A Correlation of

SCOTT FORESMAN • ADDISON WESLEY

Mathematics

to the

New York
Core Curriculum Standards
for Mathematics
Grades K-6

PEARSON
Scott Foresman
O/M-159A
Introduction

This document demonstrates the high degree of success students will achieve when using *Scott Foresman – Addison Wesley Mathematics* in meeting the objectives of the New York Learning Standards for Mathematics. Correlation page references are to the Teacher’s Edition. Lessons in the Teacher’s Edition contain facsimile Student Edition pages.

*Scott Foresman – Addison Wesley Mathematics* was carefully developed to reflect the specific needs of students and teachers at every grade level, while maintaining an overall primary goal: to have math make sense from every perspective. This program is based on scientific research that describes how children learn mathematics well and on classroom-based evidence that validates proven reliability.

- **Reaching All Learners**
  *Scott Foresman – Addison Wesley Mathematics* addresses the needs of every student through structured instruction that makes concepts easier for students to grasp. Lessons provide step-by-step examples that show students how to think about and solve the problem. Built-in leveled practice in every lesson allows the teacher to customize instruction to match students’ abilities. Reaching All Learners, featured in the Teacher Edition, helps teachers meet the diverse needs of the classroom with fun and stimulating activities that are easy to incorporate directly into the lesson plan.

- **Test Prep**
  *Scott Foresman - Addison Wesley Mathematics* builds understanding through connections to prior knowledge, math strands, other subjects and the real world. It provides practice for maximum results and offers assessment in a variety of ways. Besides carefully placed reviews at the end of each Section, an important Test Prep strand runs throughout the program. Writing exercises prepare students for open-ended and short-or extended-response questions on state and national tests. Spiral review in a test format help students keep their test-taking skills sharp.

- **Priority on problem solving:**
  Problem-solving instruction is systematic and explicit. Reading connections help children with problem-solving skills and strategies for math. Reading for Math Success encourages students to use the reading skills and strategies they already know to solve math problems.

- **Instructional Support**
  In the Teacher Edition, the Lesson Planner provides an easy, at-a-glance planning tool. It identifies objectives, math understandings, focus questions, vocabulary, and resources for each lesson in the chapter. Professional Development at the beginning of each chapter in the Teacher Edition includes a Skills Trace as well as Math Background and Teaching Tips for each section in the chapter.

Ancillaries help to reach all learners with practice, problem solving, hands-on math, language support, assessment and teacher support. Technology resources for both the student and the teacher provide a whole new dimension to math instruction by helping to create motivating and engaging lessons.
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PROCESS STRANDS

Problem Solving Strand

Students will:
- build new mathematical knowledge through problem solving;
- solve problems that arise in mathematics and in other contexts;
- apply and adapt a variety of appropriate strategies to solve problems;
- monitor and reflect on the process of mathematical problem solving.

Open-ended problems are found throughout the text, including specific Problem Solving lessons in each chapter. The Teacher’s Edition also provides prompts to help children vocalize their thoughts about solving problems. Problem Solving lessons that focus on understanding and applying individual strategies appear in every chapter. In addition, a Problem Solving Applications lesson appears at the end of every chapter, providing children with opportunities to apply strategies learned from the current chapter and previous chapters to solve real-world problems.

Reasoning and Proof Strand

Students will:
- recognize reasoning and proof as fundamental aspects of mathematics;
- make and investigate mathematical conjectures;
- develop and evaluate mathematical arguments and proofs;
- select and use various types of reasoning and methods of proof.

Children will use inductive and/or deductive reasoning in the Logical Thinking problems presented in each chapter of the text. Additionally, questions provided in the Teacher’s Edition will help promote the use of logic in children’s reasoning. Throughout the program, children are presented with ample opportunities to make oral generalizations.
about the concepts taught in each lesson and to test those generalizations. In most lessons, children are given opportunities to check, revise, explain, and/or justify their solutions. Additionally, many problems ask children to judge the solutions of others, correcting them if necessary.

Communication Strand

Students will:
- organize and consolidate their mathematical thinking through communication;
- communicate their mathematical thinking coherently and clearly to peers, teachers, and others;
- analyze and evaluate the mathematical thinking and strategies of others;
- use the language of mathematics to express mathematical ideas precisely.

Most lessons give children the opportunity to express their solutions in multiple ways, such as by using numbers and manipulatives. Error Intervention suggestions in the Teacher’s Edition often encourage the use of multiple representations to demonstrate understanding of key concepts or solution methods. Suggested prompts and questions provided in the Teacher’s Edition may be used to stimulate discussion and elicit students’ questions. Each lesson includes Investigating the Concept and Reaching All Learners activities in the Teacher’s Edition designed for students to discuss and work together as a whole class, as a small group, or in pairs. Students are encouraged to work cooperatively and respectfully with one another and give helpful comments and suggestions.

Connections Strand

Students will:
- recognize and use connections among mathematical ideas;
- understand how mathematical ideas interconnect and build on one another to produce a coherent whole;
- recognize and apply mathematics in contexts outside of mathematics.

Through the logical progression of lessons, students continually build an understanding of new mathematical concepts on a firm foundation of previously taught concepts. Each lesson begins with a prompt in the Teacher’s Edition to Activate Prior Knowledge, which will help students make connections between previously learned mathematical concepts and new concepts. Review questions at the end of sections and chapters will also help students connect previously learned concepts to new ones. Cross-curricular activities throughout the text connect math concepts to other disciplines, such as art, health, literature, music, physical education, science, social studies, and technology.
Representation Strand

**Students will:**
- **create and use representations to organize, record, and communicate mathematical ideas;**
- **select, apply, and translate among mathematical representations to solve problems;**
- **use representations to model and interpret physical, social, and mathematical phenomena.**

Students use concrete and pictorial representations to visualize, analyze, and express mathematical concepts throughout the text. Examples found throughout the text require students to represent real-world mathematical situations in a variety of ways. Getting Started and Reaching All Learners activities in the Teacher's Edition for each lesson prompt students to use multiple ways to represent the lessons' underlying mathematical concepts.

**CONTENT STRANDS**

**NUMBER SENSE AND OPERATIONS STRAND**

**Students will understand numbers, multiple ways of representing numbers, relationships among numbers, and number systems.**

**Number Systems**

**K.N.1 Count the items in a collection and know the last counting word tells how many items are in the collection (1 to 10)**
Lesson 3-1, pp. 53A–53B, 53–54; Lesson 3-2, p. 56; Lesson 3-3, pp. 57A–57B, 57–58; Lesson 3-4, p. 60; Lesson 3-6, pp. 63A–63B, 63–64; CH.4 Investigations p. 75I; CH. 4 Center Activities p. 75L; Lesson 4-1, pp. 77A–77B, 77–78; Lesson 4-2, pp. 79A–79B, 79–80; Lesson 4-3, p. 82; Lesson 4-4, pp. 83A–83B, 83–84; Lesson 4-5, p. 86; Lesson 4-6, pp. 87A–87B, 87–88; CH.5 Investigation, p. 101I; Lesson 7-10, pp. 179A–179B, 179–180; Lesson 12-1, pp. 287A–287B

**K.N.2 Count out (produce) a collection of a specified size 1 to 10**
K.N.3 Numerically label a data set of 1 to 5.

K.N.4 Verbally count by 1’s to 20

K.N.5 Verbally count backward from 10
Lesson 4-8, pp. 91A–91B, 92 activity

K.N.6 Represent collections with a finger pattern up to 10
Lesson 3-10, p. 71B; Lesson 4-7, p. 89B; Lesson 9-4, p. 231B

K.N.7 Draw pictures or other informal symbols to represent a spoken number up to 10
Lesson 3-2, pp. 55; Lesson 3-4, p. 59; Lesson 3-7, p. 66; Lesson 3-10, p. 71B; Lesson 4-1, pp. 77B, 77; Lesson 4-2, p. 79; Lesson 4-4, p. 83; Lesson 4-7, pp. 89A–89B, 89–90; Lesson 4-11, p. 97B

K.N.8 Draw pictures or other informal symbols to represent how many in a collection up to 10

K.N.9 Write numbers 1-10 to represent a collection

K.N.10 Visually determine how many more or less, and then using the verbal counting sequence, match and count 1-10
CH. 3 Investigation, p. 51J; Lesson 3-6, pp. 63A–63B, 63–64; Lesson 4-6, pp. 87–88; Lesson 4-7, pp. 89–90; Lesson 4-11, p. 97A; Lesson 11-3 pp. 269A-269B, 269-270

K.N.11 Use and understand verbal ordinal terms, first to tenth
Lesson 3-9, pp. 69A–69B, 69–70; Lesson 4-9, pp. 93A–93B, 93–94

Students will understand meanings of operations and procedures, and how they relate to one another.

Operations

K.N.12 Solve and create addition and subtraction verbal word problems (use counting-based strategies, such as counting on and to ten)

K.N.13 Determine sums and differences by various means
ALGEBRA STRAND

Students will recognize, use, and represent algebraically patterns, relations, and functions.

Patterns, Relations and Functions

K.A.1 Use a variety of manipulatives to create patterns using attributes of color, size, or shape
CH. 2 Center Activities, p. 25L; Lesson 2-6, pp. 37A–37B, 37–38; Lesson 2-7, pp. 39A–39B, 39–40; Lesson 2-10, pp. 45A–45B, 45–46; Lesson 4-10, pp. 95A–95B, 95–96

K.A.2 Recognize, describe, extend, and create patterns that repeat (e.g., ABABAB or ABAABAAAB)

GEOMETRY STRAND

Students will use visualization and spatial reasoning to analyze characteristics and properties of geometric shapes.

Shapes

K.G.1 Describe characteristics and relationships of geometric objects
Students will identify and justify geometric relationships, formally and informally.

Geometric Relationships

K.G.2 Sort groups of objects by size and size order (increasing and decreasing)

Students will apply transformations and symmetry to analyze problem solving situations.

Transformational Geometry

K.G.3 Explore vertical and horizontal orientation of objects
Related content: CH. 8 Investigation, p. 195J; Lesson 8-6, pp. 207A–207B, 207–208

K.G.4 Manipulate two- and three-dimensional shapes to explore symmetry
Lesson 8-8, pp. 211A–211B, 211–212; Lesson 8-6, pp. 207A–207B, 207–208; Lesson 8-12, p. 222

Students will apply coordinate geometry to analyze problem solving situations.

Coordinate Geometry

K.G.5 Understand and use ideas such as over, under, above, below, on, beside, next to, and between
CH. 1 Center Activities, pp.1K, 1L; Lesson 1-1, pp. 3A–3B, 3–4; Lesson 1-2, pp. 5A–5B, 5–6; Lesson 1-3, pp. 7A–7B, 7–8; Lesson 1-4, pp. 9A–9B, 9–10; Lesson 1-10, pp. 21A–21B, 21–23
MEASUREMENT STRAND

Students will determine what can be measured and how, using appropriate methods and formulas.

Units of Measurement

K.M.1 Name, discuss, and compare attributes of length
CH. 6 Investigation, p. 131I; Lesson 6-2, pp. 135A–135B, 135–136; Lesson 6-3, pp. 137A–137B, 137–138

K.M.2 Compare the length of two objects by representing each length with string or a paper strip
Lesson 6-2, pp. 135A–135B, 135–136; Lesson 6-3, p. 137B

K.M.3 Relate specific times such as morning, noon, afternoon, and evening to activities and absence or presence of daylight
Lesson 7-6, pp. 171A–171B, 171–172

STATISTICS AND PROBABILITY STRAND

Students will collect, organize, display, and analyze data.

Collection of Data

K.S.1 Gather data in response to questions posed by the teacher and students
CH. 2 Center Activities, p. 25K; Lesson 2-4, pp. 33A–33B, 33–34; Lesson 2-11, pp. 47A–47B

Organization and Display of Data

K.S.2 Help to make simple pictographs for quantities up to 10, where one picture represents 1

K.S.3 Sort and organize objects by two attributes (e.g., color, size, or shape)
K.S.4 Represent data using manipulatives

Analysis of Data

K.S.5 Identify more, less, and same amounts from pictographs or concrete models
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CONTENT STRANDS

NUMBER SENSE AND OPERATIONS STRAND

Students will understand numbers, multiple ways of representing numbers, relationships among numbers, and number systems.

Number Systems

1.N.1 Count the items in a collection and know the last counting word tells how many items are in the collection (1 to 100)
Readiness, pp. R1, R2, R3, R4, R5, R7, R8; Lesson 2-1, p. 45B; Ch. 9
Investigation, p. 239I; Lesson 7-13, p. 269B; Lesson 8-17, pp. 319A-319B, 319-320

1.N.2 Count out (produce) a collection of a specified size (10 to 100 items), using groups of ten
Readiness, p. R8; 239I, Lesson 7-1, pp. 241A-241B; Lesson 7-13, p. 269B

1.N.3 Quickly see and label with a number, collections of 1 to 10
Readiness, pp. R1, R2, R3, R4, R5, R7, R8; Lesson 1-8, p. 21B

1.N.4 Count by 1’s to 100
Lesson 1-6, pp. 17A-17B, 17-18; Lesson 3-1, 91A-91B, 91-92; Lesson 7-3, p. 245A; Lesson 8-6, pp. 295A-295B, 295-296
1.N.5  **Skip count by 10’s to 100**  
Lesson 7-2, pp. 243A–243B, 243–244; Lesson 7-6, pp. 251-252; Lesson 7-7, pp. 255A-255B, 255-256; Lesson 7-8, pp. 257A-257B, 257-258; Lesson 7-13, p. 269B; Ch.7 Enrichment, p. 273; Lesson 8-6, pp. 295A-295B, 295-296

1.N.6  **Skip count by 5’s to 50**  

1.N.7  **Skip count by 2’s to 20**  

1.N.8  **Verbally count from a number other than one by 1’s**  
Lesson 7-3, pp. 245B, 245–246

1.N.9  **Count backwards from 20 by 1’s**  
Readiness, pp. R6; Lesson 1-7, pp. 19A-19B, 19-20; Lesson 2-4, p. 51B; Lesson 4-1, pp. 125A-125B, 125-126; Lesson 4-2, pp. 127A-127B, 127-128; Ch. 7 Home-School Connection, p. 239J; Lesson 7-3, pp. 245A–245B, 245-246; Lesson 8-6, pp. 295A-295B, 295-296

1.N.10  **Draw pictures or other informal symbols to represent a spoken number up to 20**  

1.N.11  **Identify that spacing of the same number of objects does not affect the quantity (conservation)**  
See Grade K.

1.N.12  **Arrange objects in size order (increasing and decreasing)**  
See Grade K.

1.N.13  **Write numbers to 100**  
Many lessons provide students with the opportunity to meet this performance indicator. Here are a few of the many examples. Ch. 1, Investigation, p. 1J; Ch. 3 Investigation, p. 89I, Ch. 3 Math Story, p. 89J; Lesson 3-1, pp. 91A-91B, 91-92; Lesson 7-1, pp. 241A-241B, 241-242, Lesson 7-2, pp. 243A-243B, 243-244; Lesson 7-3, pp. 245A-245B, 245-246; Ch. 8 Investigation, p. 297I: Lesson 8-1, pp. 281A-281B, 281-282; Lesson 8-2, pp. 283A-283B, 283-284; Lesson 8-3, pp. 285A-285B, 285-286; Lesson 8-4, pp. 287A-287B, 287-288; Ch. 9 Investigation, p. 329I; Lesson 9-1, pp. 331A-331B, 331-332;

1.N.14 Read the number words one, two, three...ten

Readiness, pp. R1, R2, R3, R4, R5, R8, 1K–1L; Ch. 1, Discover Math in Your World, p. 40; Ch. 7, Practice Game, p. 240

1.N.15 Explore and use place value


1.N.16 Compare and order whole numbers up to 100


1.N.17 Develop an initial understanding of the base ten system:

10 ones = 1 ten
10 tens = 1 hundred


1.N.18 Use a variety of strategies to compose and decompose one-digit numbers

On these pages students compose and decompose two-digit numbers.

Lesson 1-2, pp. 5A–5B, 5–6; Lesson 1-3, pp. 7A–7B, 7–8; Lesson 1-5, pp. 13A–13B, 13–14; Lesson 1-6, pp. 17A–17B, 17–18; Ch. 8 Investigation, p. 279I

1.N.19 Understand the commutative property of addition

Lesson 3-2, pp. 93A–93B, 93–94; Lesson 11-6, pp. 427A–427B, 427–428

1.N.20 Name the number before and the number after a given number, and name the number(s) between two given numbers up to 100 (with and without the use of a number line or a hundreds chart)

1.N.21 Use before, after, or between to order numbers to 100 (with or without the use of a number line)

1.N.22 Use the words higher, lower, greater, and less to compare two numbers

1.N.23 Use and understand verbal ordinal terms, first to twentieth
Ch. 7, Practice Game, p. 240; Lesson 7-12, pp. 267A–267B, 267–268

Students will understand meanings of operations and procedures, and how they relate to one another.

Operations

1.N.24 Develop and use strategies to solve addition and subtraction word problems
1.N.25 Represent addition and subtraction word problems and their solutions as number sentences

1.N.26 Create problem situations that represent a given number sentence
Lesson 2-15, p. 80; Lesson 4-8, pp. 143A–143B

1.N.27 Use a variety of strategies to solve addition and subtraction problems with one- and two-digit numbers without regrouping
1.N.28 Demonstrate fluency and apply addition and subtraction facts to and including 10

1.N.29 Understand that different parts can be added to get the same whole

Students will compute accurately and make reasonable estimates.

Estimation

1.N.30 Estimate the number in a collection to 50 and then compare by counting the actual items in the collection
Lesson 7-5, pp. 249A–249B, 249–250

Algebra Strand

Students will recognize, use, and represent algebraically patterns, relations, and functions.

Patterns, Relations, and Functions

1.A.1 Determine and discuss patterns in arithmetic (what comes next in a and Functions repeating pattern, using numbers or objects)
Geometry Strand

Students will use visualization and spatial reasoning to analyze characteristics and properties of geometric shapes.

Shapes

1.G.1 Match shapes and parts of shapes to justify congruency
Lesson 5-6, pp. 169A–169B, 169–170; Lesson 5-9, pp. 177A–177B, 177–178; Lesson 5-16, p. 193

1.G.2 Recognize, name, describe, create, sort, and compare two-dimensional and three-dimensional shapes

Students will apply transformations and symmetry to analyze problem solving situations.

Transformational Geometry

1.G.3 Experiment with slides, flips, and turns of two-dimensional shapes
Lesson 5-8, pp. 173A–173B, 173–174; Lesson 5-16, p. 196; Ch. 5, Learning With Technology

1.G.4 Identify symmetry in two-dimensional shapes
Lesson 5-7, pp. 171A–171B, 171–172

Students will apply coordinate geometry to analyze problem solving situations.

Coordinate Geometry

1.G.5 Recognize geometric shapes and structures in the environment
Lesson 5-16, p. 194
Measurement Strand

_Students will determine what can be measured and how, using appropriate methods and formulas._

*Units of Measurement*

1.M.1 Recognize length as an attribute that can be measured

1.M.2 Use non-standard units (including finger lengths, paper clips, students’ feet and paces) to measure both vertical and horizontal lengths

1.M.3 Informally explore the standard unit of measure, inch

_Students will use units to give meaning to measurements._

*Units*

1.M.4 Know vocabulary and recognize coins (penny, nickel, dime, quarter)

1.M.5 Recognize the cent notation as ¢
1.M.6 Use different combinations of coins to make money amounts up to 25 cents

1.M.7 Recognize specific times (morning, noon, afternoon, evening)
Ch. 6, Investigation, p. 203J; Lesson 6-6, pp. 219A–219B, 219–220; Lesson 6-11, pp. 229A–229B, 229–232

1.M.8 Tell time to the hour, using both digital and analog clocks

1.M.9 Know the days of the week and months of the year in sequence

1.M.10 Classify months and connect to seasons and other events
Related content: Lesson 6-10, pp. 227A–227B, 227–228

Students will develop strategies for estimating measurements.

Estimation

1.M.11 Select and use non-standard units to estimate measurements

Statistics and Probability Strand

Students will collect, organize, display, and analyze data.

Collection of Data

1.S.1 Pose questions about themselves and their surrounding
Lesson 8-12, pp. 309B, 309–310; Lesson 8-13, pp. 311A–311B, 311–312

1.S.2 Collect and record data related to a question
Organization and Display of Data

1.S.3 Display data in simple pictographs for quantities up to 20 with units of one
Lesson 7-6, p. 251B; Lesson 8-12, pp. 309A–309B, 309–310; Lesson 8-17, p. 319A

1.S.4 Display data in bar graphs using concrete objects with intervals of one
Lesson 8-13, pp. 311A–311B, 311–312; Lesson 12-10, pp. 481A–481B, 481–482

1.S.5 Use Venn diagrams to sort and describe data
Lesson 8-11, pp. 307B

Analysis of Data

1.S.6 Interpret data in terms of the words: most, least, greater than, less than, or equal to
Lesson 6-1, p. 205B; Lesson 8-12, pp. 309A–309B, 309–310; Lesson 8-13, pp. 311A–311B, 311–312; Lesson 8-14, pp. 313–314

1.S.7 Answer simple questions related to data displayed in pictographs (e.g., category with most, how many more in a category compared to another, how many all together in two categories)
Lesson 7-6, pp. 251A-251B, 251-252; Lesson 8-13, 309A–309B, 309–310, Lesson 8-17, p. 319A

Students will make predictions that are based upon data analysis.

Predictions from Data

1.S.8 Discuss conclusions and make predictions in terms of the words likely and unlikely
Ch. 10, Practice Game, p. 364; Lesson 10-16, pp. 401A-401B, 401-402; Lesson 10-17, pp. 403A–403B, 403–404; Lesson 10-18, p. 407

1.S.9 Construct a question that can be answered by using information from a graph
Lesson 8-12, p. 310; Lesson 8-14, p. 314; Lesson 12-10, p. 482
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- select, apply, and translate among mathematical representations to solve problems;
- use representations to model and interpret physical, social, and mathematical phenomena.

Students use concrete and pictorial representations to visualize, analyze, and express mathematical concepts throughout the text. Examples found throughout the text require students to represent real-world mathematical situations in a variety of ways. Getting Started and Reaching All Learners activities in the Teacher's Edition for each lesson prompt students to use multiple ways to represent the lessons' underlying mathematical concepts.

CONTENT STRANDS

NUMBER SENSE AND OPERATIONS STRAND

Students will understand numbers, multiple ways of representing numbers, relationships among numbers, and number systems.

Number Systems

2.N.1  Skip count to 100 by 2’s, 5’s, 10’s

2.N.2  Count back from 100 by 1’s, 5’s, 10’s using a number chart
Lesson 3-8, p. 100

2.N.3  Skip count by 3’s to 36 for multiplication readiness
Lesson 12-1, pp. 467A–467B, 467–468

2.N.4  Skip count by 4’s to 48 for multiplication readiness
Lesson 12-1, pp. 467A–467B, 467–468

2.N.5  Compare and order numbers to 100
Lesson 10-5, pp. 399A–399B, 399–400
2.N.6  Develop an understanding of the base ten system:

- 10 ones = 1 ten
- 10 tens = 1 hundred
- 10 hundreds = 1 thousand


2.N.7  Use a variety of strategies to compose and decompose two-digit numbers

Lesson 3-1, pp. 81A–81B, 81–82; Lesson 3-2, pp. 83A–83B, 83–84; Lesson 3-11, pp. 105A–105B, 105–106

2.N.8  Understand and use the commutative property of addition

Lesson 1-8, pp. 23A–23B, 23–24; Lesson 5-6, pp. 187A–187B, 187–188

2.N.9  Name the number before and the number after a given number, and name the number(s) between two given numbers up to 100 (with and without the use of a number line or a hundreds chart)


2N.10  Use and understand verbal ordinal terms

This lesson discusses ordinal terms through twentieth. Lesson 3-10, pp. 103A–103B, 103–104

2.N.11  Read written ordinal terms (first through ninth) and use them to represent ordinal relations

Lesson 3-10, pp. 103A–103B, 103–104

2.N.12  Use zero as the identity element for addition

See Grade 1.

2.N.13  Recognize the meaning of zero in the place value system (0-100)

Lesson 10-2, pp. 393A, 393

2.N.14  Use concrete materials to justify a number as odd or even

Students will understand meanings of operations and procedures, and how they relate to one another.

Operations

2.N.15 Determine sums and differences of number sentences by various means (e.g., families, related facts, inverse operations, addition doubles, and doubles plus one)

2.N.16 Use a variety of strategies to solve addition and subtraction problems using one- and two-digit numbers with and without regrouping
2.N.17 Demonstrate fluency and apply addition and subtraction facts up to and including 18
Ch. 1, Investigation, p. 1I; Lesson 1-1, pp. 3A–3B, 3–4; Lesson 1-2, pp. 5A–5B, 5–6;
Lesson 1-3, pp. 9A–9B, 9–10; Lesson 1-4, pp. 13A–13B, 13–14; Lesson 1-5, pp. 15A–15B, 15–16;
Lesson 1-11, pp. 29A–29B, 29–30; Lesson 1-12, pp. 31A–31B, 31–32;
Ch. 1, Learning With Technology, p. 36; Ch. 2, Investigation, p. 41I; Lesson 2-1, pp. 43A–43B, 43–44;
Lesson 2-2, pp. 45A–45B, 45–46; Lesson 2-3, pp. 47A–47B, 47–48;
Lesson 2-5, pp. 51A–51B, 51–52; Lesson 2-6, pp. 53A–53B, 53–54; Lesson 2-7, pp. 57A–57B, 57–58;
Lesson 2-8, pp. 61A–61B, 61–62; Lesson 2-9, pp. 63A–63B, 63–64;
Lesson 2-10, pp. 65A–65B, 65–66; Ch. 2, Enrichment, p. 73; Ch. 2, Learning With Technology, p. 74;
Lesson 3-19, pp. 123–124; Lesson 4-12, pp. 163–164; Lesson 8-17, pp. 329–330

2.N.18 Use doubling to add 2-digit numbers
On these pages students use doubling to add basic facts.
Ch. 2, Investigation, p. 41I; Lesson 2-2, pp. 45A–45B, 45–46; Lesson 2-3, pp. 47A–47B, 47–48;
Lesson 2-12, pp. 69A, 69B, 69

2.N.19 Use compensation to add 2-digit numbers
On these pages students use compensation to add basic facts.
Ch. 2, Investigation, p. 41I; Lesson 2-5, pp. 51A–51B, 51–52; Lesson 2-6, pp. 53A–53B, 53–54

2.N.20 Develop readiness for multiplication by using repeated addition
Lesson 12-2, pp. 469A–469B, 469–470

2.N.21 Develop readiness for division by using repeated subtraction,
dividing objects into groups (fair share)

Students will compute accurately and make reasonable estimates.

Estimation

2.N.22 Estimate the number in a collection to 100 and then compare by counting the actual items in the collection
This lesson prepares students to meet this objective. Ch 3, Investigation, p. 79I;
Lesson 3-1, pp. 81A–81B, 81–82
Algebra Strand

*Students will perform algebraic procedures accurately.*

*Equations and Inequalities*

2.A.1 Use the symbols <, >, = (with and without the use of a numberline) to compare whole numbers up to 100
Lesson 3-5, pp. 91A–91B, 91–92

Students will recognize, use, and represent algebraically patterns, relations, and functions.

*Patterns, Relations, and Functions*

2.A.2 Describe and extend increasing or decreasing (+,-) sequences and patterns (numbers or objects up to 100)

Geometry Strand

*Students will use visualization and spatial reasoning to analyze characteristics and properties of geometric shapes.*

*Shapes*

2.G.1 Experiment with slides, flips, and turns to compare two-dimensional shapes

2.G.2 Identify and appropriately name two-dimensional shapes: circle, square, rectangle, and triangle (both regular and irregular)
Lesson 7-2, pp. 249B, 249; Lesson 7-4, pp. 255B, 255; Lesson 7-8, pp. 265A–265B, 265–266

2.G.3 Compose (put together) and decompose (break apart) two-dimensional shapes
Lesson 7-4, pp. 255A–255B, 255–256
Students will identify and justify geometric relationships, formally and informally.

Geometric Relationships

2.G.4 Group objects by like properties
Lesson 7-3, pp. 251B

Students will apply transformations and symmetry to analyze problem solving situations.

Transformational Geometry

2.G.5 Explore and predict the outcome of slides, flips, and turns of two-dimensional shapes
Lesson 7-6, pp. 259A–259B, 259–260

2.G.6 Explore line symmetry
Lesson 7-7, pp. 261A–261B, 261–262; Lesson 7-8, pp. 265–266

Measurement Strand

Students will determine what can be measured and how, using appropriate methods and formulas.

Units of Measurement

2.M.1 Use non-standard and standard units to measure both vertical and horizontal lengths

2.M.2 Use a ruler to measure standard units (including whole inches and whole feet)

2.M.3 Compare and order objects according to the attribute of length
Lesson 9-1, pp. 341B, 342
2.M.4  Recognize mass as a qualitative measure (e.g., Which is heavier? Which is lighter?)

2.M.5  Compare and order objects, using lighter than and heavier than
Lesson 9-12, pp. 367A–367B, 367–368; Lesson 9-17, p. 379B

Students will use units to give meaning to measurements.

Units

2.M.6  Know and recognize coins (penny, nickel, dime, quarter) and bills
($1, $5, $10, and $20)
Ch. 3, Investigation, p. 79J; Lesson 3-12, pp. 109A–109B, 109–110; Lesson 3-13,
pp. 111A–111B, 111–112; Lesson 3-14, pp. 113A–113B, 113–114; Lesson 3-15,
pp. 115A–115B, 115–116; Lesson 3-16, pp. 115A–115B, 115–116; Lesson 3-17,
pp. 119A–119B, 119–120; Lesson 3-18, pp. 121A–121B, 121–122; Lesson 3-19,
pp. 123A–123B, 123–124; Ch. 3, Enrichment, p. 127; Ch. 3, Learning With Technology, p. 128

2.M.7  Recognize the whole dollar notation as $1, etc.
Lesson 3-18, pp. 121A–121B, 121–122; Ch. 3, Enrichment p. 127

2.M.8  Identify equivalent combinations to make one dollar
Lesson 3-18, pp. 121A–121B, 121–122

2.M.9  Tell time to the half hour and five minutes using both digital and analog clocks

Students will develop strategies for estimating measurements.

Estimation

2.M.10  Select and use standard (customary) and non-standard units to estimate measurements
Statistics and Probability Strand

Students will collect, organize, display, and analyze data.

Collection of Data

2.S.1 Formulate questions about themselves and their surroundings
Ch. 8, Investigation, p. 289J; Lesson 8-10, pp. 313A, 313

2.S.2 Collect and record data (using tallies) related to the question
Ch. 8, Investigation, p.289J; Lesson 8-10, pp. 313A, 313

Organization and Display of Data

2.S.3 Display data in pictographs and bar graphs using concrete objects or a representation of the object

Analysis of Data

2.S.4 Compare and interpret data in terms of describing quantity (similarity or differences)
Lesson 8-9, pp. 311A–311B, 311–312; Lesson 8-10, pp. 313A–313B, 313–314;
Ch. 8, Enrichment, p. 333; Lesson 9-14, pp. 373A–373B, 373; Lesson 9-15, pp.

Students will make predictions that are based upon data analysis.

Predictions from Data

2.S.5 Discuss conclusions and make predictions from graphs
Lesson 8-9, p. 312; Lesson 8-10, pp. 313A–313B, 313–314; Lesson 8-11, pp.
327–328; Lesson 9-14, pp. 373A–373B, 373; Lesson 9-15, pp. 375A–375B,
375–376; Lesson 9-17, p. 381; Lesson 11-6, pp. 439A–439B, 439–440
PROCESSES STRANDS

Problem Solving Strand

_Students will:_
- *build new mathematical knowledge through problem solving;*
- *solve problems that arise in mathematics and in other contexts;*
- *apply and adapt a variety of appropriate strategies to solve problems;*
- *monitor and reflect on the process of mathematical problem solving.*

Students are challenged to use alternate ways to solve problems throughout the text, and many problems are open to students’ choice of solution methods. Students have opportunities to apply problem-solving skills in the Reasoning and Problem-Solving section at the end of most lessons and in the Problem-Solving lessons found in each chapter. Instructional support in the Teacher’s Edition for these lessons provides questions and prompts that encourage students to orally describe or explain how they plan to solve these problems.

Reasoning and Proof Strand

_Students will:_
- *recognize reasoning and proof as fundamental aspects of mathematics;*
- *make and investigate mathematical conjectures;*
- *develop and evaluate mathematical arguments and proofs;*
- *select and use various types of reasoning and methods of proof.*

Students will use inductive and/or deductive reasoning in the Reasoning problems presented throughout each chapter of the text. Throughout the program, students are presented with ample opportunities to make oral generalizations about the concepts taught in each lesson and to test those generalizations. In most lessons, students are given opportunities to check, revise, explain, and/or justify their work.
Communication Strand

**Students will:**

- organize and consolidate their mathematical thinking through communication;
- communicate their mathematical thinking coherently and clearly to peers, teachers, and others;
- analyze and evaluate the mathematical thinking and strategies of others;
- use the language of mathematics to express mathematical ideas precisely.

Writing in Math and Talk About It questions appear throughout the text. Open-ended questions on assessment pages also provide opportunities for students to express their solutions in numerical and written forms. Suggested prompts and questions provided in the Teacher's Edition may be used to stimulate discussion and elicit students’ questions. Each lesson includes Investigating the Concept and Reaching All Learners activities in the Teacher’s Edition designed for students to discuss and work together as a whole class, as a small group, or in pairs. Students are encouraged to work cooperatively and respectfully with one another and give helpful comments and suggestions.

Connections Strand

**Students will:**

- recognize and use connections among mathematical ideas;
- understand how mathematical ideas interconnect and build on one another to produce a coherent whole;
- recognize and apply mathematics in contexts outside of mathematics.

Through the logical progression of lessons, students continually build an understanding of new mathematical concepts on a firm foundation of previously taught concepts. Each lesson begins with a prompt in the Teacher’s Edition to Activate Prior Knowledge, which will help students make connections between previously learned mathematical concepts and new concepts. Review questions at the end of sections and chapters will also help students connect previously learned concepts to new ones. Exercises provided in most lessons will help students recognize the widespread application of mathematical concepts to real-world situations. Cross-curricular activities throughout the text connect math concepts to other disciplines, such as art, health, literature, music, physical education, science, social studies, and technology.
Representation Strand

Students will:
- create and use representations to organize, record, and communicate mathematical ideas;
- select, apply, and translate among mathematical representations to solve problems;
- use representations to model and interpret physical, social, and mathematical phenomena.

Students use concrete and pictorial representations to visualize, analyze, and express mathematical concepts throughout the text. Examples found throughout the text require students to represent real-world mathematical situations in a variety of ways. Getting Started and Reaching All Learners activities in the Teacher's Edition for each lesson prompt students to use multiple ways to represent the lessons' underlying mathematical concepts.

CONTENT STANDARDS

NUMBER SENSE AND OPERATIONS STRAND

Students will understand numbers, multiple ways of representing numbers, relationships among numbers, and number systems.

Number Systems

3.N.1 Skip count by 25’s, 50’s, 100’s to 1,000
Ch. 5, Diagnosing Readiness, p. 259

3.N.2 Read and write whole numbers to 1,000
Lesson 1-2, pp. 6A–6B, 6–7

3.N.3 Compare and order numbers to 1,000
Lesson 1-7, pp. 18A–18B, 18–20; Lesson 1-15, pp. 44A–44B, 44–45

3.N.4 Understand the place value structure of the base ten number system:
10 ones = 1 ten; 10 tens = 1 hundred; 10 hundreds = 1 thousand
Lesson 1-2, pp. 6A–6B, 6–7; Lesson 1-3, pp. 8A–8B, 8–9; Lesson 1-4, pp. 10A–10B, 10–11; Lesson 1-7, pp. 18A–18B, 18–20; Lesson 3-6, pp. 146A–146B, 146–147; Lesson 3-10, pp. 156A–156B, 156–157; Lesson 3-15, pp. 170–171
3.N.5  Use a variety of strategies to compose and decompose three-digit numbers
Lesson 1-2, pp. 6A–6B, 6–7; Lesson 1-3, pp. 8A–8B, 8–9

3.N.6  Use and explain the commutative property of addition and multiplication
Lesson 2-1, pp. 66A–66B, 66; Lesson 5-2, pp. 262A, 262–264

3.N.7  Use 1 as the identity element for multiplication
Lesson 5-9, pp. 286A–286B, 286–287

3.N.8  Use the zero property of multiplication
Lesson 5-9, pp. 286A–286B, 286–287

3.N.9  Understand and use the associative property of addition
Lesson 2-1, pp. 66A–66B, 66–67

3.N.10 Develop an understanding of fractions as part of a whole unit and as parts of a collection

3.N.11  Use manipulatives, visual models, and illustrations to name and represent unit fractions ($\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{1}{6}$, and $\frac{1}{10}$) as part of a whole or a set of objects
pp. 504A–504B, 504–505; Lesson 9-4, pp. 506A–506B, 506–509; Lesson 9-5,

3.N.12  Understand and recognize the meaning of numerator and denominator in the symbolic form of a fraction
3.N.13 Recognize fractional numbers as equal parts of a whole

3.N.14 Explore equivalent fractions (½, ⅓, ¼)
Lesson 9-3, pp. 504A–504B, 504–505

3.N.15 Compare and order unit fractions (½, ⅓, ¼) and find their approximate locations on a number line

Number Theory

3.N.16 Identify odd and even numbers
Lesson 1-9, p. 24; Ch. 5, Diagnosing Readiness, p. 258; Lesson 5-5, p. 276

3.N.17 Develop an understanding of the properties of odd/even numbers as a result of addition or subtraction
Related content:
Lesson 1-9, pp. 24; Lesson 2-3, pp. 72–73

Students will understand meanings of operations and procedures, and how they relate to one another.

Operations

3.N.18 Use a variety of strategies to add and subtract 3-digit numbers (with and without regrouping)
Lesson 3-9, pp. 152A–152B, 152–155; Lesson 3-10, pp. 156A–156B, 156–157
3.N.19 Develop fluency with single-digit multiplication facts
Lesson 5-5, pp. 276A–276B, 276–279; Lesson 5-6, pp. 280A–280B, 280–281;

3.N.20 Use a variety of strategies to solve multiplication problems with factors up to 12 x 12

3.N.21 Use the area model, tables, patterns, arrays, and doubling to provide meaning for multiplication
Ch. 5, Investigation, pp. 258I–258J; Lesson 5-1, pp. 260A–260B, 260–261;

3.N.22 Demonstrate fluency and apply single-digit division facts
Ch. 7, Investigation, p. 368I–368J; Lesson 7-5, pp. 384A–384B, 384–385;

3.N.23 Use tables, patterns, halving, and manipulatives to provide meaning for division
Ch. 7, Investigation, pp. 368I, 368J; Lesson 7-1, pp. 370A–370B, 370–371;
Lesson 7-5, pp. 384A–384B, 384–385; Lesson 7-6, pp. 386A–386B, 386–387;
3.N.24 Develop strategies for selecting the appropriate computational and operational method in problem solving situations

Students will compute accurately and make reasonable estimates.

Estimation

3.N.25 Estimate numbers up to 500

3.N.26 Recognize real world situations in which an estimate (rounding) is more appropriate
Related content:

3.N.27 Check reasonableness of an answer by using estimation
Algebra Strand

Students will perform algebraic procedures accurately.

Equations and Inequalities

3.A.1 Use the symbols <, >, = (with and without the use of a number line) to compare whole numbers and unit fractions \(\frac{1}{2}, \frac{1}{3}, \frac{1}{4}, \frac{1}{5}, \frac{1}{6}, \text{ and } \frac{1}{10}\)


Students will recognize, use, and represent algebraically patterns, relations, and functions.

Patterns, Relations, and Functions

3.A.2 Describe and extend numeric (+, -) and geometric patterns


Geometry Strand

Students will use visualization and spatial reasoning to analyze characteristics and properties of geometric shapes.

Shapes

3.G.1 Define and use correct terminology when referring to shapes (circle, triangle, square, rectangle, rhombus, trapezoid, and hexagon)


3.G.2 Identify congruent and similar figures

3.G.3 Name, describe, compare, and sort three-dimensional shapes: cube, cylinder, sphere, prism, and cone

3.G.4 Identify the faces on a three-dimensional shape as two-dimensional shapes
Lesson 8-2, pp. 432A–432B, 432–433

Students will apply transformations and symmetry to analyze problem solving situations.

Transformational Geometry

3.G.5 Identify and construct lines of symmetry
Lesson 8-10, pp. 460A–460B, 460–461; Lesson 8-15, pp. 476–477

Measurement Strand

Students will determine what can be measured and how, using appropriate methods and formulas.

Units of Measurement

3.M.1 Select tools and units (customary) appropriate for the length measured
Lesson 9-15, pp. 539

3.M.2 Use a ruler/yardstick to measure to the nearest standard unit (whole and ½ inches, whole feet, and whole yards)

3.M.3 Measure objects, using ounces and pounds
Lesson 12-4, pp. 690A–690B, 690–692

3.M.4 Recognize capacity as an attribute that can be measured
3.M.5  Compare capacities (e.g., Which contains more? Which contains less?)
See Grade 2.

3.M.6  Measure capacity, using cups, pints, quarts, and gallons

Students will use units to give meaning to measurements.

Units

3.M.7  Count and represent combined coins and dollars, using currency symbols ($0.00)
Lesson 1-12, pp. 36A–36B, 36–39

3.M.8  Relate unit fractions to the face of the clock:
Whole = 60 minutes; ½ = 30 minutes; ¼ = 15 minutes
These pages can be used to introduce this objective:
Lesson 4-1, pp. 192A–192B, 192–195

Students will develop strategies for estimating measurements.

Estimation

3.M.9  Tell time to the minute, using digital and analog clocks

3.M.10  Select and use standard (customary) and non-standard units to estimate measurements
Ch. 9, Investigation, p. 496J; Lesson 9-12, p. 533; Lesson 9-13, p. 535; Lesson 11-5, pp. 629; Ch. 12, Diagnosing Readiness, 678I; Lesson 12-1, pp. 681, 682; Lesson 12-2, p. 685; Lesson 12-4, p. 691; Lesson 12-6, p. 697
Statistics and Probability Strand

Students will collect, organize, display, and analyze data.

Collection of Data

3.S.1  Formulate questions about themselves and their surroundings
Lesson 4-5, p. 207

3.S.2  Collect data using observation and surveys, and record appropriately
Lesson 4-5, pp. 204A–204B, 204–207

Organization and Display of Data

3.S.3  Construct a frequency table to represent a collection of data
The activity on this page can be used to introduce frequency tables.
Lesson 4-6, pp. 211

3.S.4  Identify the parts of pictographs and bar graphs
Lesson 4-12, pp. 228A–228B, 228–231

3.S.5  Display data in pictographs and bar graphs
Lesson 4-7, pp. 212A–212B; Lesson 4-11, pp. 226A–226B, 226–227; Lesson 4-
12, pp. 228A–228B, 228–231

3.S.6  State the relationships between pictographs and bar graphs
These pages can be used to discuss the relationship between these two types of
graphs.
Lesson 4-7, pp. 212A–212B, 212–21; Lesson 4-14, p. 236B

Analysis of Data

3.S.7  Read and interpret data in bar graphs and pictographs
Lesson 4-12, pp. 228A–228B, 228–231
Students will make predictions that are based upon data analysis.

Predictions from Data

3.S.8  Formulate conclusions and make predictions from graphs
Lesson 4-5, pp. 205–206; Lesson 4-6, pp. 209–210; Lesson 4-7, pp. 212–215;
Lesson 4-8, pp. 216–217; Lesson 4-10, pp. 222–223; Lesson 4-11, pp. 226–227;
Lesson 4-12, pp. 228A, 228–231; Lesson 4-13, pp. 232–235; Lesson 4-14, pp.
236, 236B; Lesson 4-15, pp. 238-239
PROCESS STRANDS

Problem Solving Strand

Students will:
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- solve problems that arise in mathematics and in other contexts;
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Students are challenged to use alternate ways to solve problems throughout the text, and many problems are open to students' choice of solution methods. Students have opportunities to apply problem-solving skills in the Reasoning and Problem-Solving section at the end of most lessons and in the Problem-Solving lessons found in each chapter. Instructional support in the Teacher’s Edition for these lessons provides questions and prompts that encourage students to orally describe or explain how they plan to solve these problems.

Reasoning and Proof Strand

Students will:
- recognize reasoning and proof as fundamental aspects of mathematics;
- make and investigate mathematical conjectures;
- develop and evaluate mathematical arguments and proofs;
- select and use various types of reasoning and methods of proof.

Students will use inductive and/or deductive reasoning in the Reasoning problems presented throughout each chapter of the text. Throughout the program, students are presented with ample opportunities to make oral generalizations about the concepts taught in each lesson and to test those generalizations. In most lessons, students are given opportunities to check, revise, explain, and/or justify their work.
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Representation Strand

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CONTENT STANDARDS

NUMBER SENSE AND OPERATIONS STRAND

Students will understand numbers, multiple ways of representing numbers, relationships among numbers, and number systems.

Number Systems

4.N.1  Skip count by 1,000’s
Related content:  

4.N.2  Read and write whole numbers to 10,000
Lesson 1-1, pp. 4A–4B, 4–7; Lesson 1-2, pp. 8A–8B, 8–9; Lesson 1-3, pp. 10A–10B, 10–11

4.N.3  Compare and order numbers to 10,000
Lesson 1-5, pp. 16A–16B, 16–19
4.N.4 Understand the place value structure of the base ten number system:
10 ones = 1 ten; 10 tens = 1 hundred; 10 hundreds = 1 thousand; 10 thousands = 1 ten thousand
Lesson 1-1, pp. 4A–4B, 4–7; Lesson 1-2, pp. 8A–8B, 8–9; Lesson 1-3, pp. 10A–10B, 10–11; Lesson 1-14, pp. 40A-40B, 40-41

4.N.5 Recognize equivalent representations for numbers up to four digits and generate them by decomposing and composing numbers
Lesson 1-1, pp. 4A–4B, 4–7; Lesson 1-3, pp. 10A–10B, 10–11

4.N.6 Understand, use, and explain the associative property of multiplication
Lesson 5-10, pp. 288A–288B, 288–289

4.N.7 Develop an understanding of fractions as locations on number lines and as divisions of whole numbers

4.N.8 Recognize and generate equivalent fractions (halves, fourths, thirds, fifths, sixths, and tenths) using manipulatives, visual models, and illustrations
Lesson 9-6, pp. 516A–516B, 516–519

4.N.9 Use concrete materials and visual models to compare and order unit fractions or fractions with the same denominator (with and without the use of a number line)

4.N.10 Develop an understanding of decimals as part of a whole
Lesson 11-1, pp. 624A–624B, 624–627; Lesson 11-2, pp. 628B, 628; Lesson 11-3, pp. 630B, 630

4.N.11 Read and write decimals to hundredths, using money as a context
Ch. 1, Lesson 1-10, pp. 30A-30B, 30-31; Lesson 1-9, pp. 28A–28B, 28–29; Lesson 11-1, pp. 624A–624B, 625; Lesson 11-2, pp. 628A–628B, 628–629

4.N.12 Use concrete materials and visual models to compare and order decimals (less than 1) to the hundredths place in the context of money
Lesson 11-3, p. 630B

Number Theory

4.N.13 Develop an understanding of the properties of odd/even numbers as a result of multiplication
Lesson 3-2, pp. 128B, 128; Lesson 7-11, pp. 402A–402B, 402–403
Students will understand meanings of operations and procedures, and how they relate to one another.

Operations

4.N.14 Use a variety of strategies to add and subtract numbers up to 10,000

4.N.15 Select appropriate computational and operational methods to solve problems
4.N.16 Understand various meanings of multiplication and division
Lesson 3-6, pp. 146A–146B, 146–147

4.N.17 Use multiplication and division as inverse operations to solve problems
Chapter 3, Investigation, p. 122J; Lesson 3-7, pp. 148A–148B, 148–149; Lesson
3-8, pp. 150A–150B, 150–151; Lesson 3-9, pp. 152A-152B, 152-153

4.N.18 Use a variety of strategies to multiply two-digit numbers by one-digit
numbers (with and without regrouping)
Ch. 5, Investigations, p. 254J; Lesson 5-3, pp. 262A-262B, 262-263; Lesson 5-

4.N.19 Use a variety of strategies to multiply two-digit numbers by two-digit
numbers (with and without regrouping)

4.N.20 Develop fluency in multiplying and dividing multiples of 10 and 100 up to
1,000
Lesson 5-1, pp. 256A–256B, 256–257; Lesson 7-13, pp. 406A–406B; Lesson 7-
13, pp. 406–407

4.N.21 Use a variety of strategies to divide two-digit dividends by one-
digit divisors (with and without remainders)

4.N.22 Interpret the meaning of remainders

4.N.23 Add and subtract proper fractions with common denominators
Lesson 10-2, pp. 564A–564B, 564–567; Lesson 10-4, pp. 574A–574B, 574–577

4.N.24 Express decimals as an equivalent form of fractions to tenths and
hundredths
Lesson 1-12, p. 37; Lesson 11-7, pp. 642A–642B, 642–645
4.N.25 Add and subtract decimals to tenths and hundredths using a hundreds chart

_Students will compute accurately and make reasonable estimates._

**Estimation**

4.N.26 Round numbers less than 1,000 to the nearest tens and hundreds
Lesson 1-6, pp. 20A–20B, 20–21

4.N.27 Check reasonableness of an answer by using estimation

**Algebra Strand**

_Students will represent and analyze algebraically a wide variety of problem solving situations._

**Variables and Expressions**

4.A.1 Evaluate and express relationships using open sentences with one operation
Students will perform algebraic procedures accurately.

Equations and Inequalities

4.A.2  Use the symbols <, >, =, and ≠ (with and without the use of a number line) to compare whole numbers and unit fractions and decimals (up to hundredths)
Lesson 1-5, pp. 16B, 16–19; Lesson 9-9, pp. 524A–524B, 524–527; Lesson 11-3, pp. 630–631

4.A.3  Find the value or values that will make an open sentence true, if it contains < or >
Related content:

Students will recognize, use, and represent algebraically patterns, relations, and functions.

Patterns, Relations, and Functions

4.A.4  Describe, extend, and make generalizations about numeric (+,−,×,÷) and geometric patterns

4.A.5  Analyze a pattern or a whole-number function and state the rule, given a table or an input/output box
Ch. 2, Investigation, p. 60J; Lesson 2-9, p. 91; Lesson 2-12, pp. 98B, 99; Lesson 3-2, p. 128; Lesson 3-13, pp. 164A-164B, 164-165
Geometry Strand

*Students will use visualization and spatial reasoning to analyze characteristics and properties of geometric shapes.*

**Shapes**

4.G.1 Identify and name polygons, recognizing that their names are related to the number of sides and angles (triangle, quadrilateral, pentagon, hexagon, and octagon)

4.G.2 Identify points and line segments when drawing a plane figure
Related content:

4.G.3 Find perimeter of polygons by adding sides
Lesson 8-10, pp. 464A–464B, 464–467

4.G.4 Find the area of a rectangle by counting the number of squares needed to cover the rectangle
Lesson 8-11, pp. 468A–468B, 468–470

4.G.5 Define and identify vertices, faces, and edges of three-dimensional shapes
Lesson 8-1, pp. 434A–434B, 434–436

*Students will identify and justify geometric relationships, formally and informally.*

**Geometric Relationships**

4.G.6 Draw and identify intersecting, perpendicular, and parallel lines
Lesson 8-3, pp. 440A–440B, 440–442

4.G.7 Identify points and rays when drawing angles
Lesson 8-3, pp. 440A–440B, 440–443
4.G.8 Classify angles as acute, obtuse, right, and straight
Lesson 8-3, pp. 440A–440B, 440–443

Measurement Strand

Students will determine what can be measured and how, using appropriate methods and formulas.

Units of Measurement

4.M.1 Select tools and units (customary and metric) appropriate for the length being measured

4.M.2 Use a ruler to measure to the nearest standard unit (whole, \( \frac{1}{2} \) and \( \frac{1}{4} \) inches, whole feet, whole yards, whole centimeters, and whole meters)

4.M.3 Know and understand equivalent standard units of length: 12 inches = 1 foot; 3 feet = 1 yard

4.M.4 Select tools and units appropriate to the mass of the object being measured (grams and kilograms)
Ch. 11, Investigation, p. 622J; Lesson 11-11, pp. 656A–656B, 656–657

4.M.5 Measure mass, using grams
Ch. 11, Investigation, p. 622J; Lesson 11-11, pp. 656A–656B, 656–657

4.M.6 Select tools and units appropriate to the capacity being measured (milliliters and liters)
Lesson 11-10, pp. 654A–654B, 654–655
4.M.7 Measure capacity, using milliliters and liters
Lesson 11-10, pp. 654A–654B, 654–655

Students will use units to give meaning to measurements.

Units

4.M.8 Make change, using combined coins and dollar amounts
Lesson 1-11, pp. 32A-32B, 32-33

4.M.9 Calculate elapsed time in hours and half hours, not crossing A.M./P.M.

4.M.10 Calculate elapsed time in days and weeks, using a calendar
Lesson 4-5, pp. 200A–200B, 200–201

Statistics and Probability Strand

Students will collect, organize, display, and analyze data.

Collection of Data

4.S.1 Design investigations to address a question from given data

4.S.2 Collect data using observations, surveys, and experiments and record appropriately
**Organization and Display of Data**

4.S.3 Represent data using tables, bar graphs, and pictographs  

**Analysis of Data**

4.S.4 Read and interpret line graphs  
Lesson 4-10, pp. 216A–216B, 216–219

Students will make predictions that are based upon data analysis.

**Predictions from Data**

4.S.5 Develop and make predictions that are based on data  
Lesson 4-6, p. 205; Lesson 4-7, p. 207; Lesson 4-10, pp. 216A–216B; Lesson 4-10, pp. 217–218, 230–231; Lesson 11-13, pp. 662A-662B, 662-663

4.S.6 Formulate conclusions and make predictions from graphs  
Scott Foresman – Addison Wesley Mathematics
to the
New York Core Curriculum Standards for Mathematics

Grade Five

PROCESS STRANDS

Problem Solving Strand

Students will:
- build new mathematical knowledge through problem solving;
- solve problems that arise in mathematics and in other contexts;
- apply and adapt a variety of appropriate strategies to solve problems;
- monitor and reflect on the process of mathematical problem solving.

Students are challenged to use alternate ways to solve problems throughout the text, and many problems are open to students' choice of solution methods. Students have opportunities to apply problem-solving skills in the Reasoning and Problem-Solving section at the end of most lessons and in the Problem-Solving lessons found in each chapter. Instructional support in the Teacher's Edition for these lessons provides questions and prompts that encourage students to orally describe or explain how they plan to solve these problems.

Reasoning and Proof Strand

Students will:
- recognize reasoning and proof as fundamental aspects of mathematics;
- make and investigate mathematical conjectures;
- develop and evaluate mathematical arguments and proofs;
- select and use various types of reasoning and methods of proof.

Students will use inductive and/or deductive reasoning in the Reasoning problems presented throughout each chapter of the text. Throughout the program, students are presented with ample opportunities to make oral generalizations about the concepts taught in each lesson and to test those generalizations. In most lessons, students are given opportunities to check, revise, explain, and/or justify their work.
Communication Strand

**Students will:**
- organize and consolidate their mathematical thinking through communication;
- communicate their mathematical thinking coherently and clearly to peers, teachers, and others;
- analyze and evaluate the mathematical thinking and strategies of others;
- use the language of mathematics to express mathematical ideas precisely.

Writing in Math and Talk About It questions appear throughout the text. Open-ended questions on assessment pages also provide opportunities for students to express their solutions in numerical and written forms. Suggested prompts and questions provided in the Teacher’s Edition may be used to stimulate discussion and elicit students’ questions. Each lesson includes Investigating the Concept and Reaching All Learners activities in the Teacher’s Edition designed for students to discuss and work together as a whole class, as a small group, or in pairs. Students are encouraged to work cooperatively and respectfully with one another and give helpful comments and suggestions.

Connections Strand

**Students will:**
- recognize and use connections among mathematical ideas;
- understand how mathematical ideas interconnect and build on one another to produce a coherent whole;
- recognize and apply mathematics in contexts outside of mathematics.

Through the logical progression of lessons, students continually build an understanding of new mathematical concepts on a firm foundation of previously taught concepts. Each lesson begins with a prompt in the Teacher’s Edition to Activate Prior Knowledge, which will help students make connections between previously learned mathematical concepts and new concepts. Review questions at the end of sections and chapters will also help students connect previously learned concepts to new ones. Exercises provided in most lessons will help students recognize the widespread application of mathematical concepts to real-world situations. Cross-curricular activities throughout the text connect math concepts to other disciplines, such as art, health, literature, music, physical education, science, social studies, and technology.
Representation Strand

Students will:
- create and use representations to organize, record, and communicate mathematical ideas;
- select, apply, and translate among mathematical representations to solve problems;
- use representations to model and interpret physical, social, and mathematical phenomena.

Students use concrete and pictorial representations to visualize, analyze, and express mathematical concepts throughout the text. Examples found throughout the text require students to represent real-world mathematical situations in a variety of ways. Getting Started and Reaching All Learners activities in the Teacher's Edition for each lesson prompt students to use multiple ways to represent the lessons' underlying mathematical concepts.

CONTENT STANDARDS

NUMBER SENSE AND OPERATIONS STRAND

Students will understand numbers, multiple ways of representing numbers, relationships among numbers, and number systems.

Number Systems

5.N.1 Read and write whole numbers to millions
Lesson 1-1, pp. 4A–4B, 4–5; Lesson 1-2, pp. 6A–6B, 6–7; Lesson 1-5, pp. 14A–14B, 14–17

5.N.2 Compare and order numbers to millions
Lesson 1-2, pp. 6A–6B, 6–7

5.N.3 Understand the place value structure of the base ten number system
10 ones = 1 ten; 10 tens = 1 hundred; 10 hundreds = 1 thousand; 10 thousands = 1 ten thousand; 10 ten thousands = 1 hundred thousand; 10 hundred thousands = 1 million
5.N.4  Create equivalent fractions, given a fraction
Lesson 7-7, pp. 410A-410B, 410-411; Lesson 7-8, pp. 412A-412B, 412-413;
Lesson 7-9, pp. 414-415; Lesson 7-10, pp. 416A-416B, 416-417; Lesson 7-12,
pp. 420A-420B, 420-423

5.N.5  Compare and order fractions including unlike denominators (with and
without the use of a number line)  Note: Commonly used fractions such as those
that might be indicated on ruler, measuring cup, etc.

5.N.6  Understand the concept of ratio

5.N.7  Express ratios in different forms
Lesson 11-3, pp. 652A–652B, 652–653

5.N.8  Read, write, and order decimals to thousandths
Ch. 1, Investigation, p. 2I; Lesson 1-3, pp. 8–11; Lesson 1-4, pp. 12A–12B, 12–
13

5.N.9  Compare fractions using <, >, or =
Lesson 7-11, pp. 418A–418B, 418–419; Lesson 7-12, pp. 420A–B, 420–423

5.N.10 Compare decimals using <, >, or =
Lesson 1-4, pp. 12A–12B, 12–13; Lesson 1-5, pp. 14–17

5.N.11 Understand that percent means part of 100, and write percents as
fractions and decimals
Lesson 11-8, pp. 668A–668B, 668–669; Lesson 11-9, pp. 670A–670B; Lesson
11-11, pp. 676A–676B
Number Theory

5.N.12 Recognize that some numbers are only divisible by one and themselves (prime) and others have multiple divisors (composite)
Lesson 3-11, pp. 164A–164B, 164–167

5.N.13 Calculate multiples of a whole number and the least common multiple of two numbers

5.N.14 Identify the factors of a given number

5.N.15 Find the common factors and the greatest common factor of two numbers

Students will understand meanings of operations and procedures, and how they relate to one another.

Operations

5.N.16 Use a variety of strategies to multiply three-digit by three-digit numbers
These pages prepare students to meet this objective.
Lesson 2-4, pp. 72A–72B, 72–74; Lesson 2-5, pp. 76A–76B, 76–77; Lesson 4-12, pp. 238–239; Lesson 6-12, pp. 372–373; Lesson 7-16, pp. 438–439; Lesson 9-12, pp. 562–563; Lesson 11-11, pp. 676–677
5.N.17 Use a variety of strategies to divide three-digit numbers by one- and two-digit numbers
Lesson 4-5, pp. 218A–218B, 218–221; Lesson 4-6, pp. 222A–222B, 222–223;
Lesson 4-12, pp. 238A–238B, 238–239

5.N.18 Evaluate an arithmetic expression using order of operations including multiplication, division, addition, subtraction and parentheses
Lesson 3-13, pp. 172A–172B, 172–173

5.N.19 Simplify fractions to lowest terms
Lesson 7-10, pp. 416A–416B, 416–417; Lesson 7-16, pp. 438–439; Lesson 8-1,
pp. 460A–460B, 460–461; Lesson 8-2, pp. 462–463; Lesson 8-4, pp. 466–469;
Lesson 8-5, pp. 472A–472B, 472–473; Lesson 8-7, pp. 476–477; Lesson 8-8,
pp. 478–481; Lesson 8-12, pp. 496–499; Lesson 8-13, pp. 500–501; Lesson 8-16,
pp. 506–507

5.N.20 Convert improper fractions to mixed numbers, and mixed numbers to improper fractions
Lesson 7-3, pp. 400A–400B, 400–401

5.N.21 Use a variety of strategies to add and subtract fractions with like denominators
Lesson 8-1, pp. 460A–460B, 460–461

5.N.22 Add and subtract mixed numbers with like denominators
Lesson 8-5, pp. 472A–472B, 472–473

5.N.23 Use a variety of strategies to add, subtract, multiply, and divide decimals to thousandths
Lesson 1-12, pp. 38A–38B, 38–39; Lesson 1-13, pp. 40A–40B, 40–41; Lesson
2-9, pp. 88–91; Lesson 2-10, pp. 92A–92B, 92–93; Lesson 2-11, pp. 94A–94B,
94–97; Lesson 2-16, pp. 110A–110B, 110–111; Lesson 3-16, pp. 180–181;
Lesson 4-11, pp. 234A–234B, 234–237; Lesson 10-10, pp. 625–626
Students will compute accurately and make reasonable estimates.

Estimation

5.N.24 Round numbers to the nearest hundredth and up to 10,000
Lesson 1-8, pp. 26A–26B, 26–27; Lesson 6-12, pp. 372–373

5.N.25 Estimate sums and differences of fractions with like denominators
Lesson 8-6, pp. 474A–474B, 474–475

5.N.26 Estimate sums, differences, products, and quotients of decimals

5.N.27 Justify the reasonableness of answers using estimation

Algebra Strand

Students will represent and analyze algebraically a wide variety of problem solving situations.

Variables and Expressions

5.A.1 Define and use appropriate terminology when referring to constants, variables, and algebraic expressions
Lesson 2-12, pp. 100A–100B, 100–103; Lesson 2-13, pp. 104A–104B, 104–105

5.A.2 Translate simple verbal expressions into algebraic expressions
5.A.3  Substitute assigned values into variable expressions and evaluate using order of operations
Lesson 3-13, pp. 172A–172B, 172–173

Students will perform algebraic procedures accurately.

Equations and Inequalities

5.A.4  Solve simple one-step equations using basic whole-number facts

5.A.5  Solve and explain simple one-step equations using inverse operations involving whole numbers
Lesson 3-1, pp. 132–135; Lesson 12-2, pp. 700A–700B, 700–701; Lesson 12-1,
pp. 696A–696B, 696–699; Lesson 12-2, 700A–700B, 700–701; Lesson 12-3,

5.A.6  Evaluate the perimeter formula for given input values
Lesson 9-5, pp. 540A–540B, 540–541

Students will recognize, use, and represent algebraically patterns, relations, and functions.

Patterns, Relations, and Functions

5.A.7  Create and explain patterns and algebraic relationships (e.g.,2,4,6,8...) algebraically: 2n (doubling)
Lesson 1-5, pp. 14B, 14–17; Lesson 2-1, pp. 66–67; Lesson 2-7, pp. 84B, 84–85;
Lesson 2-14, pp. 106–107; Lesson 3-2, pp. 136A–136B, 136–137, Lesson 3-3,
pp. 142–143, 144A–144B; Lesson 3-4, pp. 144–145; Lesson 4-1, p. 202

5.A.8  Create algebraic or geometric patterns using concrete objects or visual drawings (e.g., rotate and shade geometric shapes)
Lesson 3-3, pp. 143; Lesson 3-4, pp. 144A–144B, 144–145
Geometry Strand

Students will use visualization and spatial reasoning to analyze characteristics and properties of geometric shapes.

Shapes

5.G.1 Calculate the perimeter of regular and irregular polygons

Students will identify and justify geometric relationships, formally and informally.

Geometric Relationships

5.G.2 Identify pairs of similar triangles
Lesson 6-9, pp. 360A–360B, 360–361

5.G.3 Identify the ratio of corresponding sides of similar triangles
Lesson 6-9, pp. 360A–360B, 360–361

5.G.4 Classify quadrilaterals by properties of their angles and sides

5.G.5 Know that the sum of the interior angles of a quadrilateral is 360 degrees
Lesson 6-6, pp. 346A–346B, 346–348

5.G.6 Classify triangles by properties of their angles and sides
Lesson 6-5, pp. 342A–342B, 342–345

5.G.7 Know that the sum of the interior angles of a triangle is 180 degrees
Lesson 6-5, pp. 343–344
5.G.8  Find a missing angle when given two angles of a triangle
Lesson 6-5, pp. 343–344

5.G.9  Identify pairs of congruent triangles
Lesson 6-9, p. 361

5.G.10 Identify corresponding parts of congruent triangles
Lesson 6-9, pp. 361–362

*Students will apply transformations and symmetry to analyze problem solving situations.*

*Transformational Geometry*

5.G.11 Identify and draw lines of symmetry of basic geometric shapes
Lesson 6-11, pp. 368A–368B, 368–370; Lesson 6-12, pp. 372A–372B, 372–373

*Students will apply coordinate geometry to analyze problem solving situations.*

*Coordinate Geometry*

5.G.12 Identify and plot points in the first quadrant

5.G.13 Plot points to form basic geometric shapes (identify and classify)
Lesson 3-14, pp. 174A–174B, 174–175

5.G.14 Calculate perimeter of basic geometric shapes drawn on a coordinate plane (rectangles and shapes composed of rectangles having sides with integer lengths and parallel to the axes)
Related content:
Measurement Strand

Students will determine what can be measured and how, using appropriate methods and formulas.

Units of Measurement

5.M.1 Use a ruler to measure to the nearest inch, $\frac{1}{2}$, $\frac{1}{4}$, and $\frac{1}{8}$ inch
Lesson 9-2, pp. 532A–532B, 532–533

5.M.2 Identify customary equivalent units of length
Lesson 9-1, pp. 528A–528B, 528–531

5.M.3 Measure to the nearest centimeter
Lesson 9-3, pp. 534A–534B, 534–535

5.M.4 Identify equivalent metric units of length
Lesson 9-4, pp. 536A–536B, 536–539

5.M.5 Convert measurement within a given system
Lesson 9-1, pp. 528A–528B, 528–531; Lesson 9-4, pp. 536A–536B, 536–539

Tools and Methods

5.M.6 Determine the tool and technique to measure with an appropriate level of precision: lengths and angles

Students will use units to give meaning to measurements.

Units

5.M.7 Calculate elapsed time in hours and minutes
Lesson 9-13, pp. 564A–564B, 564–567
5.M.8  Measure and draw angles using a protractor
Lesson 6-2, pp. 332A–332B, 332–335; Lesson 6-6, p. 349

**Students will develop strategies for estimating measurements.**

*Estimation*

5.M.9  Determine personal references for customary units of length
(e.g., your pace is approximately 3 feet, your height is approximately 5 feet, etc.)
Lesson 9-1, p. 528B

5.M.10 Determine personal references for metric units of length
Related content:
Lesson 9-3, pp. 534A–534B, 534–535

5.M.11 Justify the reasonableness of estimates
Lesson 9-1, pp. 529, 530; Lesson 9-4, pp. 537, 538; Lesson 9-5, p. 541; Lesson 9-6, p. 544

**Statistics and Probability Strand**

**Students will collect, organize, display, and analyze data.**

*Collection of Data*

5.S.1 Collect and record data from a variety of sources (e.g., newspapers, magazines, polls, charts, and surveys)

*Organization and Display of Data*

5.S.2 Display data in a line graph to show an increase or decrease over time
Lesson 5-3, pp. 266A–266B, 266–269; Lesson 5-8, pp. 288A–288B, 288–291
Analysis of Data

5.S.3 Calculate the mean for a given set of data and use to describe a set of data
Lesson 5-6, pp. 282A–282B, 282–285

Students will make predictions that are based upon data analysis.

Predictions from Data

5.S.4 Formulate conclusions and make predictions from graphs
Lesson 5-2, p. 262A–262B, 262–265; Lesson 5-3, pp. 266A–266B, 266–269;
Lesson 5-4, pp. 270A–270B, 270–273, 274–275

Students will understand and apply concepts of probability.

Probability

5.S.5 List the possible outcomes for a single-event experiment
Lesson 2-6, pp. 80A–80B, 80–81; Ch. 5, Investigation, p. 258J; Lesson 5-10, pp.
296A–296B, 296–299

5.S.6 Record experiment results using fractions/ratios
Lesson 5-11, pp. 300A–300B, 300–301

5.S.7 Create a sample space and determine the probability of a single event,
given a simple experiment (e.g., rolling a number cube)
Lesson 5-10, pp. 296A–296B, 296–299; Lesson 5-11, pp. 300A–300B, 300–301;
Lesson 5-12, pp. 302A–302B, 302–305
PROCESS STRANDS

Problem Solving Strand

Students will:
- build new mathematical knowledge through problem solving;
- solve problems that arise in mathematics and in other contexts;
- apply and adapt a variety of appropriate strategies to solve problems;
- monitor and reflect on the process of mathematical problem solving.

Students are challenged to use alternate ways to solve problems throughout the text, and many problems are open to students' choice of solution methods. Students have opportunities to apply problem-solving skills in the Reasoning and Problem-Solving section at the end of most lessons and in the Problem-Solving lessons found in each chapter. Instructional support in the Teacher's Edition for these lessons provides questions and prompts that encourage students to orally describe or explain how they plan to solve these problems.

Reasoning and Proof Strand

Students will:
- recognize reasoning and proof as fundamental aspects of mathematics;
- make and investigate mathematical conjectures;
- develop and evaluate mathematical arguments and proofs;
- select and use various types of reasoning and methods of proof.

Students will use inductive and/or deductive reasoning in the Reasoning problems presented throughout each chapter of the text. Throughout the program, students are presented with ample opportunities to make oral generalizations about the concepts taught in each lesson and to test those generalizations. In most lessons, students are given opportunities to check, revise, explain, and/or justify their work.
Communication Strand

**Students will:**
- organize and consolidate their mathematical thinking through communication;
- communicate their mathematical thinking coherently and clearly to peers, teachers, and others;
- analyze and evaluate the mathematical thinking and strategies of others;
- use the language of mathematics to express mathematical ideas precisely.

Writing in Math and Talk About It questions appear throughout the text. Open-ended questions on assessment pages also provide opportunities for students to express their solutions in numerical and written forms. Suggested prompts and questions provided in the Teacher's Edition may be used to stimulate discussion and elicit students’ questions. Each lesson includes Investigating the Concept and Reaching All Learners activities in the Teacher’s Edition designed for students to discuss and work together as a whole class, as a small group, or in pairs. Students are encouraged to work cooperatively and respectfully with one another and give helpful comments and suggestions.

Connections Strand

**Students will:**
- recognize and use connections among mathematical ideas;
- understand how mathematical ideas interconnect and build on one another to produce a coherent whole;
- recognize and apply mathematics in contexts outside of mathematics.

Through the logical progression of lessons, students continually build an understanding of new mathematical concepts on a firm foundation of previously taught concepts. Each lesson begins with a prompt in the Teacher’s Edition to Activate Prior Knowledge, which will help students make connections between previously learned mathematical concepts and new concepts. Review questions at the end of sections and chapters will also help students connect previously learned concepts to new ones. Exercises provided in most lessons will help students recognize the widespread application of mathematical concepts to real-world situations. Cross-curricular activities throughout the text connect math concepts to other disciplines, such as art, health, literature, music, physical education, science, social studies, and technology.
Representation Strand

Students will:
- create and use representations to organize, record, and communicate mathematical ideas;
- select, apply, and translate among mathematical representations to solve problems;
- use representations to model and interpret physical, social, and mathematical phenomena.

Students use concrete and pictorial representations to visualize, analyze, and express mathematical concepts throughout the text. Examples found throughout the text require students to represent real-world mathematical situations in a variety of ways. Getting Started and Reaching All Learners activities in the Teacher’s Edition for each lesson prompt students to use multiple ways to represent the lessons’ underlying mathematical concepts.

CONTENT STRANDS

NUMBER SENSE AND OPERATIONS STRAND

Students will understand numbers, multiple ways of representing numbers, relationships among numbers, and number systems.

Number Systems

6.N.1 Read and write whole numbers to trillions
Lesson 1-1, pp. 4A-4B, 4-7

6.N.2 Define and identify the commutative and associative properties of addition and multiplication
Lesson 1-9, pp. 28A-28B, 28-29; Lesson 1-11, pp. 32A-32B, 32-35

6.N.3 Define and identify the distributive property of multiplication over addition
Lesson 1-10, pp. 30A-30B, 30-31

6.N.4 Define and identify the identity and inverse properties of addition and multiplication
Lesson 1-9, pp. 28A-28B, 28-29; Lesson 12-2, pp. 700A-700B, 700-701
6.N.5  Define and identify the zero property of multiplication
Lesson 1-9, pp. 28A-28B, 28-29

6.N.6  Understand the concept of rate

6.N.7  Express equivalent ratios as a proportion
Lesson 6-2, pp. 302A-302B, 302-305; Lesson 6-5, pp. 316A-316B, 316-317; Lesson 6-

6.N.8  Distinguish the difference between rate and ratio
Lesson 6-1, pp. 300A-300B, 300-301; Lesson 6-3, pp. 306A-306B, 306-309; Lesson 6-
4, pp. 312A-312B, 312-313

6.N.9  Solve proportions using equivalent fractions
Lesson 3-7, pp. 164A-164B, 164-167; Lesson 6-6, pp. 318A-318B, 318-321; Lesson 6-

6.N.10  Verify the proportionality using the product of the means equals the
product of the extremes

6.N.11  Read, write, and identify percents of a whole (0% to 100%)
Lesson 7-1, pp. 354A-354B, 354-357; Lesson 7-3, pp. 362A-362B, 362-363; Lesson 7-
388B, 388-389; Lesson 9-15, pp. 520A-520B, 520-521

6.N.12  Solve percent problems involving percent, rate, and base
Lesson 7-10, pp. 386A-386B, 386-387

6.N.13  Define absolute value and determine the absolute value of rational
numbers (including positive and negative)
Lesson 8-1, pp. 408A-408B, 408-409; Lesson 8-3, pp. 412A-412B, 412-413
6.N.14 Locate rational numbers on a number line (including positive and negative)

6.N.15 Order rational numbers (including positive and negative)

**Students will understand meanings of operations and procedures, and how they relate to one another.**

**Operations**

6.N.16 Add and subtract fractions with unlike denominators
Lesson 4-1, pp. 204A-204B, 204-205; Lesson 4-2, pp. 206A-206B, 206-209

6.N.17 Multiply and divide fractions with unlike denominators
Lesson 5-2, pp. 252A-252B, 252-255; Lesson 5-6, pp. 266A-266B, 266-269

6.N.18 Add, subtract, multiply, and divide mixed numbers with unlike denominators

6.N.19 Identify the multiplicative inverse (reciprocal) of a number
Lesson 5-6, pp. 266A-266B, 266-269

6.N.20 Represent fractions as terminating or repeating decimals
6.N.21 Find multiple representations of rational numbers (fractions, decimals, and percents 0 to 100)
Lesson 8-3, pp. 412A-412B, 412-413

6.N.22 Evaluate numerical expressions using order of operations (may include exponents of two and three)
Lesson 1-8, pp. 24A-24B, 24-27

6.N.23 Represent repeated multiplication in exponential form
Lesson 1-2, pp. 8A-8B, 8-11

6.N.24 Represent exponential form as repeated multiplication
Lesson 1-2, pp. 8A-8B, 8-11

6.N.25 Evaluate expressions having exponents where the power is an exponent of one, two, or three
Lesson 1-2, pp. 8A-8B, 8-11; Lesson 1-13, pp. 40A-40B, 40-43

Students will compute accurately and make reasonable estimates.

Estimation

6.N.26 Estimate a percent of quantity (0% to 100%)

6.N.27 Justify the reasonableness of answers using estimation (including rounding)
Algebra Strand

_Students will represent and analyze algebraically a wide variety of problem solving situations._

**Variables and Expressions**

6.A.1  Translate two-step verbal expressions into algebraic expressions
Lesson 1-13, pp. 40A-40B, 40-43; Lesson 5-8, pp. 274A-274B, 274-275; Lesson 12-4, pp. 710A-710B, 710-711

6.A.2  Use substitution to evaluate algebraic expressions (may include exponents of one, two and three)
Lesson 1-13, pp. 40A-40B, 40-43; Lesson 12-4, pp. 710A-710B, 710-711

_Students will perform algebraic procedures accurately._

**Equations and Inequalities**

6.A.3  Translate two-step verbal sentences into algebraic equations

6.A.4  Solve and explain two-step equations involving whole numbers using inverse operations

6.A.5  Solve simple proportions within context

6.A.6  Evaluate formulas for given input values (circumference, area, volume, distance, temperature, interest, etc.)

Geometry Strand

_Students will use visualization and spatial reasoning to analyze characteristics and properties of geometric shapes._
Shapes

6.G.1 Calculate the length of corresponding sides of similar triangles, using proportional reasoning
Lesson 9-10, pp. 506A-506B, 506-509; Lesson 10-13, pp. 582A-582B, 582-583

6.G.2 Determine the area of triangles and quadrilaterals (squares, rectangles, rhombi, and trapezoids) and develop formulas

6.G.3 Use a variety of strategies to find the area of regular and irregular polygons

6.G.4 Determine the volume of rectangular prisms by counting cubes and develop the formula
Lesson 10-16, pp. 594A-594B, 594-597

6.G.5 Identify radius, diameter, chords and central angles of a circle
Lesson 9-9, pp. 502A-502B, 502-503; Lesson 10-13, pp. 582A-582B, 582-583

6.G.6 Understand the relationship between the diameter and radius of a circle
Lesson 9-9, pp. 502A-502B, 502-503

6.G.7 Determine the area and circumference of a circle, using the appropriate formula

6.G.8 Calculate the area of a sector of a circle, given the measure of a central angle and the radius of the circle
Lesson 10-12, pp. 580A-580B, 580-581
6.G.9  Understand the relationship between the circumference and the diameter of a circle
Lesson 10-17, pp. 598A-598B, 598-599

Students will apply coordinate geometry to analyze problem solving situations.

Coordinate Geometry

6.G.10  Identify and plot points in all four quadrants
Lesson 8-11, pp. 440A-440B, 440-443

6.G.11  Calculate the area of basic polygons drawn on a coordinate plane (rectangles and shapes composed of rectangles having sides with integer lengths)
Related content:
Lesson 10-9, pp. 570A-570B, 570-571; Lesson 10-10, pp. 572A-572B, 572-575

Measurement Strand

Students will determine what can be measured and how, using appropriate methods and formulas.

Units of Measurement

6.M.1  Measure capacity and calculate volume of a rectangular prism

6.M.2  Identify customary units of capacity (cups, pints, quarts, and gallons)
Lesson 10-1, pp. 542A-542B, 542-545

6.M.3  Identify equivalent customary units of capacity (cups to pints, pints to quarts, and quarts to gallons)
Lesson 3-12, pp. 180A-180B, 180-181; Lesson 10-1, pp. 542A-542B, 542-545
6.M.4 Identify metric units of capacity (liter and milliliter)
Lesson 10-2, pp. 546A-546B, 546-549

6.M.5 Identify equivalent metric units of capacity (milliliter to liter and liter to milliliter)
Lesson 10-2, pp. 546A-546B, 546-549

Tools and Methods

6.M.6 Determine the tool and technique to measure with an appropriate level of precision: capacity

Students will develop strategies for estimating measurements.

Estimation

6.M.7 Estimate volume, area, and circumference (see figures identified in geometry strand)

6.M.8 Justify the reasonableness of estimates
Related content:

6.M.9 Determine personal references for capacity
Statistics and Probability Strand

*Students will collect, organize, display, and analyze data.*

**Collection of Data**

6.S.1 Develop the concept of sampling when collecting data from a population and decide the best method to collect data for a particular question
Lesson 11-1, pp. 620A-620B, 620-623

**Organization and Display of Data**

6.S.2 Record data in a frequency table
Lesson 11-3, pp. 628A-628B, 628-631

6.S.3 Construct Venn diagrams to sort data

6.S.4 Determine and justify the most appropriate graph to display a given set of data (pictograph, bar graph, line graph, histogram, or circle graph)

**Analysis of Data**

6.S.5 Determine the mean, mode and median for a given set of data
Lesson 11-2, pp. 624A-624B, 624-627; Lesson 11-17, pp. 676A-676B, 676-677

6.S.6 Determine the range for a given set of data
Lesson 11-2, pp. 624A-624B, 624-627

6.S.7 Read and interpret graphs
Students will make predictions that are based upon data analysis.

Predictions from Data

6.S.8  Justify predictions made from data
Lesson 11-2, pp. 624A-624B, 624-627; Lesson 11-6, pp. 638A-638B, 638-641

Students will understand and apply concepts of probability.

Probability

6.S.9  List possible outcomes for compound events

6.S.10  Determine the probability of dependent events

6.S.11  Determine the number of possible outcomes for a compound event by using the fundamental counting principle and use this to determine the probabilities of events when the outcomes have equal probability
Lesson 11-10, pp. 654A-654B, 654-657; Lesson 11-12, pp. 662A-662B, 662-663;
Lesson 11-13, pp. 664A-664B, 664-667; Lesson 11-15, pp. 672A-672B, 672-673