products. Institutions also sometimes use these grades. Use the lowest grades for canning.

<table>
<thead>
<tr>
<th>Table 6.1: Quality Grades for Beef, Lamb, and Veal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade</td>
</tr>
<tr>
<td>----------</td>
</tr>
<tr>
<td>Prime</td>
</tr>
<tr>
<td>Choice</td>
</tr>
<tr>
<td>Select</td>
</tr>
</tbody>
</table>

(continued)
Table 6.1: Quality Grades for Beef, Lamb, and Veal continued

<table>
<thead>
<tr>
<th>Grade</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good</td>
<td>This is comparable to the Select grade for beef but is used only for veal and lamb.</td>
</tr>
<tr>
<td>Lower grades for beef</td>
<td>These are: Standard, Commercial, Utility, Cutter, and Canner.</td>
</tr>
<tr>
<td>Lower grades for lamb</td>
<td>These are Utility and Cull.</td>
</tr>
<tr>
<td>Lower grades for veal</td>
<td>These are Standard and Utility.</td>
</tr>
</tbody>
</table>

Figure 6.2 shows the differences between graded cuts of meat.

![Graded cuts of meat](image)

**Figure 6.2:** Graded cuts of meat, from left to right, based on the amount of marbling, are Prime, Choice, and Select.

**Lower-Fat Pork**

Pork used to be a high-fat meat product. Pigs’ diets and lifestyles promoted a very thick fat collar around the carcass and high marbling. When cardiac health became an issue in the latter part of the twentieth century, people began to eat less pork. To combat this, pork producers developed a variety of pig with a lower-fat carcass. Changes in food, lifestyle, genetics, and handling produced a pig with a thin collar layer of fat and reduced marbling.

Trimmed pork is now lower in fat than most beef. The slogan, “Pork: The Other White Meat” was launched to show that pork compares favorably to white chicken as a low-fat protein choice. A public perception advertising campaign increased pork consumption. Pork is still widely consumed and, when trimmed, still lower in fat than other meat.
Cuts of Meat

Before a chef can determine the right cooking method for a cut of meat, he or she needs to understand the various cuts of meat, the physical composition of the muscle tissue, and how it is affected by heat.

Muscle tissue consists of about 75 percent water, 20 percent protein, and 5 percent fat and is made up of a network of muscle fibers bound together in bundles. Each of the fibers is surrounded by connective tissue. The amount of connective tissue in a muscle increases as the animal ages and with the amount the animal is exercised. This tissue makes the meat tougher but also more flavorful.

Cuts of meat taken from the shoulder and flanks are examples of cuts that have a lot of connective tissue. Figure 6.3 shows a cut of meat that tends to be tougher. The two types of connective tissue are collagen and elastin. Collagen breaks down during long, slow, moist-heat cooking. Elastin connects the meat to the bone and will not break down during cooking; trim it away by hand before cooking.

The tenderest cuts of meat come from those muscle groups that receive the least amount of exercise. These cuts also have more marbling, or fat, which builds up between the muscle fibers. Tenderloins and roasts from the sirloin are naturally juicier because they contain more marbling. Figure 6.4 on the following page shows beef primal cuts.
Before a cut of meat becomes available for purchase by a restaurant or foodservice operation, several stages of butchering need to take place. After harvesting (slaughtering), the processor cuts the whole carcass into large sections. The number of sections depends on the type of animal:

- The processor cuts cattle butchered for beef into four sections.
- The processor cuts cattle that are butchered from the age of 1 day up to 14 or 15 weeks into two halves and sells this meat as veal, which has a pale flesh and delicate flavor.
- The processor cuts slaughtered hogs into two halves in facilities that handle no other type of meat in order to prevent foodborne illness.
- Sheep slaughtered under the age of one year are considered lamb. After that age, they must be labeled mutton. The processor cuts lamb directly into primal cuts. **Primal cuts** are the primary divisions of meat produced by the initial butchering of animal carcasses.

Butchers then must age meat between 48 and 72 hours to allow the muscles to relax. Butchers hang the meat during **aging** to help lengthen the muscle fibers and increase the tenderness of the meat, as shown in Figure 6.5 on the following page. When butchers age meat for longer periods of time, the meat continues to darken, and the flavor improves. It also becomes more expensive because the meat loses a significant amount of moisture that reduces its yield.
At the end of the aging period, the butcher cuts the carcass into primal cuts. These cuts also depend on the types of animal. See Figure 6.6 for an illustration of primal cuts. After the butcher makes primal cuts, fabrication can take place. **Fabrication** is the process of butchering primal cuts into usable portions, such as roasts or steaks.

**Figure 6.5:** Butchers hang meat during the aging process to let the muscles lengthen and relax.

**Figure 6.6:** Primal cuts for beef, veal, pork, and lamb.

**Retail cuts** of meat are those cuts that are ready for sale. They can be primal cuts or fabricated portions. The amount of cutting or butchering necessary to prepare a retail cut affects its price. For example, the more time the butcher spends cutting or butchering a piece of meat, the more expensive it will be. Foodservice purchasers can choose to purchase retail cuts that are primal cuts and then fabricate them for their own use or buy fabricated portions. They make this determination based on the needs of the restaurant.
An operation can save money on its meat purchases by fabricating its own meat from retail primal cuts. Fabrication procedures for beef, veal, lamb, pork, and large game are similar and require practice but very few tools. A fabricator needs only a sharp knife and a clean cutting board. An easy fabrication method is tying a roast, which ensures even cooking and keeps the shape of the meat. Trimming and **butterflying** tenderloin is also a popular technique.

### Essential Skills

*Trimming and Butterflying a Tenderloin*

Butchers and chefs must trim tenderloin very carefully because it is one of the most expensive cuts. To do so properly:

1. Remove only the silverskin (the tough membrane that surrounds the meat), fat, and gristle. See Figure 6.7a.
2. Cut away the fat. See Figure 6.7b.
3. Use a chef’s knife to make an even cut through the center of the meat.
4. Open the meat using a butterfly cut. Butterflying means to cut a piece of meat lengthwise nearly in half so that it opens out and lies flat. This cut speeds up the cooking process by increasing the surface area of the meat. See Figure 6.7c.

![Figure 6.7a: Step 1—Remove the silverskin, fat, and gristle.](image)

![Figure 6.7b: Step 2—Cut away the fat.](image)

![Figure 6.7c: Step 4—Open the meat using a butterfly cut.](image)

Fabricators make cuts from the boneless loin or tenderloin of beef, veal, lamb, or pork into a variety of menu cuts:

- **Medallions**: Small, round pieces molded by wrapping them in cheesecloth. (See Figure 6.8 on the following page.)
- **Noisettes** (nwah-ZET): Small, usually round portion of meat; the French word for hazelnut. Sometimes the terms “medallions” and “noisettes” are both used to describe small, boneless, tender cuts of meat.

- **Scallops**: Thin, boneless cuts that are lightly pounded. (See Figure 6.9.)

- **Emincé** (eh-manss-AY): Thin strips of meat used for sautéing.

Historically, people needed to make full use of every part of the animals they raised for food. **Offal** (OH-fel) meat is organ meat from hogs, cattle, or sheep (see Figure 6.10). It includes sweetbreads (thymus glands), liver, kidney, tripe (muscular stomach lining), heart, and brain. Though no longer very popular in the United States, offal meat is still enjoyed in other regions of the world and is a great source of essential vitamins and minerals.
Game meat is meat from animals that are not raised domestically. This includes deer, wild boar, moose, and elk. Chefs prepare many distinctly different dishes with game meat. However, the same preparation guidelines for red meat apply to game meat.

Home on the Range
Some game is now raised domestically. So, the venison served in a restaurant may not be from the forest any more. To learn more about farm-raised game meat, check out www.fossilfarms.com.

Kosher meat is specially slaughtered to comply with Jewish dietary laws. A rabbi visits the slaughterhouse and processing plant for kosher approval. In the United States, only beef and veal forequarters, poultry, and some game are used for kosher preparations.

Is This Kosher?
Kosher law flatly prohibits the eating of pork, but specific rules within other meat groups determine which can be used, which cannot, and when. Seafood, for example, is limited to fish with scales and fins, so shellfish as a whole are not kosher. Wild birds of prey are not kosher, but domestic birds, like chickens, are kosher. For meat to be kosher, the animal’s death must be painless, and meat cannot be served or prepared with milk products. These are just a few of the rules of kosher law.

Acceptable food products have a label designation of a “circle-U,” a “U,” a Hebraic-appearing “K,” a scroll, and other symbols provided by commercial kosher regulatory services. In order to carry the designation, the food must first be an acceptable food with acceptable ingredients. Then the processing plant must be visited by a rabbi. The rabbi examines the cleanliness, the ingredients, the equipment, the process, and the types of foods that are prepared together. When the rabbi is satisfied that the entire process will satisfy kosher principles, the designation is approved. Any changes in the ingredients or processing procedures must be reviewed by the rabbi to maintain the kosher designation.
Take a look at some food labels of breakfast cereals, pickles, and other food products. See whether you can find a kosher designation, as shown in Figure 6.11, somewhere on the label. It is usually on the front and very small. If your establishment has Jewish guests, you may be asked whether your restaurant is kosher. Be aware of what will be required to say “Yes.”

**Figure 6.11:** Kosher may be used only on the labels of products prepared under rabbinical supervision.

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**Butchering**

Butchers are trained professionals in meat distribution. A master butcher can train apprentices in the trade. Some schools teach the butcher trade and specialty vocational jobs in butchering, such as “slaughterer” or “sausage-maker.” These positions require less specialized training.

Butchers must understand the health and anatomy of edible animals. They need the skills to recognize and choose a quality animal or carcass and prepare it for sale. They must cut it into specific market cuts without damaging the tissue. Butchers use hand tools and power tools to accomplish this.

Butchers used to own shops and do all the work from carcass to sale. Now, it is more common for meat to be sold in grocery stores and supermarkets. Restaurants may purchase meat products from a broker or a restaurant butcher. Some butchering may be done on-site in a commercial kitchen. The safety considerations are the same for butchers and for chefs cutting meat in the kitchen.

Serious injuries used to be common in the profession. In current times, improved safety considerations are available for the butcher. He or she wears a belly guard and safety glove made of chain mail and kevlar, the material used for bulletproof vests. A commercial chef also uses these if he or she uses power cutting tools in the kitchen. Otherwise, butchers and chefs must take care with the hand tools and knives used for slicing, deboning, etc. All parts of the body should be guarded from blades. Work should proceed without the distraction of having to “multitask.”
Essential Skills
Tenderizing Meat

Food preparers can tenderize meat in a number of ways. They can use mechanical means, chemical means, or cooking means. Following are guidelines for each method.

Mechanical Tenderizing
Pulverizing

1. Place the meat between two pieces of plastic wrap or wax paper to keep meat contained while tenderizing.

2. Take a tenderizing mallet, the bottom of a pan, or another heavier blunt object and beat meat until it has an even thickness throughout. This will help break up tougher muscle fiber, sinew, and cartilage. See Figure 6.12a.

Scoring
With a sharp knife, make cuts along the meat’s tougher fibers and sinew. This not only helps tenderize the meat cut, but also frees the meat to lie flat on a heating surface for even cooking. See Figure 6.12b.

Grinding or Grounding
Run very tough cuts of meat through a grinder to make ground meat. Then form and cook the ground product in a number of different ways. See Figure 6.12c.

Figure 6.12a: Step 2—Tenderize the meat.
Figure 6.12b: Make cuts along the meat’s tougher fibers and sinew.
Figure 6.12c: Ground meat through a grinder.
Essential Skills

Chemical Tenderizing

1. A number of chemically processed, powdered tenderizers are on the market. Apply the powder to the exterior of the meat.

2. Some of these tenderizers work instantly, and others require time for the meat to sit. While such powdered tenderizers may work to a degree, many cooks avoid them because they can make the exterior mushy without ever penetrating the core of the meat. They can leave an unpleasant, chemical odor, and sometimes leech juice out of the meat, drying it out in the process of tenderizing.

Marinades

1. As discussed in the text, a marinade not only tenderizes the meat, it also adds flavor. See Figure 6.13a.

2. To tenderize, the marinade must contain an acid of some sort. The acid denatures, or unwinds, the longer protein fibers, thus tenderizing the meat. See Figure 6.13b.

3. Marinating often requires a wait time for the acid to penetrate the meat and denature protein fibers, so allow time for this process before cooking.

4. Marinades have the same drawbacks as powdered tenderizers: they may not penetrate deeply enough into the center of the meat. Special injectors are on the market to help with this problem. See Figure 6.13c.

Figure 6.13a: Step 1—Chili, lime and garlic, horseradish and lime, sesame oil and grainy mustard, tamarind and five spice, yogurt and ginger marinades.

Figure 6.13b: Step 2—Use an acid when tenderizing.

Figure 6.13c: Step 4—Marinades and powdered tenderizers may not penetrate deeply.
Essential Skills
Cooking, Stewing, or Braising

1. Moist-heat cooking methods, such as stewing or braising, are also very good tenderizers, perhaps even the best method of tenderizing available.

2. To properly tenderize through these methods, the meat must cook for an extended period of time to break down the collagen that composes the connective tissue. See Figure 6.14.

Purchasing and Storing Meat

Purchase meat from processing plants inspected by the USDA or a state department of agriculture. Meat products that have been inspected will be stamped. These stamps don't appear on every single cut of meat, but one should be on every inspected carcass and on packaging.

The two highest cost areas of a restaurant and foodservice operation are labor and food costs. The lower each of these costs is in relation to the menu prices, the higher the operation's profit. It is a very delicate balancing act for any operation to manage. For example, an item with high initial cost, such as filet mignon, may require less kitchen labor to prepare, so the food cost and labor cost balance out. Items with high initial costs also may generate a higher retail value on the menu regardless of labor cost, which may make such high up-front costs worth it in the long run. This contribution margin is the marginal profit per unit sale. So, the successful operator will have a menu that balances the raw costs and menu prices for maximum profit.

The success of a meat dish often depends on choosing the right form or cut of meat for the intended use. Some types of meat are better suited to certain cooking methods than others. Consider the following general guidelines when purchasing meat:

- **Cost**: Fabrication is a way to reduce meat costs. The more fabricating an operation does itself, the more money it can save. Most restaurant and foodservice operations do not have the space, equipment, or time to butcher...
whole cuts of meat. Yet some operations purchase certain types of meat in partially fabricated forms to control the cost of buying premium-priced, uniform pieces.

- **Freshness**: Often, high-quality frozen meat does not appear that different from fresh meat products. Any quality lost is usually due to improper handling. For example, freezer burn occurs when an item is loosely wrapped. Ice crystals form on the surface and dry out the meat. Any product with freezer burn should be rejected at delivery because freezer burn reduces the texture and flavor of meat. In general, all meat products should be used within two to three days of purchase.

- **Fat content**: The fat content of meat products often influences the cooking method used. Meat with a higher fat content generally take to dry-heat cooking methods, such as grilling, broiling, and sautéing. Cuts of meat with greater marbling (lines of fat within the lean flesh portion of the meat) or a thicker skin or fat cap produce juices that keep the meat moist while cooking, even in dry heat. See Figure 6.15 for an example of meat with good marbling. Prepare meat with less fat or more tendons and tough fibers using a combination or moist-heat cooking methods, such as braising, stewing, or poaching. Meat with less fat comes from animal muscles that are used a lot, such as shanks, shoulders, or breasts. These items require long, slow cooking to break down the muscle fibers and render them tender.

- **Equipment**: Consider the types of equipment an operation has before deciding what types of meat products to purchase. Small restaurants may not have the space and variety of cooking equipment found in a large hotel or commercial foodservice establishment. Refrigeration and freezer space is also critical in that the operator may not have the space to purchase larger cuts or greater quantities of product.

- **Vendors**: It is always a good idea for an operation to shop around to ensure getting the best price for its needs. Check out the equipment, storage capabilities, labor costs, and transportation costs of competing vendors. It is important that an operation is paying for the quality of the product rather than the overhead of the vendor.
In addition to considering all these criteria in making the initial meat purchase, carefully inspect the meat product before finalizing the transaction. Fresh meat must be delivered at 41°F or lower.

To be accepted during delivery, meat must meet the following criteria:

- **Color:**
  - **Beef:** Bright cherry red; aged beef may be darker in color; vacuum-packed beef will appear purplish in color
  - **Lamb:** Light red
  - **Pork:** Light pink meat; white fat
- **Texture:** Firm flesh that springs back when touched
- **Odor:** No odor
- **Packaging:** Intact and clean

Reject meat based on the following criteria:

- **Color** (see Figure 6.16):
  - **Beef:** Brown or green
  - **Lamb:** Brown, whitish surface covering the lean meat
  - **Pork:** Excessively dark color; soft or rancid fat

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**Figure 6.16a:** A piece of browned and tainted meat as a result of freezer burn.

**Figure 6.16b:** A nicely colored red and tasty steak.
Chapter 6 | Meat, Poultry, and Seafood

- **Texture**: Slimy, sticky, or dry
- **Odor**: Sour odor
- **Packaging**: Broken cartons; dirty wrappers; torn packaging; vacuum packaging with broken seal
- **Freezer burn** (see Figure 6.17): Any signs of frost, ice, or leakage of the package

Finally, after purchasing the product and accepting it for delivery, properly store it. Proper storage guidelines are as follows:

- Store meat immediately after delivery and inspection in its own storage unit or in the coldest part of the cooler. See Figure 6.18 for a picture of properly organized storage area.
- Hold fresh meat at an internal temperature of 41°F or lower.
- Store frozen meat at a temperature that will keep it frozen.
- If storing meat in the same cooler as ready-to-eat food, be sure to store the meat below the ready-to-eat food.
- Follow the FIFO method of stock rotation.

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**Figure 6.17**: A hamburger patty with freezer burn. Freezer burn occurs when moisture on the surface evaporates.

**Figure 6.18**: If storing meat in the same cooler as ready-to-eat food, be sure to store the meat below the ready-to-eat food.
Cooking Techniques for Meat

The chef’s goal while cooking meat is to maximize flavor and tenderness while minimizing the loss of moisture. As heat molecules attack the meat during cooking, the collagen breaks down into gelatin and water. This reduction in collagen increases the tenderness of the meat, but at the same time, the loss of moisture dries it out. A tough cut of meat cooked too quickly will still be too tough to serve when done. This is also true for a tender cut of meat cooked too long. This section summarizes the various ways of cooking meat so that it comes out tender, moist, and delicious.

Dry-heat Cooking

Because the tenderest cuts are the most expensive, cooking them in a slow, moist-heat method is not cost efficient, because a cheaper cut of meat would produce a quality product and actually offer more flavor. That is why dry-heat methods, which quickly cook meats, are best for naturally tender cuts. (See Figure 6.19 for meats that are cooked with the dry-heat method.)

The dry-heat methods of broiling and grilling are best for tender meat. Such meat normally has enough fat to keep it moist through the dry-heat process. It is important to master these two basic cooking techniques. Steaks and chops are two cuts that hold up well to the dry heat of broiling and grilling.

Roasting is also a dry-heat cooking method. The tender cuts from the rib or tenderloin are ideal for roasting. Trim most of the visible fat to ensure even cooking. Then, sear the meat. Searing caramelizes the outside of the meat and improves the flavor and appearance of the finished product (see Figure 6.20 on the following page). You can also season roasts before cooking by marinating, barding, or stuffing, which is discussed at greater length later in this section.

While cooking, the roast should sit uncovered on an elevated rack inside a pan to ensure even cooking. To test for doneness, insert a bimetallic, stemmed, instant-reading thermometer at an angle into the thickest part of the meat at
any time during the cooking process. Roast meat uncovered until the proper internal temperature is reached. Degrees of doneness and internal temperatures are discussed later in this section.

Add a mirepoix (meer-PWAH), a combination of chopped aromatic vegetables—two parts onion, one part carrot, and one part celery—to the roasting pan during the final half-hour of roasting time to add flavor to the gravy. When finished, the roast should have a golden-brown exterior and an interior that is tender and moist.

**Dry-heat Cooking with Fat and Oil**

Another way to prepare meat is to use dry-heat cooking methods with fat and oil. These methods include sautéing, stir-frying, pan-frying, and deep-frying. Sautéing and stir-frying use a small amount of oil. Pan-frying uses a larger amount of oil and a coating. These methods cook meat quickly, use high heat, and require tender, portion-sized or smaller pieces of meat.

Serve sautéed meat with a sauce prepared while the food is cooking or by deglazing the pan after cooking. The sauce is an important element because it contains the food’s flavor lost during cooking, introduces new flavor, and adds moisture. If meat strips are to be sautéed, lightly dust them with flour and be sure to shake off any excess flour before adding the item to the pan. Flour helps the meat retain moisture and promotes even browning. Beef Stroganoff is an example of preparing meat by sautéing.

Cut meat for stir-frying into small pieces, with all the fat, gristle, or silverskin removed. In stir-frying, cook food over very high heat, using little fat or cooking oil (see Figure 6.21 on the following page). Stir-fried meat should be moist and tender. An example is stir-fried beef with vegetables. (See Figure 6.22 on the following page for meats that are cooked using dry heat with fat and oil.)
Moist-heat Cooking

Moist-heat cooking techniques produce food that is delicately flavored and moist with a rich broth. Poach, simmer, or boil tougher cuts of meat. Cook an entire boiled dinner, complete with vegetables and meat, in one pot. A New England boiled dinner is one example using the boiling method. Yankee pot roast is an example of cooking with the simmering method. This method is also used heavily in ethnic cuisines, such as a North African *tagine*. (See Figure 6.23 for meat that is cooked with the moist-heat method.)
Combination Cooking

The combination cooking methods, braising and stewing, use both dry and moist heat to cook food that is not very tender. First, sear the meat in hot oil and then slowly cook it with a small amount of liquid in the oven or on the stove. Stewing is very much like braising, except the meat or other major ingredient is cut into bite-size pieces before it is seared (see Figure 6.24).

Supplemental Cooking Techniques: Marinades, Rubs, and Barding

A number of techniques have been developed to impart additional flavor while reducing moisture loss during all of the cooking processes described previously. One of the most popular methods is to soak the raw meat in a marinade—a liquid made of oil, an acid such as vinegar or wine, and herbs and spices. The acid in the marinade breaks down the collagen along the surface of the meat and allows the flavoring from the aromatics to enter. Refrigerate the meat while marinating and turn it on occasion to equally distribute the marinade. This method will not turn a tough piece of meat into tenderloin, but it will improve the flavor of the cooked meat.

Another method used to impart additional flavor is called a dry marinade or spice rub, which is a combination of dry herbs, spices, and salt that give the exterior of the meat an attractive look and flavorful taste. Use caution because the salt, while breaking down the surface structure, also pulls moisture from the meat.

Game meat has much less fat in its muscle than domesticated animals. It may be necessary to bard meat that has little or no natural fat cover in order to protect and moisten them during cooking. Tie a layer of fat (bacon or pork fatback) around the roast. Also use this technique on leaner roasts, such as veal tenderloin. Figure 6.25 shows the process of barding.
Determing Doneness

One of the most important steps in cooking meat is determining the doneness. Food preparers can cook beef, lamb, and some game meat to a wide range of doneness. A beef roast is rare when the internal temperature is 130°F. The meat appears red inside with a thin layer of brown on the outside. At an internal temperature of 145°F, the roast is medium. The meat is pink inside with a well-browned surface. The surface of meat cooked to medium is firmer than rare meat. Well-done meat is completely cooked, leaving little or no juice. The cooked surface of the meat is firm and dry, and the internal temperature is 160°F. In general, as meat cooks, the exterior should develop a deep brown color. Allow a roast to rest for 15 to 30 minutes after removing from the oven. This allows less juice to be lost during carving. See Table 6.2 for a complete chart of determining doneness.

<table>
<thead>
<tr>
<th>Table 6.2: Determining Doneness</th>
<th>Some common terms indicate a degree of doneness for a product.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rare</td>
<td>• The item has been seared on both sides.</td>
</tr>
<tr>
<td></td>
<td>• Meat offers no resistance when pressed.</td>
</tr>
<tr>
<td></td>
<td>• Cut meat is red to almost blue in color.</td>
</tr>
<tr>
<td></td>
<td>• Warm all the way through.</td>
</tr>
<tr>
<td>Medium rare</td>
<td>• Cook until drops of blood rise to the upper surface; turn and brown on the other side.</td>
</tr>
<tr>
<td></td>
<td>• When pressed, the meat should have a spongy feel.</td>
</tr>
<tr>
<td></td>
<td>• Color should be bright pink to red when cut.</td>
</tr>
<tr>
<td>Medium</td>
<td>• Turn meat when drops of juice are visible on surface; brown other side until meat resists when pressed.</td>
</tr>
<tr>
<td></td>
<td>• When cut, the meat should be pink in the center.</td>
</tr>
<tr>
<td>Well done</td>
<td>• Turn meat when drops of juice are clearly visible on surface; then cook until firm to the touch.</td>
</tr>
<tr>
<td></td>
<td>• Heat fully penetrates to the center of the meat.</td>
</tr>
<tr>
<td></td>
<td>• When cut, there should be no trace of pink.</td>
</tr>
</tbody>
</table>

Note that the heat absorbed during the cooking process continues to cook the meat even after it is removed from the oven. This is called carryover cooking. The larger the item, the greater the amount of heat it retains, and the more carryover cooking takes place. For example, the temperature of a top round of beef may increase as much as 15°F degrees after being taken out of the oven. For this reason, it is a good idea to take the meat out of the oven just before it reaches the desired temperature.
Cook white meat, such as veal and pork, all the way through, but do not overcook it. When it is done, the meat gives slightly when pressed with the back of a fork. As white meat cooks, the meat changes from pink to white or off-white. The meat is generally cooked well done, although many cuts of veal are considered done while still slightly pink in the center. Remember to be careful, since carryover heat can have a large impact on these thin pieces of meat. Table 6.3 lists the best cooking method for each type of meat.

<table>
<thead>
<tr>
<th>Type of Meat</th>
<th>Cut and Cooking Method That Can Be Used</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beef</td>
<td>Steaks: Dry heat (broil or grill)</td>
</tr>
<tr>
<td></td>
<td>Rib roast: Dry heat (roast)</td>
</tr>
<tr>
<td></td>
<td>Short ribs: Combination (braise)</td>
</tr>
<tr>
<td></td>
<td>Top round: Dry heat (roast) or combination (braise)</td>
</tr>
<tr>
<td></td>
<td>Brisket: Moist heat (simmer)</td>
</tr>
<tr>
<td>Veal</td>
<td>Foreshank: Combination (braise)</td>
</tr>
<tr>
<td></td>
<td>Hotel rack: Dry heat (grill, broil, or roast)</td>
</tr>
<tr>
<td></td>
<td>Loin chop: Dry heat (grill or broil) or dry heat with fat/oil (sauté)</td>
</tr>
<tr>
<td></td>
<td>Hindshank: Moist heat (simmer) or combination (braise)</td>
</tr>
<tr>
<td></td>
<td>Tenderloin: Dry heat (grill, broil, roast) or dry heat with fat/oil (sauté)</td>
</tr>
<tr>
<td>Lamb</td>
<td>Lamb rack: Dry heat (grill, broil, roast) or dry heat with fat/oil (sauté)</td>
</tr>
<tr>
<td></td>
<td>Loin chops: Dry heat (grill, broil) or dry heat with fat/oil (sauté)</td>
</tr>
<tr>
<td></td>
<td>Leg of lamb: Dry heat (grill, broil, roast)</td>
</tr>
<tr>
<td></td>
<td>Breast: Combination (braise)</td>
</tr>
<tr>
<td>Pork</td>
<td>Spare ribs: Combination (steam, then grill)</td>
</tr>
<tr>
<td></td>
<td>Pork loin: Dry heat (roast) or combination (braise)</td>
</tr>
<tr>
<td></td>
<td>Pork tenderloin: Dry heat (broil, grill, roast) or dry heat with fat/oil (sauté)</td>
</tr>
<tr>
<td></td>
<td>Pork loin chop: Dry heat (broil or grill) or combination (braise)</td>
</tr>
<tr>
<td></td>
<td>Fresh ham: Dry heat (roast)</td>
</tr>
</tbody>
</table>

Did You Know...?
Did you know that jus (ZHEW) is a sauce that incorporates drippings released during roasting? Make jus by deglazing the roasting pan with brown stock or water. Deglazing means to swirl a liquid in a pan to dissolve cooked particles or food remaining on the bottom. Food served with this juice is said to be served au jus (oh ZHEW); for example, roast beef au jus. When the jus from the drippings is thickened with arrowroot or cornstarch, it is known as jus lié (zhew lee-AY). Sauce thickened with a roux incorporating the fat from a roast and additional water or stock is called pan gravy.
Marbling
Animals store excess energy in fatty deposits within muscles. These deposits are referred to as marbling. The streaks of whitish-yellow fat within the red muscle look a bit like red marble stone, hence the name. The fat is actually around and between the individual muscle fibers and between connective tissues. The type of feed and exercise of the animal determines the amount of fat marbling.

Generally speaking, the greater the marbling in the meat, the higher the quality grade of the meat. Marbling does not necessarily indicate tenderness, but well-marbled meat is the most flavorful and juicy. This means that the higher quality grades may actually be less attractive from a nutrition perspective because of a higher fat content. Large and/or frequent portions of high-fat meat increases the saturated fat and cholesterol in the diet, which puts more stress on the heart and circulation. As with most any food, moderation is the best strategy.

Essential Skills
Rendering Fat

Use animal fat directly from the meat or render it, extracting the fat from the physical structure of the meat. Use rendered fat to flavor other dishes.

1. Cut the fat from the meat into uniform 1-inch cubes. See Figure 6.26a.
2. Place the fat in a pot and add enough water to come halfway up the fat.
3. Cook on low heat until the fat is melted and all the water has evaporated. See Figure 6.26b.
4. Remove the fat from the heat and let it cool for 10 minutes.
5. Strain the fat into containers and place in a cooler.
Summary

In this section, you learned the following:

- The two grades of meat are quality grade and yield grade. Quality grade measures the flavor characteristics of meat products. Meat is evaluated for traits that indicate its tenderness, juiciness, and flavor. Quality grades for beef, lamb, and veal can include Prime, Choice, Select, Standard, Commercial, Utility, Cutter, Cull, or Canner. Yield grade measures the proportion of edible or usable meat after it has been trimmed of bones or fat. You can get yield grades for beef, pork, and lamb products. This can be helpful because the differences in the amount of fat on the outside of the meat can cause the yield of usable product to vary.

- A number of butchering processes take place with meat. The first is called primal cuts. Primal cuts are the primary divisions of meat produced by the initial butchering of animal carcasses. After primal cuts are made, fabrication can take place. Fabrication is the process of butchering primal cuts into usable portions, such as roasts or steaks. Retail cuts of meat are those cuts that are ready for sale. They can be primal cuts or fabricated portions. The amount of cutting or butchering necessary to prepare a retail cut affects its price. Use cuts from the boneless loin or tenderloin of beef, veal, lamb, or pork to make a variety of menu cuts, including medallions, noisettes, scallops, and emincé. Offal meat is organ meat cut from hogs, cattle, or sheep. It includes sweetbreads, liver, kidney, tripe, heart, and brains.

- Meat must be purchased from plants inspected by the USDA or a state department of agriculture. Meat products that have been inspected will be stamped. In addition to USDA inspection approval, a number of other factors should be considered when purchasing meat:
  - **Cost**: Fabrication is a way to reduce meat costs. The more fabricating an operation does itself, the more money it can save.
  - **Freshness**: Often, high-quality frozen meat does not appear that different from a fresh meat product. Any quality lost is usually due to improper handling. In general, all meat products should be used within two to three days of purchase.
  - **Fat content**: The fat content of meat products often influences the cooking method used. Meat with a higher fat content generally takes to dry-heat cooking methods, such as grilling, broiling, and sautéing. Meat with less fat or more tendons and tough fibers can be prepared using moist-heat cooking methods, such as braising, stewing, and poaching.
• **Equipment:** Deciding what types of meat products to purchase is often determined by the types of equipment an operation has. Refrigeration and freezer space are also critical in determining what type of meat to purchase.

• **Vendors:** Check out the equipment, storage capabilities, labor costs, and transportation costs of competing vendors. It is important that an operation is paying for the quality of the product rather than the overhead of the vendor from which it is buying.

Before a chef can determine the right cooking method for a cut of meat, he or she must understand the physical composition of the muscle tissue and how it is affected by heat. A good cook must also be aware of the numerous flavorings that he or she can add when cooking meat. The chef’s goal while cooking meat is to maximize flavor and tenderness while minimizing the loss of moisture. Do this in a number of ways, such as by using marinades, dry rubs, and barding. The main cooking methods are moist heat, dry heat, dry heat with oil or fat, and combination cooking. Carryover cooking is the heat that continues to cook the meat even after the chef pulls it from the heat source.
Section 6.1 Review Questions

1. What are the two primary grades of meat? Describe them.
2. What is the name of the meat cut made in the initial butchering process? What happens after that step?
3. List three factors that should be considered when purchasing meat and explain why each is important.
4. On what types of meat cuts should the moist-heat cooking method be used?
5. Charleen Obal likes braised short ribs. What kind of meat is used for short ribs? How is the meat cooked to maximize flavor and tenderness while minimizing the loss of moisture?
6. What will Miguel and Chef Kate have to seriously think about if they want to focus on serving meat? List three factors you feel they must consider and explain why each is so important.
8. Of the five main factors listed for purchasing meat, which three do you think are the most important? Why? Explain your rationale for each choice.
Section 6.1 Activities

1. Study Skills/Group Activity: Researching Meat

Divide into groups. Each group researches a type of meat: beef, pork, lamb, etc. Then, create a brochure about each type, showing and naming the different market cuts of this type. Present the information to the class.

2. Activity: Behind the Sear

What is “searing”? Why is it done? Investigate searing and write a paragraph about what is happening when food is seared. Write a second paragraph about the role searing plays in properly cooking meat, making sure to distinguish fact versus fiction.

3. Critical Thinking: Matching Cuts with Cooking

List all the different cuts of beef from one carcass. Then indicate whether dry heat or moist heat is best for each cut. Finally, create a menu item description for a dry-heat cut. Do the same for a moist-heat cut.
SECTION 6.2 POULTRY

Poultry is arguably the most versatile protein. You can find it on the menu of virtually all restaurants and foodservice establishments, from less expensive to more expensive. Poultry can be served as a main course, in a casserole, in a sandwich, even on pizza. It is a truly versatile protein.

Study Questions

After studying Section 6.2, you should be able to answer the following questions:

■ What are the various grades of poultry?
■ What are the forms of poultry?
■ What are the guidelines for purchasing, fabricating, and storing poultry?
■ What are the basic cooking techniques used to prepare poultry?

Grades of Poultry

U.S. poultry grades apply to chicken, turkey, duck, geese, guinea, and pigeon. Quality grades are available for whole poultry, poultry roasts, poultry tenderloins, and poultry parts, including those with or without skin or bone, and either fresh or frozen. The USDA (see Figure 6.27 on the following page) is responsible for both inspecting and grading poultry.

Poultry receives a Grade of A, B, or C (A being the highest), based upon a number of guidelines:

■ Poultry must have a good conformation, structure, and shape, and be free of deformity in the natural form of the product, such as a bent leg or curved backbone.
■ Other factors taken into account involve flesh, fat covering, defeathering, discolorations, signs of broken or disjointed bones, and freezing defects.
Boneless poultry roasts should be free of all bone, cartilage, tendons, visible bruises, and blood clots. Tenderloin, a boneless portion of poultry cut from the breast area, is expected to have tendons; however, the tendons must not extend more than one-half inch beyond the meat tissue.

Use Grade A poultry as is, meaning cook the bird and its parts and consume them in their entirety, without processing. Use Grades B and C poultry in processed products where the poultry meat is cut up, chopped, or ground. Products sold at retail are usually not grade identified. Although all poultry must be inspected, no grade standards exist for some poultry parts, such as neck, wing tip, tail, and giblets.

Within the grade levels, select poultry by class. The class of poultry is defined mostly by the age and gender of the bird. A bird’s age generally affects the tenderness, look, and feel of the bird. It also affects the cooking methods necessary to obtain maximum flavor quality. Older birds are less tender than their younger counterparts and are best prepared using moist-heat cooking methods, such as stewing and braising. More tender, younger birds are suitable for all cooking methods, including barbecuing and frying.

**Two Forms of Poultry: White and Dark**

The two distinct differences in poultry forms are white meat and dark meat (see Figure 6.28 on the following page). Each type of meat holds different nutrition values.

White meat is from the areas of the fowl where little muscle use takes place, such as the breast. As a result, white meat is low in calories and fat content. White meat also cooks faster, which can result in a dryer product if the chef is not careful. Chefs can both grill and sauté white meat. When roasting poultry, chefs can add fat under or over the skin, or they can baste it with stock or melted butter to help retain moistness.
Dark meat, on the other hand, is from areas where the bird’s muscles are used more heavily, such as the leg and thigh region. Dark meat is higher in calories and fat. Dark meat also tends to be the richer, more flavorful meat. It requires more time to cook. Chefs may cook dark meat with either dry-heat or moist-heat cooking methods, depending on the amount of tendon and fiber in these parts. For example, they may grill or sauté the thighs, whereas the drumstick lends itself to braising or to roasting.

**Want More Chicken?**

Chicken consumption in the United States has risen by approximately 3 times in the last 40 years. In 1960, Americans annually consumed approximately 30 pounds of chicken per person. Today, that number is up to approximately 90 pounds.

**Purchasing, Fabricating, and Storing Poultry**

Domestic poultry is readily available and less costly than most other meat. A recent change in the market is the greater availability of free-range poultry, which is raised in large yards and given a lot of space to roam and get some exercise. The meat is darker in color than other poultry and has a slightly different flavor and texture.

New interest also exists in game birds—wild birds such as partridge, pheasant, squab, duck, goose, and quail—that are hunted for sport or food. Many game birds are now raised on farms year-round in conditions similar to those for free-range poultry. These birds are still considered “wild” and are at their best for purchasing from October through December or January. They should have
soft, smooth, pliable skin. The breastbone cartilage should be flexible, as it is for domestic fowl. The flesh should be tender, with a slightly “gamey” taste.

Take the first basic step in purchasing poultry by deciding on the type and quality of product that is needed for the particular menu item, the intended use of the poultry. Restaurant and foodservice operations usually use U.S. Grade A quality for poultry. Many of the same guidelines for poultry purchasing are similar to those discussed earlier for meat purchasing. They are summarized here:

- **Freshness**: As with meat products, high-quality frozen poultry does not look different from a fresh poultry product. Any quality lost, such as through freezer burn, is usually due to improper handling; reject these products upon delivery. In general, use all poultry products within two to three days of purchase.

- **Form**: The operation determines whether dark meat or white meat is preferable depending on its particular needs and makes purchases accordingly.

- **Equipment**: An operation decides what types of poultry products to purchase and how much to purchase by considering the types of equipment it has. For example, refrigeration space, freezer space, and adequate workspace areas for fabrication.

- **Vendors**: Check out the equipment, storage capabilities, labor costs, and transportation costs of competing vendors. An operation is paying for the quality of the product rather than the overhead of the vendor from which it is buying.

- **Cost**: As with meat purchases, in-house fabrication is a way to reduce costs. Operations finds it easier to fabricate poultry because the birds are smaller in size and easier to butcher. The more fabricating an operation does itself, the better the quality and the better the price. Also, the operation can use the trim for stocks, soups, sauces, hors d’oeuvres, and forcemeats.

Poultry fabrication includes disjointing and **boning** (separating meat from bones), and cutting a bird into pieces. Fabricating poultry is easier than fabricating other meat because poultry bones are smaller and easier to cut through. Essential tools include a clean work surface, boning knife, and chef’s knife.

Breaking down poultry into pieces is a useful technique for both small and large birds. The size of the cut depends on the size of the bird and the method of cooking. Knowing how to disjoint and bone chicken breasts is also an important part of fabricating poultry. Not all birds are fabricated or cut into smaller pieces. Larger birds are often roasted whole.
Essential Skills
Cutting a Whole Bird Into Pieces

Fabrication of a whole chicken into eight parts is a basic skill needed in the professional kitchen. The skill allows the chef to prepare many dishes as well as save money by buying whole birds.

1. The first step is to square up the bird by placing it on its back and pressing on the legs and breast to create a uniform appearance. See Figure 6.29a.

2. Next remove the leg and thigh from the body by cutting between the joints close to bones in the back of the bird. Repeat for the other side. See Figure 6.29b.

3. Place the bird on its breast and cut through the skin and straight down along either side of the backbone from tail to head.

4. Cut the ribs that connect the backbone removing the backbone. See Figure 6.29c.

5. To cut the breast in two pieces, place the chicken skin side down and starting at the wishbone cut through separating breasts into two halves. Bending the sides of the bird backwards before hand will make it easier to cut. See Figure 6.29d.

6. To separate the leg potion from the thigh, make a cut following the line of fat on the inside of the thigh. This is done with skin side down and cutting through the joint. See Figure 6.29e.

7. To separate the wings from the breast pull the wing away from body and cut inside each wing along the joint. See Figure 6.29f.

8. You now have two wings, two breasts, two legs, and two thighs.

Figure 6.29a: Step 1—Square up the bird.
Figure 6.29b: Step 2—Remove leg and thigh by cutting between the joints.
Figure 6.29c: Step 4—Cut the ribs that connect the backbone, removing the backbone.
Essential Skills

Fabricating Boneless Chicken Breasts

1. Make a cut along the side of the breastbone and following the line of the bone use you thumb or boning knife and separate the breast from the rib bones. See Figure 6.30a.

2. Pull the meat gently away as you cut being careful to leave the tender pieces known as the tenderloins attached to the breast meat. Remove the breast meat from the bird by making a cut to separate the breast from the wing. See Figure 6.30b.
Fresh poultry should be delivered at 41°F or lower. Frozen poultry should be received frozen. Accept a delivery of poultry when it meets the following criteria:

- **Color**: No discoloration
- **Texture**: Firm flesh that springs back when touched
- **Odor**: No odor

Reject a delivery of poultry for the following reasons:

- **Color**: Purple or green discoloration around the neck; dark wing tips (red tips are acceptable)
- **Texture**: Stickiness under the wings and around the joints
- **Odor**: Abnormal, unpleasant odor
- **Freezer burn**: Any signs of frost, ice, or leakage of the package

Store fresh, raw poultry at an internal temperature of 41°F or lower. Store frozen poultry at a temperature that keeps it frozen. If poultry has been removed from its original packaging, place it in airtight containers or wrap it in airtight material. Remember to store poultry below ready-to-eat food if they are both stored in the same cooler. Finally, be sure to follow FIFO. Table 6.4 describes the different bird types.

<table>
<thead>
<tr>
<th>Bird</th>
<th>Description</th>
</tr>
</thead>
</table>
| Chicken  | Young chicken: rock Cornish hen, broiler, fryer, roaster, capon  
           | Mature chicken: hen, fowl, baking chicken, stewing chicken |
| Turkey   | Young turkey: fryer-roaster, young hen, young tom  
           | Yearling turkey: mature turkey, old turkey               |
| Duck     | Young duck: duckling, young duckling, broiler duckling, fryer duckling, roaster duckling  
           | Old duck: mature                                         |

(continued)
Table 6.4: Bird Types continued

<table>
<thead>
<tr>
<th>Bird</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Goose/Guinea</td>
<td>Young goose: guinea</td>
</tr>
<tr>
<td></td>
<td>Old goose: mature</td>
</tr>
<tr>
<td>Pigeon</td>
<td>Young pigeon: squab</td>
</tr>
<tr>
<td></td>
<td>Old pigeon: pigeon</td>
</tr>
</tbody>
</table>

Safely Storing and Fabricating Poultry

Strictly observe the following food safety rules in poultry fabrication to prevent cross-contamination:

1. Clean and sanitize cutting boards and all cutting utensils before and after fabrication.
2. Refrigerate poultry when it is not being fabricated.
3. Store poultry in clear, leakproof containers at 41°F or lower.

Maintaining Safe Cutting Boards

A “butcher block” is a hardwood cutting surface used for food preparation. See Figure 6.31. Some states have banned the use of these types of wooden cutting boards and other surfaces (such as a butcher-block table) in food-related operations. But many butchers and foodservice professionals appreciate the quality, appearance, and tradition of these materials. Where butcher-block surfaces are allowed, they can be used safely as long as you treat them with the proper care to prevent pathogen growth and cross-contamination.

Most acceptable butcher blocks are made of hard maple. The surface should be cleaned and sanitized following the same guidelines for any other food-contact surface. Some
companies create special cleaners for butcher block surfaces; be sure that these cleaners follow regulatory guidelines before using them. The surfaces also must be planed (its top layer removed) or sanded regularly. The surface can be “sanded” by rubbing it with coarse salt. This is far better than sandpaper, which is not recommended for culinary equipment. The gentle abrasion of the salt wears down the cuts and slits caused by knives, which can harbor pathogens. Additionally, the surface should be “seasoned” quarterly with a rubdown of food-grade mineral oil that is fresh and free from aroma or flavor.

The remaining surface must be free of pits, grooves, or cracks. Health inspectors look for any split in the wood or an uneven surface level where pathogens might be able to grow. If they find a problem, the item must be thrown out. Similarly, plastic cutting boards must also be replaced when they have been worn down or cut or scored too often.

All cutting boards should be dedicated for a type for food (some are color coded for this purpose). For example, there should be one board for meat products and a different one for vegetables. The boards should be cleaned and sanitized immediately after use. Never use a soiled board without properly cleaning and sanitizing it. And never use a meat or poultry board to chop raw vegetables.

Exotic Birds

Ratites are birds with wings that are inadequate for flight. Emu and ostrich are ratites. They lay edible eggs like other birds, and the meat of the bird is edible as well. In fact, their dark meat seems more like red meat than any other poultry. Emu is classified as a red meat in the United States. Ostrich meat is higher in iron than even beef, and much higher than turkey or other, more common, poultry. Emu, ostrich, and other ratites are finding their way onto restaurant menus around the world.

Cooking Techniques for Poultry

Dry-heat Cooking

Poultry is especially suited to the dry-heat cooking techniques of grilling, broiling, and roasting. When grilling poultry, cook it through or à point (ah PWAH), but do not overcook. Pressing the meat with the back of a form yields a slight amount of “give.” Any juices are colorless. The grilled flavor and aroma should enhance the food, not overpower its natural flavor. One example of chicken prepared using this method is mesquite-grilled chicken breast.

Roasting requires a longer cooking time because this technique is used to cook the whole bird. For roasting, truss—which means the legs and wings are tied to the bird’s body—the bird so it cooks evenly and stays moist. The chef can season, stuff, marinate, bard, and/or sear the bird over direct heat or in a hot oven before roasting. Then place it on an elevated rack in a roasting pan so that hot
air can reach all sides. Roast the bird uncovered until the desired internal temperature is reached (see Figure 6.32).

Cook poultry until well done (165°F) to kill all traces of *Salmonella* spp. Bake dressing and stuffing for poultry separately for food safety; however, food preparers can safely stuff small birds (Cornish hens and quail) and serve them as single portions. Also, cook the stuffing in these birds to 165°F. The skin should be crisp, creating a contrast with the meat’s texture. Roasted herb chicken with natural gravy is one example of using the roasting cooking method.

**Dry-heat Cooking with Fat and Oil**

Poultry is especially well suited to dry-heat cooking with fat and oil. These techniques—sautéing, stir-frying, pan-frying, and deep-frying—require tender, portion-size pieces.

Combine chicken with a variety of vegetables and other food to create a stir-fry dish. Pat marinated chicken until dry before adding it to the cooking oil. One example of using this technique is stir-fried chicken with vegetables. (See Figure 6.33 for poultry that is cooked using dry heat with fat and oil.)

One of the most traditional methods for preparing chicken is deep-frying. Chicken that is deep-fried must be naturally tender. Food prepared by deep-frying is breaded or batter coated and then boiled in hot fat or oil. The result is a nice combination of flavors and textures. Always observe sanitation guidelines when you are working with batter.
Moist-heat Cooking

Steaming is a healthy way to prepare poultry because nutrients are not washed away or drawn out of the food during cooking. Steamed poultry is done when it has an evenly opaque (oh-PAKE) appearance, which means you should not be able to see through it when done. Also, the flesh offers little resistance when pressed. (See Figure 6.34 for poultry that is cooked with the moist-heat method.)

Simmering and poaching are also excellent ways to prepare chicken. Simmered chicken has a rich, flavorful broth and can be used for soups, creamed dishes, casseroles, and salads.

Combination Cooking

Chicken is a natural ingredient for the combination cooking methods of stewing and braising. These two methods produce dishes with exceptional sauces and flavor concentrations. In addition, these are very healthy choices because the proteins and other nutrients lost from other cooking techniques are retained in the sauce. *Mole poblano*, a popular Mexican sauce, is used to make Chicken Mole. This is one example of poultry prepared with moist-heat cooking. Table 6.5 describes various methods of cooking poultry.

<table>
<thead>
<tr>
<th>Table 6.5: Cooking Poultry</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type of Poultry</strong></td>
</tr>
<tr>
<td>chicken</td>
</tr>
<tr>
<td>duck</td>
</tr>
</tbody>
</table>

(continued)
Table 6.5: Cooking Poultry continued

<table>
<thead>
<tr>
<th>Type of Poultry</th>
<th>Class and Cooking Method That Can Be Used</th>
</tr>
</thead>
<tbody>
<tr>
<td>Goose</td>
<td>Young: Dry heat (roast)</td>
</tr>
<tr>
<td></td>
<td>Mature: Combination (braise or stew)</td>
</tr>
<tr>
<td>Turkey</td>
<td>Fryer/roaster: Dry heat (roast) or dry heat with fat/oil (sauté)</td>
</tr>
<tr>
<td></td>
<td>Young: Dry heat (roast) or combination (stew)</td>
</tr>
<tr>
<td></td>
<td>Mature: Combination (stew)</td>
</tr>
</tbody>
</table>

**Steaming Foods**

Steaming food is often credited with maintaining nutrients better than other cooking methods. Some believe that all the nutrients remain in the food and are not drawn out in the cooking liquid, as in boiling or poaching. This is not entirely true, and a misunderstanding of the science is the problem.

Water does not become a gas until it is an invisible vapor, after it steams or evaporates. Steam is still liquid water in very fine droplets, still dissolves water-soluble vitamins, and can still carry them away as the steam drops collect elsewhere in the cooking system.

In defense of steam cooking, it requires less water so food does not soak or tumble in a boiling bath, which can draw out even more nutrients. It is a closed system that maintains moisture. Also, it uses relatively low cooking temperatures at or above 213°F, which also helps maintain nutrients. Steam cooking is still a great option, but for slightly different reasons than one might think.

**Essential Skills**

**Stuffing Poultry**

Stuffing can be a breeding ground for pathogens. For this reason, stuff only smaller birds, such as Cornish game hens, squab, or small chickens. Take care, even in stuffing these smaller birds, to ensure that food safety risks are kept to the absolute minimum.

1. First, mix together all of the stuffing ingredients when cold. The mixture's temperature should never be allowed to rise above 45°F. See Figure 6.35a.
2. Stuff the raw bird as close to roasting time as possible.
3. Stuff the neck and main body cavities loosely because the stuffing expands during cooking. See Figure 6.35b.
4. After filling cavities, secure their openings with skewers and butcher’s twine or by trussing. See Figure 6.35c.
5. After cooking, remove the stuffing from the bird and store separately.
Summary

In this section, you learned the following:

- The three grades of poultry are USDA A, B, and C. A is the highest grade, and C is the lowest grade. Serve Grade A poultry in whole, unprocessed portions. Grades B and C poultry are often processed and used in other forms. Guidelines for distinguishing between grades are as follows:
  
  - Poultry must have a good conformation—structure and shape—and be free of deformity in the natural form of the product, such as a bent leg or curved backbone.
  
  - Other factors taken into account involve flesh, fat covering, defeathering, discolorations, signs of broken or disjointed bones, and freezing defects.
  
  - Boneless poultry roasts should be free of all bone, cartilage, tendons, visible bruises, and blood clots.

- The two distinct differences in poultry forms are white meat and dark meat. Each type of meat holds different nutrition values. White meat is low in calories and fat content and cooks faster. Dark meat, on the other hand, is generally higher in calories and fat. Dark meat also tends to be the richer, more flavorful meat and requires more time to cook.

- Domestic poultry is readily available and is less costly than most other meats. A recent change in the market is the greater availability of free-range poultry and more demand for game birds.
The first basic step in purchasing poultry is to decide on the type and quality of product that is needed for the particular menu item. Many of the same guidelines for poultry purchasing are similar to those discussed earlier for meat purchasing:

- **Freshness**: As with meat products, high-quality frozen poultry should not appear different from a fresh poultry product. In general, all poultry products should be used within two to three days of purchase.

- **Form**: The operation should determine whether dark meat or white meat is preferable—depending on its particular needs—and make purchases accordingly.

- **Equipment**: Deciding what types of poultry products to purchase and how much to purchase is often determined by the types of equipment an operation has.

- **Vendors**: Check out the equipment, storage capabilities, labor costs, and transportation costs of competing vendors.

- **Cost**: As with meat purchases, in-house fabrication is a way to reduce costs. It is easier for an operation to fabricate poultry because the birds are smaller in size and easier to butcher.

Poultry fabrication includes disjointing, boning (separating meat from bones), and cutting a bird into pieces. Essential tools include a clean work surface, boning knife, and chef’s knife. Store fresh, raw poultry at an internal temperature of 41°F or lower. Store frozen poultry at a temperature that keeps it frozen. If poultry has been removed from its original packaging, place it in airtight containers or wrap it in airtight material. Remember that poultry should be stored below ready-to-eat food if they are both stored in the same cooler. Finally, be sure to follow FIFO.

Poultry is a durable meat that lends itself to multiple cooking methods, such as dry-heat, dry-heat with fat or oil, moist-heat, and combination cooking methods.
Section 6.2 Review Questions

1. What are the three grades that can be assigned to poultry? What does each grade signify?

2. What are the two primary forms of poultry and what are the nutritional differences between the two?

3. How does the fabrication of poultry differ from the fabrication of meat?

4. List and describe three cooking methods for poultry.

5. Charleen Obal is partial to fried chicken. Research three different recipes that would use fried chicken as a component.

6. Chef Kate was more in favor of specializing in poultry dishes than was Miguel. Come up with three reasons why Chef Kate may be on to something. What would three benefits be to making poultry an operation's specialty? What would one drawback be?

7. Chicken is the most commonly consumed poultry in the United States. How many chicken items or dishes can you list? Try to list at least 20.

8. Which type of poultry form do you prefer: white meat or dark meat? Provide three reasons in support of your choice and then one reason why it may not be the best choice to make.
Section 6.2 Activities

1. Study Skills/Group Activity: Trust in Your Trussing

Working in small groups, properly truss a whole chicken for roasting. Each person should take a turn completely trussing the same bird. Make a written note of any areas of difficulty and how your group worked around the problem. When everyone in the group has become comfortable with trussing, play a game between groups: Who can truss the fastest?

2. Independent Activity: Turkey Day Every Day!

Turkey is often thought of as a Thanksgiving dish. It is served every November in the United States with traditional side dishes. Create two menu item ideas using the excess turkey that is available the day after Thanksgiving. Create two more turkey menu items that could be featured at other times of the year.

3. Critical Thinking: The WHOLE Chicken

Create a menu that uses every usable part of a chicken. Name and describe each menu item. Keep in mind that these menu offerings should be suitable for a real, current restaurant to serve in your local market.
SECTION 6.3 SEAFOOD

Many seafood lovers salivate at the thought of a perfectly broiled lobster tail accompanied by salty-sweet drawn butter. Others prefer the delicate flaky texture of sole or flounder poached in wine and fresh herbs. And still others seek the heartier steaks of salmon, tuna, or swordfish grilled to perfection. It is for this reason that serving well-prepared seafood can be a boon for an operation, and why serving substandard seafood can be just as perilous to an operation.

Study Questions

After studying Section 6.3, you should be able to answer the following questions:

- What is the inspection and grading process for seafood?
- What are the various forms of seafood?
- What are the purchasing guidelines for seafood?
- What is the best way to fabricate and store seafood?
- What are the basic cooking methods for seafood?

Seafood Inspections and Grades

The U.S. Food and Drug Administration (FDA) monitors interstate fish shipments and also requires fish processors to adopt a Hazard Analysis and Critical Control Point (HACCP) program. The FDA does not inspect seafood when it is caught. Instead, many processors participate in the voluntary seafood inspection program conducted by the U.S. Department of Commerce (USDC). Products that have been inspected under this program carry a Processed Under Federal Inspection (PUFI) mark. This mark means that the product is safe and wholesome and has been packed in an establishment that meets the sanitary guidelines required by the National Marine Fisheries Service (NMFS), a division of the USDC.
The NMFS also publishes grades for seafood that has been inspected, although not all types of seafood are included. Both fresh and processed seafood items can be graded. Items are typically graded as A, B, C, or Below Standard, based on the grading factors that follow:

- Appearance
- Blemishes and damage
- Color
- Dehydration
- Flavor
- Odor
- Texture
- Uniformity

Grade A is the highest quality seafood available. These items have an excellent appearance, good flavor and odor, and are free of blemishes or defects. Grade B items have good quality, but usually have blemishes or other defects. Grade C items have relatively good quality, but these items are only appropriate for dishes that do not require an attractive appearance. Below Standard items do not have good quality.

Only Grade A seafood is marked with a stamp (see Figure 6.36). Most seafood items sold to restaurant and foodservice establishments are Grade A, but some Grade B products might be appropriate, depending on their usage. To ensure ordering the proper quality of seafood items, an operation should specify which grade it wants as part of the buying specifications to the vendor.

Figure 6.36: Grade A fish is of the highest quality, with good shape, flavor, and aroma.

**Forms of Seafood**

Seafood is divided into two major categories:

- Fin fish
- Shellfish
**Fin fish** have a backbone and can live in fresh water or in the ocean. They are classified according to their shape, either round or flat. **Round fish** have a round body shape and one eye on each side of the head, and they swim upright in salt water or fresh water. Some examples are cod, sea bass, mahi-mahi, tuna, and trout. **Flatfish** are oval and flat in shape and have two eyes on the front part of the head. Examples include flounder, halibut, and turbot. Flat and round fish can have either fat or lean characteristics. Table 6.6 provides a detailed list of the fish that are fat or lean, which is indicated by an F for fat or an L for lean. All types of fin fish are available in fresh or processed forms.

<table>
<thead>
<tr>
<th>Flatfish</th>
<th>Round Fish</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flounder-L</td>
<td>Black sea bass-L</td>
</tr>
<tr>
<td>Halibut-L</td>
<td>Catfish-L</td>
</tr>
<tr>
<td>Sole-L</td>
<td>Cod-L</td>
</tr>
<tr>
<td></td>
<td>Grouper-L</td>
</tr>
<tr>
<td></td>
<td>Haddock-L</td>
</tr>
<tr>
<td></td>
<td>Mackerel-F</td>
</tr>
<tr>
<td></td>
<td>Monkfish-L</td>
</tr>
<tr>
<td></td>
<td>Ocean perch-L</td>
</tr>
<tr>
<td></td>
<td>Perch-L</td>
</tr>
<tr>
<td></td>
<td>Pike-L</td>
</tr>
<tr>
<td></td>
<td>Pompano-F</td>
</tr>
<tr>
<td></td>
<td>Red snapper-L</td>
</tr>
<tr>
<td></td>
<td>Salmon-F</td>
</tr>
<tr>
<td></td>
<td>Shark-F</td>
</tr>
<tr>
<td></td>
<td>Striped bass-L</td>
</tr>
<tr>
<td></td>
<td>Swordfish-L</td>
</tr>
<tr>
<td></td>
<td>Trout-L</td>
</tr>
<tr>
<td></td>
<td>Tuna-F</td>
</tr>
<tr>
<td></td>
<td>Whitefish-L</td>
</tr>
<tr>
<td></td>
<td>Whiting bluefish-F</td>
</tr>
</tbody>
</table>

**Shellfish** have an outer shell but no backbone and live primarily in salt water. They are further categorized into **crustaceans**, **mollusks**, and **cephalopods**. Crustaceans have an outer skeleton and jointed appendages. Examples are shrimp, lobster, and crab. Mollusks have one or two hard shells. Univalves (one shell) include abalone. Bivalves (two hinged shells) include clams, oysters, mussels, and scallops. Cephalopods have a single internal shell and tentacles. Examples are octopus and squid. All types of shellfish are available in fresh or processed forms.
Is Seafood Really “Brain Food”?  
People often refer to seafood as “brain food” because it was thought to build brain tissue. Although this may not be exactly accurate, seafood truly is a great source of protein and other nutrients needed by the entire body. Seafood is usually low in fat. In addition, the fat in seafood is full of omega-3 fatty acids. The main omega-3 is linolenic acid, an essential human nutrient. It is also very good for the circulatory system and the heart. Additionally, seafood is a great source of many trace mineral nutrients that are sometimes hard to find in other foods, like iodine and selenium.

On the other hand, shellfish have a reputation for being very high in cholesterol, but this is not really true according to current research. Shellfish is about as high in cholesterol as red meat, but without the fat of meat. Even so, while shrimp and other shellfish may contribute some cholesterol to the body, cholesterol is also used extensively in building nerve and brain tissue. Maybe it’s truly “brain food” after all.

**Purchasing, Fabricating, and Storing Seafood**

The most important step in purchasing seafood is deciding on the type and quality of seafood that is needed for particular menu items—the intended use of the seafood. If an operation does not market itself as serving fresh seafood, then it could purchase processed items. But being well-versed in all types of seafood is always ideal. Following are guidelines for purchasing fresh seafood. Many of these guidelines are similar to that of purchasing meat and poultry:

- **Market form:** Vendors can supply seafood to an operation in a number of ways. Purchase fresh seafood in the market form that best suits the operation’s needs. For example, buy some types of fish already portioned, saving preparation time and ensuring uniform dishes. On the other hand, if the kitchen staff has the skills to cut up whole fish, consider whether the operation could use the trimmings and bones.

- **Storage capabilities:** Fresh seafood is highly perishable; therefore, adequate storage facilities are a must for seafood items to ensure as long a shelf life as possible. Temperature control is particularly important since fresh fish should be received packed in ice and maintained that way in storage. Careless storage of seafood leads to poor appearance, texture, and odor, as well as food safety issues, all of which ultimately result in wasted product.

- **Vendor selection:** Considering the vast variety of seafood available, a reliable, reputable supplier is crucial. Verify that your supplier is an approved food source that has been inspected and is in compliance with all applicable laws. Doing this helps ensure that seafood is safe and of consistent good quality.
Processed seafood might be an appropriate choice for an operation if it does not market menu items as “fresh caught.” Customer perception is often negative toward processed food items, but many types of processed seafood—from frozen to cured—offer excellent flavor. Some factors to consider about processed seafood include the following:

- **Processing method:** Various types of seafood are available in frozen, canned, and cured forms. Choose the method that best matches the item and its intended usage.

- **Convenience:** By purchasing processed seafood, an operation might achieve significant cost reductions for equipment and space, as well as in preparation time and labor skills. Yet these savings must be balanced with the typically higher unit cost as well as the chance that the quality of the menu item might decline.

- **Storage capabilities:** Although processed seafood has a slightly longer shelf life than fresh seafood, it is still highly perishable. Operations must have the appropriate amount of storage equipment and space. Frozen seafood, for example, must be stored frozen. Accidental thawing will result in food safety issues and poor quality.

Many forms of fin fish can be purchased, and a smart foodservice operator will know the various categories and the distinctions between each. The market forms of fin fish are as follows (see Figure 6.37):

- **Whole or round:** The fish just as it was caught
- **Drawn:** Only viscera (guts) removed
- **Dressed:** Viscera, scales, fins, and often the head removed
- **Fish fillet:** Boneless pieces cut from the sides
- **Butterfly fillet:** Two sides cut away from the backbone
- **Steak:** Cross section cut, generally from large fish

![Market Forms of Fish](image)

**Figure 6.37:** Fish are available in six market forms.
In addition to these, each of the market forms of fin fish may be purchased either fresh or frozen (see Figure 6.38). Some fin fish are sold in a dried form. An example would be cod sold as dried cod or bacalao. Many small fish are sold dried in either whole or fillet forms. Many dried fish are found in Asian or other ethnic markets.

Shellfish also come in different forms. As mentioned in the last section, shellfish have hard outer shells and have no backbones or internal skeletons. The two classifications of shellfish are mollusks and crustaceans. Both forms can be purchased as live, fresh, frozen, dried, canned, cooked fresh, cooked frozen, IQF (individually quick frozen), or block frozen and in various states of preparation.

The most common types of mollusks found in commercial kitchens are oysters, clams, mussels, scallops, squid, and octopus. Purchase them live, in the shell, shucked (fresh or frozen), or canned.

The most common types of crustaceans found in commercial kitchens are lobsters, shrimp, crabs, and crayfish.

Lobsters are classified by weight: chicken lobsters weigh approximately 1 pound; quarters lobsters weigh approximately 1¼ pounds; select lobsters weigh approximately 1½ to 2¼ pounds; jumbo lobsters weigh over 2½ pounds. The rock lobster, also known as the spiny or langouste lobster, is another type on the market. Purchase lobsters live, as cooked meat (fresh or frozen), IQF (individually quick frozen), or canned.

The six kinds of crabs typically found in commercial restaurant and foodservice operations are Alaskan king crab, Alaskan snow crab, Dungeness crab, blue crab, soft-shell crab, and stone crab. Purchase crabs live, frozen in the shell (cooked), as cooked frozen meat, or canned.

The different varieties of shrimp refer to where they are caught and include Gulf whites, pink, browns, and black tigers. These are the most popular varieties used in commercial foodservice. Prawn and scampi are terms commonly used to refer to shrimp, but neither term identifies an actual type of shrimp. Scampi is also considered a type of cooking recipe in which shrimp is sautéed in garlic butter.
Some of the most popular market forms of shrimp are fresh, head-on, raw, and head-off (also known as green headless) with shell on. In commercial food-service, most shrimp are deheaded and frozen at sea to preserve freshness. Additional market forms include raw, peeled, and deveined; cooked, peeled, and deveined; and IQF. Shrimp can be purchased with some processing (cooked whole or pieces, breaded, and canned). Shrimp are classified by count per pound.

**Fabricating Fin Fish and Shellfish**

**Fin Fish**

Fin fish fabrication techniques consist of scaling, trimming, gutting, and filleting the fish. Scaling methods are the same for both round and flatfish, but the way you gut and fillet them is slightly different. The tools needed for fin fish fabrication are a sharp, flexible filleting knife and a clean cutting board. When fabricating fin fish, put much of the trim to use in a mousseline, filling, canapé, soup, or sauce.

When scaling fin fish, scrape off the scales from tail to head. Once the fish has been scaled and trimmed, it should be gutted.

When gutting round fish, make a slit in the fish’s belly and pull out the guts, or insides. Gutting a flatfish is a bit easier. Make the cuts around the head. As the head is pulled away from the body, the guts come away with the head.

Filleting a fish is the step that separates the flesh of the fish from the bones. Flatfish produce four fillets, and round fish produce two fillets. It is important to remove all of the bones from the fillet.

Once the fish has been filleted, make it into various cuts, such as **goujonettes** (goo-sha-NET) or small strips, or **paupiettes** (po-pee-EHT), thin, rolled fillets filled with stuffing; steaks; or, most commonly, individual fillet portions of varying weights depending on the desired use.

**Shellfish**

Unlike fin fish, shellfish do not have bones or a skeletal system. They do, however, need to be fabricated.

Mollusks, such as clams and oysters, are often served on the half shell, so it is important not to destroy the shell when **shucking**. Shucking is the opening or removing of a mollusk’s shell. Scrub all mollusks well under cold running water before opening them to remove sand and grit.

When fabricating lobsters, removing the meat from the shell is easier when the lobster has been partially or fully cooked. Blanching the lobster lightly in
a steam bath, in boiling water, or in a hot oven is all that is necessary to make removing the flesh easier.

Shrimp are cleaned by removing the shell and **deveining** them. Deveining is the process of removing a shrimp’s digestive tract.

**Storing Fish**

**Fin Fish**

Fresh fish is very sensitive to time-temperature abuse and can spoil quickly if it isn’t handled correctly. At delivery, it should be received at a temperature of 41°F or lower. Frozen fish should be received frozen; don’t accept a delivery if there are any signs that it has been allowed to thaw, such as ice crystals, or if it has freezer burn.

To be acceptable, fresh fish must also meet the following criteria:

- **Color**: Bright red gills; bright shiny skin (see Figure 6.39)
- **Texture**: Firm flesh that springs back when touched
- **Odor**: Mild ocean or seaweed smell
- **Eyes**: Bright, clear, and full
- **Packaging**: Product should be surrounded by crushed, self-draining ice

![Figure 6.39: Fresh fish with bright, shiny skin.](image)

Reject fresh fish based on the following criteria:

- **Color**: Dull, gray gills; dull, dry skin
- **Texture**: Soft flesh that leaves an imprint when touched
- **Odor**: Strong fishy or ammonia smell
- **Eyes**: Cloudy, red-rimmed, sunken
Shellfish

Receive live shellfish on ice or at an air temperature of 45°F or lower. Receive shucked product at an internal temperature of 41°F or lower. Shellfish must have shellstock identification tags, which document where the shellfish were harvested. These tags must remain attached to the delivery container until all of the shellfish have been used, and then retained for 90 days after the last item from the delivery has been served (see Figure 6.40).

To be acceptable, shellfish must meet the following criteria:

- **Condition**: If fresh, then received alive
- **Smell**: Mild ocean or seaweed smell
- **Shells**: Closed and unbroken for mollusk shells

Reject shellfish based on the following criteria:

- **Condition**: If shipped fresh, dead on arrival
- **Odor**: Strong fishy smell
- **Texture**: For mollusks, slimy, sticky, or dry
- **Shells**: For mollusks, muddy or broken
- **Freezer burn**: If the shellfish was frozen, any signs of frost, ice, or leakage of the package

If the delivery is accepted for purchase, use the following criteria for safe and proper storage. Fish items are highly perishable and so proper storage is very important:

**Fin Fish**

- Store fresh fish at an internal temperature of 41°F or lower.
- Pack fresh, whole fish in beds of flaked or crushed ice.
- Ice beds must be self-draining, and the containers should be cleaned and sanitized regularly (see Figure 6.41 on the following page).
- Change the ice regularly (crushed ice works best).
- Store frozen fish at a temperature that will keep it frozen.
Shellfish

- Store live shellfish in its original container at an air temperature of 45°F or lower.
- Keep the shellstock identification tags on file for 90 days from the date the last shellfish was sold or served.
- Store frozen shellfish at a temperature that will keep them frozen.

**Essential Skills**

**Shucking Clams**

Clams have a top shell and a bottom shell that are firmly held together with a tight, muscular hinge. Cutting open this hinge is the key to opening the clam swiftly and without breaking the shell.

1. With a stiff brush, scrub the outside of the shell vigorously under cold running water until all sand and grit have been removed. See Figure 6.42a on the following page.

2. Put a wire mesh glove on the hand that will hold the clam. See Figure 6.42b.

3. Hold the clam firmly in your protected hand and insert the clam knife between the top shell and the bottom shell.

4. Work the knife around the opening to cut the hinged muscle.

5. Open the shell and slide the knife under the clam meat and the shell to detach the clam meat. See Figure 6.42c.
Essential Skills
Filleting a Round Fish

1. Make a cut behind the head and then run the knife down the length of the fish, from head to tail of the first side. See Figure 6.43a.

2. Turn the fish to the second side and work from the tail to the head. See Figure 6.43b.

3. Trim away the belly bones. See Figure 6.43c on the following page.

4. Lay the fillet near the edge of the surface and run the blade of a fillet knife or boning knife between the skin and the flesh. Angle the blade downward slightly when doing this.

5. Use a sawing motion and hold the skin taut to make it easier to remove. See Figure 6.43d.

Figure 6.42a: Step 1—Scrub the outside shell.

Figure 6.42b: Step 2—Put a wire mesh glove on your hand.

Figure 6.42c: Step 5—Open the shell and slide the knife under the clam meat and the shell to detach the clam meat.

Figure 6.42a: Step 1—Scrub the outside shell.

Figure 6.42b: Step 2—Put a wire mesh glove on your hand.

Figure 6.42c: Step 5—Open the shell and slide the knife under the clam meat and the shell to detach the clam meat.

Figure 6.43a: Step 1—Make a cut behind the head and run the knife down the length of the fish.

Figure 6.43b: Step 2—Turn the fish to the second side and work from tail to head.
Essential Skills
Peeling and Deveining Shrimp

1. Pull away the shell. See Figure 6.44a.
2. Cut along the back vein with a knife or a shrimp deveiner. See Figure 6.44b.
3. Remove the intestinal tract. See Figure 6.44c.

Did You Know...?
It can take a Maine lobster anywhere from four to seven years to grow just one pound. This may partially explain why lobsters tend to be very expensive.
Cooking Techniques for Seafood

The best way to pair a fish with a cooking technique is to consider the flesh of the fish. For example, mackerel (an oily fish), cooks best with a dry-heat technique, such as grilling or broiling. Prepare tuna and salmon, which contain a moderate amount of fat, using any cooking method. Very lean fish, such as sole and flounder, have the most flavor when they are poached or sautéed.

Dry-heat Cooking

Fatty fish cut into fillets or steaks are the best cuts to bake, broil, and grill. Most fish are baked between 350°F and 400°F. Bake larger fish at the low end of this range so they cook evenly. To retain moistness, coat fish with bread crumbs, crushed nuts, or thinly sliced vegetables or meat, such as prosciutto, and bake it on an oiled or buttered baking sheet. NOTE: If using nuts, always remember to disclose the type of nuts on the menu to prevent possible allergic reactions.

Dry-heat Cooking with Fat and Oil

Lean fin fish and shellfish are best when using dry-heat cooking with fat and oil, such as sautéing, stir-frying, pan-frying, and deep-frying. Coat fish with flour or a breading before cooking in either clarified butter or oil. Small items, such as shrimp and scallops, are extremely delicate and must be quickly sautéed, stir-fried, or pan-fried over very high heat. Larger items require lower heat for even cooking.

When deep-frying, the fish should be very fresh; the fat used to deep-fry should be of high quality; and the item should be served immediately after cooking. Breading the fish before cooking will protect it from the hot fat and provide a crispy coating. It is necessary to follow sanitation rules when working with the batter.

Moist-heat Cooking

Moist-heat cooking techniques—poaching, simmering, and steaming—are excellent ways to cook fish, especially the lean varieties. To enhance the flavor of the fish, poach it in court bouillon (cort boo-YON), a stock made of vegetables and an acid such as vinegar or wine. Also poach fish in fumet (foo-MAY), a rich fish stock made with wine, or simmer it in its own juices with a little added liquid. Another method in use today is poaching in olive oil or butter, which may or may not be infused with other flavorings. The principles for poaching in olive oil or butter are the same as for poaching in other liquids regarding time and temperature.
Shallow-poached fish and shellfish should be opaque. The flesh of oysters, clams, and mussels should show curling on the edges. No white deposits should show on the flesh of fin fish or shellfish as this indicates cooking at too high a temperature or for too long. The finished item should be moist and extremely tender. Any stringiness, dryness, or excessive flaking indicates that the food was cooked too long or at too high a temperature.

*En papillote* (en paw-pee-YOTE) is one classical moist-heat cooking technique that is especially suited to fish. In this cooking method, encase the fish, herbs, vegetables, and/or sauce in parchment paper and steam in a hot oven. Fish cooked *en papillote* should be naturally tender (see Figure 6.45). Sear thicker cuts of fish first to ensure even cooking. Modern versions of this technique include wrapping the fish in banana leaves.

**Combination Cooking**

The combination cooking methods, stewing and braising, use both dry and moist heat. These methods have produced some very popular fish recipes over the years. Some of the best-known recipes include *bouillabaisse* (BOO-yah-base), a French seafood stew made with assorted fish and shellfish, onions, tomatoes, white wine, olive oil, garlic, saffron, and herbs; *cioppino*, a San Francisco version of seafood stew made with local seafood; and *jambalaya* (jam-bo-LIE-ah), a Creole stew from Louisiana made with rice, shellfish, and vegetables (see Figure 6.46).
Determining Doneness

Most all fin fish and shellfish are naturally tender, so do not undercook or overcook fish for tenderizing purposes. Cook all fish just until done. Following are guidelines to follow in determining doneness:

1. **Flesh turns from translucent to opaque**: Raw flesh of most fish is translucent. When the flesh turns a denser, more opaque shade, the fish is done.

2. **Flesh becomes firm**: Raw fish is somewhat mushy. As the flesh cooks, it becomes firmer and springs back to the touch when done.

3. **Flesh pulls easily away from bone**: As the fish cooks, the flesh loosens and can be effortlessly separated from the bone when done.

4. **Flesh begins to flake**: As the fish cooks, connective tissue breaks down and muscle fibers begin to separate from each other, or flake. The fish is done as soon as flaking starts to occur.

Finally, carryover cooking applies to seafood as well as meat. With this in mind, it is better to slightly undercook the fish and allow carryover cooking to bring it to doneness. Not taking the residual heat of carryover cooking into account often leads to overcooked fish and a less satisfying dish for guests.

The Pressure-Cooking Cook

A cook has many techniques available for preparing food. Sautéing, broiling, baking, and grilling are examples of cooking methods that are frequently talked about. One method that is not as well known, but highly effective, is called pressure cooking.

Water boils at 212°F at sea level. If the air pressure on top of the water increases, it pushes against the water and prevents bubbles of steam and vapor from escaping the surface. The water must increase in heat energy to overcome the increased pressure and form rolling bubbles. Water under pressure must reach an even greater temperature in order to boil.

A pressure cooker is a closed system that allows air or steam pressure to increase inside the system. This increases the atmospheric pressure, which also increases the boiling point. Pressure is measured in pounds per square inch. At 5 pounds of pressure, water boils at 228°F. At 15 pounds, water doesn't boil until it reaches 250°F.

Pressure cooking requires special equipment. Consider safety, as the system must remain closed and locked not only to build pressure, but to prevent the machinery from flying apart. Pressure is released through a petcock or other device designed for this purpose. Do not open the cooker until the pressure is back to local atmospheric pressure once again.
Foods cooked under pressure cook hotter in a moist environment without drying or burning. This makes them cook more quickly, with the heat being distributed more evenly throughout the food. Also, the system is closed so the steam and cooking juices remain in the system and recycle back into the foods. Pressure cooked foods taste like they have gone through a long, slow, moist, flavorful cooking method, but the process takes much less time.

Summary

In this section, you learned the following:

- Seafood is not inspected when it is caught. Instead, many processors participate in the voluntary seafood inspection program conducted by the U.S. Department of Commerce (USDC). Products that have been inspected under this program carry a Processed Under Federal Inspection (PUFI) mark. This mark means that the product is safe and wholesome and has been packed in an establishment that meets the sanitary guidelines required by the National Marine Fisheries Service (NMFS), a division of the USDC. The NMFS also publishes grades for seafood that has been inspected, although not all types of seafood are included.

- Both fresh and processed seafood items can be graded. Items are typically graded as A, B, C, or Below Standard, based on these grading factors: appearance, blemishes and damage, color, dehydration, flavor, odor, texture, and uniformity. Grade A is the highest-quality seafood available. These items have an excellent appearance, have good flavor and odor, and are free of blemishes or defects. Grade B items have good quality, but usually have blemishes or other defects. Grade C items have relatively good quality, but these items are only appropriate for dishes that do not require an attractive appearance. Below Standard items do not have good quality.

- The two main forms of seafood are fin fish and shellfish. Fin fish have a backbone and can live in fresh water or in the ocean. They can be classified according to their shape, either round or flat. Shellfish have an outer shell but no backbone and live primarily in salt water. Shellfish can be categorized further into three categories: crustaceans, mollusks, and cephalopods.

- The most important step in purchasing seafood is deciding on the type and quality of seafood that is needed for particular menu items—the intended use of the seafood. If an operation does not market itself as serving fresh seafood, then it could purchase processed items. But being well versed in
all types of seafood is always ideal. Following are guidelines for purchasing fresh seafood. Many of these guidelines are similar to those for purchasing meat and poultry:

- **Market form**: Vendors can supply seafood to an operation in a number of ways. Purchase fresh seafood in the market form that best suits your operation’s needs.

- **Storage capabilities**: Fresh seafood is highly perishable; therefore, adequate storage facilities for seafood items are a must to ensure as long a shelf life as possible.

- **Vendor selection**: Considering the vast variety of seafood available, a reliable, reputable supplier is crucial. Verify that your supplier is an approved food source that has been inspected and is in compliance with all applicable laws.

**Processed seafood** might be an appropriate choice for an operation if it does not market its menu items as “fresh caught.” Customer perception is often negative toward processed food items, but many types of processed seafood—from frozen to cured—offer excellent flavor. Some factors to consider about processed seafood include processing method, convenience, and storage capabilities.

Many different forms of fin fish can be purchased, and a smart foodservice operator will know the various categories and the distinctions between them. The market forms of fin fish are as follows: whole or round, drawn, dressed, butterfly fillet, fish fillet, and steak.

Fin fish fabrication techniques consist of scaling, trimming, gutting, and filleting the fish. Scaling methods are the same for both round and flatfish, but the way you gut and fillet them is slightly different. The tools needed for fin fish fabrication are a sharp, flexible filleting knife and a clean cutting board. When fabricating fin fish, put much of the trim to use in a mousseline, filling, canapé, soup, or sauce.

Unlike fin fish, shellfish do not have bones or a skeletal system. They do, however, need to be fabricated. Mollusks, such as clams and oysters, are often served on the half shell, so do not destroy the shell when shucking, which is the opening or removing of a mollusk’s shell. When fabricating lobsters, it is easier to remove the meat from the shell when the lobster has been partially or fully cooked. Blanch the lobster lightly in a steam bath, in boiling water, or in a hot oven, which is all that is necessary to make removing the flesh easier.
Fish items are highly perishable and so proper storage is very important. Store fresh fish at an internal temperature of 41°F or lower. Pack fresh, whole fish in beds of flaked or crushed ice. Ice beds must be self-draining. Clean and sanitize the containers regularly. Change the ice regularly. Store frozen fish and shellfish at a temperature that will keep it frozen. Store live shellfish in its original container at an air temperature of 45°F or lower. Keep the shellstock identification tags on file for 90 days from the date the last shellfish was sold or served.

Cooking methods for seafood include dry-heat, dry-heat cooking with oil or fat, moist-heat, and combination technique, using both dry and moist-heat methods.
Section 6.3 Review Questions

1. Compare and contrast the inspection and grading process for seafood with that for meat and poultry. How is it similar? What are the differences?

2. What are the two main forms of seafood? What is one primary difference between the two forms?

3. Explain how to fabricate the following two fish: a round fish and a mollusk.

4. At what temperature should fresh fish be stored?

5. One of Charleen Obal’s favorite seafood dishes is shrimp and grits. She can serve this for breakfast or dinner. What other seafood dish can be served both at breakfast and dinner?

6. One of Chef Kate’s concerns about specializing in seafood is storage issues. She’s just not sure of all that’s entailed in the storing of seafood. Now that you have learned all about the storing of seafood, write a one-page memo to Chef Kate explaining the basics of what she’ll need to know in order to make an informed decision.

7. Why is seafood not inspected when it is caught, and why is the inspection program voluntary? Should it be? Explain this process and defend your opinion in a one-page report.

8. Given all that you know now about seafood, if you were running a restaurant, would you prefer to specialize in shellfish or fin fish? Explain your answer.
Section 6.3 Activities

1. Study Skills/Group Activity: Prepping Fish

Working with two or three other students, fillet a fish together from start to finish. Then shuck one clam each. Take note of tricks that any group members discover along the way. Write them down and share them with the rest of the class when you’re finished.

2. Independent Activity: Research Seafood Allergies

Research seafood allergies. What foods typically cause problems? How would you deal with this when writing a menu? How would the servers at your establishment help a guest to deal with a seafood allergy?

3. Critical Thinking: Service with a Style!

Go to a local fish market, fishmonger, or grocery store meat/fish department. Talk to an employee about the current local catch. Learn what is fresh and plentiful in your locale. Learn about the seasons of fish in your area. Report your finding in a one-page paper.
Section 6.4 Charcuterie and Garde Manger

Charcuterie has been around for centuries, and it has recently had a resurgence. Restaurants across the United States are putting a renewed emphasis on this age-old culinary art. From fresh sausage stuffed with quality meat and herbs to fine pâtés to beautifully smoked meat, charcuterie is not only here to stay, it is a vital part of twenty-first-century cuisine.

In this section, you will learn what exactly charcuterie and garde manger are, as well as the various types of charcuterie and how they are prepared.

Study Questions

After studying Section 6.4, you should be able to answer the following questions:

- What is charcuterie and garde manger?
- What are the main types of charcuterie?

Definitions of Charcuterie and Garde Manger

The term charcuterie, which in French means “cooked flesh,” refers to specially prepared pork products, including sausage, smoked ham, bacon, pâté, and terrine (see Figure 6.47). Charcuterie refers to the production of pâtés, terrines, galantines, sausages, and similar foods. Serve these food items cold; they are generally provided by the garde manger department.

Figure 6.47: Speciality prepared meats.
Garde manger (gard mawn-ZHAY) is the department typically found in a classical brigade system kitchen and/or the chef who is responsible for the preparation of cold foods, including salads and salad dressings, cold appetizers, charcuterie items, and similar dishes. Most of the decorative buffet work would come from the garde manger department. The garde manger department is also referred to as the pantry.

Charcuterie consists of two main categories: sausages and forcemeat.

Did You Know...?
The garde manger department is part of the classic brigade kitchen. The brigade kitchen was created in late nineteenth-century France by Georges Auguste Escoffier, who wanted the kitchen to operate in the same way as the French military. There was a distinct hierarchy: cooks answered to a direct supervisor, who answered to a sous chef, who answered to the chef de cuisine, who answered to the executive chef.

The Guardian of the Garde Manger
The garde manger is the chef station responsible for the presentation, garnish, and preparation of cold foods. Because most of the food is uncooked, and because so many types of food are used in this station, chances for cross-contamination are plentiful. Food safety considerations are extremely important in this capacity. For example, a fruit platter with a beautifully carved exterior of a watermelon may look gorgeous, but might harbor pathogens unless properly cleaned and handled in the kitchen.

The fruit platter must be created with a cutting board that is clean and sanitized. A cold pâté must be held at the proper temperature for safety, even when served on a tray with a sliced baguette on a buffet table. The garde manger knows how to manage these various aspects of presentation. The garde manger must be very aware of food safety requirements.

Types of Charcuterie

Sausages
Traditionally, sausages were ground pork that the preparer forced into a casing made from the lining of animal intestines. Today, many other ingredients are used to make sausage, including game, beef, veal, poultry, fish, shellfish, and even vegetables. The three main types of sausage (see Figure 6.48 on the following page) are as follows:

- Fresh sausage
- Smoked or cooked sausage
- Dried or hard sausage
Make fresh sausage with raw ingredients that have not been cured or smoked. Cook fresh sausage before serving. Fresh sausage includes breakfast sausage links and Italian sausage. Polish kielbasa, Mexican chorizo, and French andouille are other examples of fresh sausage.

Make smoked and cooked sausage with raw meat products treated with preservatives. German knackwurst, frankfurter, and bratwurst are examples of smoked and cooked sausage.

Make dried or hard sausage with cured meat and then air-dry it under sanitary, controlled conditions. Italian salami and pepperoni are examples of dried or hard sausage.

**Forcemeat**

Forcemeat is a mixture of lean ground meat and fat that is emulsified, or forced together, in a food grinder and then pushed through a sieve to create a very smooth paste. How did forcemeat get its name? The word forcemeat is from the French word *farce* (FAHRS), which means stuffing. Forcemeat is the main ingredient used to make *pâté* (pah-TAY), a rich loaf made of meat, game, poultry, seafood, and/or vegetables baked in a mold.

Create straight forcemeat by very finely grinding the meat, seasoning it with herbs and spices, and then cooking it in an earthenware mold called a *terrine* (tehr-REEN). Cook the terrine in a hot-water bath to an internal temperature of 145°F to 155°F. In a country-style forcemeat, or *pâté de campagne* (pah-TAY de kom-PAN-yuh), a cured meat is usually the main ingredient. The texture is slightly coarser than in straight forcemeat, which allows the flavor of the meat to dominate.

Sometimes the forcemeat is wrapped in a pâté dough that may contain herbs, spices, or lemon zest. A pâté dough is much stronger than pie dough because it must stand up to the liquid released during cooking. This dish is referred to as a *pâté en croûte* (pah-TAY on kroot).
Inventive chefs have created new recipes, such as spring vegetable terrine, which no longer require meat, but because they are cooked in the same mold, they are still called a terrine.

A forcemeat made of veal, poultry, or fish is called a mousseline (moose-uh-LEEN). A mousseline is delicately flavored and lightened with cream and egg whites. Shape the mousseline into small, dumpling-shaped ovals and poach it in a rich stock or court bouillon to make quenelles (kuh-nel).

**Benefits of Liver**

“Sweetbreads,” “variety meats,” or “poultry giblets” all refer to liver and other organ meats. Various organ meats are used in cuisine, but liver may be the most common in the United States. Use liver in pâté de foie gras, liverwurst, and giblet gravy, or serve it as an entrée.

Liver is an excellent source of dietary iron. The iron in liver is also very well absorbed and used. It is called “heme” iron because it comes from the hemoglobin of the animal. Additionally, liver and other meat sources contain MFP factor, which improves the absorption of iron from other non-heme sources (like bread) in the same meal. Iron is sometimes difficult to obtain in the diet, especially for women, so it is useful to include some foods that contain liver in the diet. Many forcemeat dishes accomplish this goal.

The one downside is that liver is quite high in cholesterol, so that must be taken into consideration when including it in the diet.

**Food Safety Reminders for this Chapter**

- To check the temperature of meat, poultry, or seafood during receiving, insert the thermometer stem or probe into the thickest part of the food. The center is usually the thickest part.
- To help prevent cross-contamination during preparation, use separate equipment for each type of food. For example, use one set of cutting boards, utensils, and containers for raw poultry. Use another for meat. Use a third set for seafood.
- Remember the minimum internal temperatures required for cooking TCS food:
  - Poultry: 165°F for 15 seconds
  - Ground meat, including beef and seafood: 155°F for 15 seconds
  - Seafood and steaks/chops of pork, beef, veal, and lamb: 145°F for 15 seconds
  - Roasts of pork, beef, veal, and lamb: 145°F for four minutes
Summary

In this section, you learned the following:

- The term charcuterie, which in French means “cooked flesh,” refers to specially prepared pork products, including sausage, smoked ham, bacon, pâté, and terrine. Charcuterie refers to the production of pates, terrines, galantines, sausages, and similar foods. These food items are served cold and generally provided by the garde manger department. Garde manger is the department typically found in a classical brigade system kitchen and/or the chef that is responsible for the preparation of cold foods, including salads and salad dressings, cold appetizers, charcuterie items, and similar dishes. Most of the decorative buffet work would come from the garde manger department. The garde manger department is also referred to as the pantry.

- Charcuterie consists of two main categories: sausages and forcemeat. The three main types of sausage are fresh, smoked, or dried. A number of dishes can be made using forcemeat. The two main types of forcemeat are straight forcemeat, which is very finely ground, seasoned with herbs and spices, and then cooked in an earthenware mold called a terrine; and a country-style forcemeat, which is usually made of a cured meat and has a slightly coarser texture.
Section 6.4 Review Questions

1. What is charcuterie?
2. What is garde manger?
3. What are the three types of sausages?
4. What is the difference between straight forcemeat and country-style forcemeat?
5. Based on Charlene Obal’s preferences, how might charcuterie fit into the menu at Saphron Restaurant? Why?
6. Miguel and Chef Kate aren’t really considering specializing in charcuterie. Is this a mistake? Give one reason why such a specialty might be beneficial and one reason why it may not.
7. There was a time not too long ago when garde manger was said to be a thing of the past, but it has recently had a resurgence. Do you think garde manger is a vital part of the dining experience or not? Explain your opinion.
8. Come up with a menu item for each of the three types of sausage. Write up each item as if you were putting it on a real menu.
Section 6.4 Activities

1. Study Skills/Group Activity: Making Pâté

In a group, use ingredients to make a liver pâté appetizer. Make the dish in a mold, as directed. The next class period, turn it out of the mold and garnish it for service. Taste the product and share it with the class. What have you learned about this type of product? Verbally explain to the class what your group created.

2. Independent Activity: Cruise Ship Garde Manger

Imagine that you are the garde manger (pantry chef) on a luxurious cruise ship. You are asked to present an afternoon class for the passengers. You want to talk about buffet displays that they see onboard the ship. Write an outline for your 20-minute class. Include descriptions of your displays.

3. Critical Thinking: Sausage Diagram

Create a Venn diagram showing the similarities and differences between various types of dried, smoked, and cooked sausages.
Case Study Follow-Up  Let’s Be Different

At the beginning of the chapter, you found out that Miguel and Chef Kate were thinking about specializing in one type of protein, but they couldn’t agree on which one to specialize in.

1. After having read this chapter on meat, poultry, and seafood, which type of protein would you choose to specialize in if you had the choice? Why?

2. Do you feel that Miguel and Chef Kate are making the right decision to focus on a specialty? Why or why not?

3. Let’s say Miguel and Chef Kate approached you as an independent consultant and asked you to briefly explain the major points they should consider about each category. What would you say? Make a list highlighting the main factors they should be aware of for each.
Apply Your Learning

Figuring Out Profit Margins

Serving fresh lobster requires little labor. But it is expensive to buy, so it is usually very high priced on a menu. Sometimes high cost can generate profit for a restaurant. Profit margin is the price of an item minus the cost of serving it (including the cost of the food, the overhead for the establishment, and the servers).

A lobster may cost $25 to serve. However, you can charge the guest $50 for the item. That is a profit of $25.

If you divide the profit by the price, you have the profit margin: $25 ÷ $50 = 0.5. 0.5 can also be called 50 percent. The profit is $25. The profit margin on the lobster dish is 50 percent.

Suppose your menu offered a chicken breast that cost $4 to serve. You charge $20 for it. What is the profit for the chicken breast? What is the profit margin for the chicken breast?

Which menu item, lobster or chicken, has a greater profit margin? Which item earns the restaurant more money?

Crayfish in Literature

Crayfish are freshwater crustaceans found in parts of the United States and other parts of the world. In the United States they are called “crayfish,” “crawfish,” or “crawdads.” You can find cultural references to them in literature. Research online and find at least one reference to them in American literature. Then continue your research into the role of crayfish in American cuisine. Name three menu crayfish.
Examining Water Molecules

Heat is energy. Energy makes molecules move faster. When molecules move faster, they create friction, which is felt as heat. This heat energy can alter protein molecules, which cooks meat. Cut and color paper models of ten water molecules to match this drawing.

Research images of water in various forms in textbooks or online. Assemble the models as they appear in a solid form. When water is a solid, does it feel hot or cold? What is the temperature range? How much do the molecules move?

Now, assemble the water molecule models as they would appear in a liquid form. When water is a liquid, does it feel hot or cold? What is the temperature range? How much do the molecules move?

Finally, assemble the models as they would appear when heated to boiling and vaporizing. When heated water is a gas (vapor), does it feel hot or cold? What is the temperature range? How much do the molecules move?

A heat source causes motion in food molecules. This motion changes and heats (cooks) the food.

Critical Thinking

A Selling Script

What role has poultry played in traditional U.S. cuisine? What is the connection of wild poultry to the Native Americans and the first European settlers on the American continent? What role did wild game birds play in the presidential-inauguration festivities of Barack Obama or other U.S. presidents? How could this relate to a restaurant establishment in the United States? Write a report at least two paragraphs long about these questions.
Exam Prep Questions

1. The grade of meat that measures the edible or usable portion of meat after being trimmed is called
   A. yield.
   B. quality.
   C. USDA A.
   D. USDA C.

2. Meat must be aged ___________ hours to allow for the muscles to relax.
   A. 6 to 24
   B. 24 to 48
   C. 48 to 72
   D. 72 to 96

3. Thin, boneless cuts of meat that are lightly pounded are called
   A. emincé.
   B. scallops.
   C. noisettes.
   D. medallions.

4. How is dark meat poultry different than white meat poultry?
   A. Dark meat is lower in calories than white meat.
   B. Dark meat is harder to come by than white meat.
   C. Dark meat tends to be more expensive than white meat.
   D. Dark meat tends to be juicier and more flavorful than white meat.

5. What are the three essential tools needed for fabricating poultry?
   A. Hand saw, boning knife, and bucket
   B. Rubber mallet, fork, and paring knife
   C. Paring knife, chef’s knife, and tourné knife
   D. Work surface, boning knife, and chef’s knife

6. Sautéing is a ___________ cooking method used for cooking meat, poultry, or seafood.
   A. dry-heat
   B. moist-heat
   C. combination
   D. dry-heat with fat and oil

7. What are the two main types of fin fish?
   A. Shell and flat
   B. Round and flat
   C. Crustaceans and mollusks
   D. Mollusks and cephalopods

8. When fabricating a lobster, it is easier to remove the meat from the shell
   A. after steaming or boiling it first.
   B. if it is cut in half when still semi-frozen.
   C. by cutting the lobster in half lengthwise.
   D. if the knife is first heated and then dipped in olive oil.
Live shellfish must be received on ice or at an air temperature of __________ or lower.

A. 30°F  
B. 45°F  
C. 50°F  
D. 60°F

Garde manger is the department in the kitchen that is typically in charge of

A. desserts.  
B. hot foods.  
C. cold foods.  
D. expediting food service.
Minute Steak Dijonaise

*Cooking time: 6 minutes*

*Yield: 2 servings*

**Ingredients**

- Two 6-oz Sirloin steaks, trimmed
- 1 oz  Dijon mustard
- 2 oz  Onion, small dice
- 1 fl oz  Clarified butter
- 3 fl oz  Heavy cream
- 1 oz  Whole butter
- To taste  Salt and pepper

**Directions**

1. Pound the steaks to a ¼-inch thickness.
2. Cover one side of each sirloin first with 1½ teaspoons of the mustard and then half of the onion, pressing the onion firmly into the steak.
3. Sauté the steaks in the clarified butter, presentation (onion) side down first for 2 to 3 minutes per side. Remove and hold in warm place.
4. Degrease the pan. Add the cream and reduce by half. Add the rest of the mustard.
5. Adjust the seasonings. Serve each portion with some of the sauce.

**Recipe Nutritional Content**

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Nutritional analysis provided by FoodCalc®, www.foodcalc.com
Braised Chicken with Apple Cider and Cashew Butter

Cooking time: 30 minutes
Yield: 8 Servings

Ingredients

- 2 oz Shallots, minced
- 2½ fl oz Clarified butter
- 12 fl oz Calvados
- 2 tsp Fresh thyme, chopped
- 3 oz Cashews
- 1 Tbsp Honey
- 1 lb Unsalted butter
- To taste Salt and pepper
- Two 3 lb, 8-oz each Chickens, quartered
- As needed Flour
- 12 oz Mirepoix
- 1 Garlic head, cut in half
- 1 pint Apple cider
- 1 Tbsp Cider vinegar
- 3 pints Chicken stock
- 2 Bay leaves
- 1 sprig Fresh thyme
- As needed Blond roux

Directions

1. To make the cashew butter, lightly sauté the shallots in 1 tablespoon clarified butter. Add 4 ounces of the calvados and the chopped thyme and reduce the mixture. Remove from the heat and cool.
2. Place the cashews in a food processor and process to a medium-fine consistency. Add the cooled shallots, honey, and unsalted butter. Season with salt and pepper and process well.
3. Season the chicken with salt and pepper and dredge in flour.
4. Brown the chicken evenly in the clarified butter for about 6 minutes per side.
5. Remove the chicken. Add the mirepoix and garlic to the pan; sauté for 1 minute.
6. Add the remaining calvados, cider, and vinegar; reduce by half.
7. Return the chicken to the pan and add the stock and herbs. Cover and braise until done, approximately 15 minutes. Remove the chicken from the pan. (The breast and wings will cook more quickly and must be removed before the thigh and leg pieces.)
8. Reduce the stock by half. Use the roux to thicken to a light consistency.
9. Strain the sauce, mix with the cashew butter, and season to taste with salt and pepper. Ladle the sauce over the chicken and serve at once.

Recipe Nutritional Content

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Nutritional analysis provided by FoodCalc®, www.foodcalc.com
Sautéed Trout Meunière

Cooking time: 15 minutes
Yield: 10 servings

Ingredients
- 10 Pan-dressed trout (10-ounces each)
- To taste Salt and pepper
- As needed Flour
- 2 fl oz Butter (for sauté)
- 10 oz Butter (for sauce)
- 2 fl oz Lemon juice
- 3 Tbsp Parsley

Directions
1. Rinse the trout.
2. Trim the trout as necessary, removing the head and tail if desired.
3. When ready to sauté, blot dry and season with salt and pepper.
4. Dredge the fish in flour, shaking off excess.
5. Heat a sauté pan to medium-high.
6. Add the butter.
7. Sauté the trout until the flesh is opaque and firm, about 3 minutes per side.
8. Remove the trout from the pan. Keep warm on side.
9. Pour excess fat from pan.
10. Add whole butter.
11. Cook until the butter begins to brown and has a nutty aroma.
12. Add the lemon juice.
13. Swirl the pan to deglaze.
14. Add the parsley and immediately spoon over trout.
15. Serve immediately.

Recipe Nutritional Content

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Nutritional analysis provided by FoodCalc®, www.foodcalc.com
Chapter 7 Marketing
Case Study **Marketing 101**

Miguel and Chef Kate of Kabob are looking to open a new location. They want to keep their identity and continue with the success they’ve had with Kabob, and they are looking for locations that would best suit their needs. They’ve scouted out a few locations and driven to each one to check them out firsthand, but they don’t feel they have enough information to make an informed choice. They’re also nervous about opening a new establishment in a location where they would have to start completely fresh with a new community. Recently, they’ve both been getting cold feet, unsure exactly how to figure out an appropriate location and then manage all the work to reach out to a new community. In short, they need some guidance with regard to market research and communication.

As you read this chapter, think about the following questions:
1. How would a marketing plan help Chef Kate and Miguel?
2. In what ways could market research and segmentation help answer some of their questions?
3. In what ways could they start communicating with a new market?
4. How could their menu serve as a marketing tool?
I knew early on, with my parents’ encouragement, that a career in business—specifically marketing—was the right path for me. My marketing courses at Texas Christian University in Fort Worth, Texas, really whetted my appetite, and I knew I could excel in this industry. Following four years at the university, I received a B.S. in business administration with a major in international marketing. Working in foodservice is so much fun! We provide on-the-go solutions for busy customers every day, and there’s something available for everyone.

To be successful in marketing, you should first find a company that is dedicated to its employees and provides substantial career development opportunities. Once you find your place, have passion for your job. Excel in every assignment you get, no matter how big or small the task may be.

I remember a time early on in my marketing career, when an opportunity came up to go on a mobile promotional marketing tour around the country. At the time, I was working in the comfort of an office. This new challenge meant I’d be driving a promotional vehicle along with one other person. We’d be on the road for long hours and would stay in hotels for five months. Even though this job would upset my routine and take me outside my comfort zone, away from friends and family, I jumped at the opportunity to be able to learn about grassroots marketing. It allowed me to travel to different parts of the country and be exposed to many different kinds of consumers. At the time, I didn’t know how this job was going to fit into the grand scheme of things. But, it turned out that taking the risk—trying something different—proved to be very rewarding.

In 2005, I joined McDonald’s® as a regional marketing supervisor in the Chicago region. There, I gathered an in-depth knowledge of McDonald’s business while leading the development of local market marketing strategies in the Chicagoland area, including programs for the Hispanic consumer market.

As a first-generation American who spent her childhood in Honduras, the Dominican Republic, and the United States, Tania’s Italian and Honduran background combined with a childhood spent in different countries has provided her a unique perspective that has carried her into a successful marketing career at McDonald’s U.S.A.
In 2007, I was promoted to manager and joined McDonald’s National Marketing team at McDonald’s U.S. headquarters in Oak Brook, Illinois. In this current role, I manage the company’s brand trust marketing efforts for McDonald’s employment brand as well as the company’s support of McDonald’s charity of choice, Ronald McDonald House Charities® (RMHC®), which includes the company’s worldwide RMHC fundraiser benefiting children’s charities across the globe, McHappy Day®.

Remember:

“If you do it first class, you never have to do it again.”
—Ray Kroc, Founder, McDonald’s

About Marketing

For me, the most important aspect of marketing is always putting the customer first. Working for McDonald’s, I’ve learned that keeping the customer at the forefront of a range of activities, from product development to advertising campaigns, will help you succeed in giving customers what they want.

Marketing should matter to you because you are a valuable consumer. Once you have more awareness of what marketing is and what it means for a business, you will find it interesting how many brands continually strive to get your attention and keep you interested in their products! This can range from TV shows to clothing lines to—yes—food! I hope that more of you will become interested in pursuing a career in marketing. You’re in a position to add a lot of value by sharing your perspective.

SECTION 7.1 INTRODUCTION TO MARKETING

Did you ever have a really good idea only to have it fizzle out by presenting it at the wrong time or to the wrong audience? For example, did you ever ask your parents for something big, something you were really excited about—like an expensive clothing item or to go to a party with friends—only to have them say no because they were in a bad mood? Or maybe you were dying to go to a
movie, but asked a friend who had absolutely no money at the time and so you were stuck watching TV all night. If you’ve ever had an experience like this, it is likely that you can attribute it to bad marketing. In the first example, you mis-timed the market (asking your parents when they were in a bad mood), and in the second example, you failed to do proper research, asking a penniless friend to spend what he or she didn’t have. Better timing or better research would have likely resulted in better outcomes for you. In all likelihood, you have had better outcomes. And that’s probably because you did a better job marketing yourself.

Marketing might sound like a big, important business term—and it most defi-nitely is—but it’s also something that you’re probably more familiar with than you think. People, like operations, need to do their research, figure out their market, and determine how best to present themselves in an effort to achieve their desired goals. Marketing is the process by which people and operations accomplish these goals.

**Study Questions**

After studying Section 7.1, you should be able to answer the following ques-tions:
- What is marketing and how is it different from advertising?
- What is the contemporary market mix?
- What is a market plan?
- What is the purpose of SWOT?

**Marketing Overview**

In order for a business to profitably provide a product or a service, there must be a group of people who desire that product or service. That group of people, also called customers, is called a market. But having a product or service and a market that desires it is only half the battle. A business also needs to find a way to reach its ideal market; the business has to communicate that its product or service is available for purchase. Marketing is the process of communicating a business’s message to its market.

People often talk about advertising and marketing as if they are the same thing. They are not. Advertising is just one component of a successful marketing strategy. Marketing includes determining what products and services to offer, how to position them in the marketplace, how to promote them to potential buyers, how to price them so people will buy them, and how to get the goods to these buyers. These concepts are illustrated in Figure 7.1 on the following page.
In the current business environment, marketing drives the operation. Managers now ask, “What do people want that we can provide at a profit?” This means that an operation has to do the following:

- Determine customer needs and wants before doing anything else.
- Determine the costs, prices, and profitability of products and services before starting to produce them.
- Organize all aspects of the operation to provide what the customers want.

This approach is called the marketing concept. It puts marketing into, and sometimes in charge of, areas of the company and the product development process that used to belong exclusively to other specialties. For example, in a large corporation or operation, a marketing department might be more influential than people outside the organization would think because of the following:

- The research and development department is no longer in charge of inventing whatever it wants. The marketing department now tells it what products are needed and what their characteristics should be.
- The production department is no longer in charge of deciding how to produce the product. Marketing now puts parameters in place that control costs, locations, and timing of production.
- The sales department is no longer in control of pricing; the marketing department is now in control.
In smaller operations, all of these “departments” might be one or two people, but decisions about research and development, production, and sales will all be influenced by marketing concerns and priorities.

**Basic Marketing Concepts**

All businesses need to engage in vigorous marketing activity. Such marketing activity is frequently called the **marketing mix**, which is the combination of all the factors that go into creating, developing, and selling a product. For decades, the conventional marketing mix was highlighted by what’s known as “the four P’s”: place, product, price, and promotion. This framework is very similar to what was covered in the Marketing Overview section, and it all still applies today. But in today’s highly competitive restaurant and foodservice industry, marketers have modified this standard model somewhat to reflect the complexities and challenges that operations now face. This new model is called the **contemporary marketing mix**, and it consists of three primary elements, as illustrated in Figure 7.2:

- Product-service mix
- Presentation mix
- Communication mix

![Figure 7.2: Examples of the contemporary marketing mix include activities designed to create, develop, and sell a product.](image)
The **product-service mix** consists of all of the food and services offered to customers. Restaurant and foodservice operations are often thought of by the food, or product, they offer. But the way they provide it, the service, is also a huge aspect of an operation's marketing. As discussed in *Foundations of Restaurant Management & Culinary Arts, Level One, Chapter 10, Serving Your Guests*, operations can often gain a competitive edge in today’s restaurant and foodservice industry by offering a greater variety of services provided with better efficiency. Operations serving similar food products at similar prices will often need to enhance their services to gain an advantage on the competition. Enhanced tableside service, delivery service, takeout service, and even new trends in curb-side takeout services all factor into the product-service mix.

The **presentation mix** consists of all the elements that make the operation look unique. The layout of the operation, its size, the type of furniture it uses, the decorations, color scheme, lighting, and service uniforms all contribute to the identity of the operation. All of these elements contribute to an operation's aesthetic, or the way it looks and feels to the customers. Dim lighting with a subdued color scheme, for example, will generate a much different impression than a brightly lit establishment that employs a vibrant, energetic color scheme. The choices that an operation makes with regard to how it actually presents itself to customers are critical factors in its marketing strategy.

The **communication mix** includes all of the ways an operation actively tries to reach, or communicate, with its desired customers. An operation communicates with its customers through advertising such as television, radio, newspapers, flyers, or Web sites. But it also communicates with its customers through its menu, customer survey requests and other customer feedback requests, local community outreach, and perhaps even Internet social networking sites. Employing an effective communication mix is crucial to monitoring, maintaining, and improving an operation's relationship with the market that it serves.

These aspects of the contemporary marketing mix are constantly changing. An operation must continually evolve with the times. In order to do so, operations need to be aware of what's going on in the immediate community as well as the surrounding areas. In short, a successful operation needs to keep up with consumer trends, also known as **market trends**. Market trends, such as the one illustrated in Figure 7.3 on the following page, may be responses to consumers’ changing attitudes about food, service, or aesthetics. They can also be responses to broader, farther-reaching trends, such as political issues to do with energy conservation and recycling, or economic upswings or downturns that can greatly affect the behavior of a given market.
Any operation that isn’t current with the latest trends is going to be, literally, behind the times, which isn’t often a recipe for success. To efficiently manage the contemporary marketing mix and to effectively keep up with ever-changing local and national trends, operations need a plan. More specifically, every operation needs a marketing plan, which is the subject of the next section.

**Marketing Plan**

A marketing plan is a list of steps an operation must take to sell a product or service to a specific market. There are multiple steps to any plan, but every marketing plan will have five main components, as Figure 7.4 on the following page illustrates:

1. Research the market.
2. Establish objectives.
3. Develop a market strategy.
4. Implement an action plan.
5. Evaluate/modify the action plan as needed.
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Research the Market

Gathering research must be the first step in any market plan. After all, it’s very difficult to play a game without knowing the rules or the other players. Running a business is very similar in that managers need to know the ins and outs of the market and what they are up against. Marketers can gather information from a variety of reliable sources, such as customers, employees, the community, sales records, trade journals, and government offices. Through intensive research, marketers can figure out the strengths and weaknesses of their own operations as well as those of the competition. Marketers can also figure out the strengths and weaknesses of the products and services that their operation offers, as well as those that the competition offers. The market research an operation’s marketer conducts will form the foundation from which management will make all other decisions.

Establish Objectives

Once marketers have completed a thorough research phase, the next step is to establish organizational objectives or goals. These objectives should clearly state what it is the operation wants to accomplish within a set time frame. Providing not only goals but also deadlines for achieving those goals will give the operation something to work toward. The goal and the time line for achieving it will also help shape the marketing strategy the operation will use.

Figure 7.4: The components of a marketing plan include researching the market, establishing objectives, developing a strategy, implementing an action plan, and evaluating or modifying the action plan.
Develop a Market Strategy

Once the operation’s goals have been set and a time line laid out, the managers and marketers must brainstorm ways to achieve the objectives. It is helpful at this stage to come up with a number of different strategies and then evaluate the pros and cons of each. An open-ended, collaborative effort will likely result in a better exchange of ideas and allow for more creativity than if only one plan was thought up and immediately decided upon. Once you weigh the pros and cons of all the ideas, choose the best strategy. Often this will be a hybrid of the various strategies proposed.

Implement an Action Plan

The action plan is the way the market strategy is put into action. The action plan is guided by all the steps that have come before it: researching the market, establishing objectives and deadlines, and developing a market strategy. With an action plan, management and marketers take market strategy theory and actually put it into practice by making menu changes, adjusting pricing, purchasing advertising, and so on.

Evaluate/Modify the Action Plan

This stage is an ongoing process of monitoring the actions taken by the operation and gauging how successful they are. Management and marketers must continually be asking, “Is the plan working? Are there ways it is missing the mark? How can it be improved? What can we be doing better?” The answers to these questions will help management determine how to modify or revise the plan to meet the needs and trends of an ever-changing marketplace.

Essential Skills

Monitoring a Promotion Scheme

Promotions can really drive your business, bringing in new customers and encouraging existing customers to return more frequently. But simply assuming that more people are coming through the door and therefore the promotion must be working isn’t enough. In order to know how well a promotion is working, you must constantly monitor its results.

1. Develop a promotional scheme, making sure to bring other members of your team into the planning process. Many business owners work with public relations firms as well. Figure 7.5 illustrates a team at work.
2 Plan how you will implement the new promotion: When will it begin and end? What other changes might occur? For instance, if you are offering two cheeseburgers for the price of one, should you expect a decrease in sales of other menu items? Can your suppliers meet your anticipated demands?

3 Once the new promotion has begun, carefully track sales of not only the promotional items, but of all menu items. What unforeseen changes have arisen?

4 Meet regularly with your staff to discuss the promotion: How is it working? What have customers reported? Have staff members experienced any problems with the promotion? Is the promotion successful enough that it should be extended? You may need to adjust the promotion slightly, but be careful with this; it could anger both potential and long-term customers if it appears that you aren’t living up to the implicit bargain of the original promotion.

5 Once the promotion has ended, discuss the entire process with your staff and public relations firm. What positive and negative aspects of the promotion did they observe? How could the promotion be fine-tuned in the future? Have the new customers attracted by the promotion continued to visit your restaurant? How have overall sales been, both during the promotion and after its completion?

This may all seem like a lot of work—and a lot of time to find in a busy day. But without careful monitoring, you may as well not offer a promotion at all, because you won’t be able to calculate its results in a meaningful way that can help you make your business grow.

Figure 7.5: Step 1—Develop a promotional scheme.
**Did You Know...?**

Subway spends approximately $300 million annually promoting its message on television. In 2009, Subway was ranked as second among the nation’s top quick-service restaurants. Do you think that these facts are related?

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**SWOT**

To do a **SWOT analysis** (also called a situation assessment), identify a restaurant or foodservice operation’s **Strengths**, **Weaknesses**, **Opportunities**, and **Threats**. These concepts are illustrated in Figure 7.6. Doing a SWOT analysis is a simple way for the management of an operation to understand its current situation and take advantage of the opportunities open to it. SWOT analysis is very important to the process of preparing a marketing plan and to the success of an operation overall because it helps managers and marketers stay focused on key issues. To have a successful SWOT analysis, managers must be realistic about the operation’s strengths and weaknesses and clearly separate its present conditions from where they want to be in the future.

![Figure 7.6: The four elements of SWOT are strengths, weaknesses, obstacles, and threats.](image)

At every stage of the marketing process, marketers can use a SWOT analysis as a good assessment tool to evaluate whether a particular plan is working and to gauge what is currently going on in a market:

- **Strengths:** List all of the strengths of the operation—areas where it excels. Examples of strengths include a well-trained staff, a good location, well-kept and clean facilities, high food quality, and service that exceeds customer expectations.
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- **Weaknesses**: Identify the operation's weaknesses. Do this so that weaknesses can eventually be eliminated or even turned into strengths. Some examples of weaknesses could be a boring menu, dirty facilities, limited abilities or resources, poor service, high staff turnover, or poor reputation.

- **Opportunities**: These are areas where the operation could either increase revenues or decrease costs. Examples might include launching a delivery or takeout service, recognizing weak competition, or gaining a volume discount from a supplier. One goal in any operation's marketing plan should be to make the most use of identified opportunities.

- **Threats**: These are the factors outside the operation that could decrease revenues or increase costs. Identifying threats helps to control them. Examples of possible threats include increased competition, increased taxes or costs of certain products, or even road construction.

Management should evaluate the different elements of the operation to identify which need improving to support the marketing plan and which are working well. After a full evaluation has been completed, management will know how successful its past efforts have been and have good ideas about where to invest money and energy in the future. It will also know what aspects should be improved to result in more benefits to customers, to employees, and to the operation as a whole.

**Summary**

In this section, you learned the following:

- In order for a business to profitably provide a product or a service, there must be a group of people who desire that product or service. That group of people, also called customers, is called a market. But having a viable product or service and a market that desires that product or service is only half the battle. A business also needs to find a way to reach its ideal market; the business has to communicate that its product or service is available for purchase. Marketing is the process of communicating a business's message to its respective market. People often refer to advertising and marketing as if they are the same thing. They are not. Advertising is only one component of a successful marketing strategy.

- In today's highly competitive restaurant and foodservice industry, operations employ a new marketing mix model called the contemporary marketing mix. It consists of three primary elements: product-service mix, presentation mix, and communication mix. The product-service mix consists of all of the food and services offered to customers. The presentation mix consists
of all the elements that make the operation look unique. The communication mix includes all of the ways an operation actively tries to reach, or communicate, with its desired customers.

- A marketing plan is a list of the steps an operation must take to sell a product or service to a specific market. There are multiple steps to any plan, but every marketing plan will have five main components: research the market, establish objectives, develop a market strategy, implement an action plan, and evaluate or modify the action plan as needed.

- In a SWOT analysis (or a situation assessment), you identify your restaurant’s Strengths, Weaknesses, Opportunities, and Threats. Doing a SWOT analysis is a simple way for management to understand the operation’s current situation and take advantage of the opportunities open to it. A SWOT analysis is very important to the preparation of a marketing plan and to the success of an operation overall because it helps management stay focused on key issues. To have a successful SWOT analysis, management must be realistic about an operation’s strengths and weaknesses and clearly separate its present conditions from where it wants to be in the future.
Section 7.1 Review Questions

1. What is the primary purpose of marketing?
2. What are the three primary elements of the contemporary marketing mix?
3. List the five components of a marketing plan.
4. What is SWOT?
5. What would Tania Haigh identify as the most important aspect of marketing?
6. Walk Chef Kate and Miguel through the five main components of a marketing plan, briefly explaining how they should proceed through each step.
7. What is the difference between marketing and advertising?
8. Which of the three primary elements of the contemporary marketing mix do you feel is most important? Why?
Section 7.1 Activities

1. Study Skills/Group Activity: Marketing Plan

Working in small groups, come up with a marketing plan for one of the following types of restaurants: quick service, family, or fine dining. All of the restaurants are operating in the same type of location: a moderately dense, middle-income suburb of a big city. Be sure to follow the five steps as you create the marketing plan for your operation.

2. Independent Activity: Can You Hear Me Now?

Imagine you are running your own operation. Consider the communication mix, and decide on two ways to communicate your message. What methods would you choose? Explain the possible pros and cons of each method.

3. Critical Thinking: Your Local Market

Research trends in your community’s population and economic growth. What type of restaurant might be a successful addition to your area and why?
SECTION 7.2 MARKET ANALYSIS, IDENTITY, AND COMMUNICATION

With ever-increasing competition in the restaurant and foodservice industry, it isn’t enough any longer to just produce a good product. Many operations will put out a good product, yet not all of them will succeed. Often, the difference between success and failure in the restaurant and foodservice industry is determined by how well an operation markets itself. But success in marketing is much easier said than done. To launch a successful marketing campaign, an operation must know the smaller steps that are essential to any marketing endeavor. An operation must know how to conduct accurate and productive research, be able to create a market identity based on that research, and then communicate that identity through effective use of the various methods of market communication. All of these important aspects of marketing are covered in this section.

Study Questions

After studying Section 7.2, you should be able to answer the following questions:

■ What are the basic types of research methods used to gather information?
■ What is market segmentation?
■ How can an operation create a unique market identity?
■ What are the various ways to communicate a message to the market?

Market Research Methods

The sections so far have addressed how important research is; now this section will look at the actual methods that are used to conduct and gather market research. There are four basic methods marketers use to gather research:
Experimental method
Observational method
Survey method
Sampling method

In the experimental method, an operation might try out a product for a limited time or with a limited group of people. If the response to the product is favorable, the operation might think more seriously about using the product on a larger scale. However, if the product is not well received, then the operation knows right away that more work will be required.

The observational method involves observing how customers react in a natural setting toward a product. Figure 7.7 shows an observer watching customers. For example, a manager might tell the service staff to present the daily specials in three different ways, and then require them to record how many specials were sold, to track sales in relation to the different presentations. Based on the results, management gains a better idea of how to train servers in the future. The research about what worked and what did not work can guide decisions.

Figure 7.7: The observational method.

With the survey method, a marketer gathers information using questionnaires. Figure 7.8 on the following page shows a sample questionnaire that might be used to survey customers. Marketers can administer these questionnaires in a number of ways, such as by telephone, email, or even feedback cards presented tableside. For example, if a marketer wanted to know how strongly customers felt about the operation serving brunch or changing store hours, the marketer could simply ask such questions directly. Sometimes, management offers an
incentive, such as coupons for a free dessert to encourage customer participation. Management could then use this information to figure out how best to shape its market strategy moving forward.

**Figure 7.8:** A questionnaire is a simple tool that provides feedback from both existing and potential customers.

**Sampling** involves testing a product with a specific, small group of people, sometimes called a **focus group**. Figure 7.9 on the following page shows a focus group at work. A marketer performing a sampling trial, for example, might present a new dessert item to a preselected group of people. Based on this group's response to the dessert, the chef might consider putting it on the menu or trying something altogether different. Again, the market strategy is guided by the research results.
Market Segmentation

An important element of marketing strategy is the selection of the target market or markets: the people an operation intends to pursue as customers. Every operation should be customer driven; that is, making sure that satisfying the wants and needs of the customer drives the market strategy.

Identifying a target market enables an operation to avoid mass marketing and instead focus on target marketing. Mass marketing treats everyone in the market as having the same needs and wants. Restaurant and foodservice operations, however, deal with people’s tastes for food, drink, and services; these definitely are not the same for everyone. Target marketing treats people as different from each other and tries to make a focused appeal to a distinct group of customers. Understanding the target market enables an operation to provide the products and services that are needed. It also helps an operation focus marketing resources toward the people who buy its products. This is where the process of market segmentation comes in.

Market segmentation is when marketers break down a large market into smaller groups of similar individuals that make up that market. It’s like looking at the market through a microscope to see what parts make up the whole. Segmenting the market into smaller groups will help identify target demographics in any given location. Demographics refer to the ways in which researchers categorize or group people, and it can be done in any number of ways. What segments of the market an operation chooses to focus on depends largely on
what kind of operation it is and/or what kind of operation it wants to be—in short, what its plans are.

An operation can start segmenting the market in four basic ways, as listed here:

- Demographic segmentation
- Geographic segmentation
- Product usage segmentation
- Lifestyle segmentation

Demographic segmentation, as illustrated in Figure 7.10, looks at the personal makeup of individuals in a given location. This could include such criteria as age, gender, ethnicity, marital status, income, size of household, education level, etc. Different types of people have different interests, preferences, and needs, so understanding these details might help an operation better serve its potential customers. For example, a restaurant operating in a community with a lot of young families (determined using criteria such as age, marital status, size of household) might want to implement family-friendly service practices and offer kid-friendly menu items.

Geographic segmentation includes such factors as where consumers live, where they work, and what kind of transportation they use to get around. Knowing, for example, that most of the residents of a suburb commute into the city for work each day might dissuade an operation in that suburb from opening for lunch service on weekdays, and convince a restaurant in the city not to stay open for dinner.

Segmenting a market by product usage can also shed light on how best to serve a community. For example, if there are a lot of successful coffee houses in a given area, an operation might be well served to capitalize on the community’s
love of coffee. It could start offering its own coffee service to try to catch some of the competitors’ business, or perhaps it could add dessert items that incorporate coffee flavors, or it may want to avoid the coffee trade altogether. The bottom line is that the managers of the operation need this segmented market information to make informed decisions about the direction it will take.

Finally, lifestyle segmentation looks at the activities, hobbies, interests, and opinions of a given target market. A highly active, athletic community, for example, might be inclined to patronize operations that offer a more healthful menu. Knowing this aspect of its target market will serve an operation well.

Of course, these are broad categories that should only serve as a starting point. Many of these categories eventually overlap, and marketers can combine data from different categories to even further enhance an operation’s knowledge of the marketplace it hopes to serve. Ultimately, the more an operation knows about its potential customers, the more successful it will likely be in satisfying their needs.

Once marketers and management have identified a target market or markets, an operation can work to establish a value proposition. A value proposition is a statement of the value an operation’s target customers will experience when they purchase its products and services. The question that the value proposition must answer for its target market is, “Are the benefits worth the cost?” In other words, what benefits does the product provide that the target market considers worth purchasing?

An operation must specify which target market its value proposition is for because each target market values different things. Preparing a value proposition for each target market defines the way an operation is going to promote its products and services to this market.

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**Essential Skills**

**Target Marketing**

Target marketing helps you to focus your promotion and advertising efforts on specific groups. This sounds like an easy process, but it can be a challenge. These are the basic steps to success:

1. **Identify the groups you want to serve:** who are the customers you want to attract and why?

2. **Identify the groups you are actually serving:** who currently buys your products and why? Customer surveys and comment cards can be useful market research tools. See Figure 7.11 on the following page.
Perform a situation assessment of your business. It may be that you should change your targets to reflect the reality of your situation. For instance, a burger joint may not succeed located in an area where there are a number of senior centers and assisted-living facilities.

Using the results of your situation assessment, change either your marketing or your menu to attract the desired targets, working with a public-relations firm as necessary. This is your customer profile.

Continually work to refine your message and your promotions—your customer base and your resources will change over time, so your business plan must stay flexible and adaptable.

A single restaurant can’t be “all things to all people.” Trying to do everything at once will only muddy your message. Knowing your target market and how to market to it will save you time, money, and effort.

Creating a Market Identity

Once a target market has been identified through market segmentation, marketers and managers will need to figure out how to best position their operation within that market. Positioning means creating within the marketplace...
a clear, specific identity for both a product and the operation that offers that product. In the restaurant and foodservice industry, it is all about standing out in a crowd. If an operation is just one of many, then its chances of being successful are greatly diminished. But if an operation can stand out from the crowd by offering a product that no one else does, or by offering a product in a way that no one else does, then its chances of success are far greater. So how exactly do managers, marketers, and chefs go about positioning an operation in such a way?

Positioning consists of the following three steps:
1. Identify possible ways to differentiate the operation within the market and create a unique identity.
2. Select the right mix of differentiating aspects.
3. Communicate the chosen identity to a specific target market.

Ways to Differentiate an Operation

There are a number of ways that managers can differentiate an operation from its competitors to create a unique identity:

- Product
- Physical appearance/aesthetics
- Service
- Location
- Image

Table 7.1 lists a number of ways to attract customers.

Table 7.1: Ways to Attract Customers

<table>
<thead>
<tr>
<th>Innovation and creativity are the keys to attracting customers and growing the business. Here are some examples of methods that operations use to attract customers:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Merchandising techniques at the table, such as unique garnishing or flambé</td>
</tr>
<tr>
<td>• Themes, both as operation-wide celebrations and special events</td>
</tr>
<tr>
<td>• Frequent shopper cards that offer discounts or other incentives</td>
</tr>
<tr>
<td>• Signature items, such as special desserts or “secret” recipes</td>
</tr>
<tr>
<td>• Specials, such as “buy one, get one free” nights</td>
</tr>
<tr>
<td>• Educational promotions, such as wine tastings</td>
</tr>
</tbody>
</table>
**Product:** The first and most obvious way to position an operation in the market is through the product it offers. Unique menu items or traditional menu items prepared in a unique way are time-tested ways to create a market identity. The danger in relying on this aspect of positioning alone is that it is difficult to produce something so unique, and so much better than the competition that the product alone can establish an operation’s identity. Often, operations need to explore other options as well.

**Physical appearance/aesthetics:** Use the actual physical space of an operation to create an image. For example, will the aesthetics, or look of the place, be sleek and modern, or quaint and cozy? Will there be a lot of wall decorations or very few? Will it go for a sophisticated vibe or a down-to-earth, cheerful one?

**Service:** Service is also a differentiating point. How will the service staff be dressed? Will the uniforms be formal or informal? See Figure 7.12. What should the greeter say when a customer arrives? What will tableside service be like? Will you offer delivery? Will you have a separate area for takeout? All of these aspects of service work to create an identity for an operation.

**Location:** Location can play a big part in creating an identity. This is why it’s important to fully understand the various segments of a particular market. Positioning an operation as the ultimate steakhouse in a location with a high population of vegetarians might not be the best idea. However, if the goal is to appeal to a segment of that market that has potentially been overlooked in that area, positioning the operation as “the alternative” might actually work.
Image: Finally, image is yet another way to differentiate an operation. Decide on an image first, then make product and service decisions that work toward achieving that image. For example, maybe management wants to present an operation as environmentally and ecologically responsible. The products it offers and the way it prepares these products will need to correspond to that intended image.

Selecting the Right Mix

Once marketers and managers have laid all the potential options for positioning an operation in the marketplace, they will have to decide the best route to take. This may lead an operation to fully dedicate itself to one differentiation point, or to try to achieve a number of points. Any choice an operation makes comes with risks. Focusing exclusively on one point may not be enough to create a unique identity, but choosing too many points of positioning may end up diluting any message an operation wants to present to the market. Finding the right positioning mix requires a lot of time and research.

Communicating Chosen Identity

The way managers and marketers communicate an operation’s position in the market is just as important as choosing the right positioning tactics in the first place. For example, the managers of an operation that wants to present itself as a green, eco-friendly restaurant might buy all organic products, prepare all items in the most environmentally friendly ways, and then do their best to recycle and compost all waste materials. But if they fail to let the market know about all the operation does to be a responsible citizen in the community, their hard work will not contribute to the operation’s identity or its success. If the message isn’t clear, positioning efforts will ultimately not be realized.

Marketing and Celebrity Chefs

The last several years have seen a dramatic increase in the popularity of virtually all things food related. Much of this trend is due to the marketing techniques discussed in this chapter coupled with advances in technology that allow for more communication and access between businesses and the public.

Today, individual chefs and cooks have found fame on a scale that was almost unheard of just a few years ago. The term “celebrity chef” describes this new generation of chefs. There is no real consensus on what a celebrity chef is. It can refer to a chef seen often on television (or who even has his or her own program), or a chef with multiple restaurant and foodservice operations, or a chef who has published several cookbooks—or even a combination of all three. There are many celebrity chefs around now, and each has his or her own market identity. Personality, target market, or simply cuisine all contribute to differentiation among chefs and the products they are selling.
The increase in the number of television channels, and access to those channels, has given rise to segmenting the market to cater to those who love all things food. The Food Network is a great example of this. The Internet has also played a role in connecting “foodies,” via Web pages, chat rooms, and blogs, to each other as well as to chefs and restaurant and foodservice operations. Creating a line of foods under a celebrity chef’s name increases exposure. Celebrity chefs have both come from and capitalized on these advances in technology, which is what any smart operation has to do as well. For example, many celebrity chefs then create a line of foods under their name that is sold in grocery stores.

**Market Communications**

There are many ways to communicate with an operation's market. The ways an operation goes about this process of communication is called the **promotional mix**. The promotional mix can consist of any or all of the following, as listed here and illustrated in Figure 7.13:

- Advertising
- Sales promotions
- Personal selling
- Public relations
- Direct marketing

**Advertising:** Paying to present or promote an operation's products, services, or identity. Advertising can be conducted through multiple mediums. Television, radio, newspapers, storefront, and Internet are all viable options for advertising. Though there are costs involved with advertising, effective ads can be a powerful communication tool for any operation.

**Sales promotions:** Limited, or short-term, incentives to entice customers to patronize an operation. For example, offering two-for-one entrées is a sales
promotion. Sometimes an operation's identity can actually be based on sales promotions. An operation might become known for specific reoccurring promotions, such as half-priced appetizers during certain hours or themed nights during the week. Creativity in coming up with smart sales promotions can greatly enhance business. A later section in this chapter covers sales promotions at greater length.

**Personal selling:** Always key to an operation's financial success, but well-trained service staff can also go a long way in communicating an operation's message. Professionalism, politeness, and efficiency can be easily and powerfully conveyed by front-of-house staff. In fact, face-to-face interactions between service staff and guests may be the very best way to solidify an operation's credibility and identity in a competitive market.

**Public relations (PR):** The process by which an operation interacts with the community at large. Building good relations with the community can help an operation gain favorable publicity and enhance an operation's image. For example, sponsoring local Little League teams or holding a charity event at an operation are both ways to build bridges with the public. Public relations are discussed at greater length later in this chapter.

**Direct marketing:** Making a concerted effort to connect directly with a certain segment of the market. Such connections could help garner immediate responses from customers as well as build longer-term relationships. Direct mailing or emails, telephone calls, Web site feedback or interaction, and even tableside feedback are all ways to direct market.

**Restaurant PR Specialists (RPRSs)**

It seems that more than ever, the American public is increasingly interested in food: where it comes from, how it's prepared, and where they can get it. As a result, the number of public relations specialists focusing on restaurant and foodservice operations has increased as operations compete for newly savvy diners. These specialists work to promote operations by producing press releases, organizing events, and generally building positive relationships with local, regional, and even national media outlets.

Restaurant PR specialists have a number of tools in their arsenals, including social-networking outlets. Their job is to create opportunities to showcase the restaurant, such as cooperating with nonprofit agencies or staging community activities. Ultimately, an RPRS gets people through the door of the operation. After that, it's the operation's job to keep them coming back.

RPRSs typically hold degrees from four-year colleges, often majoring in public relations, but also in communications, journalism, or related fields. A background in the restaurant and foodservice industry is not uncommon. Accreditation is available from both the Universal Accreditation Board and the International Association of Business Communicators.
Did You Know…?

The average restaurant spends 3 to 6 percent of sales on marketing. Marketing expenses normally include selling and promotion costs, public relations, advertising, and any other expenses related to making people aware of the restaurant. In addition, it includes franchise fees, if applicable.

Types of Sales Promotions

Sales promotions provide special incentives for customers to patronize an operation. There are many types of sales promotions and different tools or materials that can be used in a sales promotion. All are designed to give customers that extra “boost” to get them into an operation or to purchase certain items. However, sales promotions are only useful when customers know about them, which is why they are often the focus of advertising.

Here are some types of sales promotions:

- **Special pricing**: Limited-time reduced prices offered through specials, deals, coupons, or other programs; saves customers money and creates a low-risk opportunity to try a new item.

- **Frequent shopper program**: Provides a benefit in exchange for continuing patronage—often free food items or substantial discounts. Figure 7.14 shows some frequent shopper cards.

- **Premiums**: Free or reduced-price merchandise, such as a pen or cup that shows the name and location of the restaurant, usually given away or sold for a reduced price with the purchase of a food item.

- **Special events**: One-time or periodic occasions that provide a special incentive for the customer to patronize your restaurant. These events vary a great deal, but include things like bringing in celebrities or offering special entertainment.

**Figure 7.14**: Here are several samples of frequent shopper cards.
Samples: Free, small tastes of food items, providing customers a risk-free opportunity to try a new item.

Contests and sweepstakes: Games and other programs that involve the customer and provide a prize.

Some sales promotion methods use materials such as coupons for special pricing programs or toys for premiums. However, other promotion materials support a marketing plan by continuously promoting an operation even when it is not running an active promotion program. Promotion materials are miscellaneous items that do not necessarily offer incentives for visiting an operation, but they increase awareness of an establishment. A menu board placed outside an operation is an example of a promotion material.

Some typical promotional materials are listed here and shown in Figure 7.15:

- **Signage**: Menu boards, directional signs, and other signs that indicate where the operation is located and/or the items it serves
- **Flyers**: Paper notices that are distributed in a specific location or to a targeted group to create awareness of a certain promotion or menu item
- **Premiums**: Token gifts or giveaway items, such as pens, stationery, children’s toys, mugs, T-shirts, or magnets that display the restaurant name and location or phone number
- **Carryout and door hanger menus**: Paper menus for customers to use outside of the restaurant; door hanger menus for hanging on doorknobs or handles
- **Apparel and branded merchandise**: An operation’s name and/or logo on T-shirts or other garments, mugs, pencils, stuffed animals, etc.
- **Point-of-purchase (POP) materials**: Menu boards, video, print pieces, and other display items near the point of purchase where customers make their decisions about what to buy; can be at the counter, or at the table
- **Merchandising materials**: Table tents and other display items in the restaurant
- **Direct mail**: Mass mailing of coupons, menus, advertising about a promotion, etc., to customers in a particular area
- **Email**: Electronic mail targeted to particular market
Yet another type of promotion is the cooperative sales promotion. **Cooperative sales promotions** are when two or more sponsors develop complementary promotions or offer complementary promotional materials. For example, a restaurant hands out coupons for free admission to a sports event, and the sports arena hands out coupons for a free appetizer at the restaurant.

![Typical promotional materials](image)

**Figure 7.15:** Typical promotional materials.

### Public Relations: Engaging the Community

The purpose of public relations is to generate positive publicity. **Publicity** is the attention an operation receives; one way to get good publicity is by engaging in the affairs of the community. A major benefit of this kind of publicity is that people respond positively to local support. Marketers and managers should focus on two types of relationships as they incorporate public relations in their promotion mix: media relations and community relations.

**Community relations** involve interacting with the people in the local area to create awareness of and trust for an operation. Activities such as hosting charity events, giving tours, and sponsoring sports teams are examples of community relations. These types of activities are a way to “give back” to the community. They also provide many benefits for both a restaurant and its management:

- Creating a positive image within the community
- Building credibility within the community
- Building relationships with other community leaders
- Creating a network with other restaurant and foodservice professionals
- Generating positive publicity
- Promoting the restaurant
The cost of becoming involved in organizations and events can vary. An operation may need to pay yearly dues or meeting fees to be involved with some organizations. But it probably will not need to pay anything to volunteer at other organizations, such as a local homeless shelter. If managers choose to support an organization with donations of food, labor, money, or space, some of these costs may be tax deductible. However, owners and managers should view any costs that are incurred as an investment in both the community and the business.

Once marketers have identified community relations opportunities that align with their operations’ marketing plans, they can begin thinking about how to become involved in a way that generates good publicity. For example, they can develop promotions or sales, such as the following, that support their chosen organization or event while generating business for their operation:

- Offering discounts to schoolchildren who have good grades or attendance
- Donating a percentage of sales to a charity for a given item or period of time (for instance, all lunch sales)
- Offering customers a discount when they bring in a donation for charity
- Sponsoring a local children’s sports team and offering incentives for winning a game
- Offering the operation’s facility or providing the catering for a fundraiser or meeting

Other types of programs may not generate direct business but can still provide excellent opportunities for publicity; for example, being part of an ongoing charity program that donates food, labor, or equipment to a soup kitchen. Such proactive engagement in the community goes a long way toward shaping an operation’s identity within the community, and, directly or indirectly, people’s likelihood of patronizing the establishment.

**Media relations** are the relationships that marketers maintain with media outlets, which in this context include newspapers, magazines, television, and radio. One way that marketers directly generate publicity through the media is by sending out press releases and/or media kits. A **press release**, or news release, is a brief presentation of promotional information written to sound like a news article. Well-written press releases present marketing information as news. If an operation is lucky, the information in the press release will be published or read “as is,” but more often, the information will be incorporated into a story. A press
release may be sent by itself or as part of a press kit. A press kit, also called a media kit, is a packet of information given to media representatives to answer questions they might have about a business or organization. (Press kits also may be given to prospective customers, employees, or investors.) Some restaurant and foodservice operations also provide their press kits in an electronic format, often through a Web site or CD-ROM.

Typically, a press kit for a restaurant or foodservice operation is a folder that contains the following:

- General information about the operation
- Menus
- Any recent articles or press releases
- A list of any recent awards
- Photos of the operation and its menu items
- The operation’s mission or goal statement
- Contact information for the operation’s spokesperson
- Other promotional materials

With any form of marketing communications, marketers need to focus their efforts on reaching the target market. In media relations, marketers need to evaluate potential types of media and media vehicles, such as particular publications or radio stations, by considering the following questions:

- Does the media vehicle reach the target market or people who can influence the target market? If so, how much of the target market does it reach? The same criteria should be used to evaluate the media vehicle for an advertising campaign.

- How likely is it that the media vehicle will be interested in the stories being submitted? Is there a story that may interest the target market or community?

- With any form of marketing communications, marketers need to focus their efforts on reaching the target market. In media relations, marketers need to evaluate potential types of media and media vehicles, such as particular publications or radio stations, by considering the following questions:

- Does the media vehicle reach the target market or people who can influence the target market? If so, how much of the target market does it reach? The same criteria should be used to evaluate the media vehicle for an advertising campaign.
How likely is it that the media vehicle will be interested in the stories being submitted? Is there a story that may interest the target market or community?

With any form of marketing communications, marketers need to focus their efforts on reaching the target market. In media relations, marketers need to evaluate potential types of media and media vehicles, such as particular publications or radio stations.

Summary

In this section, you learned the following:

- There are four basic methods marketers use to gather research:
  - Experimental method, where an operation might try out a product for a limited time or to a limited group of people
  - Observational method, which involves observing how customers react in a natural setting towards a product
  - Survey method, which gathers information using questionnaires that can be administered in different ways such as telephone, email, or feedback cards
  - Sampling method, which involves testing a product with a specific, small group of people, sometimes called a focus group

- Market segmentation is breaking down a larger market into smaller groups of similar individuals to help identify target demographics in any given location. Demographics refer to the ways in which people are categorized or grouped. What segments of the market marketers and managers choose to focus on depends largely on what kind of operation they have and/or what kind of operation they want to be. Marketers can start segmenting the market in four basic ways: demographic segmentation, geographic segmentation, product usage segmentation, and lifestyle segmentation.

- Positioning means creating within the marketplace a clear, specific identity for both a product and the operation that offers that product. In the restaurant and foodservice industry, it’s all about standing out in a crowd. Positioning consists of three steps: 1) Identify possible ways to differentiate the operation within the market and create a unique identity; 2) Select the right mix of differentiating aspects; and 3) Communicate the chosen identity to a specific target market. There are a number of ways that an operation can differentiate itself from its competitors to create its own identity, including product, physical appearance/aesthetics, service, location, and image.
There are many ways for marketers and managers to communicate with their market. The various ways they go about this process of communication is called the promotional mix. The promotional mix can consist of any or all of the following: advertising, sales promotions, personal selling, public relations, and direct marketing.

Sales promotions provide special incentives for customers to patronize an operation. There are many types of sales promotions and different tools or materials that can be used in a sales promotion. However, sales promotions are only useful when customers know about them, which is why they are often the focus of advertising. Some sales promotion methods use materials such as coupons for special pricing programs or toys for premiums. However, other promotion materials, such as a menu board placed outside an operation, support a marketing plan by continuously promoting an operation even when it is not running an active promotion program by increasing awareness of an establishment.

The purpose of public relations is to generate positive publicity. Publicity is the attention an operation receives; one way to get good publicity is by engaging in the affairs of the community. A major benefit of this kind of publicity is that people respond positively to local support. Marketers and managers should focus on two types of relationships as they incorporate public relations in their promotion mix: media relations and community relations. Community relations involve interacting with the people in a local area to create awareness of and trust for an operation. Activities such as hosting charity events, giving tours, and sponsoring sports teams are examples of community relations. A press kit, also called a media kit, is a packet of information given to media representatives to answer questions they might have about a business or organization. Press kits are a great help in building and maintaining strong media relations.
Section 7.2 Review Questions

1. List the four basic research methods.
2. What are four general ways to segment a market?
3. List five ways to differentiate within a market.
4. What are the five elements of a promotional mix?
5. Tania Haigh works for McDonald’s, a company that offers many promotions. What types of promotions are most appealing to you? Why?
6. Talk to Miguel and Chef Kate about market segmentation. Suggest two markets that you feel might be desirable for their business. Then suggest two ways they might communicate with those markets.
7. What do you think is the most important criteria for an operation to differentiate itself? Explain your answer in a paragraph.
8. What research method do you think is best for gathering vital information? Why do you think it would be a better method than the others discussed in this chapter?
Section 7.2 Activities

1. Study Skills/Group Activity: Promotional Poster

Working with two or three other students, decide how you will integrate nutritional and health concerns into your promotions for your 40-seat, fine-dining restaurant. Prepare a poster and a presentation detailing your efforts.

2. Independent Activity: Segmenting the Market

If you were to open your own operation, which segment of the population would you most like to serve? Why? Write a one-page report explaining your rationale, along with possible challenges that your chosen market segment might present.

3. Critical Thinking: Public Relations in Your Community

How do local businesses in your area try to engage the community? Select a local business and discuss its efforts to reach out to and make ties with the community where it does business. For this exercise, you do not necessarily have to choose a restaurant or foodservice operation.
SECTION 7.3 THE MENU AS MARKETING TOOL

The menu may not be the first thing that comes to mind when thinking of ways to market a restaurant or foodservice operation, yet no other marketing tool may be as important. The menu serves to help plan the goals of an operation as well as being a means to communicate those goals to the operation's target market. It also serves as a sales tool and can help managers assess the operation's strengths and weaknesses. In short, the menu is an indispensable jack-of-all-trades that needs to be given special attention and consideration. This section is dedicated to doing just that.

Study Questions

After studying Section 7.3, you should be able to answer the following questions:

- What functions does a menu serve?
- What are the different types of menus?
- What factors must be considered when creating a menu?
- What are the various methods used to price a menu?
- How can menu sales be analyzed?

Menu Overview

There may be no other stronger marketing tool than the menu. The most important interaction consumers have with a given operation is through the menu, as illustrated in Figure 7.16. It's where sales are initially won or lost. If, for example, customers like what's on the menu, and the prices seem fair, then they're likely to place an order. If, on the other hand, any of these elements are not pleasing for the customer, then the operation may lose business. Of course, the execution of preparing and delivering what's on the menu matters greatly, but if a consumer isn't enticed enough to order something from the menu in the first place, then the product itself doesn't matter.
The menu functions in two ways: planning purposes and communication purposes. For the planning function, the menu gives an operation an end goal to work toward. The chefs gear all the stages of food production toward putting out the best product at the best prices, and the menu helps all the staff members of an operation to organize themselves. The menu forces the staff to ask a number of important questions:

- What is the target market? What segments are we aiming to serve?
- What types of food and service do these segments of the market expect?
- Are the ingredients for the menu items readily available and cost effective?
- Can the menu items be prepared in the most appealing way possible?
- Is the menu best serving the needs of our target market?
- Is the menu best serving the goals of the operation?

Using the menu as a planning tool, then, helps employees stay focused on all the behind-the-scenes work and how to best accomplish the goals of the operation.

As a marketing and communication tool, the menu functions in three ways:

- Informing customers about what the operation offers
- Selling products
- Creating identity
Informing Customers

The most basic function of the menu is to tell customers what the operation has to offer, but the menu also presents an opportunity to distinguish an operation’s items from those of the competition. Many places serve a burger of some sort, but a chef can use the menu to describe exactly how a burger is prepared and why it is better than any of the competitors’ burgers. Do the chefs use a particular kind of meat or spice? Do they cook it in a different way? Do they offer different condiments for the dish? Chefs can provide such a level of detail only on the menu itself. In addition, the menu informs customers about potential health concerns, such as the risks of eating undercooked food, ingredients that may cause allergic reactions (for example, nuts), or particularities of specific dishes (for example, degrees of spiciness).

Selling Products

The menu may be an operation’s best sales tool. It can greatly influence what customers decide to order. Descriptions are very helpful for this purpose. Appeal to the appetites of customers through well-written descriptions of menu items. The placement of items on the menu can influence sales as well. Marketers and chefs may choose to highlight the items they most want to sell by placing those items at the top of the menu, putting them in a bolder or bigger font, or even by boxing off the items altogether in a separate category. The more visual attention certain items attract, the more likely customers are to consider and order them. A “Daily Specials” page is one way to use the menu to sell product.

Creating Identity

The menu also helps create the image or identity of an operation. The items listed on a menu say a lot about an operation, but so does the way the menu is laid out. The font, color scheme, and material or paper stock the menu is printed on all help communicate the identity of an operation. For example, a menu using a heavy paper stock, bound in a leather cover, and listing menu items in a script font may give the impression of a high-end, formal operation, whereas a menu presented on one sheet of regular paper stock with menu items printed in a large, colored font may create the impression of an informal, casual operation. The menu itself goes a long way in communicating the identity of an operation even before a word is spoken by any service personnel.
Menu Types

There are many types of menus. An understanding of these broad categories of menus is a good first step in determining or identifying an operation's goals and function in the marketplace. The different menu types are listed below:

- À la carte (AH le CART)
- Du jour (doo-ZHEUR)
- Cyclical
- Limited
- Fixed
- California
- Prix fixe (PREE FIX)
- Table d’hôte (tah-buhl DOHT)

À la carte menu: This menu prices each item separately. Everything on the menu has its own price and is paid for separately, per order. For example, on an à la carte menu, a typical meal, such as steak, potatoes, and a vegetable, will have separate prices for each item, and they need to be ordered individually. In short, nothing on an à la carte menu comes with anything else. See Figure 7.17.

![Figure 7.17: An à la carte menu.](image-url)
**Du jour menu:** *Du jour* is a French term that means “of the day,” and so a du jour menu simply lists the menu items that are available on a particular day. In the United States, this kind of menu is often presented as a Daily Specials menu and is presented as an insert in the standard menu or written on a blackboard within the operation. Sometimes, a chef or manager might choose not to print the du jour menu at all, but opt to have the service staff verbally present the menu items of the day instead. See Figure 7.18.

![Figure 7.18: A du jour menu.](image)

**Cyclical menu:** With this type of menu, chefs or managers change menu items after a certain period of time. For example, an operation might serve four different menus that correspond to the four seasons. Cyclical menus can change on a daily, weekly, or monthly basis as well; it all depends on the management’s objectives in catering to their target market. See Figure 7.19 on the following page.
Limited menu: A limited menu is just that—limited. There are typically only a few items offered on a limited menu. Quick-service operations frequently offer a limited menu. Such a menu makes it easy to keep track of costs because there are fewer ingredients to account for, and those ingredients are usually the same through inventory cycles, making it easier to track and monitor pricing.

Fixed menu: This menu offers the same items every day. A particular advantage to a menu such as this is that customers know what to expect every time they return. Many chefs work with a fixed menu to offer customers consistency, but then supplement the fixed menu with a du jour menu to offer variety.

California menu: This menu lists all meals available at any time of day. Dinners that are open 24 hours might use a California menu. This accommodates a wider variety of customers who may differ in lifestyle and work schedules. Working people might have night shifts and therefore want breakfast at the same time that younger kids in school are hanging out with friends for late-night snacking. An operation that uses a California menu can accommodate both segments of the market at once.

Prix fixe menu: This is the opposite of an à la carte menu in that it offers multiple menu items at one price. Often, customers are offered multiple courses for a single set price. For example, a choice of appetizer, full entrée with sides,

**Figure 7.19: A cyclical menu.**

<table>
<thead>
<tr>
<th>Monday, 9/13</th>
<th>Portion</th>
<th>Thursday, 9/16</th>
<th>Portion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chili with Beans &amp; Cheese</td>
<td>1 cup</td>
<td>Sliced Turkey</td>
<td>4 oz</td>
</tr>
<tr>
<td>Mixed Greens Salad</td>
<td>½ cup</td>
<td>Whipped Potatoes</td>
<td>½ cup</td>
</tr>
<tr>
<td>Cherry Apple Juice</td>
<td>6 oz</td>
<td>Garden Peas</td>
<td>½ cup</td>
</tr>
<tr>
<td>Sesame Crackers</td>
<td>8</td>
<td>Raisin Spice Bar</td>
<td>1</td>
</tr>
<tr>
<td>Peanut Butter Cookie</td>
<td>1</td>
<td>Low-Fat Milk</td>
<td>½ pt</td>
</tr>
<tr>
<td>Low-Fat Milk</td>
<td>½ pt</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tuesday, 9/14</th>
<th>Portion</th>
<th>Friday, 9/17</th>
<th>Portion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vegetable Pizza</td>
<td>1 Slice</td>
<td>Lasagna</td>
<td>3 oz</td>
</tr>
<tr>
<td>Seasoned Green Beans</td>
<td>½ cup</td>
<td>Applesauce</td>
<td>½ cup</td>
</tr>
<tr>
<td>Fresh Apple</td>
<td>½ cup</td>
<td>Sweet Corn</td>
<td>½ cup</td>
</tr>
<tr>
<td>Low-Fat Milk</td>
<td>½ pt</td>
<td>Sourdough Roll</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Low-Fat Milk</td>
<td>½ pt</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Wednesday, 9/15</th>
<th>Portion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cheeseburger/Bun</td>
<td>3½ oz</td>
</tr>
<tr>
<td>French Fries</td>
<td>½ cup</td>
</tr>
<tr>
<td>Chilled Peaches</td>
<td>½ cup</td>
</tr>
<tr>
<td>Low-Fat Milk</td>
<td>½ pt</td>
</tr>
</tbody>
</table>
and a dessert might be offered for one price, and that price is often slightly lower than if each course or item were purchased separately. This type of menu arrangement presents a win-win for both customer and operation. The operation ensures a higher check total by bundling multiple courses together, while the customer receives a discount on that higher total. Both casual and formal operations utilize prix fixe menus. See Figure 7.20.

![Prix Fixe Menu](image)

**Figure 7.20:** A prix fixe menu.

**Table d’hôte menu:** This menu is similar to a prix fixe menu in that it bundles various elements of the menu into one package. For example, such a menu might present in advance four meals, and each would include a number of courses and possibly even beverages all for one price. Banquets frequently offer such a menu. See Figure 7.21.

![Table d’hôte Menu](image)

**Figure 7.21:** A table d’hôte menu.
Organizing a Menu

Most menus organize foods according to the order in which they are usually eaten, as illustrated in Figure 7.22, and listed below:

1. Appetizers
2. Soups
3. Salads
4. Sandwiches (sandwiches can be offered before or after salads)
5. Entrées
6. Vegetables
7. Desserts
8. Beverages

Variations in these categories depend on what an operation offers and the image management wants to promote. For example, an Italian restaurant might offer a pasta course separate from the rest of the entrées.
Prepare foods within a major classification using a variety of cooking methods, such as poaching, roasting, grilling, frying, and baking. Vary tastes, textures, and seasoning for contrast to meet the tastes of a variety of customers.

Chefs or managers can divide entrées by categories such as beef, pork, chicken, lamb, veal, ham, shellfish, fish, pasta, egg, cheese, and vegetarian dishes. Maintain balance in the choice of vegetables, sauces, and potatoes used to complement entrées. For example, if a menu contains ham and chicken, offering sweet potatoes or yellow winter squash is a good balance. Four to six vegetables, including potatoes, should meet most menu needs. Salads and salad dressings also should reflect balance and variety.

The number of desserts on the menu depends on customers’ tastes and past sales. Some operations may need to serve only ice cream or sherbet to satisfy their customers. Others may need to combine these with a limited number of pies or cakes; add puddings and fruit to extend dessert selections.

**Creating a Menu**

A menu should reflect the operation's character and goals. It also needs to reflect a realistic understanding of what chefs are capable of producing in a cost-effective way. There are two separate steps in menu creation: planning and design. There are various elements that must be considered with each step.

**Planning**

In the planning phase, managers and chefs must keep the following elements in mind:

- Physical layout of facility
- Skill of personnel
- Availability of ingredients
- Target market’s wants and needs
- Target market’s expectations
- Profit margin

**Physical layout:** Planners must take the physical layout, or space, of the actual operation into account when they design a menu. For example, planners must take into consideration the size of storage facilities, preparation and cooking areas, and the service and dining areas. An operation's physical layout often
determines the kind of menu the chefs will be most capable of producing efficiently. An operation might not succeed if planners put out a menu that the chefs cannot produce efficiently.

**Personnel:** Planners must also consider the staff of an operation. If management wants to offer a menu of food items that require highly skilled, delicate preparation, then it needs to have cooks on staff that can fulfill those needs. On the other hand, if managers want a menu with ingredients that are easy to work with and inexpensive to produce, then it would be a mistake to employ a kitchen staff that is highly trained and experienced and therefore more costly. In short, the operation's personnel must fit the menu that planners create.

**Ingredients:** Ideally, managers and chefs want to create a menu that best reflects fresh, seasonal ingredients. But those ingredients can be expensive to acquire, so planners need to be aware of the availability of ingredients when making the menu. Making a menu consisting of many high-priced ingredients might end up losing money for the operation because food costs will make the items unprofitable. Planners need to consider not only what their operation can produce well, but also how cost efficient items are to produce. The availability of ingredients throughout the course of the year is also a factor.

**Wants and needs of the target market:** Sometimes, the personal desires of an operation's owners or managers overtake the wants and needs of the market they want to serve. This is a mistake. Management can never forget who the operation is supposed to be serving, and never fail to account for the wants and needs of its market.

**Expectations of the target market:** Expectations are closely related to the market's wants and needs. But the expectations of the market are more important after an operation has become established. Not meeting expectations becomes more dangerous the longer an operation exists. An operation can become complacent over time. But it is critical for managers to make sure the operation is staying true to the expectations of its customers. A change or loss of quality in the menu items or identity that initially brought success can hurt an operation. Consistency is one of the cornerstones of success in the restaurant and foodservice industry. When customers no longer know what to expect from a certain operation, they may decide to stop coming to it and spend their money elsewhere.

**Profit margin:** No business can survive if it is not producing at profitable levels. Planners must create the menu with profitability in mind throughout the entire process. Chefs and managers must compose dishes and design the menu itself with this in mind. An unprofitable operation will soon not be an operation at all.
Designing

Once chefs and managers have decided upon all of the items to be included on a menu in the planning phase, the design phase can begin. In the design phase, management must consider how the menu will actually look. Well-designed menus are pleasing to read, easy to understand, and clearly express the identity and character of the operation as a whole. But how do designers actually accomplish this? Designers must consider the following elements when laying out a menu:

- Medium
- Layout
- Color
- Font
- Art

Medium: An operation’s menu can be presented in a number of ways, as illustrated in Figure 7.23. Most use some sort of paper with the menu items printed on it. The paper stock that designers use can help to express the identity of the operation. Thick, heavy paper stock feels more expensive in the hand and is more durable, which may help create an impression of elegance. Lightweight paper stock might signal to customers that the operation is more casual or care-free. Sometimes, an operation may opt to put its menu on a different medium altogether. For example, a menu can be written with chalk on a blackboard that is visible to all the patrons in a dining room, or even on a wall in the dining room. These types of menus are called menu boards. Finally, at some operations, the servers memorize the menu and relay it verbally to the customers. This is called a spoken menu, and it can help personalize the menu and create a more intimate feel for the operation as a whole.

![Figure 7.23: Media for menus.](image-url)
Layout: How the menu is categorized and sequenced also adds to the identity of an operation. Is everything all on one page, or are the items spaced out over multiple pages? Are the items crammed together in a busy, hectic way, or are they spaced wide apart in a calmer, more subdued manner? Answers to these questions will say a lot about an operation’s personality. In addition, the layout can help emphasize aspects of the menu that management wants customers to notice, and order, most frequently. The layout, in short, can help further an operation’s identity and work to sell menu items all at the same time.

Color: Color is obviously very important to any business. The colors chosen by an operation could be the difference between being considered romantic or rowdy; sophisticated or casual; expensive or inexpensive. Sometimes the color can even signal to patrons what type of food will be served. For example, various blue tones could signal seafood to customers, while a blend of orange and red may signal a spicier cuisine, such as barbecue. When planning the colors of a menu, designers should think about the feeling they want customers to get when considering the operation. Figure 7.24 shows some menus’ color schemes.

Font: Like many elements of design, fonts can work in different ways. A font can, of course, highlight certain elements on the menu. Italic or bold fonts will stand out on the page and draw customers’ attention. A large, dark font might be helpful for an operation catering to segments of the market who might appreciate easy-to-read print, and sometimes using italics helps provide contrast between the name of the menu item and its description. Fonts can also signal the personality of an operation. Flowing, bubbly fonts might be appropriate for a kids’ menu, for example. A font that mimics handwriting signals a more informal, casual establishment. Scripted fonts create a classical
feel, while clean, rigid lines speak to a more modern approach. Menu designers must be careful when choosing a font for all of these reasons. Figure 7.25 shows a variety of fonts.

Art: Finally, the art on a menu can say a lot about an operation. Clowns and smiley faces say kid-friendly to many people, while no art at all might say the opposite. A picture of an old 1950s car will say diner to some customers, while flames might say barbecue or spicy cuisine to others. The borders that divide various segments of the menu also fall under the category of art. What kinds of lines are incorporated in the menu? Straight lines with lots of angles give off a different vibe than borders with more arcs and curves.

Essential Skills
Planning a Menu

Planning a menu isn’t as easy as simply listing all your favorite dishes or all the dishes that you find easy to cook. Instead, it takes quite a bit of thought and planning to ensure that you are presenting the right mix of food to the desired customers. Here is a process that can help you develop a successful menu:

1. List all the menu items that you think might be successful. Take into account customer preferences, goods available from your suppliers and their prices, the time of year, and any other factors that you think could be important.

2. Eliminate items from the list that might not work on the finished menu. For instance, look for garnishes that take too long to prepare or multiple dishes featuring the same main item. Unless your operation is a steakhouse, how many steaks do you really need on the menu?
Fine-tune the remaining items to fit your restaurant. Figure 7.26 shows a menu in the fine-tuning phase. For example, if your operation has a New Italian theme, then your award-winning chili really doesn't belong on the menu.

Make sure that all the items can be successfully prepared within your existing structure at an appropriate cost. No matter how elegant and delicious your potato *tuiles* may be, if it takes one chef two hours each day to make them and you only have two other chefs, the *tuiles* might be too expensive for your menu. Save special presentations like this for major events, such as wine dinners or private parties.

Identify the winning selections and create your menu. If these items are new to your restaurant, or you have hired new staff who have not prepared or seen any of these dishes, make sure to build some training time into your schedule. Plan both to teach the cooks how to make the items and to teach the service staff how to describe them properly.

Save the documents you’ve created when coming up with the final menu. It may be that a dish that would be unsuccessful now will be a hit in a year or two. Don’t waste all your work.

Once you’ve fully planned out the content of your menu, it’s time to design it!
Essential Skills

Testing New Menu Items

When creating or changing a menu, it’s important to get as much direct feedback as possible. Below is a list of ways the managers of an operation can get feedback about new menu items:

1. New menu items can be tested using clip-ons or table-tent points of sale, as shown in Figure 7.27.

2. New items should be run for a limited time only; for example, as daily or weekly specials.

3. Servers can suggest the items and then get feedback from the customers to help evaluate the items’ success.

4. The sales of new items can be compared to sales of established items to evaluate if they would be profitable additions to the regular menu.

5. Offer small tastings of new items for free and then solicit feedback from customers who try them.

Pricing the Menu

Pricing the menu is a critical process for any operation. Price serves two main roles: it provides information to customers, and it determines profitability.

Price provides information to customers about how much menu items cost, but it also reveals much more about an operation. The price of items on a menu also speaks to the market category in which the restaurant falls; indicating quality of the food, level of service, atmosphere to expect, etc. Customers, for example, will expect more by way of service, quality, and atmosphere for a $50.00 steak than for a $10.00 steak. With increased customer expectations comes the need to execute all levels of food preparation and service on a higher level as well. Management needs to make sure that pricing aligns with the goals of the operation and the skill level of the staff.
Price also determines profitability by ensuring that an operation is bringing in more dollars than the sum of all the costs for the product or service. **Profitability** is defined as the amount of money remaining for an operation after expenses, or costs, are paid. Profitability in restaurant and foodservice operations is determined by the amount of money left over from the sale of food or beverages after the cost to prepare them and pay for other overhead expenses like rent and heat has been subtracted. This difference is also called the **margin**; most restaurant and foodservice operations set a target margin for their operation.

The price of a menu item must account for all of the costs involved in producing that item for the customer. Food costs, labor costs, and overhead costs must all be factored into the price of any item. Then, management must build into the price how much money it wants, and can reasonably get, in profit. An item that is overpriced in a particular market will likely not sell enough to be profitable. In contrast, an item that is underpriced may sell well but will lose money because it costs the operation more than it is bringing in. Striking the right balance requires careful planning and consideration.

There are many methods of pricing menu items. Chapter 3, *Cost Control*, discussed in detail the food cost percentage method, contribution margin method, the straight markup method, and the average check method. This section will review these methods briefly:

- **Food percentage method**: Set the percentage of menu price that the food cost must be, and then calculate the price that will provide this percentage using the following formula:

  \[
  \text{Item food cost} \div \text{Food cost percentage} = \text{Menu price}
  \]

  Because food cost percentage is dependent on the costs of the food and its preparation within the restaurant or foodservice operation, an accurate food cost percentage will be different for each menu category: appetizers, salads, entrées, signature dishes, specials, desserts, beverages, etc.

- **Contribution margin method**: This is a pricing method that works for à la carte menu items as well as menu items that comprise a meal (soup, salad, entrée, etc.). This method uses operation-wide data to determine a dollar amount that must be added to each major menu item’s food cost. The managers of a restaurant or foodservice operation can use the same contribution margin for all menu items, or they can calculate separate contribution margins for different menu categories. There are two steps to the formula:

  \[
  \frac{(\text{Total nonfood cost} + \text{Target profit})}{\text{Number of customers}} = \text{Contribution margin}
  \]

  \[
  \text{Contribution margin} + \text{Food cost} = \text{Menu price}
  \]
- **Straight markup pricing:** This refers to a pricing method where managers mark up the costs according to a formula to obtain the selling price. A margin is defined in terms of the selling price; a markup is determined in terms of the cost.

Ideally, the dollar amount of the markup should be large enough to cover the operating costs of the restaurant or foodservice operation and include a reasonable profit; however, this is not a requirement. An underlying assumption of this method is that each customer will help pay for labor, operating costs, and the cost of food, as well as contribute to profit.

- **Average check method:** For this method, managers divide the total revenue by the number of seats, average seat turnover, and days open in one year. The result is an average check amount, which gives managers an idea of the price range of items on the menu. Managers can then use this range, along with an approximate food cost percentage, to determine each item's selling price.

In addition to these methods, there are two other methods that an operation can use, but only for major menu items. These methods are the set dollar amount markup and the set percentage increase method:

- **Set dollar amount markup:** This method simply adds a fixed dollar amount to the food cost of an item. In order to utilize this method, you must know the food cost and the dollar amount of the markup. The equation works as follows:

  \[
  \text{Food cost} + \text{Markup} = \text{Menu price}
  \]

  The markup is calculated based on the following:

  \[
  \text{Profit per menu item} + \text{Labor cost per menu item} + \text{Operating cost per menu item} = \text{Markup}
  \]

- **Set percentage increase method:** This method builds on the set dollar amount markup method and takes it a step further. Basically, managers calculate the markup as described for the set dollar amount markup for one or several menu items. Then they determine what the percentage markup is in comparison to the items' food costs.

  \[
  \text{Food cost} \times \text{Percentage} = \text{Markup}
  \]

  \[
  \text{Markup} \div \text{Food cost} = \text{Percentage}
  \]

Using the markup and food costs from the set dollar amount markup method model allows managers to calculate a percentage markup for all menu items.
Essential Skills

Pricing the Extras

To determine accurate pricing and food costs, restaurant and foodservice operations must take into account not just the food the guests order, but the food that the guests don’t order but receive anyway: the salt and pepper on the table, the bread and butter or olive oil provided, the amuse-bouche or pre-dessert, the ketchup, the jelly packets—the list is long. And all those little things can add up quickly. The total cost of these items is often called the Q factor and is usually factored into the cost of each entrée on the menu. Here’s how to calculate the Q factor:

1. List all the possible foods that you may provide guests for “free.” In addition to the items already mentioned, include half-and-half, sugar cubes, sliced lemon, and so on.

2. Determine how much of each item would be used by a typical consumer (for instance, 1 ounce of butter or ⅛ teaspoon of salt). An easy way to do this is to keep track of how much of each item is served over a period of time, and then divide by the number of entrées sold during this period. For instance, if you serve 800 entrées in a two-week period and you use 100 lemons during this time, placing a half-slice of lemon in each glass of water served, you would divide 100 lemons by 800 entrées to obtain .125 (or ⅛) lemons served per entrée.

3. Calculate the cost of each item based on the average portion used. If each lemon costs $0.10, then the cost of each serving of lemon is $0.0125.

4. Once you determine the cost of each serving of each item, add them all together. This total is your Q factor.

5. When costing your entrées, add the Q factor as an ingredient in each. Using the Q factor is the most efficient and accurate way to determine your costs and prices. Otherwise, you will be basing your prices on incorrect costs and are likely to lose profits.

Analyzing the Menu

It is crucial to the success of an operation that the managers have the knowledge and means to analyze how well items on the menu are performing. Managers can determine the sales performance of each menu item after the restaurant has been open for some time and they have enough sales data to analyze. Gathering information for three months or longer provides more useful results than data from a shorter time period.
Management can start to gauge performance by looking at sales volume. The sales volume of a menu item is the number of times the item is sold in a time period. Generally, managers sort the sales of items by category, such as appetizers, entrées, and so forth. The quantity of each menu item sold can be recorded by hand or by many of the point-of-sale (POS) systems now used in restaurants. Managers can also use sales volume information to compare the number of each menu item sold to the total number of items sold on the entire menu in the same time period, which means each menu item’s sales can be expressed as a percentage of total sales. This is called the sales volume percentage.

Managers need to monitor the effectiveness of menu items to maximize profits. A method called the sales mix analysis helps do that. A sales mix analysis is an analysis of the popularity and the profitability of a group of menu items. To effectively do this, the analysis should be done at least four times per year. The analysis includes determining which menu items are most popular and which contribute the most money to expenses and profit. It involves comparing menu items in terms of sales and profitability. The results of the menu sales mix analysis help determine whether managers need to make changes in menu pricing, content, or design.

While there are several methods available to do menu analysis, one of the most popular is menu engineering. It systematically breaks down a menu’s components to analyze which items are making money and which items are selling. This analysis then helps management to make decisions about which menu items to leave alone, which to increase or decrease in selling price, which ones to promote, and which ones to eliminate.

Menu engineering involves a large number of computations. While managers have to know a few of the calculations, it is usually not necessary to perform all of the math in the analysis. Understanding these few formulas, though, provides a better understanding of how menu engineering works. Table 7.28 on the following page reflects the steps of this process:

1. First, list all of the menu entrées in column A. List only entrée items. Do not list appetizers, desserts, and other side items.

2. List the total number of purchases for each item in column B. List all purchases on a per-person basis or covers (purchases) sold. Obtain this number from the point-of-sale (POS) data or from a tally sheet showing the number of items purchased by each guest on the guest’s check. Then, total the purchases for each item at the bottom of column B.
### Menu Engineering Worksheet

<table>
<thead>
<tr>
<th>Menu Item</th>
<th>Number Sold</th>
<th>Menu Mix % (B × 28)</th>
<th>Selling Price</th>
<th>Item Food Cost</th>
<th>Item Contribution Margin (D – E)</th>
<th>Total Revenue (B × D)</th>
<th>Total Food Cost (B × E)</th>
<th>Total Item Contribution Margin (G – H)</th>
<th>Contribution Margin Category (high or low)</th>
<th>MM%/ Category (high or low)</th>
<th>Menu Item Classification (dog, plow horse, puzzle, or star)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skewered Shrimp</td>
<td>37</td>
<td>19.6</td>
<td>$12.95</td>
<td>$4.51</td>
<td>$8.44</td>
<td>$479.15</td>
<td>$168.87</td>
<td>$312.28</td>
<td>Low</td>
<td>High</td>
<td>Plow horse</td>
</tr>
<tr>
<td>Pork Medallions</td>
<td>25</td>
<td>13.3</td>
<td>15.50</td>
<td>5.71</td>
<td>9.79</td>
<td>387.50</td>
<td>142.75</td>
<td>244.75</td>
<td>High</td>
<td>High</td>
<td>Star</td>
</tr>
<tr>
<td>Rib Eye Steak</td>
<td>42</td>
<td>22.2</td>
<td>14.95</td>
<td>5.38</td>
<td>9.57</td>
<td>627.90</td>
<td>225.96</td>
<td>401.94</td>
<td>High</td>
<td>High</td>
<td>Star</td>
</tr>
<tr>
<td>Herbed Chicken</td>
<td>29</td>
<td>15.3</td>
<td>12.95</td>
<td>3.37</td>
<td>9.58</td>
<td>375.65</td>
<td>97.73</td>
<td>277.82</td>
<td>High</td>
<td>High</td>
<td>Star</td>
</tr>
<tr>
<td>Planked Salmon</td>
<td>14</td>
<td>7.4</td>
<td>15.95</td>
<td>5.90</td>
<td>10.05</td>
<td>223.30</td>
<td>82.60</td>
<td>140.70</td>
<td>Low</td>
<td>High</td>
<td>Puzzle</td>
</tr>
<tr>
<td>Beef Stroganoff</td>
<td>21</td>
<td>11.1</td>
<td>11.50</td>
<td>4.18</td>
<td>7.32</td>
<td>241.50</td>
<td>87.78</td>
<td>153.72</td>
<td>Low</td>
<td>High</td>
<td>Plow horse</td>
</tr>
<tr>
<td>Veal Piccata</td>
<td>10</td>
<td>5.3</td>
<td>13.50</td>
<td>7.15</td>
<td>6.35</td>
<td>135.00</td>
<td>71.50</td>
<td>63.50</td>
<td>Low</td>
<td>Low</td>
<td>Dog</td>
</tr>
<tr>
<td>Filet Oscar</td>
<td>11</td>
<td>5.8</td>
<td>15.95</td>
<td>7.82</td>
<td>8.13</td>
<td>175.45</td>
<td>86.02</td>
<td>89.43</td>
<td>Low</td>
<td>Low</td>
<td>Dog</td>
</tr>
</tbody>
</table>

| Totals            | 189         |                     |               |                |                        | $2,645.35            | $961.21             | $1,684.14                                |                                          |                          |                                                             |

**Figure 7.28:** A menu engineering sheet.
3. Divide each item’s sales by the total number of purchases (covers) to determine each item’s menu mix percentage.

\[
\text{Item number sold} \div \text{total number of purchases} = \text{menu mix percentage}
\]

For example: Skewered Shrimp sold 37 covers out of a total of 189 covers, resulting in a menu mix percentage of 19.6.

\[
\frac{37 \text{ covers}}{189 \text{ total number sold}} = 19.6 \text{ percent}
\]

4. Now, jump to column K. In column K, categorize each item’s menu mix percentage as either high or low. In menu engineering, consider a menu item popular if it sells at least 70 percent of the menu mix average. Therefore, consider low any menu item that is lower than 70 percent of the menu mix average percentage. Call a menu item high that is 70 percent or above. To determine menu mix percentage, take 100 percent (1.00) and divide by the number of items listed in the test (in this case, 8 items are being tested).

\[
\frac{100 \text{ percent or } 1.00}{8} = 12.5 \text{ percent}
\]

Therefore, on this 8-item menu, each item is 12.5 percent of the mix. Multiply the mix percentage by 70 percent to get the mix percent rate.

\[
12.5 \text{ percent} \times 70 \text{ percent} = 8.75 \text{ percent}
\]

Any item selling 8.75 percent or higher is considered high. Any item selling less than 8.75 percent is low. It is not necessary to complete the calculation for each menu item, but it is important to know that each menu item is classified in column K based on achieving 70 percent of the average menu mix.

Look at each item on the chart and compare its menu mix to the 8.75 percent figure and then look at column K to see how it was classified.

5. List each item’s selling price in column D. The selling price is obtained from the menu.

6. List each item’s standard food cost in column E. Find an item’s standard food cost on the cost card; it comes from the standard recipe cost, garnish cost, and the cost of accompanying items. Note that not all items have all three cost components.

7. List the contribution margin for each item in column F. Determine the contribution margin by subtracting the item’s standard food cost (column E) from its selling price (column D).

\[
\text{Selling price} - \text{Item food cost} = \text{Contribution margin}
\]

This formula may look familiar. It is the same formula that is used to figure gross profit and target margin. Contribution margin and gross profit are the same thing, just different terminology. A target margin is a planned
price based on how much money the business wants to make off of each item.

8. In column G, record the total revenue. Determine total menu revenue by multiplying the number sold of each item (column B) by its selling price (column D).

\[ \text{Number sold} \times \text{Selling price} = \text{Total revenue} \]

Total this column at the bottom of the column.

9. In column H, list the total item food cost. To obtain this figure, multiply each item's food cost (column E) by the number sold (column B) to obtain total food cost (column H).

\[ \text{Item food cost} \times \text{Number sold} = \text{Total food cost} \]

Total this column at the bottom of the column.

10. List the total item contribution margin in column I. Determine this value by multiplying each item's contribution margin (column F) times the number sold of each item (column B).

\[ \text{Item contribution margin} \times \text{Number sold} = \text{Total item contribution margin} \]

12. Categorize each item's contribution margin as either high or low in column J, depending on whether or not the item exceeds the menu's average contribution margin. Determine the menu's average contribution margin by dividing the total contribution margin ($1,684.14) in column I by the total number of items sold (189) in column B.

\[ \text{Total contribution margin of all menu items} \div \text{Total number sold} = \text{Average contribution margin} \]

The average contribution margin for The Galleon is $8.91.

\[ \$1,684.14 \div 189 = \$8.91 \]

Categorize any item whose contribution margin (column F) is greater than $8.91 as high, and any item whose contribution margin (column F) is lower than $8.91 as low. Look at columns F and J to see how each item was classified.

13. Use all the data gathered to classify each item into categories in column L. Classify each menu item as a star, plow horse, puzzle, or dog.

**Using the Classifications**

After grouping all the menu items into one of the four key categories, it is time to make decisions. When making decisions, refer to how close on the graph an item is to the next category. For example, an item that falls into the Puzzle
category but has a popularity number very close to the Star category should be handled differently than one that has popularity numbers far below the Star category. The following are the four categories:

- **Stars:** These items are both popular and profitable. For the most part, stars should be left alone. Locate them in a highly visible position on the menu. Test them occasionally for price rigidity; that is, are guests willing to pay more for these items and still buy them in significant quantity? If so, these items may be able to carry a larger portion of any increase in cost of food and labor. They are the celebrities of the menu, the highest-priced stars, and may be less price sensitive than any other items on the menu.

- **Plow horses:** These items are popular but less profitable. These items are often an important reason for a restaurant’s popularity. Because they are less profitable, one solution may be to increase their price. However, this should be done very carefully. If a plow horse is highly price sensitive; that is, if customers see it as a good price-value and that is the reason they come to your restaurant, then attempt to pass on only food cost increases of the item to the menu price. If it is only marginally profitable (close to the dog on the graph), drop it from the menu and make a substitution for it.

  When increasing the price, always test for a negative effect on sales. Make any price increase in stages (from $4.55 to $4.75, then $4.95). If the item is an image maker or signature item, hold its current price as long as possible. On the other hand, if the listing is a nonsignature item with a low contribution margin, move the plow horse to a lower-profile position on the menu. Attempt to shift demand to more profitable items through merchandising and menu positioning. Another solution might be to reduce the item’s standard portion without making the difference noticeable. Also, try adding value to the item through menu packaging. In other words, merchandise the plow horse by packaging it with side items to increase its contribution margin.

- **Puzzles:** These items are unpopular but very profitable. One of the best solutions to helping out a puzzle is to decrease its price. While this may appear counterproductive to making a profit, consider that the customer may not perceive it as a fair value. If an item isn’t selling, no profit is being made anyway. Another option is to leave its price alone and reposition it on the menu, perhaps featuring it in a more popular location. Additionally, merchandise it by using table tents, chalkboards, or suggestive selling. Rename it. A puzzle’s popularity can be affected by what it is called, especially if it is unfamiliar to customers. Remember that even if a puzzle is not selling well, it is making a lot of money, relatively speaking. If sales can be substantially increased without decreasing the price, the item could easily become a star.
Limit the number of puzzles on a menu. Puzzles can create difficulties in quality consistency, slow production down, and cause inventory and cost problems. Accurately evaluate the effect puzzle items have on the operation’s image. Do they enhance the image? A final option is to take them off the menu, particularly if a puzzle is low in popularity, requires costly or additional inventory, has poor shelf life, requires skilled or labor-intensive preparation, or is of inconsistent quality.

- **Dogs**: These items are unpopular and unprofitable. Eliminate all dog items if possible. Replace them with more popular items. Take advantage of hot, trendy, or cutting-edge listings. Restaurant and foodservice operations are sometimes intimidated by influential guests to continue carrying a dog item on the menu. The way to solve this problem is to carry the item in inventory (assuming it has a shelf life) but not on the menu. Offer the special guest the opportunity to have the item made to order on request. Charge extra for this service. Raise the dog’s price to puzzle status.

Some items in the dog category may have market potential. These tend to be the more popular dogs, and may be converted to puzzles by increasing prices. Another detail to consider is that the menu may have too many items. It is not unusual to discover a number of highly unpopular menu listings that have little, if any, relation to other more popular and profitable items held in inventory. Do not be afraid to eliminate dogs, especially when demand is not satisfactory.

---

**Menu Engineering**

The whole purpose of menu engineering is to sell more of the menu items that will earn the restaurant more money. While food cost percentage is important, menu engineering is about the actual dollars earned for the restaurant with each food sale. Carefully describe and strategically place food items on the menu in ways calculated to increase total sales by highlighting the dishes that will earn the most, based on the food cost and contribution margin. A number of software packages and Web sites are available to help with this.

Determining how to write or change a menu—for instance, how to change a puzzle into a star by changing a menu description, a price, or a preparation—is also a crucial aspect of menu engineering. For instance, researchers have recently been doing a lot of work to help clarify the psychological factors behind customer preferences: such subtle elements as size or type of font can significantly change customer choices. Small restaurants that change their menus frequently can readily adapt to consumer demand, eliminating dogs and tweaking puzzles. Larger restaurants, especially those with a nationwide presence, have a harder time making such changes.
It’s important for restaurant and foodservice operations of all shapes and sizes to pay attention to advances in menu engineering, though. Why? Because ultimately menu engineering, and management’s ability to master it, will determine the operation’s long-term success. If management can’t adapt a menu to address changing customer needs, especially in the fast-paced twenty-first century, they will be unable to make a profit and stay in business. Fortunately, many resources exist to help managers and owners stay abreast of current research, such as industry publications and online sources. The National Restaurant Association is an excellent resource for further information.

Did You Know…?
One of the most frequently ordered items in the United States is carbonated soft drinks. Their low production cost and high profitability make such items a star on any menu.

Summary
In this section, you learned the following:

■ The menu serves two purposes: planning and communication. For the planning function, the menu gives an operation an end goal to work toward. Using the menu as a planning tool helps managers stay focused on all the behind-the-scenes work and how to best accomplish an operation’s goals. In the role of marketing communication tool, the menu functions in three ways: informing the market about what the operation offers, selling products, and creating identity.

■ There are many types of menus. An à la carte menu prices each menu item separately. A du jour menu simply lists the menu items that are available on a particular day. A cyclical menu changes menu items after a certain period of time. A limited menu typically offers only a few items. Quick-service operations frequently offer a limited menu. Fixed menus offer the same items every day. A California menu is one that lists all meals available at any time of day. A prix fixe menu is the opposite of an à la carte menu in that it includes multiple menu items at one price. A table d’hôte menu is similar to a prix fixe menu in that it bundles various elements of menus into one package.
Most menus organize foods according to the order in which they are eaten: appetizers, soups, salads, sandwiches (which can be offered before or after salads), entrées, vegetables, desserts, and beverages.

A menu should reflect the operation’s character and goals and a realistic understanding of what the operation is capable of producing in a cost effective way. There are two steps in menu creation: planning and design. In the planning phase, keep the following elements in mind: physical layout of the facility, skill of personnel, availability of ingredients, target market’s wants and needs, target market’s expectations, and profit margin. Consider the following elements when designing a menu: medium, layout, color, font, and art.

Pricing the menu is a critical process for any operation. Price serves two main roles: it provides information to customers, and it determines profitability. Price provides information to customers not only about the price of the menu item, but it also speaks to the market category in which the restaurant falls. Price determines profitability by bringing in more dollars than the sum of all the costs for the product or service. The food cost percentage method, contribution margin method, straight markup method, average check method, set dollar amount markup, and set percentage increase method are all ways to price menu items.

It is crucial to the success of an operation that management have the knowledge and means to analyze how well items on its menu are performing. While there are several methods available to do menu analysis, one of the most popular is menu engineering. It systematically breaks down a menu’s components to analyze which items are making money and which items are selling. This analysis then helps management make decisions as to which menu items to leave alone, which to increase or decrease in selling price, which ones to promote, and which ones to eliminate. The classifications that come from menu engineering are star, plow horse, puzzle, and dog.
Section 7.3 Review Questions

1. What are the two primary functions of the menu?
2. List five different types of menus.
3. What are the two basic steps that need to be considered when creating a menu?
4. What are the four menu item categories derived from menu engineering?
5. What types of menus do you see at a quick-service restaurant such as McDonald’s?
6. In their new place, Miguel and Chef Kate want to start with a limited menu, but, of course, they want it to be as profitable as possible. Explain the process of menu analysis and engineering and how this could help maximize their chances for a profitable limited menu.
7. Do you think a menu functions more as a planning tool or a communication tool? Explain your answer in a paragraph.
8. What would be your first option for turning a plow horse into a star?
Section 7.3 Activities

1. **Study Skills/Group Activity: Targeting Teens**
   Working with two or three other students, create a menu that appeals to the teenage target market. Make sure to include at least eight menu items.

2. **Independent Activity: Menu Comparison**
   Obtain and compare menus from two restaurant and foodservice operations. You might even be able to find sample menus online. What information about the restaurant does each provide? What kind of message is the menu communicating? Who appears to be the target market of each restaurant? How does each menu work as a selling tool?

3. **Critical Thinking: Determining Menu Prices**
   Deciding the appropriate markup for menu prices can be difficult. What is the best way to determine selling prices? Defend your answer in two paragraphs.
Case Study Follow-Up: Marketing 101

At the beginning of the chapter, Chef Kate and Miguel of Kabob were thinking about opening a new place. They had scouted out a few places, but were getting cold feet about choosing a place and all the work that would be required by opening in a new community.

1. Discuss three ways they could build ties with the new community through public relations efforts.

2. What ways would you suggest that Chef Kate and Miguel advertise in their new location? Pick two types of media and explain why you would choose them.

3. Explain to Chef Kate and Miguel the ways their menu can serve as a marketing tool. Be sure to include the following in your explanation:
   - Planning function
   - Communication function
   - Design elements
   - Sales influence
Apply Your Learning

Menu Creation and Pricing

You plan to open a 50-seat, fine-dining restaurant later this year. Develop three menu items using ingredients available from a local grocery, and plan the recipes that will be needed to produce each. Cost each recipe to determine the cost of each menu item. What should the selling price of each menu item be? Show your calculations.

Beating the Local Competition

Develop a marketing strategy for a new restaurant in your area. Research similar restaurant and foodservice operations in your community and discuss tactics that you could use to help you differentiate from the competition. Prepare a two-page report of your ideas.

The Science of Marketing

At many restaurant and foodservice operations, especially those with a regional or national presence, the research team works closely with the marketing team to develop new menu items. How are science and publicity related? How does science drive consumer opinion, and vice versa? What potential benefits and dangers within these relationships can you identify?

Critical Thinking

Choosing the Menu

What kind of menu would you choose for your new operation? And what kind of pricing formula would you choose? Explain your rationale for both answers in a one-page report.
Chapter 7 | Foundations of Restaurant Management & Culinary Arts

Exam Prep Questions

1. The comprehensive process of communicating an operation’s message to potential customers is
   A. selling.
   B. marketing.
   C. fashioning.
   D. advertising.

2. What is a marketing plan?
   A. The way marketers research a market
   B. The way marketers execute their market strategy
   C. The steps marketers must take to sell a product or service
   D. The way marketers advertise an operation’s product or service

3. What are the four research methods used to gather market information?
   A. Survey, sampling, experimental, informal
   B. Experimental, formal, informal, mathematical
   C. Experimental, observational, survey, sampling
   D. Formal, observational, mathematical, sampling

4. Creating within the marketplace a clear, specific identity for both a product and the operation that offers that product is called
   A. elbowing.
   B. positioning.
   C. identification.
   D. market carving.

5. Advertising, sales promotions, personal selling, public relations, and direct marketing are all elements of what’s called the
   A. product mix.
   B. promotional mix.
   C. experimental method.
   D. lifestyle segmentation.

6. Informing customers, selling products, and creating identity are all functions performed simultaneously by
   A. greeters.
   B. the menu.
   C. Web sites.
   D. direct marketing.

7. A menu that prices all items separately is called
   A. limited.
   B. prix fixe.
   C. à la carte.
   D. California.
A menu that lists all meals available at any time of day is called
A. fixed.
B. du jour.
C. à la carte.
D. California.

The difference between revenue minus preparation and service costs is known as the
A. margin.
B. wage factor.
C. lost revenue.
D. money gap.

Add a fixed dollar amount to the food cost of an item to calculate the
A. average cover.
B. set dollar markup.
C. contribution margin.
D. set percentage increase.
Chapter 8
Desserts and Baked Goods
Case Study  **Dessert Dilemma**

In recent customer feedback surveys, Miguel and Chef Kate learned that many guests were disappointed by their final dinner course, dessert. On the whole, guests felt that their desserts were “unimaginative,” “mediocre,” “outdated,” and “too limited in choice.” The truth is, when Chef Kate and Miguel opened Kabob, they never paid much attention to desserts, as they didn’t feel they were as important to customers as other aspects of their operation. They are starting to reconsider their position now.

The problem Chef Kate and Miguel are confronting is that they aren’t well versed in dessert items. They don’t have a pastry chef on staff, and they can’t afford to hire one. Miguel handles front-of-the-house and Chef Kate has her hands full with managing the kitchen staff and making sure their existing menu is up to quality standards. In short, they’re not exactly sure what to do to improve the quality of their dessert menu or how to go about doing it.

As you read this chapter, think about the following questions:

1. What dessert items would be the most appealing to a wide variety of people, while also being relatively light on labor?
2. What does it mean to have an “unimaginative” dessert menu, and how would you go about making it “imaginative” instead?
3. Is dessert as important as other aspects of foodservice? As you go through the chapter, think of some arguments for and against this question.
4. Use the knowledge you gained about make-or-buy analysis in *Chapter 5*, and apply it to solving Miguel and Chef Kate’s dessert dilemma.
I have a Bachelor of Fine Arts from the Rochester Institute of Technologies School for American Craftsmen. Always interested in creative pursuits, I majored in metalsmithing (silver and goldsmithing, jewelry making) and minored in painting. I also went to La Varenne in Paris for cooking school and the French Pastry School in Chicago.

When I think about my career, I think about how long it’s gone on, how it continues to grow, and how diverse the field has become. Being a pastry chef has allowed me to cook for queens, sultans, sheiks, princes and princesses, rock stars, movie stars, comedians, presidents, mayors, cancer survivors, newlyweds, and new parents. I’ve been on television with Julia Child, Al Roker, Harry Smith, and Oprah; in culinary school with Jacques Pepin (he was a student!); at culinary festivals, grocery stores, bookstores, and on the radio (cooking on the radio—what next?). I’ve worked in France, England, Spain, Greece, Croatia, and Italy, with kids in schools, with families, and with my own children. What great choices and variety!

If you do a job because you love it, you will be successful. The more you do something, the better you’ll get at it, and the more fun it will be to do it. And if you’re interested in this industry, remember to always wear comfortable shoes. When your chef asks if you know how to make something; say “yes” now and then go home that night and figure out how to do it, even if it means staying up all night and making croissants seven times over till you get it absolutely perfect! (Ask me how I know that.) Finally, eat a lot at a lot of restaurants—nothing will open your eyes more than that!

Remember:

“If you think you can or you think you can’t either way, you’re probably right.”

— Rich Melman

He also said:

“When it comes to improving your restaurant, it’s not one big thing. It’s 100 little things.”
SECTION 8.1 BAKESHOP BASICS

Most everyone loves a good dessert. A perfectly moist, rich slice of chocolate cake or a warm piece of pie with a light, flaky crust are the perfect ending to a meal. But no small amount of time, effort, and precision go into creating such delicious desserts. And it all starts with knowing the basics. How is milk used in baked goods? Is an egg a strengthener, a liquid, a leavening agent, or all three? How many types of flour are there? While many people may know the general ingredients that go into baked goods, not many know exactly how they’re used or in what proportions. This section will start you off with the baking basics: ingredients and measurements.

About Desserts and Baking

I absolutely love the ingredients, how reliable they are, how predictable pastry is, and all the precision it requires. I like the fact that my pastry kitchen makes the first impression of the meal (bread, gougere as hors d’oeuvres, etc.) and the last (cheese, dessert, petit fours).

My favorite dishes involve taking recipes that have roots in tradition—pie, layer cake, banana split—and then doing a new take on it. It’s sort of an improvisation on an idea, like a culinary sketch. I like to rely on really ripe, flavorful fruit. That way you don’t have to do much to it; the ingredients do all the work for you.

While I don’t have one favorite dessert, my husband says the day I’m rolling out and crimping the 100 or so pie crusts for pumpkin pies just before Thanksgiving is the day I come home the happiest. I love working with the ingredients of the pastry kitchen, combining them, and shaping them…whether it’s making a meringue, piping some buttercream, or rolling out pie dough. And there’s something about the repetition of dipping truffle after truffle in melted chocolate, and then placing it just so in dark, rich cocoa powder…trying to make each one more perfect than the last, while conserving as much motion as possible so that you can work as efficiently as possible.
Baker’s Ingredients

Nearly all bakery products are prepared using a common list of ingredients that fall into eight categories:

- **Strengtheners**, such as flour and eggs
- **Fats/shortenings**, such as butter and oils
- **Sweeteners**, such as sugars and syrups
- **Flavorings**, such as vanilla and nuts
- **Chemical, organic, and physical leaveners**, such as baking powder, baking soda, yeast, and steam
- **Thickeners**, such as cornstarch, flour, and eggs
- **Liquids**, such as water, milk, cream, eggs, honey, molasses, and butter
- **Additives**, such as food coloring

In baking, **strengtheners** provide stability and ensure that the baked item doesn’t collapse once it is removed from the oven. Flour is a main ingredient used in baking. There are six popular types of wheat flour, as described in Table 8.1 on the following page.

**Shortenings/fats** make baked goods moist, add flavor, and keep baked items fresh longer. Any fat, such as oil or butter, acts as a shortening in baking. The more thoroughly mixed the fat, the more it will affect the item’s overall texture. Fats that are rubbed or rolled into doughs tend to separate the dough into large layers, creating a flaky texture. When the fat is thoroughly creamed together with the other ingredients, the resulting texture of the baked item will be smooth, soft, and more cake-like.
**Table 8.1: Types of Wheat Flour**

<table>
<thead>
<tr>
<th>Type of Flour</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>All-purpose flour</strong></td>
<td>This flour falls between pastry and bread flour. It is good to use in cookies, biscuits, and general production work.</td>
</tr>
<tr>
<td><strong>Bread flour</strong></td>
<td>As its name suggests, this a strong flour that is used for making breads, hard rolls, and any product that needs high gluten for a strong texture. Gluten (glo-ten) is a protein found in flour. The more bakers mix, work, and knead yeast doughs, the more the gluten becomes elastic and stretchy. When baked, it helps provide the firm structure and light, even texture needed in bread production.</td>
</tr>
<tr>
<td><strong>Cake flour</strong></td>
<td>This flour has a low-gluten content, a very soft, smooth texture, and a pure white color. Use cake flour for cakes and other delicate baked goods.</td>
</tr>
<tr>
<td><strong>Durum flour</strong></td>
<td>This is a hard, wheat flour used to make breads; its gluten content is a little higher than that of typical bread flour.</td>
</tr>
<tr>
<td><strong>Pastry flour</strong></td>
<td>This flour is not as strong as bread flour and not as delicate as cake flour. Use pastry flour for baking cookies, pie pastry, and some sweet yeast doughs, biscuits, and muffins. It feels like cake flour, but has the creamy color of bread flour.</td>
</tr>
<tr>
<td><strong>Semolina flour</strong></td>
<td>This is a type of durum flour, but it is more coarsely ground than the flour used to make most breads. It has a fine texture with a high gluten content and is primarily used to make pastas and certain Italian pastries.</td>
</tr>
</tbody>
</table>

**Sweeteners** include refined sugars, sugar syrups, molasses, brown sugar, corn syrup, honey, and malt syrup (usually used in yeast breads). Sweeteners add flavor and color to baked goods. They also help the shortening blend with other ingredients and make the product soft and tender. When a product containing refined sugars is baked, the heat causes the sugar to turn a light brown color. This process is called **caramelization** and occurs whenever sugar is used as an ingredient in baked items.
Leaveners are necessary in baking because they allow the dough or batter to rise. It is important to measure all leavening agents very carefully. Even small changes can produce major defects in baked products. Leaveners fall into three categories: chemical, organic, and physical. Table 8.2 describes each leavener.

<table>
<thead>
<tr>
<th>Table 8.2: Types of Leaveners</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Leavener</strong></td>
</tr>
<tr>
<td>Baking powder</td>
</tr>
<tr>
<td>Baking soda</td>
</tr>
<tr>
<td>Physical leaveners</td>
</tr>
<tr>
<td>Yeast</td>
</tr>
</tbody>
</table>

Thickeners include gelatin, flour, arrowroot (a powdered starch made from a tropical root), cornstarch, and eggs. Thickeners, combined with the stirring process, determine the consistency of the finished product. For example, custard cooked over direct heat and stirred constantly will result in a sauce; the same custard recipe cooked (without stirring) in a bain-marie, which is a water bath used to cook foods gently by surrounding the pan with simmering water. Then, it will set into a firm custard that can be sliced.
Flavorings, such as cocoa, spices, salt, and extracts, affect a baked item’s taste and color. Cocoa is the basis of all chocolate desserts, and therefore absolutely vital to any dessert menu. Spices used most often in baking are cinnamon, nutmeg, mace, cloves, ginger, caraway, cardamom, allspice, anise, and poppy seed. Salt plays an important role in baking. It improves the texture of breads and controls how yeast ferments in bread doughs. Extracts are flavorful oils taken from such foods as vanilla, lemon, and almond. A few drops of extract will greatly enhance the flavor of baked goods. Flavorings need to be measured accurately so that the flavor of the spice or extract will not overwhelm the flavor of the finished baked product.

Liquids are one of the most important elements used in baking. The liquid used in baking can be water, milk, cream, molasses, honey, or butter. Liquid is used in baking to provide moisture to the product and to allow the gluten to properly develop. Water is the most basic and common form of liquid used in baking. Often, milk products such as whole milk, buttermilk, cream, or dried milk are used. Milk provides the baked product with flavor, nutritional value, and texture. Honey, molasses, eggs, and butter also act as liquids in baking by contributing moisture to the baked item, as well as a unique taste and texture.

Did You Know . . . ?
Yeast has been used in baking for a long time. The ancient Egyptians used it to bake bread 4,000 years ago. As a matter of fact, some people think that humans probably used yeast before the development of a written language.

Gluten Sensitivity
Gluten is a protein found in wheat and other grains. When kneaded or worked, gluten protein develops into long strands that stretch and hold a structure. This is why kneaded bread can rise without the bubbles of carbon dioxide bursting through the dough. If yeast dough is not kneaded, the carbon dioxide production from yeast is a bit too vigorous for the dough to resist it. It will be flat. Gluten is responsible for the pleasantly chewy elastic quality of yeast breads.

Some individuals have an intestinal sensitivity to gluten. A disorder called “Gluten-sensitive enteropathy” (GSE), also called “Celiac Disease” or “Celiac Sprue,” is caused by gluten, which approximately 1 to 2 percent of the population suffers from. The interior lining of the small intestine becomes inflamed in the presence of gluten. Pain and diarrhea result. These individuals can avoid gluten in the diet and improve their symptoms.

In normal individuals, there is no health benefit to avoiding gluten in the diet. Gluten sensitivity is not the same as a wheat allergy. Although there is some discussion and controversy on the subject, research still supports that gluten is perfectly safe for unaffected individuals.
Baker’s Measurements

Standardized recipes for bakery products are called formulas, and they are set up a bit differently than those for other food items. Proportions for each ingredient are given in the form of percentages. A percentage indicates a part of a whole. For example, a pizza with four pieces is divided into quarters. Each slice is 25 percent of the pizza. Two slices, half the pizza, is 50 percent, and three slices is 75 percent. The whole pizza is 100 percent.

In baking, flour always has a proportion of 100 percent, and the percentages of all other ingredients are calculated in relation to the flour. These are known as baker’s percentages. In this way, pastry chefs can convert recipes to give larger or smaller yields by changing ingredient amounts while keeping proportions and percentages the same. The formula for baker’s percentages is expressed like this:

\[
\frac{\text{Weight of ingredient}}{\left(\text{Weight of flour} \times 100 \text{ Percent}\right)} = \text{Percent of ingredient}
\]

Table 8.3 shows a formula for soft rolls using baker’s percentages. Although the example in Table 8.3 doesn’t include directions, usually the formula also shows the various directions given in a bakeshop recipe, such as mixing, yeast fermenting time, scaling, and baking temperature.

<table>
<thead>
<tr>
<th>Soft Yeast Dinner Rolls</th>
<th>Baker’s Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active dry yeast, 2 ounces</td>
<td>4.5%</td>
</tr>
<tr>
<td>Water (temperature controlled), 1 pound 8 ounces</td>
<td>54.5%</td>
</tr>
<tr>
<td>Bread flour, 2 pounds 12 ounces</td>
<td>100%</td>
</tr>
<tr>
<td>Salt, 1 ounces</td>
<td>2.3%</td>
</tr>
<tr>
<td>Granulated sugar, 4 ounces</td>
<td>9%</td>
</tr>
<tr>
<td>Nonfat dry milk powder, 2 ounces</td>
<td>4.5%</td>
</tr>
<tr>
<td>Shortening, 2 ounces</td>
<td>4.5%</td>
</tr>
<tr>
<td>Unsalted butter, softened, 2 ounces</td>
<td>4.5%</td>
</tr>
<tr>
<td>Eggs, 3.2 ounces (2 eggs)</td>
<td>7.3%</td>
</tr>
<tr>
<td>Egg wash, as needed</td>
<td></td>
</tr>
<tr>
<td>Total dough weight: 5 pounds 4 ounces</td>
<td></td>
</tr>
</tbody>
</table>
Understanding baker’s percentages makes it easy to calculate the weight of any ingredient or to convert a formula to a new yield. A yield is how much of something is produced.

To calculate the weight of a particular ingredient, change the ingredient percentage to decimal form by moving the decimal point two places to the left. Then, multiply the weight of the flour by this decimal to get the weight of the ingredient. For example, if a formula calls for 20 percent sugar and the pastry chef is using 10 pounds of flour, how much sugar does the chef need by weight?

**Example:** 20 percent = 0.20

\[
10 \text{ pounds flour} \times 0.20 = 2 \text{ pounds sugar}
\]

To convert a formula to a new yield, change the total percentage to decimal form by moving the decimal point two places to the left. Then, divide the desired yield by this decimal figure to get the weight of the flour. If necessary, round off this number to the next highest figure. Use the weight of flour and remaining ingredient percentages to calculate the weights of the other ingredients. Check recipes carefully to see whether ingredients are to be scaled before or after sifting. Sifting is very important in baking. Dry ingredients must be sifted before they are mixed into the dough or batter. Sifting adds air to flour, cocoa, and confectioner’s sugar; removes lumps; and filters out any impurities.

**Safe Baking**

The principles of food safety and sanitation apply to the making of baked goods, too. Dough must be handled frequently, whether the pastry chef uses machinery or kneads the dough by hand. The various stages of baking require different tools and stations of the kitchen; therefore, cross-contamination should be a concern. Always follow safe food-handling procedures:

- Keep hands away from the face, hair, and body.
- Wash hands whenever changing from one task to another—especially from raw foods to ready-to-eat foods.
- Keep work areas clean.
- Handle and clean all foods properly. Keep waste away from edibles.
- Keep pest control a high priority; rodents and insects can thrive on a diet of grains and flour, which are essential baking ingredients.
Essential Skills
Sifting: Why it Matters

If you have ever tasted soap in your mouth, you can appreciate the need to sift dry ingredients.

It used to be necessary to sift flour to remove little twigs or stones or other items that might have infiltrated it, but most flour is free of debris today. Also, most commercial recipes call for weights of flour rather than dry measures (cups) of flour, so sifting is irrelevant in measuring—a given weight of dry flour will weigh the same whether it is sifted or not. If it is sifted, it will have more volume, but not more weight. See Figure 8.1.

Why does sifting matter, and what does this have to do with soap? Soap is alkaline, giving it a nasty, bitter taste. Baking soda is also alkaline, and tastes like soap. Baking soda tends to form small clumps, especially in humid conditions. Sifting the dry ingredients together forces the clumps of soda to break apart as they pass through the sieve. This prevents little clumps from remaining whole in the final product. One little clump of soda in a muffin will taste like a mouthful of soap—probably not the flavor you want.

In addition, sifting adds air to the flour, making it lighter and fluffier. This is important for many recipes, especially cakes and light baked goods.

Figure 8.1: Sifting flour.
Summary

In this section, you learned the following:

- There are eight main categories of ingredients used in baking:
  - Strengtheners provide stability and ensure that the baked item doesn’t collapse once it is removed from the oven. Flour is a main ingredient used in baking.
  - Shortening makes baked goods moist, adds flavor, and keeps the baked item fresh longer. Any fat, such as oil or butter, acts as a shortening in baking.
  - Sweeteners include refined sugars, sugar syrups, molasses, brown sugar, corn syrup, honey, and malt syrup (usually used in yeast breads). Sweeteners add flavor and color to baked goods. They also help the shortening blend with other ingredients, and make the product soft and tender.
  - Leaveners are necessary in baking because they allow the dough or batter to rise. Leaveners fall into three categories: chemical, organic, and physical. Baking soda and baking powder are the main chemical leaveners; yeasts comprise the organic leaveners; the basic physical leaveners are air and steam.
  - Thickeners include gelatin, flour, arrowroot (a powdered starch made from a tropical root), cornstarch, and eggs. Thickeners, combined with the stirring process, determine the consistency of the finished product.
  - Flavorings, such as spices, salt, and extracts, affect a baked item's taste and color.
  - Liquids are one of the most important elements used in baking. The liquid used in baking can be water, milk, cream, molasses, honey, or butter. Liquid is used in baking to provide moisture to the product and to allow the gluten to properly develop.
  - Additives include substances such as food coloring, which may add to the appearance of baked goods.

- Standardized recipes, or formulas, for bakery products are set up a bit differently than those for other food items. Proportions for each ingredient are given in the form of percentages. In baking, flour always has a proportion of 100 percent, and the percentages of all other ingredients are given in relation to the flour. These are known as baker’s percentages. Understanding baker’s percentages makes it easy to calculate the weight of any ingredient or to convert a formula to a new yield, which is how much a recipe produces.
Section 8.1 Review Questions

1. What category of ingredients helps baked goods to rise?
2. What is the most basic strengthener?
3. List three examples of thickeners.
4. What is a baker’s percentage based on?
5. Gale Gand says that she “absolutely loves the ingredients, how reliable they are, how predictable pastry is.” What does this mean to you? What is she saying?
6. Kabob’s neglect of dessert service is due in part to a lack of dessert preparation. Miguel and Chef Kate simply never gave it a lot of thought. As a first step in the right direction, they want to make sure their pantry is well stocked for dessert preparation. What ingredients would you suggest they purchase? List 10 items you feel they absolutely must have on hand.
7. What is durum flour? Research this. When is it used? Why? What are its other names?
8. Why do you think baker’s percentages are all based around flour?
Section 8.1 Activities

1. Study Skills/Group Activity: Weighing Flour
Divide into groups depending upon the number of scales available in your classroom. Using a scientific gram scale, tare the weight of an empty measuring cup. Fill the same cup with packed flour and level the top. Weigh the cup and flour. Note the weight. Sift the flour into a bowl. Loosely fill the one cup measure with the sifted flour and level the top. Weigh the cup and the flour. Is there a difference in the weight? Is there flour remaining in the bowl? What are your conclusions?

2. Activity: Artificial Sweeteners
Investigate online the baking qualities of artificial sweeteners. Does artificial sweetener perform the same in baking as sugar or honey? Write a paragraph about your findings.

3. Critical Thinking: Parker House Rolls
Describe the *mise en place* for making Parker House rolls. Create a flow chart of the recipe method.
SECTION 8.2 YEAST BREADS

Yeast breads consist of some very familiar breads. Hard rolls for sandwiches, loaves of French and Italian bread for dinner, or soft dinner rolls that might be served at a restaurant all fall under the category of yeast bread. This section discusses the different types of dough that make up these breads as well as the basic steps in yeast bread preparation.

Study Questions

After studying Section 8.2, you should be able to answer the following questions:

- What are the two basic types of yeast bread dough?
- What are the two basic methods used to make yeast breads?
- What are the 10 basic steps to making yeast bread?

Types of Dough

Yeast is a living organism that acts as a leavener—that is, it makes baked goods rise. Breads that use yeast are called yeast breads. Yeast breads are divided into two categories: lean doughs and rich doughs. Doughs are simply a mixture of flour, liquid, and a leavener. Yeast bread dough obviously always includes a leavener. Other ingredients can be used as well when creating a dough. The texture of dough is stiff but still pliable.

**Lean doughs** are made with flour, yeast, water, and salt. They have very little or no sugar or fat. Breads made from lean dough tend to have a chewy texture and a crisp crust. French bread and hard rolls are examples of lean doughs.

**Rich doughs** are made with the addition of shortening or tenderizing ingredients such as sugars, syrups, butter, eggs, milk, and cream. Introducing these ingredients changes the bread's overall texture, as well as the way the dough is handled. Rich doughs should have a cake-like texture after baking. Parker House rolls, cloverleaf rolls, soft rolls, and Danish are examples of rich doughs.
Bakers most often use two primary methods to make yeast breads: straight-dough method or sponge method. The straight-dough method (also called the straight-mix method) can be used for all types of doughs—lean, rich, and sponge. When using the straight-dough method to mix dough, the baker can combine all ingredients at the same time, or he or she might mix the yeast with warm water first, at a temperature of 138°F. (Some yeasts require a different temperature.) After mixing the dough, the baker kneads until it is elastic and smooth. Different doughs will require different kneading times. Kneading (NEED-ing) dough is important because it develops the gluten in the dough and gives the dough the stretch and give it needs to develop the proper texture. See the Essential Skills below for a step-by-step guide to the straight-dough method.

**Essential Skills**

*The Straight-Dough Method*

1. Combine all ingredients in a bowl.
2. Mix the dough until it starts to catch (when the ingredients cling together).
3. Knead the dough until it is smooth and springy. See Figure 8.2a.
4. Remove the dough to an oiled bowl.
5. Let it rise. See Figure 8.2b.
6. Punch it down.
7. Scale, or size, it to the appropriate size.
8. Remove it to a floured workbench and rest covered.
9. Shape and place the dough in pans. See Figure 8.2c.
10. Proof it (let it rise a second time).

*Figure 8.2a:* Step 3—Knead the dough.

*Figure 8.2b:* Step 5—Let the dough rise.

*Figure 8.2c:* Step 9—Place dough in pans.
Bakers also use the **sponge method** to mix yeast doughs. The first stage of this method involves mixing the yeast, half of the liquid, and half of the flour to make a thick batter called a **sponge**. After the sponge rises and doubles its size, add the remaining fat, liquid, salt, sugar, and flour. Knead the dough and leave it to rise. Breads made with the sponge method have a lighter texture and more unique flavor than breads made using the straight dough method.

**Sourdough** is another type of bread made with yeast batter. However, sour-dough breads are leavened with something called a **starter**, a mixture of water, yeast, and all-purpose flour that has been fermented (usually overnight) until it has a sour smell.

Once yeast dough has been mixed and left to rise, the baker will need to punch it down, or fold it over, by pushing the dough down in a few places. This will expel some of the carbon dioxide and redistribute the yeast evenly. Figure 8.3 shows dough rising in a baking pan.

Once the dough is in the pan, the baker leaves it to **proof**, or rise a second time. Proofing, the final rise of the yeast product before baking, should be between 95°F and 115°F. The product should continue proofing until it is about twice its original size and bounces back when lightly touched.

Some products are proofed in a specific piece of equipment called a proofer or a proofing cabinet or box. This allows for specific control of temperature and moisture for optimal rise of the product.
Yeast Bread Preparation

There are 10 basic steps in making yeast breads. The Essentials Skills box on the following page shows the steps and provides a brief description and illustration of each.
Essential Skills
Making Yeast Breads

1. Scaling ingredients: Measure all ingredients accurately.

2. Mixing and kneading ingredients: Mixing combines the ingredients, distributes the yeast, and develops the gluten. To further develop the gluten, knead the dough until it is smooth and elastic. See Figure 8.4a.

3. Fermentation: During fermentation, the yeast acts on sugars and starches in the dough to produce carbon dioxide and alcohol. Carbon dioxide gas gets trapped in the gluten. This is also known as pushing up. See Figure 8.4b.

4. Punching down: Gently fold down the dough to expel and redistribute gas pockets in the dough. Punching also relaxes the gluten and evens the temperature. See Figure 8.4c.

5. Portioning: Divide the dough into pieces of uniform weight, according to the product. Weigh portions on a portion scale to ensure uniform size and weight. See Figure 8.4d.

6. Rounding: After portioning, shape the dough into smooth, round balls. The outside layer of gluten becomes smooth. This holds in the gases and makes it easier to shape the dough. See Figure 8.4e.

7. Shaping: Now it is possible to shape the dough into a variety of forms, depending on the desired type of bread.

8. Proofing: Proofing is the final rise of the shaped yeast dough just before baking. Keep the dough in a warm, draft-free area or in a proofing box, and allow it to double in size. See Figure 8.4f.
When using fresh yeast, keep it refrigerated until it is time to use it. It should look creamy and white and have a fresh, yeasty smell. If the yeast has a sour odor, or is brown and has a slimy film, discard it immediately. Using only the freshest yeast will help ensure a quality baked product.

Some yeast breads are glazed or washed before baking. The glazes or washes are used to change the color or texture of the bread. Rye bread is often washed with egg. Washes can also help to attach toppings to the top of the dough. Examples of toppings include oats and seeds.

The Baker's Corner

While baking is very much like a science, it's not an exact one. Every great baker has gone through trial and error in perfecting the finished product. Below are a few helpful troubleshooting hints straight from the bakeshop:

- If the baked item tastes strongly of yeast, one of the following things happened to the dough:
  - It was not allowed sufficient time to proof before baking.
  - It was made with too much yeast.
  - Doughs without sufficient salt will have a bland flavor.
  - On the other hand, too much salt can kill yeast, which will make the product heavy and dense.
- If the dough is pale after baking, one of the following things happened:
  - It was not completely baked.
  - It was baked at too low a temperature.
Essential Skills

Making Lighter Stone-Ground Whole Wheat Bread

Whole wheat flour has the bran and germ still in the mix, ground with the rest of the wheat kernel. It will develop a gluten structure as it is kneaded, just like white flour. However, the bran cuts the gluten somewhat, reducing the long strands to shorter gluten lengths. This gives whole wheat bread a heavier, denser crumb than white bread.

To lighten a whole wheat loaf, follow these steps:

1. Use as little flour as possible to start the mixing process.
2. Add flour slowly, just enough to keep the dough workable. On a humid day, the dough will take more flour, and the bread will be heavier. See Figure 8.5a.
3. Let it rise once, punch it down, and shape it into loaves. See Figure 8.5b.
4. Let it rise again in a greased loaf pan until it is almost double in size. To a gentle touch, the dough should feel light and not as elastic anymore.
5. Make sure the oven temperature is accurate, and always put the dough into a preheated oven. In the initial phase of baking, the carbon dioxide from the yeast will expand and bring the dough to its greatest volume. Then, the heat will kill the yeast and denature (cook) the gluten in its structure. No more rising will occur. If the oven temperature is correct, it will bake through the center without burning the crust.
6. Remove the loaf from the pan to cool to protect the crust from becoming soggy.
7. Serve while still warm for best taste. See Figure 8.5c.

Figure 8.5a: Step 2—Add the flour slowly.
Figure 8.5b: Step 3—Let the dough rise once.
Figure 8.5c: Step 7—Serve warm.
Summary

In this section, you learned the following:

- Yeast is a living organism that acts as a leavener; that is, it makes baked goods rise. Breads that use yeast are called yeast breads. Yeast breads are divided into two categories—lean doughs and rich doughs:
  
  - Lean doughs are made with flour, yeast, and water. They have very little or no sugar or fat. Breads made from lean dough tend to have a chewy texture and a crisp crust. French bread and hard rolls are examples of lean doughs.
  
  - Rich doughs are made with the addition of shortening or tenderizing ingredients such as sugars, syrups, butter, eggs, milk, and cream. Introducing these ingredients changes the bread's overall texture, as well as the way the dough is handled. Rich doughs should have a cake-like texture after baking. Parker House rolls, cloverleaf rolls, soft rolls, and Danish are examples of rich doughs.

- Yeast breads are most often made using two primary methods—the straight-dough method or the sponge method:
  
  - Bakers use the straight-dough method for all types of doughs: lean, rich, and sponge. When using the straight-dough method to mix dough, a baker can combine all ingredients at the same time, or he or she may mix the yeast with warm water first, at a temperature of 138°F. (Some yeasts require a different temperature.) After the dough is mixed, it must be kneaded until it is elastic and smooth.
  
  - Bakers use the sponge method to mix yeast batters. In the first stage of this method, mix the yeast, liquid, and half of the flour to make a thick batter called a sponge. After the sponge rises and doubles its size, add the remaining fat, salt, sugar, and flour. Knead the dough and leave it to rise. Breads made with the sponge method have a lighter texture and more unique flavor than breads made using the straight dough method.

- There are 10 basic steps in making yeast breads:
  
  1. Scaling ingredients
  2. Mixing and kneading ingredients
  3. Fermentation
  4. Punching down
  5. Portioning
  6. Rounding
  7. Shaping
  8. Proofing
  9. Baking
  10. Cooling and storing
Section 8.2 Review Questions

1. What are the two basic kinds of yeast bread dough?
2. Discuss one way in which the two kinds of yeast bread dough are different.
3. Describe the two basic methods used to make yeast breads.
4. List the 10 basic steps to making yeast bread.
5. Gale Gand notes that she likes the fact that her pastry kitchen makes the first impression of the meal. Select two specific types of bread that would be served at dinner. Why do you think these breads would make a good first impression?
6. Using a make-or-buy analysis, do you think it would be beneficial for Kabob to make their own bread or to buy it from a trusted vendor? Support your rationale.
7. Compare and contrast the sponge method and the straight-dough method of yeast making. What are the pros and cons of both? Which do you think produces a higher quality product? Why?
8. Why is proofing so important? What would happen if this step were skipped? Write a paragraph explaining your findings.
1. **Study Skills/Group Activity: Yeast Colony**

Work in teams of two or more. Grow a yeast colony in warm water and observe its changes over a 30-minute period. Note the temperature of the water used. Measure the size of the colony every five minutes. Record observations, including smell.

2. **Independent Activity: History of Yeast Bread**

What is the history of yeast bread making? How was the process invented? Create a time line based upon your findings.

3. **Critical Thinking: Moldy Bread**

Breads can become unsafe when moldy. Investigate mold formation in yeast breads and how to prevent it. Write two paragraphs about your findings.
SECTION 8.3 QUICK BREADS AND CAKES

Quick breads and cakes are staples in the American diet. There's a quick bread or cake appropriate for just about any time of day. Your local coffeehouse, for example, will normally serve a wide variety of both. In the morning, you're likely to see a bigger selection of quick breads in the form of scones and muffins. Later in the day and into the evening, you're likely to see a wider variety of cakes instead. In this section, you'll learn about the various forms of quick breads and cake batters, as well as how they're prepared and served.

Study Questions

After studying Section 8.3, you should be able to answer the following questions:

- What are quick breads and cake batters, and how are they prepared?
- What are the three basic purposes for icing, and what are various types of icing?
- What are steamed puddings and soufflés?

Quick Breads and Cake Batters

Quick breads and cakes are popular snack and dessert items and are usually easy and quick to make. Quick breads and cakes use the same mixing methods.

Quick breads, such as biscuits, scones, and muffins, differ from yeast breads. As their name suggests, quick breads can be prepared faster. Quick breads use chemical leaveners rather than organic ones, and therefore don't require a rising period.

A batter is a semi-liquid mixture containing flour, liquid, and other ingredients. Unlike a dough, which is stiff but pliable, a batter is usually thin enough to be poured. A batter typically has more fat and sugar than a dough. Table 8.4 on the following page shows the four basic methods of preparing quick bread and cake batters.
### Table 8.4: The Four Methods for Preparing Quick Bread and Cake Batters

<table>
<thead>
<tr>
<th>Method</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Creaming Method</strong></td>
<td>In the <em>creaming method</em>, cream the fat and sugar together to produce a very fine crumb and a dense, rich texture. A yellow butter cake is an example of a cake made with the creaming method.</td>
</tr>
<tr>
<td><strong>Foaming Method</strong></td>
<td>In the <em>foaming method</em>, a foam of whole eggs, yolks, or whites provides the structure for cakes with a light texture, such as angel food and chiffon cakes.</td>
</tr>
<tr>
<td><strong>Straight-Dough Method</strong></td>
<td>In the <em>straight-dough method</em>, as discussed in the previous section, the baker combines all ingredients and blends them into a batter at once. Cornbread and blueberry muffins are examples of quick breads made with the straight-dough method.</td>
</tr>
<tr>
<td><strong>Two-Stage Method</strong></td>
<td>Bakers use the <em>two-stage method</em> to prepare high-ratio cakes. High-ratio cakes are called that because they contain more sugar than flour in the recipe. In other words, there is a higher ratio of sugar to flour than in other doughs and batters. (As discussed in Section 8.1, baker’s measurements assign all ingredients a percentage in proportion to the amount of flour used.) In the two-stage method, combine a softened or melted shortening with the dry ingredients. Then, add and blend in one-half of the liquid being used in the recipe. Gradually add the remaining liquid to the mixture. High-ratio cakes made using the two-stage method have a very fine crumb, and are quite moist. Devil’s food cake is one popular item prepared with the two-stage method.</td>
</tr>
</tbody>
</table>

The mixing technique for biscuits and scones, called the biscuit method, differs from the four mixing methods described above. Instead of combining all the ingredients at once, rub or cut in the fat into the flour until the mixture is mealy or bumpy in appearance. This produces a stiff batter with a slightly chewier texture than that of more cake-like items. Sometimes this batter is kneaded, but only very briefly because the dough will be tough if overworked.

**Did You Know . . . ?**

Scones originated in Scotland. The first historical mention of the word was by a Scottish poet in the 1500s. Originally, scones were round and flat and made of unleavened oats. They didn’t transform into the quick breads we eat today until baking powder became widely available.
Icings, or frostings, are sweet coatings for cakes and other baked goods. Icings have three main functions:

1. They improve the keeping qualities of the cake by forming a protective coating around it.
2. They contribute flavor and richness.
3. They improve appearance.

It is important to always use top-quality flavorings and ingredients for icings so that they will enhance the cake rather than detract from it. Icing should be light and delicate; it should not overwhelm the flavor of the cake. In general, use heavy frostings on heavy cakes, and use light frostings on light cakes. For example, frosting an angel food cake with a heavy fudge icing would cause the cake to collapse. Table 8.5 on the following page shows a number of different types of icings.
## Table 8.5: Types of Icings

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Buttercream</strong></td>
<td>A very popular icing made of sugar and fat (usually butter or shortening, although shortening often has an unpleasant mouthfeel). Most often used on cakes, in different colors and flavors. Should be used at room temperature.</td>
</tr>
<tr>
<td><strong>Foam</strong></td>
<td>Also called boiled icing, foam icings are made with hot sugar syrup. Bakers often use it on cakes, such as lemon or chocolate. Use it the day it is made and apply it in thick layers.</td>
</tr>
<tr>
<td><strong>Fondant</strong></td>
<td>Smooth and creamy. Cook fondant by combining sugar, water, and a glucose or a corn syrup. Bakers often use it on éclairs, petits fours, cakes, and napoleons. It becomes a shiny, nonsticky coating when dried.</td>
</tr>
<tr>
<td><strong>Fudge</strong></td>
<td>Use cocoa/chocolate, sugar, butter, and a liquid (water or milk) to make fudge icings. Use it on cupcakes, layer, and sheet cakes. Apply it while still warm. Fudge holds well in storage.</td>
</tr>
<tr>
<td><strong>Ganache</strong></td>
<td>This is a French term referring to a smooth mixture of chocolate and cream. Used to cover cakes or tortes. Also used to make truffles.</td>
</tr>
<tr>
<td><strong>Glaze</strong></td>
<td>This icing can be a simple corn syrup glaze, or it can include a fruit or chocolate. Glazes add moisture, shine, and sometimes flavor to bakery products. They are usually drizzled rather than spread.</td>
</tr>
<tr>
<td><strong>Royal icing</strong></td>
<td>Also called decorator’s icing, royal icing is almost always used only for decorations. It dries brittle and is an uncooked icing. Make it from confectioners’ sugar and egg whites, and color it with food coloring if desired.</td>
</tr>
</tbody>
</table>
Steamed Puddings and Soufflés

Steamed puddings and dessert soufflés are made of batters that require special handling. **Steamed puddings** are more stable than soufflés because of the greater percentage of eggs and sugar in the batter. Baked custard and chocolate sponge pudding are examples of steamed puddings.

**Soufflés** (soo-FLAYZ) rely on egg whites and are not as stable as puddings. Soufflés are lightened with beaten egg whites and then baked. Baking causes the soufflé to rise like a cake. As the soufflé rises, the moisture evaporates and the light batter sets temporarily. Chocolate soufflé and almond soufflé are examples of dessert soufflés.

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### Essential Skills

**How to Make a Dessert Soufflé**

1. Prepare a base according to the recipe and have it at room temperature. See Figure 8.6a.

2. Coat the molds with butter and sugar. Make a chimney and adhere it to the mold, then coat it with butter and sugar to ensure even rising. See Figure 8.6b.

3. Add any desired flavoring to the base.

4. Whip the egg whites to a medium peak and fold them into the base. See Figure 8.6c.

5. Fill the molds and level the tops. See Figure 8.6d.

6. Bake the soufflé on a sheet pan in a hot oven.

7. Serve it immediately with whipped cream or the appropriate sweet sauce. See Figure 8.6e.
Handling Custard-Based Pies
Pastry cream is a spoonable custard made with egg yolks. It can be the foundation for cream pie fillings, like banana cream pie. It is rich, smooth, and sweet. It pairs beautifully with delicate, mild banana or coconut. It is topped with a lightly sweetened whipped cream in a single-crust, flaky, non-sweet pie shell.

Custards must be handled carefully because they contain cream and egg yolks. Hold them at 41°F or below, refrigerated in a covered container. As custard pies sit in the cooler, the moisture of the filling makes even the best pie crust a bit soggy. It is best to store the custard separately and fill the baked shell just before serving the pie, if possible. Ideally, there will be no leftovers.

Keeping a Soufflé Light and Fluffy: The Life of a Pastry Chef
A soufflé is a very light, puffy, warm dish. It is made by folding a thick, flavored white sauce base into stiffly beaten egg whites. It is baked at a moderate temperature (usually 350°F) in a buttered, straight-sided round ceramic baking dish set in a water bath.

Baking the soufflé causes it to expand and rise. As the heat bakes the egg in place, the fluffiness is set. It comes out light and airy. Or at least it should! A pastry chef, who is in charge of desserts in the commercial kitchen, needs to take great care in preparing soufflés, as they can fail, or collapse, for a variety of reasons:

• The sauce base may be too thick or the egg whites may be overbeaten and too stiff. Both of these will require too much handling to fold the two together, which causes air to be lost from the mixture.

• If it is baked too hot, the outside will rise and harden before the inside cooks. It will be mushy inside, and the structure will fall over.

• Opening the oven and altering the baking temperature can cause heat to escape the structure too early, making it fall.

All soufflés will fall a little bit as they cool. Serve a soufflé very soon after baking, while it is in its glory and the guests can be impressed. Part of the joy of this dish is the presentation of the beautifully light, puffy wonder. The fastest way to upset a pastry chef is let a soufflé sit too long before service. The grand soufflé will soon be a shrunken shadow of itself!
Summary

In this section, you learned the following:

- **Quick breads and cakes are popular snack and dessert items and are usually easy and quick to make.** Quick breads and cakes use the same mixing methods. Quick breads can be prepared faster than yeast breads. Quick breads use chemical leaveners rather than organic ones, and therefore don’t require a rising period. There are four basic methods for preparing quick bread and cake batters:
  - Straight-dough method
  - Creaming method
  - Two-stage method
  - Foaming method

- **The mixing technique for biscuits and scones, known as the biscuit method, differs from the four mixing methods mentioned above.** Instead of combining all the ingredients at once, rub or cut a fat into the flour until the mixture is mealy or bumpy in appearance.

- **Icings are sweet coatings for cakes and other baked goods.** The types of icings are buttercream, fondant, foam, fudge, royal icing, and glaze. Icings have three main functions:
  - They improve the keeping qualities of the cake by forming a protective coating around it.
  - They contribute flavor and richness.
  - They improve appearance.

- **Steamed puddings and dessert soufflés are made of batters that require special handling.** Steamed puddings are more stable because of the greater percentage of eggs and sugar in the batter. Soufflés rely on egg whites and are not as stable as puddings. Lighten soufflés with beaten egg whites and then bake. Baking causes the soufflé to rise like a cake. As the soufflé rises, the moisture evaporates and the light batter sets temporarily.
Section 8.3 Review Questions

1. Explain one difference between a quick bread and a yeast bread.
2. Describe two preparation methods for quick breads and cakes.
3. List the three main functions of icing.
4. Why are steamed puddings more stable than soufflés?
5. Gale Gand talks about “piping buttercream.” On what kinds of pastries would you pipe buttercream frosting?
6. One customer reviewer suggested putting a soufflé on the menu. Gauging Kabob’s customers’ discontent with the dessert creativity and selection against Chef Kate’s and Miguel’s time and skill levels, would you agree with this suggestion or not? Explain your answer.
7. What role does buttermilk play in leavening quick breads? Do all quick bread recipes have buttermilk? What other ingredients could serve this same purpose?
8. If you were making a dessert menu and had to choose between putting a steamed pudding on the menu or a soufflé, which would you choose and why?
Section 8.3 Activities

1. **Study Skills/Group Activity: Good Batter, Bad Batter**
   Overmixing quick bread batter causes tunnels to form in the product. Divide into groups. One group should make a “bad example” muffin with overmixed batter. Slice it open and observe the tunnels. Another group should make a “good example” of a properly mixed muffin. Slice it open to observe the crumb. Compare the two products. Sample them and compare the tenderness.

2. **Independent Activity: Leavening Experiment**
   Baking soda and acid leavening begin to react immediately upon mixing. Mix 1 tablespoon of buttermilk with 1 teaspoon of baking soda. Time the duration of the reaction. How long did it take until the bubble stopped forming? How far in advance of baking can leavenings be activated?

3. **Critical Thinking: Scones of the World**
   Scones are different foods in different regions. Find at least two different types of bread products called scones. Describe the products and the regions they are from.
SECTION 8.4 PIES, PASTRIES, AND COOKIES

“As American as apple pie,” the saying goes. And it’s true to a large extent. Pie is an integral part in just about any festivity in this country, from graduation parties to Thanksgiving. Americans take pie seriously, and so any smart restaurant or foodservice operation should do the same. And for those who may not be the biggest pie fans, there’s usually a tempting array of pastries and cookies just an arm’s length away. This section will address pies, pastries, and cookies.

Study Questions

After studying Section 8.4, you should be able to answer the following questions:

■ What kind of dough is used in pie crusts and how is pie crust made?
■ What kind of doughs are used for pastries?
■ What kind of dough is used for cookies and what are the seven makeup methods of cookie preparation?

Pies

Pies, croissants, and Danish pastries are all popular baked goods. Pastry chefs make pies using a basic pie dough called 3-2-1 dough. It’s called this because it is made of three parts flour, two parts fat, and one part water (by weight). When it is properly made, the crust is flaky and crisp and often referred to as pâte brisée (pah breeze AY). It is important to use pastry flour and work the dough as little as possible. Both the fat and liquid should be cold when mixed into the dough. Pastry chefs use shortening, butter, or lard for the fat, and for the liquid, usually water or milk. When using milk, decrease the amount of fat in the overall formula in proportion to the amount of fat in the dairy.
The making of pie crust is an art. When a pastry chef makes the crust properly, it is flaky, tender, and flavorful, the perfect compliment to the filling. A poorly made pie crust is heavy and tough. The magic of the crust is in the “shortening” of the gluten fibers of the wheat flour. Make pie crust by cutting a solid fat into the flour. Properly done, this creates very small pieces of the fat covered in the flour. When rolling a pie crust, handle the dough quickly. During the baking process, the fat particles melt and form flaky, tender layers. Over handling creates tough crusts. Remember, kneading and working dough makes the gluten fibers longer and chewier. That’s not what anyone wants in a pie crust.

Some pies rely on a crumb crust for both flavor and texture to compliment the filling. Crumb crusts are a bit simpler to make, and contribute a nutty, buttery flavor that highlights cheesecake or frozen fillings. Make the crumb from crumbled graham crackers, nuts, or cookies. Mix it with butter, sugar, and cinnamon, if desired, and press it into the pie pan; then bake the crust alone or with the filling.

In general, bake pies just until they begin to take on a golden color. If they begin to brown too much before they are done baking, top the pie loosely with aluminum foil near the end of the baking process.

Many pies use fruit fillings. Prepare these fillings using sliced and peeled fresh fruit that is either poached with a liquid or allowed to cook as the entire pas-
try bakes. Cornstarch, tapioca, or arrowroot may be added to thicken the fruit filling. Cooks sometimes use lower-grade fruits in baked pies and puddings.

**Baking blind** is the procedure for preparing a prebaked pie shell. Prepare the dough, roll it out, fit it into the pan, and then *dock* (or pierce) it in several places with a fork. Then cover the pastry with parchment paper and bake it with an empty pie pan, baking weights, or even dry rice or beans on top of it to keep the crust nice and flat as it bakes. Once the pie shell is baked, fill it with custard, pudding, or fresh fruit filling. These are fillings that will not be cooked in the shell; they are precooked as necessary. Refrigerate the pie to set and then serve it cold, often with whipped cream or meringue on top. Examples include chocolate cream pie, banana cream pie, and lemon meringue.

Cheesecake is similar to pie, but unique in many respects. Pastry chefs usually bake it from a cream cheese or *quark* (a cheese that is a lot like sour cream) and egg batter on a crumb crust, using a springform pan. This pan has straight sides rather than the angled sides of a pie pan. But unlike a cake pan, the sides open and can be removed when the cheesecake is done. See Figure 8.8. Slice cheesecake and serve it like a pie. Add fruit, chocolate, or sauces for variety.

*Figure 8.8:* A springform pan is ideal both for delicate confections and for flourless chocolate cakes and creamy cheesecakes.

In the United States, an unbaked cheesecake is also popular. Make it by coagulating sweetened condensed milk with an acid such as lemon juice. Cream cheese and/or sour cream are often part of this recipe as well. This version is not as delicate or fine as the traditional baked cheesecake.
Pastries

While chefs use 3-2-1 dough for making pie crusts, they use the roll-in dough method (also called laminated dough) to make Danish, croissant, and puff pastry. Proper mixing methods, rolling techniques, and temperature control are necessary to produce a flaky, quality product. Roll the dough out into a large rectangle. Then fold it over in thirds, spread it with butter, chill, and roll it out again. Fold it the appropriate number of times to create the right shape for the item. There are a few guidelines to follow in working with this dough:

- Keep the dough chilled.
- Use a sharp knife when shaping and cutting edges.
- Mark the dough with a small indentation to help avoid overrolling.
- Do not run the roller over the dough’s edge.
- Chill puff pastry items before baking them.
- Save puff pastry scraps for use in other smaller items.

Did You Know…?

A 1-ounce chocolate chip cookie has approximately twice as many calories and grams of fat as a one-ounce slice of blueberry or apple pie. The chocolate chip cookie has approximately 140 calories and 8 grams of fat, compared to roughly 70 calories and 3½ grams of fat for the slice of blueberry or apple pie.

Making Great Pies

Making a great pie takes some patience, time, and testing in the kitchen. Every great baker has gone through trial and error in perfecting the finished product. Below are a few helpful troubleshooting hints straight from the baker’s corner:

- If the dough has been rolled out unevenly, the thicker portions may appear moist, indicating that the dough is not fully baked. To help prevent uneven rolling, use dowel rods on the sides of the dough. This helps ensure uniform consistency and more even cooking.
- The dough should be flaky. If the dough has been underbaked, the texture may be gummy or rubbery. If it has been overbaked, the crust may be tough.

Lard gives a very flaky crust, while shortening gives a more mealy crust. Most mass-produced, commercially made pie crusts use shortening, which is cheaper but yields a product that is inferior to pie crusts made using lard.
Puff pastry is an elegant product also called *pâte feuilletée* (paht PHOO e tay) (feuilletée means squares), and it can be used in both sweet and savory applications.

Pastry chefs also commonly use other doughs, such as phyllo and *pâte à choux*, for pastries. Use phyllo (FEE-low) dough to prepare baklava, a dessert made of thin pastry, nuts, and honey. Make *pâte à choux* (paht ah SHOE) by combining water (or another liquid), butter, flour, and eggs into a smooth batter. Some familiar desserts that use *pâte à choux* include éclairs, cream puffs, and *profiteroles* (pro-FIT-uh-rolls), which are small round pastries made from *pâte à choux* filled with ice cream. Figure 8.9 shows a variety of pastries made with puff pastry, phyllo, and *pâte à choux*.

**Essential Skills**

*Making Roll-In Dough*

1. Combine ingredients, usually shortening, flour, and water.
2. Loosely blend the dough. See Figure 8.10a.
3. Shape into a ball.
4. Roll into a rectangle. See Figure 8.10b.
5. Fold into thirds and roll again. See Figure 8.10c.
6. Cut the dough into shapes called for in the recipe. See Figure 8.10d.
Cookies

Pastry chefs make most cookies from rich dough. Typically, rich dough uses the same creaming method as quick breads and cake batters, but with the liquid and the flour added at the same time. The creaming of the dough determines the texture of the cookie and how much it will spread in the pan during baking.

Cookies should be decorative and appetizing. Due to their high sugar content, cookies are best when they are baked in convection ovens. In a convection oven, the air is pulled in by the fan, then gently pushed out through the holes, so it creates a gentler environment for baked goods that tend to burn quickly because of their high sugar content. Table 8.6 on the following page describes the seven makeup methods for cookies.

Budgeting for Desserts

Fat and/or sugar are high in many desserts, which can cause a problem if people eat them too often. However, everyone needs calories, fat, and some simple carbohydrates. So, it's okay to allocate some of a daily allowance of calories, fat, and sugar to delicious, beautiful, and well-made desserts—especially on a special occasion!

How to Care for Cheese Danish

Danish pastry is a yeast dough shortened with butter. Pastry chefs use this dough to make individual rolls filled with fruit, nuts, chocolate, or mild cheese (like cream cheese or quark). It is tender and flaky, but chewy and elastic. It has the best qualities of both bread and pastry.

Danish pastry is best eaten fresh, but may be stored for a day. It is subject to mold. Storing cheese Danish causes a problem. Due to the protein and fat content of the mild cheese, it should be refrigerated. However, refrigeration dries and toughens the pastry.

You must refrigerate Danish according to typical storage guidelines for TCS food, but the best approach is to try to carefully match your needs to a daily delivery of freshly made Danish. In a perfect world, there won't be any left over to store.
Table 8.6: Types of Cookies

<table>
<thead>
<tr>
<th>Method</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bagged</td>
<td>Make bagged cookies by forcing soft dough through a pastry bag. Varieties include ladyfingers, macaroons, and tea cookies.</td>
</tr>
<tr>
<td>Bar</td>
<td>Make bar cookies by baking three or four bars of dough the length of the baking pan, and then slicing them into small bars. One variety is biscotti.</td>
</tr>
<tr>
<td>Dropped</td>
<td>Make dropped cookies, such as chocolate chip and oatmeal, from a soft dough and drop them from a spoon or scoop onto the cookie sheet.</td>
</tr>
<tr>
<td>Icebox</td>
<td>Make icebox cookies by rolling dough into a log, chilling it, and then slicing it just before baking. Butterscotch icebox cookies and chocolate icebox cookies are examples.</td>
</tr>
<tr>
<td>Molded</td>
<td>Mold stiff dough by hand into any shape to make molded cookies. Peanut butter cookies are an example.</td>
</tr>
<tr>
<td>Rolled</td>
<td>Rolled cookies are made more often at home than in commercial kitchens because they take a lot of work. Cut these cookies from a stiff dough that has been rolled out on a baking board. Varieties include decorated sugar cookies and shortbread.</td>
</tr>
<tr>
<td>Sheet</td>
<td>Pour the batter into the entire baking pan and then slice it into individual squares or rectangles after baking. Brownies are usually made this way. Other types of sheet cookies include butterscotch brownies or blondies.</td>
</tr>
</tbody>
</table>
Summary

In this section, you learned the following:

- Make pie crusts using a basic pie dough called 3-2-1 dough. It’s called this because it is made of three parts flour, two parts fat, and one part water (by weight). Made properly, the crust is flaky and crisp. It is important to use pastry flour and work the dough as little as possible. Make sure both the fat and liquid are cold when mixed into the dough. The fats used are shortening, butter, or lard, and the liquid is usually water, milk, or cream. Many pies use fruit fillings. Prepare these fillings using sliced and peeled fresh fruit that is either poached with a liquid or allowed to cook as the entire pastry bakes.

- Use the roll-in dough method for Danish, croissant, and puff pastry. Proper mixing methods, rolling techniques, and temperature control are necessary to produce a flaky, quality product. Roll the dough out into a large rectangle. Then, fold the dough over in thirds, roll it out again, and then fold it the appropriate number of times to create the shape the recipe calls for. Pastry chefs also commonly use other doughs, such as phyllo and pâte à choux, for pastries. Use phyllo dough to prepare baklava, a dessert made of thin pastry, nuts, and honey. Make pâte à choux by combining water (or another liquid), butter, flour, and eggs into a smooth batter.

- Pastry chefs make most cookies from rich dough. Typically, rich dough uses the same creaming method as quick breads and cake batters, but with the liquid and the flour added at the same time. The creaming of the dough determines the texture of the cookie and how much it will spread in the pan during baking. Cookies should be colorful and appetizing. Due to their high sugar content, cookies are best when they are baked in convection ovens. There are seven makeup methods for cookies: dropped, bagged, rolled, molded, icebox, bar, and sheet.
Section 8.4 Review Questions

1. What kind of dough is pie usually made of?
2. What are the ingredients and proportions in 3-2-1 dough?
3. What is roll-in dough used to make?
4. List three makeup methods for cookies and describe each of them.
5. Gale Gand talks about baking pumpkin pies for Thanksgiving. Find recipes for two other traditional holiday pies served around Thanksgiving. Find at least two different recipes for each pie and compare them. How are they alike? How are they different?
6. One thing Chef Kate and Miguel are certain of is that they want to have one house-made pie on the new menu. Which pie would you select for them and why? Remember to take into account cost, appeal, and labor.
7. Why is the roll-in dough method useful in making lighter pastries?
8. Why is lard better to use in pie-crust making than shortening?
Section 8.4 Activities

1. **Study Skills/Group Activity: Comparing Shortenings**
   
   In kitchen stations, compare the characteristics of regular and emulsified shortening. Compare the plasticity (spreadability), melting point, weight by volume, feel, and any other traits that might be considered. Why would emulsified shortening be best for light, high-ratio cakes?

2. **Independent Activity: Cookies of the World**
   
   Research a traditional cookie from a foreign country. For example, you might select a cookie from Austria called the *Linzer Augen*. Describe the cookie, where it is from, and how it is made.

3. **Critical Thinking: Cookie Makeup Methods**
   
   Research two cookie makeup methods. How does each work? Why is each used? What kinds of cookies are produced through each method? Then, compare and contrast the two in one-page report.
SECTION 8.5 CHOCOLATE

Chocolate has a long and colorful history. The Mayans believed it was a divine food from the gods. The French once thought it to be a dangerous drug. And many people and cultures throughout the ages have associated chocolate with love and romance, which seems especially appropriate given how many people simply love eating it. In fact, chocolate is more popular than ever. There are more varieties and types of chocolate available than ever before. Restaurant and foodservice operations can capitalize on this trend, but chefs need to know the basics of chocolate first. This section covers how chocolate is made, stored, and tempered.

Study Questions

After studying Section 8.5, you should be able to answer the following questions:

■ How is chocolate made?
■ How is chocolate stored?
■ How is chocolate tempered?

Chocolate Preparation and Products

Chocolate is produced from cocoa beans picked from cacao trees. Americans usually think of chocolate as a sweet, used in cookies, candies, cakes, and other desserts. However, chocolate is very versatile and can be used in many main dishes.

To make chocolate, processors roast the cocoa beans, as shown in Figure 8.11 on the following page. Machinery loosens the outer shells and cracks the beans
into small pieces, called nibs. Nibs are the basis of all cocoa products. The cocoa beans are then crushed into a paste that is completely unsweetened, called chocolate liquor. Chocolate liquor may be ground (possibly with other ingredients, such as sweeteners or flavorings) to give it an even smoother texture, or it may be pressed to separate the liquid from the solid materials. The liquid is cocoa butter, which can be combined with chocolate liquor to make eating chocolate, or flavored and sweetened to make white chocolate. The solids are further ground to form cocoa powder. For a full list of chocolate products, see Table 8.7.

Table 8.7: Chocolate and Related Products

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
<th>Purchase Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chocolate, bittersweet</td>
<td>Solid chocolate made with 35–50% chocolate liquor, 15% cocoa butter, and 35–50% sugar; interchangeable with semi-sweet chocolate; may have added ingredients, such as nuts, fillings, stabilizers, emulsifiers, and/or preservatives</td>
<td>Solid, in blocks, bars, chunks, and chips</td>
</tr>
<tr>
<td>Chocolate liquor</td>
<td>Chocolate-flavored portion of the chocolate; obtained by grinding and liquefying chocolate nibs</td>
<td>(See Chocolate, unsweetened)</td>
</tr>
<tr>
<td>Chocolate, semi-sweet</td>
<td>Solid chocolate made with about 45% chocolate liquor, 15% cocoa butter, and 40% sugar; interchangeable with bittersweet chocolate; may have added ingredients</td>
<td>Solid, in blocks, bars, chunks, and chips</td>
</tr>
<tr>
<td>Chocolate, unsweetened (bitter or baking)</td>
<td>Solid chocolate made with about 95% chocolate liquor, 5% cocoa butter, and 5% sugar and other flavorings</td>
<td>Solid, in blocks or bars</td>
</tr>
<tr>
<td>Cocoa</td>
<td>Chocolate from which all but 10–25% of the cocoa butter has been removed</td>
<td>Powder, in bulk and cans</td>
</tr>
<tr>
<td>Cocoa, breakfast</td>
<td>Cocoa with at least 22% cocoa butter</td>
<td>Powder, in bulk and cans</td>
</tr>
<tr>
<td>Cocoa butter</td>
<td>Vegetable fat portion of chocolate; removed for cocoa; added for chocolate</td>
<td>Wrapped in plastic at room temperature</td>
</tr>
<tr>
<td>Cocoa, Dutch process</td>
<td>Cocoa from which all but 22–24% of the cocoa butter has been removed; treated with alkali to reduce its acidity</td>
<td>Powder, in bulk and cans</td>
</tr>
<tr>
<td>Cocoa, instant</td>
<td>Cocoa that has been precooked, sweetened (usually about 80% sugar), and emulsified to make it dissolve more easily in liquid; may have powdered milk added</td>
<td>Powder, in bulk and cans</td>
</tr>
<tr>
<td>Cocoa, low-fat</td>
<td>Cocoa with less than 10% cocoa butter</td>
<td>Powder, in bulk and cans</td>
</tr>
</tbody>
</table>
Essential Skills

Tasting Chocolate

Because chocolate is such a key ingredient in so many dishes, it is important to get a sense of what the various types of chocolate taste like so you know how each type of chocolate will affect the overall flavor profile of a dish. Tasting is much different from eating. There’s more to it than simply popping a piece of chocolate into your mouth and chewing it until it’s gone. In fact, the less chewing you do during a tasting the better. Below are simple guidelines to follow when taste-testing chocolate:

1. Get situated in a quiet, distraction-free environment, so you can concentrate fully on the taste, texture, and smell of each piece of chocolate. See Figure 8.12a.

2. Have a notepad on hand to write down your immediate impressions.

3. Make sure your palate is clean for each taste. Have a glass of water on hand to cleanse your palate of any residual food or taste. A piece of bread or unsalted crackers also help to wipe out lingering tastes. See Figure 8.12b.

4. Never taste cold chocolate, as the chill masks the true flavors of the chocolate.

5. Allow the chocolate to dissolve slowly in your mouth. Do not bite into it right away. Ideally, you won’t bite or chew it all. Instead just let it melt in your mouth.

6. Note how the flavor evolves over time. How does it taste when it first touches your tongue? How does the taste change as it begins to melt? How does it finish after it’s fully dissolved?

7. Keep a record of all of this, making sure to note the type of chocolate, how it looked, smelled, and tasted at the beginning and end. Keeping such a record will help you refine your use of chocolate in your dishes, which will help you refine your menu overall.
**Chocolate Storage**

To store chocolate, wrap it carefully, and keep it in a cool, dry, well-ventilated area. Do not refrigerate chocolate. Refrigeration causes moisture to condense on the surface of the chocolate. In hot, humid weather, however, refrigeration or freezing may be necessary to prevent flavor loss.

Sometimes a white coating, called *bloom*, appears on the surface of the chocolate, shown on Figure 8.13. The bloom indicates that some of the cocoa butter has melted and then recrystallized on the surface. This has no effect on the quality, but it does detract from the chocolate’s visual appeal. Properly stored, chocolate will last for several months. Cocoa powder stored in tightly sealed containers in a dry place will keep almost indefinitely, although most operations use a one-year rule for keeping this product.

**Figure 8.13:** Chocolate with bloom.

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**Can Chocolate Go Bad?**

Chocolate is not prone to growing microbes, so it does not have to be stored in the refrigerator. It can be stored on the shelf at room temperature for a year. After that, the fats can lose their smoothness and become a bit grainy or mealy.

If the storage is too hot, however, the fat in chocolate can oxidize and become rancid. Rancid chocolate might give you a stomachache if swallowed, but you probably wouldn’t get that far, as it would taste and smell off. Follow these guidelines for storing chocolate:

- Carefully wrap chocolate to prevent unwanted pests from eating it.
- If it has melted and rehardened, check for rancidity.
- If the chocolate contains nuts, it shortens the shelf life to that of the particular nut. Six months is the maximum for a chocolate bar with fresh roasted nuts at room temperature.
- Storing chocolate in the refrigerator or freezer can alter the smoothness of it, but it is still safe to eat, even if it has a whitish bloom on it. However, it might not melt as evenly, or have the same mouthfeel.
- Cocoa powder is very stable. Once a container is opened, it can usually be stored until it’s used up, but a year is a good guideline. Keep the container closed and/or covered. Unopened airtight containers of cocoa can be stored indefinitely.
Tempering Chocolate

Handle chocolate very carefully when using it in cooking. Chocolate contains two distinct types of fat that melt at different temperatures. Cooks melt chocolate in a process called **tempering**, melting the chocolate by heating it gently and gradually. This ensures that both fats melt smoothly, harden evenly, and have a good shine. To temper chocolate, chop the chocolate into coarse pieces and place it in a **double boiler**, a stainless steel bowl over water simmering on very low heat. Figure 8.14 shows a commercial double boiler. It is important not to get water into the chocolate, or it will become grainy.

**Figure 8.14:** A double boiler for melting chocolate.

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**Did You Know . . .?**

Chocolate comes from the seeds of the cacao tree, which is native to South America. Brazil, Peru, Ecuador, Venezuela, and Columbia all produce cacao.
Once the temperature of the chocolate reaches 105°F, remove it from the heat. Add more chocolate pieces and stir until the temperature drops to 87°F. Then place the pot back on the heat to raise the temperature to 92°F. Make sure that the tempered chocolate does not become grainy or scorched. If it does, discard it. Tempered chocolate will coat items with an even layer and then harden into a shiny shell.

To coat a food item, dip it directly into the tempered chocolate, or place it on a rack over a clean tray and pour the chocolate over it. Tempered chocolate can be drizzled or piped out into designs with a piping bag for decoration, or can be used as a glaze.

Is Dark Chocolate Really Nutritious?

Dark chocolate’s health benefits are often trumpeted, so let’s separate fact from fiction. It's definitely not a smart, healthful strategy to eat lots of chocolate, which is high in fat and sugar. But it is true that dark chocolate contains some antioxidants. Antioxidant chemicals help fight the damaging effects of aging. They also fight cancer and other illnesses. So while there are certainly better food sources for antioxidants than chocolate, it's nice to know that a piece of dark chocolate now and then is helping you towards that end.

Chocolate also has an insignificant amount of caffeine. It has more of a compound called theobromine, caffeine’s weaker chemical cousin. Theobromine can cause a slight sense of energetic euphoria and may be slightly addictive—perhaps that's why some chocolate lovers actually describe themselves as “addicts.”

So is chocolate good for you? A little bit, maybe, but don’t go overboard. As always, use moderation and good sense in maintaining a healthy diet.
Summary

In this section, you learned the following:

- Chocolate is produced from cocoa beans picked from cacao trees. Chocolate is very versatile and can be used in many main dishes, such as Chicken Mole or chicken with chocolate sauce. To make chocolate, processors roast the cocoa beans. Machinery loosens the outer shells and cracks the beans into small pieces, called nibs. Nibs are the basis of all cocoa products. The cocoa beans are then crushed into a paste that is completely unsweetened, called chocolate liquor. Chocolate liquor may be ground (possibly with other ingredients, such as sweeteners or flavorings) to give it an even smoother texture, or it may be pressed to separate the liquid from the solid materials. The liquid is cocoa butter, which can be combined with chocolate liquor to make eating chocolate, or flavored and sweetened to make white chocolate. The solids are further ground to form cocoa powder.

- To store chocolate, wrap it carefully, and keep it in a cool, dry, well-ventilated area. Do not refrigerate chocolate. Refrigeration causes moisture to condense on the surface of the chocolate. In hot, humid weather, however, refrigeration or freezing may be necessary to prevent flavor loss. Properly stored, chocolate will last for several months. Cocoa powder stored in tightly sealed containers in a dry place will keep almost indefinitely, although most operations use a one-year rule for keeping this product.

- Chocolate contains two distinct types of fat that melt at different temperatures. Cooks melt chocolate in a process called tempering, melting the chocolate by heating it gently and gradually. This ensures that both fats melt smoothly, harden evenly, and have a good shine. To temper chocolate, chop the chocolate into coarse pieces and place it in a double boiler, a stainless steel bowl over water simmering on very low heat. It is important not to get water into the chocolate. Once the temperature of the chocolate reaches 105°F, remove it from the heat. Add more chocolate pieces and stir until the temperature drops to 87°F. Then place the pot back on the heat to raise the temperature to 92°F. Make sure that the tempered chocolate does not become grainy or scorched. If it does, discard it. Tempered chocolate will coat items with an even layer and then harden into a shiny shell.
Section 8.5 Review Questions

1. How is cocoa butter made?
2. What are nibs?
3. Why should you avoid refrigerating chocolate if possible?
4. How many types of fat are in chocolate?
5. Gale Gand specifically mentions dipping truffles in melted chocolate and placing each in cocoa powder. Research a dessert recipe for something else that can be dipped in melted chocolate.
6. Miguel and Chef Kate are thinking about putting a chocolate dessert on the menu. What kind of dessert would you choose for them and why?
7. The process for tempering chocolate is very intricate. What do you think would happen if you heated it all at once without following the process described in the text? Do you think the texture would change? If so, how? Do you think the taste would change? Explain your rationale.
8. What is the history behind chocolate making? Who first discovered the process for making modern chocolate? How many steps are involved?
Section 8.5 Activities

1. Study Skills/Group Activity: Blooming Stations
Set up stations for causing “bloom” to happen to chocolate: A steam station, an ice station, a cold-air (refrigerator) station, and a warm-air station. (Be sure to be careful with the heat source!) Expose one freshly made chocolate drop to each condition. Note your findings and compare with the rest of the class.

2. Independent Activity: Perfect Chocolate-Dipped Strawberry
In class, have a contest to produce The Perfect Chocolate-Dipped Strawberry. Rate the product from 1 to 5 on the following criteria: quality of the berry, ease of eating, smoothness of the chocolate, appearance, and shine of the cooled chocolate.

3. Critical Thinking: White Chocolate
Research white chocolate. What is it? How is it made? Write a one-page report about white chocolate and its common uses in cuisine.
SECTION 8.6 SPECIALTY DESSERTS

The dessert specialties described in this section are as ageless as they are timeless. Ice cream and frozen treats are staple American desserts, enjoyed by kids and adults alike. Poached fruit and tortes have been favorites for centuries, and the wide variety of dessert creams and sauces enhance the taste of most any dish. In this section, each of these items are discussed, as are the best ways to plate and present desserts, a skill no successful foodservice operation can or should overlook.

Study Questions

After studying Section 8.6, you should be able to answer the following questions:

- What are the different types of frozen desserts?
- What are poached fruit and tortes?
- What are dessert sauces and creams?
- How should desserts be plated and presented?

Frozen Desserts

Ice cream has a long history as a dessert favorite. To be accurately labeled “ice cream,” ice cream must contain a certain amount of milkfat. Vanilla ice cream must contain no less than 10 percent milkfat; other flavors must contain at least 8 percent milkfat. Quality ice cream has a custard base (cream and/or milk and eggs), melts readily in the mouth, and does not weep, or separate, when it softens at room temperature. Ice cream can be served as part of a larger dish, on its own, or in one of its many forms (ice cream bar, ice cream float, ice cream sundae, etc.).
Gelato is an Italian version of ice cream that is gaining in popularity. It’s made with most of the same ingredients as ice cream, but does not contain eggs. Gelato is often made with whole milk, but rarely with cream.

Sherbets and sorbets are frozen mixtures of fruit juice or fruit purée. Sherbet contains milk and/or egg for creaminess; sorbet contains no dairy, just fruit juice or purée with sweeteners and other flavors or additives. Serve sorbet as a first course, as a palate cleanser between courses, or as a dessert. Serve sherbets as a dessert item, as a rule.

Frozen yogurt contains yogurt in addition to the normal ice cream ingredients, such as sugar or other sweeteners, gelatin, coloring, and flavors. Make frozen yogurt with non-fat or low-fat yogurt. Frozen yogurt both freezes and melts more slowly than ice cream. Figure 8.15 shows various frozen desserts.

**Did You Know . . .?**

Americans consume approximately 23 quarts of frozen desserts each year. That’s more than a pint a week for every man, woman, and child in the United States.

**Figure 8.15:** Frozen desserts: ice cream, gelato, sorbet, sherbet, and frozen yogurt.
Poached Fruit and Tortes

To **poach fruit**, combine fruit with a liquid, usually a mixture of sugar, spices, and wine. Heat the fruit and liquid together until the fruit is tender. Test for doneness with a fork; the fruit is fully poached when it is easy to pierce. The

**Sugar-Free Ice Cream**

Diabetes is on the increase in the United States. A treatable, yet life-altering and life-threatening disease, diabetes requires diligent attention to a low-sugar diet. Persons with diabetes cannot properly digest dietary sugar because their bodies don’t produce insulin, a hormone that controls sugar glucose in the blood. They must carefully select their food accordingly. Does this rule out desserts completely? In most cases, yes, unless the desserts are adapted to the needs of the diabetic customer.

Artificial sweeteners have opened new horizons of cuisine to diabetics. Aspartame, saccharine, sucralose, acesulfame K, and neotame are all available to consumers now. Desserts made with these ingredients can be sweet and delicious.

Each sugar substitute performs differently in baking, boiling, holding, refrigeration, freezing, etc. Some stay deliciously sweet under a particular set of circumstances, while others might go bitter. Research the best alternative sweetener for a given recipe. Seek out ways to include some sugar-free high-quality desserts for your diabetic customers. The word will spread!

**Cream-Free Ice Cream?**

Soy beans can be finely ground and made into a smooth emulsion with oil and water. This is called soy milk. This milk can be coagulated and pressed into a semi-solid form. In Asian cuisine, this form is called **tofu**. Tofu can be used as a substitute for cheese, cream, or milk in recipes if handled correctly. Tofu contains no dairy, no meat, and no eggs.

David Mintz, a Manhattan restaurateur, served only kosher menu items at his deli. But he wanted to expand his menu to include mixed dishes (like lasagna) that combine milk products and meat, which is not kosher. He experimented with tofu and learned to seamlessly substitute it for the dairy foods. The customers could not tell the difference, to the point that some kosher guests were offended. He assured them that what they were eating was, indeed, kosher.

He saw the potential for a frozen ice cream-like dessert made from tofu. After much experimentation, trial, and error, he developed delicious Tofutti®. That was 30 years ago. Since then, the value of soy-based desserts has been realized on a large scale, and there are now soy-based frozen desserts accessible at most any supermarket. Soy-based desserts are more than just kosher. They are cholesterol-free, dairy-free, lactose-free, egg-free, and vegan. What a great invention!
greater the amount of sugar in the poaching liquid, the more firm fruit will be when it is done. Handle poached items with care for easier plating. Poached fruits include favorites such as peach Melba and pears belle Hélène. Use fruits that are firm enough to hold their shape during cooking. Good fruits to use for poaching are apples and pears. Figure 8.16 shows a pear poaching in spiced red wine.

A **torte** is an elegant, rich, many-layered cake often filled with buttercream or jam. Normally, pastry chefs use génoise (zhenn-WAAHZ), French sponge cake, in preparing a torte. Split it into layers, and then top each layer with the buttercream or jam filling. Place the layers back together, coat the entire cake with simple syrup, then frost it. Figure 8.17 shows a torte being prepared.

**Dessert Sauces and Creams**

Chefs use sauces to add flavor, moisture, and eye appeal to desserts. Vanilla sauce, also known as **crème Anglaise** (krem an-GLAYZ), shown in Figure 8.18 on the following page, is a classic accompaniment to soufflés and steamed puddings. It is a light, vanilla-flavored custard sauce made from milk, egg yolks, and sugar. Handle it carefully; it is quite delicate. It is especially important to assemble all the necessary equipment before preparing the sauce. If the sauce begins to overheat it can **curdle**, or develop lumps. It may be possible to save it by straining it immediately into a container set in an ice-water bath, as shown in Figure 8.19 on the following page. Other popular sauces include caramel, butterscotch, chocolate, and fruit sauces.

**Fruit sauces** can be raw or cooked, depending upon the desired flavor. A **coulis** is a fruit sauce made from fresh berries or other fruits. If cooked at all, it is cooked just lightly to activate a thickener. Strain out seeds and skins with a chinois, and thicken the remaining pulp with cornstarch, arrowroot, or even a light pectin. Keep cooking to an absolute minimum to maintain the fresh flavor of the sauce. Use coulis to top ice cream, cheesecake, or other dessert items. A coulis can be spooned on or piped through a tip. If piped, it should be thick enough to form a bead. A **fruit syrup**, by contrast, is a cooked sugar-based juice. The sugar itself provides the thickening as the liquid boils and is reduced. Use fruit syrups to garnish desserts and ice cream or to complement breakfast items.
When pastry chefs cook sugar and caramelize it with butter, the result is **caramel sauce**. Sometimes they add cream, but the basic principles are the same. The greater the heat, the darker the caramel. The ideal color is an amber golden brown. Also, the longer the cooking time, the more the sugar crystal will develop, so the harder the caramel will be. Be careful not to overcook a caramel sauce, or it will become too thick. Add vanilla and brown sugar to the caramel recipe to create **butter-scotch-flavored sauce**. This is a bit more full flavored than the milder caramel.

**Chocolate sauce** is a family of sauces and syrups with cocoa or melted chocolate as the base. There is usually some butter and corn syrup in the recipe to maintain the flowing liquid quality of the sauce. Some chocolate sauces will harden again when cooled, such as a chocolate fondue. Those that are truly a syrup will remain liquid when cold; these are the types that work best as an ice cream topping. For a hardened chocolate shell over ice cream, use a special formulation of chocolate with a saturated oil. A drizzle of chocolate sauce is a welcome addition to just about any dessert.

Any of these sauces can be prepared in advance; however, **sabayon** (sa-by-ON), or **zabaglione** (zah-bahl-YOH-nay), is one sauce that is too delicate to be made ahead of time and held. Sabayon is a fragile foam of egg yolks, sugar, and Marsala wine. Whip it constantly as it cooks over simmering water until it becomes thick and light.

**Pastry creams**, also called **crème pâtissière**, have greater density than custards and are frequently used as the filling for pastries such as éclairs. Use these creams as a soufflé base as well. Cook eggs, sugar, flour or cornstarch, milk, and/or cream together into a very thick, smooth mixture. Pastry cream, as a basic preparation, is part of the **mise en place** for many kitchen desserts. Figure 8.20 shows a variety of pastries with cream.
Make delicate **Bavarian creams** by combining three basic ingredients: vanilla sauce, gelatin, and whipped cream. Combine the vanilla sauce with the dissolved gelatin. Then, cool this mixture over an ice-water bath until it mounds slightly when dropped from a spoon. Fold whipped cream into the mixture and pour it into molds. Use Bavarian creams as single items, or as fillings for a variety of pastries.

**Essential Skills**

*Making Crème Anglaise (Vanilla Sauce)*

1. Carefully scale or measure all ingredients. See Figure 8.21a.
2. Heat the milk or milk/cream combination with some of the sugar to just below a boil. See Figure 8.21b.
3. Combine the eggs with the remainder of the sugar.
4. Temper (gently heat) the eggs with the hot milk and return the mixture to the pan. See Figure 8.21c.
5. Stirring constantly, cook the sauce over low heat, or pour the tempered egg mixture into custard cups and bake in a bain-marie until the custards are set. See Figure 8.21d.
Plating and Presenting Desserts

Food presentation is an art, and good plate presentation results from careful attention to colors, shapes, textures, and arrangement of food on the plate. Plate presentation involves the ability to visually please the guest while ensuring that the visual enhancements also complement the taste of the dish. Guests eat first with their eyes (appearance), then their noses (smell), and finally their mouths (taste). All foods must work together to form a pleasing work of art on the plate.

There are two areas of presentation technique: first, the food itself, and second, the plate, platter, or dish as a whole. Figure 8.22 on the following page shows a range of dessert platings, from the uninspired to the elegant. When plating desserts, keep the presentation simple. Everything on the plate should be edible. Fruit sauces shouldn’t envelope the whole dessert. Instead, use sauces in moderation to add a note of visual appeal while enhancing the flavor of the main dessert, not overwhelming it. Sometimes, a dessert calls for a shallow pool of sauce at the center of the dish; sometimes just a swirl of sauce on the plate or the dessert item itself is enough.

Syneresis vs. Curdling: How to Evaluate the Safety of Egg-Based Desserts

Cooked eggs or egg yolks in a sauce or custard can coagulate, or cook unevenly. This is called curdling, but it’s not the same curdling that milk does when it turns sour. Eggs curdling in cooking can affect the quality of the product, but do not make it unsafe to consume. Overheating stirred cooked custard can cause curdling problems.

When a chef cooks stirred egg custard with a starch, such as cornstarch, the egg portion does not curdle as readily. The starch provides a chemical protection. The result is a smoother product that can actually be gently boiled in preparation.

When a custard is baked, the protein of the eggs forms a structure. Baked custard almost looks like golden-opaque gelatin. This structure is soft and holds water chemically within. As the custard is cut and served, or as it sits and ages, some of the watery liquid leaks from the gel structure. This is called syneresis. It is safe to eat.

Baking a custard too hot and too fast affects the amount of water held in the structure, and increases the syneresis. It can also make the protein structure tough. The key to a smooth custard that doesn’t weep watery liquid is lower heat and patience. Serve it after it gently cools or store it in the refrigerator.
Chocolate piping is a popular dessert garnish. Like dessert sauces, it’s used for visual appeal and taste enhancement as shown in Figure 8.23.

It is also important to think about how to arrange the food on the plate. For example, should the dessert be in the center of the plate or slightly to the side? If the dessert is round or square, it might be better in the center, whereas a slice of cake or torte might present better slightly to the side. Finally, it’s best to place dessert decoration in threes, because that tends to be appealing to the eye.

**Summary**

In this section, you learned the following:

- Ice cream must contain a certain amount of milkfat. Vanilla ice cream must contain no less than 10 percent milkfat; other flavors must contain at least 8 percent milkfat. Quality ice cream has a custard base (cream and/or milk and eggs), melts readily in the mouth, and does not weep, or separate, when it softens at room temperature.

- Sherbets and sorbets are frozen mixtures of fruit juice or fruit purée. Sherbet contains milk and/or egg for creaminess; sorbet contains no dairy products. Serve sorbet as a first course or as a palate cleanser between courses. Serve sherbets as a dessert item, as a rule.

- Frozen yogurt contains yogurt in addition to the normal ice cream ingredients, such as sugar or other sweeteners, gelatin, coloring, and flavors. Make
yogurt with either non-fat or low-fat yogurt. Frozen yogurt both freezes and melts slower than ice cream.

- To poach fruit, combine fruit with a liquid, usually a mixture of sugar, spices, and wine. Then, heat the fruit and liquid together until the fruit is tender. The greater the amount of sugar in the poaching liquid, the more firm the fruit will be when it’s done. Poach fruits that are firm enough to hold their shape during cooking. Good fruits to use for poaching are apples and pears.

- A torte is an elegant, rich, many-layered cake often filled with buttercream or jam. Chefs normally use génoise, French sponge cake, in preparing a torte. Split it into layers, and top each layer with the buttercream or jam filling. Then, place the layers back together, coat the entire cake with simple syrup, and frost it.

- Use sauces to add flavor, moisture, and eye appeal to desserts. Vanilla sauce, also known as crème Anglaise, is a classic accompaniment to soufflés and steamed puddings. It is a light, vanilla-flavored custard sauce made from milk, egg yolks, and sugar. Other popular sauces include caramel, butterscotch, chocolate, and fruit sauces. Any of these sauces can be prepared in advance; however, sabayon, also called zabaglione, is one sauce that is too delicate to be made ahead and held. Sabayon is a fragile foam of egg yolks, sugar, and Marsala wine. Whip it constantly as it cooks over simmering water, until it becomes thick and light.

- Pastry creams have greater density than custards and are frequently used as the filling for pastries such as éclairs. These creams may also be used as a soufflé base. Cook eggs, sugar, flour or cornstarch, milk, and/or cream together into a very thick, smooth mixture. Pastry cream, as a basic preparation, is part of the mise en place for many kitchen desserts. Make delicate Bavarian creams by combining three basic ingredients: vanilla sauce, gelatin, and whipped cream. Combine the vanilla sauce with the dissolved gelatin. Then cool this mixture over an ice-water bath until it mounds slightly when dropped from a spoon. Fold whipped cream into the mixture and pour it into molds. Use Bavarian creams as single items or as fillings for a variety of pastries.

- Food presentation is an art, and good plate presentation results from careful attention to colors, shapes, textures, and arrangement of food on the plate. Plate presentation involves the ability to visually please the guest while ensuring that the visual enhancements also complement the taste of the dish. There are two areas for presentation techniques: first, the food itself, and second, the plate, platter, or dish as a whole. When plating desserts, keep the presentation simple. Everything on the plate should be edible. Fruit sauces shouldn’t envelope the whole dessert. Instead, use sauces in moderation to add a note of visual appeal while enhancing the flavor of the main dessert, not overwhelming it. Chocolate piping is a popular dessert garnish. It is also important to think about how to arrange the food on the plate. Finally, it’s best to place dessert decoration in threes, because that tends to be appealing to the eye.
Section 8.6 Review Questions

1. List four types of frozen desserts.
2. Name two fruits that are good for poaching.
3. What are the three main ingredients in vanilla sauce?
4. What are the two main criteria for dessert plate presentation?
5. Gale Gand mentions the need for improvisation, a new take on a traditional idea. How might you change the presentation of a traditional frozen dessert such as ice cream, sorbet, or frozen yogurt?
6. Part of the problem with Kabob’s dessert menu is not just the quality of the food, it is also the quality of the presentation. What are three tips you could give Miguel and Chef Kate in plating and presenting their desserts?
7. Why does quality vanilla ice cream require a minimum of 10 percent milk-fat, while all other ice creams require a minimum of 8 percent?
8. Write up a garnishing specification sheet for each of the three dessert items below. Make sure to include the type of plate or bowl that should be used, how the food should be arranged on the plate, and any garnish that you would use and where.
   - Chocolate torte
   - Vanilla ice cream
   - Strawberry shortcake
Section 8.6 Activities

1. **Study Skills/Group Activity: Making Crème Brûlée**
   As a class, observe a demonstration of creating a crème brûlée, prepared with a culinary blow-torch to caramelize the top. Then break up into groups of three or four and try to replicate the process.

2. **Independent Activity: Petits Fours**
   What are petits fours? Cookies? Cakes? Pastries? Candy? When are they served? How are they made? Write a paragraph about petits fours. Include a color drawing of one of your own design. Label the parts, including flavors.

3. **Critical Thinking: Keeping Ice Cream Cold**
   Research online the best temperatures for freezing ice cream. How does air in the product affect taste and texture? What happens when ice cream is not stored at optimal temperatures? Why is this so? Write a one-page report of your findings.
Case Study Follow-Up *Dessert Dilemma*

Miguel and Chef Kate have received poor customer feedback on their dessert options. They are trying to resolve this dilemma.

1. After having read this chapter, do you think dessert is just as vital an aspect of menu planning as other courses? Why or why not?
2. If you had to suggest a five-item dessert menu especially tailored to Kabob’s needs and means, what would you suggest? Why?
3. Take the five items you just suggested and create a presentation spec for each one. Make sure to include all sauces, garnish, and plateware that should be used.
Apply Your Learning

Converting Measurements

Sometimes, it is easy to forget that what you learn in math class is the same math you will need in chemistry classes, food classes, and daily life. Math is important in the commercial kitchen in order to accurately read, use, and convert recipes.

Convert the following recipe for pie crust to yield 10 shells:

Yields: 6 pounds
Pastry flour, 3 pounds
Salt, 1 ounce
Granulated sugar, 3 ounces
All-purpose shortening, 1 pound 14 ounces
Water (cold), 14 fluid ounces

1. Sift the flour, salt, and sugar together in a bowl.
2. Cut the shortening into the flour mixture until the desired consistency (flaky or mealy) is reached.
3. Gradually add the cold water, mixing gently until the dough holds together. Do not over mix or add too much water.
4. Cover the dough with plastic wrap and chill thoroughly before using.

Since this is a real situation you will be faced with in the restaurant and foodservice industry, do not rely on your instructor to walk you through this problem. Show your work, and write out the verbal explanation for each step.

Bread and Culture

Bread is involved in many traditional and cultural events and ceremonies. Research one. Share with the class the type of bread you chose, how it is made, the culture it comes from, the significance it has in that culture, and the kind of ceremony in which it is used.

Selling Double-Acting Baking Powder

Research and learn how double-acting baking powder works. Why does it act as a leavening agent? What makes it different from baking soda and vinegar? Does it make baking easier and/or more successful? How?
Create a brief brochure or sales document as if you were selling double-acting baking powder to people who had never used it. Include artwork, recipes, chemical equations, or whatever else you want. Make sure the brochure answers all the questions asked in the first paragraph.

**Critical Thinking  The Upper Crust**

People can be very particular about their pie crusts, and it is wise in the restaurant and foodservice industry to have a sense of what your particular likes and dislikes are as well. Make a homemade pie and sample a few different slices of store-bought pie, paying close attention to the crusts. Note textures: Is it crumbly or flaky? Note tastes: Is it sweet? Sour? Salty? Savory? After you’ve done your taste-testing research, write a one-page summary of what you’ve found, and, most important, what your favorite type of crust is.
Exam Prep Questions

1. What allows the dough or batter to rise?
   A. Leaveners
   B. Sweeteners
   C. Shortenings
   D. Strengtheners

2. In baking, ingredients are given percentages in relation to
   A. eggs.
   B. milk.
   C. flour.
   D. sugar.

3. What are the two types of dough used for yeast breads?
   A. Rich dough and lean dough
   B. Flaky dough and flat dough
   C. Sweet dough and salty dough
   D. Milk-based dough and water-based dough

4. What is the first step in yeast bread preparation?
   A. Scaling
   B. Proofing
   C. Rounding
   D. Fermentation

5. A scone is an example of a
   A. cake.
   B. soufflé.
   C. yeast bread.
   D. quick bread.

6. Steamed puddings are more stable than soufflés because they have a
   A. greater percentage of eggs and sugar in the batter.
   B. smaller percentage of eggs and sugar in the batter.
   C. greater percentage of milk and flour in the batter.
   D. smaller percentage of milk and flour in the batter.

7. What are the ingredients and proportions in 3-2-1 dough?
   A. Three parts flour, two parts fat, one part water
   B. Three parts fat, two parts water, one part flour
   C. Three parts water, two parts flour, one part fat
   D. Three parts flour, two parts water, one part fat

8. What is the basis of all cocoa products?
   A. Cocoa nibs
   B. Cocoa butter
   C. Cocoa liquor
   D. Cocoa powder

9. When tempering chocolate, the chocolate is heated
   A. gently the entire time.
   B. rapidly the entire time.
   C. rapidly at first and then gently.
   D. gently at first and then rapidly.
For a product to be accurately labeled vanilla ice cream, it must contain at least what percentage of milkfat?

A. 1  
B. 5  
C. 10  
D. 15

**Soft Yeast Dinner Rolls**  
*Yield: 64 Rolls, approximately 1.25 ounces each*  
*Method: Straight dough*  
*Fermentation: 1 hour*  
*Proofing: 30 to 45 minutes*  
*Cooking time: 15 minutes*

**Ingredients**

- 2 oz Active dry yeast
- 1 lb 8 oz Water (temperature controlled)
- 2 lb 12 oz Bread flour
- 1 oz Salt
- 4 oz Granulated sugar
- 2 oz Non-fat dry milk powder
- 2 oz Shortening
- 2 oz Unsalted butter, softened
- 3.2 oz (2) Eggs
- As needed Egg wash

**Total Dough Weight: 5 pounds, 4 ounces**

**Directions**

1. Preheat oven to 400°F.
2. Dissolve the yeast in the water in a bowl. Combine the flour, salt, sugar, milk powder, shortening, butter, and eggs in the bowl of a mixer fitted with a dough hook.
3. Add the water and yeast mixture to the mixer bowl; stir to combine.
4. Knead on medium speed 10 minutes or until the dough reaches 77°F.
5. Transfer the dough to a lightly greased bowl, cover, and place in a warm spot. Allow to rise until doubled, approximately 1 hour.
6. Punch down the dough. Let it rest a few minutes to allow the gluten to relax.
7. Divide the dough into 1 ¼ ounce portions and round. Shape as desired and arrange on paper-lined sheet pans. Proof until doubled in size.
8. Carefully brush the proofed rolls with egg wash. Bake at 400°F until medium brown, approximately 12 to 15 minutes.

**Recipe Nutritional Content**

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>Amount</th>
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<tbody>
<tr>
<td>Calories</td>
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<tr>
<td>Saturated fat</td>
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<tr>
<td>Trans fat</td>
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<td>Calcium</td>
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<tr>
<td>Iron</td>
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</table>

Nutritional analysis provided by FoodCalc®, www.foodcalc.com
Flourless Chocolate Cake

Yield: 21 servings
Method: Egg foam

Ingredients

| 1 lb | Unsalted butter |
| 27 oz | Dark chocolate |
| 2 lb | Eggs, separated |
| 7 oz | Granulated sugar |
| As needed | Powdered sugar |
| As needed | Vanilla and chocolate custard sauce |
| Total batter weight: 5 pounds 2 ounces |

Directions

1. Preheat oven to 400°F.
2. Melt the butter and chocolate over a bain marie.
3. Whisk the egg yolks in the melted chocolate.
4. Whip the egg whites until shiny. Add the granulated sugar and whip until very stiff. Fold into the chocolate. Pour the batter unto a full-size hotel pan that is lined with butter parchment.
5. Bake at 400°F for 10 minutes. Lower the oven temperature to 350°F and continue baking until done, approximately 40 minutes.
   Note: A cake tester will not come out clean, even though the cake is done.
6. Invert the cake onto the back of a sheet pan and remove the hotel pan. Cool completely, and then dust with powdered sugar. Serve garnished with vanilla or chocolate custard sauce.

Recipe Nutritional Content

| Calories | 460 | Calories from fat | 300 | Saturated fat | 13 g | Trans fat | 0 g | Cholesterol | 240 mg | Sodium | 70 mg | Carbohydrates | 33 g | Dietary fiber | 2 g | Protein | 8 g |
| Vitamin A | 20% | Vitamin C | 0% | Calcium | 4% | Iron | 8% |

Nutritional analysis provided by FoodCalc®, www.foodcalc.com
### Linzer Tart

*Yield: 8–10 Servings*

**Ingredients**

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<th>Quantity</th>
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<tbody>
<tr>
<td>8 oz</td>
<td>Unsalted butter (softened)</td>
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<tr>
<td>8 oz</td>
<td>Granulated sugar</td>
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<tr>
<td>1.3 oz</td>
<td>Egg yolks</td>
</tr>
<tr>
<td>4 oz</td>
<td>Orange zest (fine grate)</td>
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<td>.2 oz</td>
<td>Lemon zest (fine grate)</td>
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<td>11 oz</td>
<td>All-purpose flour</td>
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<td>Hazelnuts (ground fine)</td>
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<table>
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<tr>
<td>.14 oz</td>
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<tr>
<td>.14 oz</td>
<td>Cinnamon, ground</td>
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<tr>
<td>.04 oz</td>
<td>Cloves, ground</td>
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<tr>
<td>.05 oz</td>
<td>Salt</td>
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<tr>
<td>14 oz</td>
<td>Raspberry preserves</td>
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**Total dough weight: 2 pounds 3 ounces**

**Directions**

1. To make dough, cream together the butter and sugar until light and fluffy. Add the egg yolks and the orange and lemon zest. Beat until well combined.

2. In another bowl, mix together the flour, hazelnuts, baking powder, cinnamon, cloves, and salt. Add the dry mixture all at once to the creamed mixture and mix briefly, until just combined. (This dough looks more like cookie dough than pastry.) Wrap in plastic and chill until firm, at least 4 hours or overnight.

3. Divide the dough in half. On a generously floured board, briefly knead one piece of dough and flatten it with the palm of your hand. Gently roll the dough and flatten out to ¼ inch thick. Use it to line a 9- or 10-inch tart pan with a removable bottom. This rich dough patches easily. Chill approximately 10 minutes.

4. Roll out the second piece of dough to form a 12-inch x 4-inch rectangle. Using a sharp knife or pastry wheel, cut lengthwise strips in parallel lines, ½ inch wide.

5. Remove the lined tart shell from the refrigerator and spread the raspberry preserves evenly over it. To create the lattice pattern with the pastry strips, first lay some strips in parallel lines, ½ inch apart. Then lay a second row of strips at a 45 degree angle to the first. Press the strips to the edge of the crust to seal.

6. Bake at 350°F until the crust is golden brown and the filling is bubbly in the center, approximately 45 minutes. Set aside to cool.

**Recipe Nutritional Content**

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<td>Trans fat</td>
<td>0 g</td>
<td>Sugars</td>
<td>20 g</td>
</tr>
</tbody>
</table>

Vitamin A: 6%
Vitamin C: 6%
Calcium: 4%
Iron: 8%

Nutritional analysis provided by FoodCalc®, www.foodcalc.com