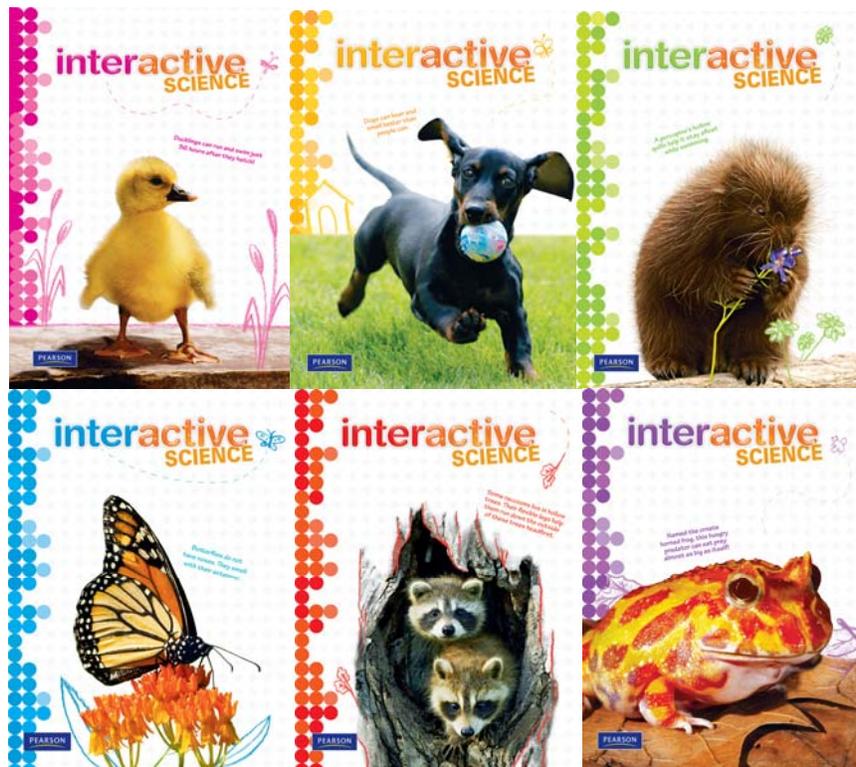


A Correlation of

Interactive Science

©2012



to the

Utah Elementary Science Standards Grades K-5

INTRODUCTION

This document demonstrates the close alignment between *Interactive Science*, Grades K-5, ©2012, and the Utah Elementary Science Standards. Correlation page references are to the Teacher's Edition and Student Edition. The Big Book Flip Chart is referenced at Grade Kindergarten. Lessons in the Teacher's Edition contain facsimile Student Edition pages.

Pearson Education is pleased to introduce *Interactive Science*, a Kindergarten through Grade 5 program that makes all students really want to learn more about science and the world. It helps students develop scientific literacy so they better understand the world we live in.

Organized into three distinct pathways – reading, inquiry, and digital, *Interactive Science* makes learning and teaching science personal, relevant, and engaging for both students and teachers.

Reading Path

Target Reading Skills, continual vocabulary support, and graphic organizers help students develop critical reading skills and strategies to uncover meaning when they read. Core Content in the Write-in Student Editions as well as below-, on-, and advanced-Levelled Readers with built-in ELL support give students tools to become successful readers.

Inquiry Path

ABCs of Inquiry – Activity Before Concept activities in the Write-in Student Edition engage students and set a purpose for reading.

Scaffolded inquiry activities consist of directed, guided, and open inquiry options to allow students to move from teacher-directed to student-centered hand-on experiences.

Digital Path

Interactive Science goes digital at myscienceonline.com. *Untamed Science* and *Got It? 60-Second Videos, I Will Know* activities, and Virtual Labs resources engage students in today's digital world.

My scienceonline.com can be used for teacher-led instruction from a single computer, with an interactive whiteboard, or by students working at their own pace at school or at home.

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**Pearson Interactive Science, Grades K-5 © 2012
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Utah Elementary Science Standards Kindergarten	Pearson Interactive Science © 2012
Science - Kindergarten	
Core Standards of the Course	
Standard 1 The Processes of Science, Communication of Science, and the Nature of Science. Students will be able to apply scientific processes, communicate scientific ideas effectively, and understand the nature of science.	
Objective 1 Generating Evidence: Using the processes of scientific investigation (i.e. framing questions, designing investigations, conducting investigations, collecting data, drawing conclusions)	
a. Framing questions: Observe using senses, create a hypothesis, and focus a question that can lead to an investigation.	BB: 2, 5, 6, 11 BB / SE: 2, 5, 6, 11; Activity 2, 5, 6 TE: 32-33
b. Designing investigations: Consider reasons that support ideas, identify ways to gather information that could test ideas, design fair tests, share designs with peers for input and refinement.	BB: 11, 19, 21, 31, 42, 54, 66, 76, 85 SE: 11, 19, 21, 31, 42, 54, 66, 76, 85 TE: 32, 56, 64-65, 88, 118, 150, 182, 210, 236
c. Conducting investigations: Observe, manipulate, measure, describe.	BB: 3, 11, 19, 31, 42, 54, 66, 76, 85 SE: 3, 11, 19, 31, 42, 54, 66, 76, 85 TE: 32, 56, 88, 118, 150, 182, 210, 236
d. Collecting data: Deciding what data to collect and how to organize, record, and manipulate the data.	BB: 3, 11, 14, 19, 24, 31, 34, 42, 46, 54, 66, 69, 76, 79, 85 SE: 3, 11, 14, 19, 24, 31, 34, 42, 46, 54, 66, 69, 76, 79, 85 TE: 18, 32, 36, 48, 56, 60, 76, 88, 92, 104, 118, 122, 136, 150, 154, 182, 186, 198, 210, 214, 226, 236, 240
e. Drawing conclusions: Analyzing data, making conclusions connected to the data or the evidence gathered, identifying limitations or conclusions, identifying future questions to investigate.	BB: 3, 11, 14, 19, 24, 31, 34, 42, 46, 47, 48, 50, 54, 66, 69, 76, 79, 85 SE: 3, 11, 14, 19, 24, 31, 34, 42, 46, 47, 48, 50, 54, 66, 69, 76, 79, 85; Activity 47, 50 TE: 18, 32, 36, 48, 56, 60, 76, 88, 92, 104, 118, 122, 136, 137, 139, 143, 147, 149, 150, 154, 177, 181, 182, 186, 198, 203, 205, 207, 209, 210, 214, 226, 229, 235, 236, 240

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Utah Elementary Science Standards Kindergarten	Pearson Interactive Science © 2012
Objective 2 Communicating Science: Communicating effectively using science language and reasoning	
a. Developing social interaction skills with peers.	<p>BB: 5, 7, 8, 11, 14, 18, 19, 21, 24, 42, 58, 76, 79, 85</p> <p>SE: 5, 7, 8, 11, 14, 18, 19, 21, 24, 42, 58, 76, 79, 85; Activity 7, 8, 18</p> <p>TE: Representative Pages: 24-25, 26, 36, 48, 57, 76, 89, 104, 118, 178, 186, 192, 210, 226, 236</p>
b. Sharing ideas with peers.	<p>BB: 7, 8, 18, 24, 42, 51, 75</p> <p>SE: 7, 8, 18, 24, 42, 51, 75; Activity: 7, 8, 18</p> <p>TE: Representative Pages: 20-21, 48, 54, 60, 74, 92, 106, 122, 140, 144, 154, 202, 211, 230, 240</p>
c. Connecting ideas with reasons (evidence).	<p>BB: 3, 7, 11, 14, 19, 23, 24, 31, 34, 42, 46, 47, 54, 66, 69, 76, 79, 85</p> <p>SE: 3, 7, 11, 14, 19, 23, 24, 31, 34, 42, 46, 47, 54, 66, 69, 76, 79, 85; Activity: 11, 23, 24, 34, 47, 69, 76</p> <p>TE: 18, 24-25, 32, 36, 48, 56, 60, 76, 88, 92, 104, 118, 122, 136, 150, 154, 182, 186, 198, 210, 214, 226, 236, 240</p>
d. Using multiple methods of communicating reasons/evidence (verbal, charts, graphs).	<p>BB: 8, 11, 25, 31, 34, 42, 46, 54, 66, 69, 76, 79, 85</p> <p>SE: 8, 11, 25, 31, 34, 42, 46, 54, 66, 69, 76, 79, 85; Activity: 8, 11, 25, 31, 34, 76</p> <p>TE: 18, 26-27, 32, 36, 48, 56, 60, 76, 88, 92, 104, 118, 122, 136, 150, 154, 182, 186, 198, 210, 214, 226, 236, 240</p>

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Utah Elementary Science Standards Kindergarten	Pearson Interactive Science © 2012
Objective 3 Knowing in Science: Understanding the nature of science	
a. Ideas are supported by reasons.	BB: 3, 7, 11, 14, 19, 24, 31, 34, 42, 46, 47, 54, 66, 69, 76, 79, 85 SE: 3, 7, 11, 14, 19, 24, 31, 34, 42, 46, 47, 54, 66, 69, 76, 79, 85; Activity: 11, 23, 24, 34, 47, 69, 76 TE: 18, 24-25, 32, 36, 48, 56, 60, 76, 88, 92, 104, 118, 122, 136, 150, 154, 182, 186, 198, 210, 214, 226, 236, 240
b. There are limits to ideas in science (i.e. what can be observed, measured, and verified).	BB: 6, 7 SE: 6, 7 TE: 22-23, 24-25
c. Differences in conclusions are best settled through additional observations and investigations.	Related content: BB: 3, 6, 7, 8 SE: 3, 6, 7, 8, Activity 3, 6 TE: 18, 22-23, 24-25, 26-27
d. Communication of ideas in science is important for helping to check the reasons for ideas.	BB: 8 SE: 8; Activity 8 TE: 26-27
Standard 2 Earth and Space Science. Students will gain an understanding of Earth and Space Science through the study of earth materials, celestial movement, and weather.	
Objective 1 Investigate non-living things.	
a. Observe and record that big rocks break down into small rocks, e.g., boulders, rocks, pebbles, sand.	This standard falls outside of the program scope and sequence.
b. Demonstrate how water and wind move nonliving things.	Related content: BB: 26 SE: 26; Activity 79 TE: 79

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c. Sort, group, and classify Earth materials, e.g., hard, smooth, rough, shiny, flat.	Related content: BB: 32, 58, 61, 62, 63 SE: 32, 58, 61, 62, 63; Activity: 32, 58, 62, 63 TE: 89, 162, 168, 172-173, 174-175, 176-177, 210
Objective 2 Observe and describe changes in day and night.	
a. Compare and contrast light and dark in a day/night cycle and identify the changes as a pattern.	BB: 49, 50, 51, 54 SE: 49, 50, 51, 54 TE: 131, 140-141, 142-143, 144-145, 150
b. Investigate, interpret, and explain to others that the sun provides heat and light to Earth.	BB: 49, 50, 52, 53, 54 SE: 49, 50, 52, 53, 54; Activity: 49, 50, 53, 54, 55 TE: 130-131, 140-141, 142-143, 144-145, 146-147, 148-149, 150
c. Examine what happens when you block the sun's light. Explore shadows and temperature changes.	BB: 46, 50, 51 SE: 46, 50, 51; Activity: 46 TE: 136, 142-143, 144-145
Objective 3 Compare changes in weather over time.	
a. Observe and record that weather changes occur from day-to-day and weather patterns occur from season to season.	BB: 52 SE: 52; Activity: 52 TE: 146-147, 151
b. Communicate ways weather can affect individuals.	BB: 55 SE: 55; Activity: 55 TE: 147, 151
c. Describe, predict, and discuss daily weather conditions and how predicting the weather can improve our lives.	BB: 55 SE: 55 TE: 151

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Standard 3 Physical Science. Students will gain an understanding of Physical Science through the study of the forces of motion and the properties of materials.	
Objective 1 Identify how non-living things move.	
a. Observe and record how objects move in different ways, e.g., fast, slow, zigzag, round and round, up and down, straight line, back and forth, slide, roll, bounce, spin, swing, float, and glide.	BB: 79, 82, 83, 84, 85, 86 SE: 79, 82, 83, 84, 85, 86; Activity: 78, 79, 83 TE: 224, 226, 230-231, 232-233, 234-235, 236, 237
b. Compare and contrast how physical properties of objects affect their movement, e.g., hard, soft, feathered, round, square, cone, geometric shapes.	BB: 83 SE: 83; Activity: 83 TE: 232-233
Objective 2 Describe parts of non-living things.	
a. Describe how parts are used to build things and how things can be taken apart.	Related content: BB: 57 SE: 57 TE: 162, 166-167
b. Explain why things may not work the same if some of the parts are missing.	Related content: BB: 57 SE: 57 TE: 162, 166-167
Standard 4 Life Science. Students will gain an understanding of Life Science through the study of changes in organisms over time and the nature of living things.	
Objective 1 Investigate living things.	
a. Construct questions, give reasons, and share findings about all living things.	BB: 24, 27, 28, 32 SE: 24, 27, 28, 32; Activity: 24, 27, 28 TE: 70-71, 74-75, 76, 80-81, 82-83, 89
b. Compare and contrast young plants and animals with their parents.	BB: 33, 36, 37, 38, 39 SE: 33, 36, 37, 38, 39; Activity: 33, 36 TE: 106-107, 108-109, 110-111, 112-113

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c. Describe some changes in plants and animals that are so slow or so fast that they are hard to see (e.g., seasonal change, "fast" blooming flower, slow growth, hatching egg).	Related content: BB: 34, 36, 37, 38, 39 SE: 34, 36, 37, 38, 39; Activity: 34, 37, 38, 39 TE: 104, 106-107, 108-109, 110-111, 112-113
Objective 2 Describe the parts of living things.	
a. Differentiate between the five senses and related body parts.	BB: 6, 60 SE: 6, 60; Activity: 60 TE: 22-23, 170-171
b. Identify major parts of plants, e.g., roots, stem, leaf, flower, trunk, branches.	BB: 38 SE: 38 TE: 111
c. Compare the parts of different animals, e.g., skin, fur, feathers, scales; hand, wing, flipper, fin.	BB: 29 SE: 29; Activity: 29 TE: 84-85, 107

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Utah Elementary Science Standards Grade 1	Pearson Interactive Science © 2012
Science - 1st Grade	
Core Standards of the Course	
Standard 1 The Processes of Science, Communication of Science, and the Nature of Science. Students will be able to apply scientific processes, communicate scientific ideas effectively, and understand the nature of science.	
Objective 1 Generating Evidence: Using the processes of scientific investigation (i.e. framing questions, designing investigations, conducting investigations, collecting data, drawing conclusions)	
a. Framing questions: Observe using senses, create a hypothesis, and focus a question that can lead to an investigation.	SE/TE: 11, 20-22, 154, 232, 289, 324
b. Designing investigations: Consider reasons that support ideas, identify ways to gather information that could test ideas, design fair tests, share designs with peers for input and refinement.	SE/TE: 64, 154-155, 232-233, 342-325
c. Conducting investigations: Observe, manipulate, measure, describe.	SE/TE: 28, 56, 102, 144, 194, 224, 258, 288, 316
d. Collecting data: Deciding what data to collect and how to organize, record, and manipulate the data.	SE/TE: 24, 25-27, 28-29, 160, 258-259, 316-317
e. Drawing conclusions: Analyzing data, making conclusions connected to the data or the evidence gathered, identifying limitations or conclusions, identifying future questions to investigate.	SE/TE: 20, 23, 29, 57, 103, 145, 195, 225, 259, 317
Objective 2 Communicating Science: Communicating effectively using science language and reasoning	
a. Developing social interaction skills with peers.	SE/TE: Representative Pages: 4, 10, 20, 24, 28, 40, 42, 50, 56, 64, 76, 80, 92, 102, 114
b. Sharing ideas with peers.	SE/TE: Representative Pages: 122, 140, 176, 211, 217, 219, 220, 223, 249, 252, 257, 274, 275, 298, 303
c. Connecting ideas with reasons (evidence).	This standard is met in the following features throughout the program: Apply It!, Investigate It!, Explore It!, and Try It! Please see representative pages SE/TE: 14, 24, 126, 136, 140, 144, 168, 174, 178, 184, 194, 208, 216, 224, 246

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Utah Elementary Science Standards Grade 1	Pearson Interactive Science © 2012
d. Using multiple methods of communicating reasons/evidence (verbal, charts, graphs).	SE/TE: 27, 154-155, 232-233, 324-325
Objective 3 Knowing in Science: Understanding the nature of science	
a. Ideas are supported by reasons.	SE/TE: 21-23
b. There are limits to ideas in science (i.e. what can be observed, measured, and verified).	SE/TE: 21-23
c. Differences in conclusions are best settled through additional observations and investigations.	Related content: SE/TE: 23
d. Communication of ideas in science is important for helping to check the reasons for ideas.	SE/TE: 27, 114, 136, 168, 208, 284, 298, 300, 325
Standard 2 Earth and Space Science. Students will gain an understanding of Earth and Space Science through the study of earth materials, celestial movement, and weather.	
Objective 1 Investigate the natural world including rock, soil and water.	
a. Observe, compare, describe, and sort components of soil by size, texture, and color.	SE/TE: 168, 170-173
b. Identify and describe a variety of natural sources of water, including streams, lakes, and oceans.	SE/TE: 179-181
c. Gather evidence about the uses of rocks, soil, and water.	SE/TE: 47-48, 169-173, 275
Objective 2 Observe and describe the changes and appearance of the sun and moon during daylight.	
a. Observe the sun at different times during the day and report observations to peers.	SE/TE: 192-193
b. Observe and chart the moon when it is visible during the day.	SE/TE: 190-191
Objective 3 Compare and contrast seasonal weather changes.	
a. Identify characteristics of the seasons of the year.	SE/TE: 220-223

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b. Identify characteristics of weather, e.g., types of precipitation, sunny, windy, foggy, and cloudy.	SE/TE: 212-215
c. Observe and record weather information within each season.	SE/TE: 216
Standard 3 Physical Science. Students will gain an understanding of Physical Science through the study of the forces of motion and the properties of materials.	
Objective 1 Analyze changes in the movement of nonliving things.	
a. Describe, classify, and communicate observations about the motion of objects, e.g., straight, zigzag, circular, curved, back and forth, and fast or slow.	SE/TE: 301-303
b. Compare and contrast the movement of objects using drawings, graphs, and numbers.	SE/TE: 300
c. Explain how a push or pull can affect how an object moves.	SE/TE: 304-307
Objective 2 Analyze objects and record their properties.	
a. Sort, classify, and chart objects by observable properties, e.g., size, shape, color, and texture.	SE/TE: 243, 258-259
b. Predict measurable properties such as weight, temperature, and whether objects sink or float; test and record data.	SE/TE: 244-245
c. Predict, identify, and describe changes in matter when heated, cooled, or mixed with water.	SE/TE: 249, 257
Standard 4 Life Science. Students will gain an understanding of Life Science through the study of changes in organisms over time and the nature of living things.	
Objective 1 Communicate observations about the similarities and differences between offspring and between populations.	
a. Communicate observations about plants and animals, including humans, and how they resemble their parents.	SE/TE: 136, 137-139

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b. Analyze the individual similarities and differences within and across larger groups.	SE/TE: 140, 141-143
Objective 2 <u>Living things change and depend upon their environment to satisfy their basic needs.</u>	
a. Make observations about living things and their environment using the five senses.	SE/TE: 80, 102, 114, 118, 126
b. Identify how natural earth materials (e.g., food, water, air, light, and space), help to sustain plant and animal life.	SE/TE: 80-85
c. Describe and model life cycles of living things.	SE/TE: 128-129, 132-133, 134-135

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Utah Elementary Science Standards Grade 2	Pearson Interactive Science © 2012
Science - 2nd Grade	
Core Standards of the Course	
Standard 1 The Processes of Science, Communication of Science, and the Nature of Science. Students will be able to apply scientific processes, communicate scientific ideas effectively, and understand the nature of science.	
Objective 1 Generating Evidence: Using the processes of scientific investigation (i.e. framing questions, designing investigations, conducting investigations, collecting data, drawing conclusions)	
a. Framing questions: Observe using senses, create a hypothesis, and focus a question that can lead to an investigation.	SE/TE: 29d, 57d, 109d, 160-161, 266-267, 348-349
b. Designing investigations: Consider reasons that support ideas, identify ways to gather information that could test ideas, design fair tests, share designs with peers for input and refinement.	SE/TE: 29d, 57d, 109d, 160-161, 266-267, 348-349
c. Conducting investigations: Observe, manipulate, measure, describe.	SE/TE: Representative Pages: 28-29, 56-57, 108-109, 150-151, 160-161, 194-195, 224-225, 258-259, 266-267, 298-299, 338-339, 348-349
d. Collecting data: Deciding what data to collect and how to organize, record, and manipulate the data.	SE/TE: 24, 25-27, 29d, 57d, 109d, 120, 151, 160-161, 258-259, 266-267, 338-339, 348-349
e. Drawing conclusions: Analyzing data, making conclusions connected to the data or the evidence gathered, identifying limitations or conclusions, identifying future questions to investigate.	SE/TE: 18, 20, 29d, 74, 104, 161, 172, 176, 267, 339, 349
Objective 2 Communicating Science: Communicating effectively using science language and reasoning	
a. Developing social interaction skills with peers.	SE/TE: Representative Pages: 4, 10, 14, 21, 23, 24, 28, 29a, 31, 38, 44, 47, 55, 79, 133
b. Sharing ideas with peers.	SE/TE: Representative Pages: 2, 9, 23, 42, 43, 44, 53, 68-69, 79, 81, 84, 99, 102, 107, 137
c. Connecting ideas with reasons (evidence).	This standard is met in the following features throughout the program: Apply It!, Investigate It!, Explore It!, and Try It! Please see representative pages SE/TE: 74, 120, 166, 188, 195, 206, 234, 259, 272, 288, 310, 312, 330, 339, 349

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d. Using multiple methods of communicating reasons/evidence (verbal, charts, graphs).	SE/TE: 24, 27, 27b, 29, 29d, 38, 100, 120, 161, 259, 267, 294, 298-299, 312, 339, 349
Objective 3 Knowing in Science: Understanding the nature of science	
a. Ideas are supported by reasons.	SE/TE: 21, 25, 27, 29
b. There are limits to ideas in science (i.e. what can be observed, measured, and verified).	Related content: SE/TE: 21, 25, 27, 29
c. Differences in conclusions are best settled through additional observations and investigations.	SE/TE: 21-23, 23a, 23b, 240
d. Communication of ideas in science is important for helping to check the reasons for ideas.	SE/TE: 4, 27
Standard 2 Earth and Space Science. Students will gain an understanding of Earth and Space Science through the study of earth materials, celestial movement, and weather.	
Objective 1 Describe the characteristics of different rocks.	
a. Explain how smaller rocks come from the breakage and weathering of larger rocks.	SE/TE: 173
b. Describe rocks in terms of their parts (e.g. crystals, grains, cement).	Related content: SE/TE: 175
c. Sort rocks based upon color, hardness, texture, layering, particle size and type (i.e. igneous, metamorphic, sedimentary).	Related content: SE/TE: 172, 174-175
Objective 2 Observe and record recognizable objects and patterns in the night sky.	
a. Observe, describe, and record patterns in the appearance and apparent motion of the moon in the night sky.	SE/TE: 218-219
b. Observe and describe the number, arrangement and color/brightness of stars in the night sky.	SE/TE: 216

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Utah Elementary Science Standards Grade 2	Pearson Interactive Science © 2012
Objective 3 Observe, describe, and measure seasonal weather patterns and local variations.	
a. Compare and contrast the seasonal weather patterns during the school year.	SE/TE: 235
b. Analyze and interpret data such as temperatures in different locations and different times.	SE/TE: 234, 281
Standard 3 Physical Science. Students will gain an understanding of Physical Science through the study of the forces of motion and the properties of materials.	
Objective 1 Communicate observations about falling objects.	
a. Observe falling objects and identify things that prevent them from reaching the ground.	SE/TE: 334-339
b. Communicate observations that similar objects of varying masses fall at the same rate.	SE/TE: 334
Objective 2 Compare and contrast the differences in how different materials respond to change.	
a. Model physical changes of various materials.	SE/TE: 288-291
b. Investigate and provide evidence that matter is not destroyed or created through changes.	Related content: SE/TE: 288
Standard 4 Life Science. Students will gain an understanding of Life Science through the study of changes in organisms over time and the nature of living things.	
Objective 1 Tell how external features affect an animals' ability to survive in its environment.	
a. Compare and contrast the characteristics of living things in different habitats.	SE/TE: 98
b. Develop, communicate, and justify an explanation as to why a habitat is or is not suitable for a specific organism.	SE/TE: 94, 97-99
c. Create possible explanations as to why some organisms no longer exist, but similar organisms are still alive today.	SE/TE: 107

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Utah Elementary Science Standards Grade 2	Pearson Interactive Science © 2012
Objective 2 Identify basic needs of living things (plants and animals) and their abilities to meet their needs.	
a. Communicate and justify how the physical characteristics of living things help them meet their basic needs.	SE/TE: 83-87, 89-93
b. Observe, record, and compare how the behaviors and reactions of living things help them meet their basic needs.	SE/TE: 84, 91, 89, 90-93
c. Identify behaviors and reactions of living things in response to changes in the environment including seasonal changes in temperature and precipitation.	SE/TE: 86-87, 88, 89, 91

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Utah Elementary Science Standards Grade 3	Pearson Interactive Science © 2012
Science - 3rd Grade	
Core Standards of the Course	
Science Benchmark Earth orbits around the sun, and the moon orbits around Earth. Earth is spherical in shape and rotates on its axis to produce the night and day cycle. To people on Earth, this turning of the planet makes it appear as though the sun, moon, planets, and stars are moving across the sky once a day. However, this is only a perception as viewed from Earth.	
Standard 1 Students will understand that the shape of Earth and the moon are spherical and that Earth rotates on its axis to produce the appearance of the sun and moon moving through the sky.	
Objective 1 Describe the appearance of Earth and the moon.	
a. Describe the shape of Earth and the moon as spherical.	Related content: SE/TE: 288, 289-292, 296-300
b. Explain that the sun is the source of light that lights the moon.	SE/TE: 298
c. List the differences in the physical appearance of Earth and the moon as viewed from space.	Related content: SE/TE: 289, 297, 300-301
Objective 2 Describe the movement of Earth and the moon and the apparent movement of other bodies through the sky.	
a. Describe the motions of Earth (i.e., the rotation [spinning] of Earth on its axis, the revolution [orbit] of Earth around the sun).	SE/TE: 289-292
b. Use a chart to show that the moon orbits Earth approximately every 28 days.	SE/TE: 298, 299, 303
c. Use a model of Earth to demonstrate that Earth rotates on its axis once every 24 hours to produce the night and day cycle.	Related content: SE/TE: 288-291
d. Use a model to demonstrate why it seems to a person on Earth that the sun, planets, and stars appear to move across the sky.	Related content: SE/TE: 288-291

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Utah Elementary Science Standards Grade 3	Pearson Interactive Science © 2012
<p>Science Benchmark For any particular environment, some types of plants and animals survive well, some survive less well and some cannot survive at all. Organisms in an environment interact with their environment. Models can be used to investigate these interactions.</p>	
<p>Standard 2 Students will understand that organisms depend on living and nonliving things within their environment.</p>	
<p>Objective 1: Classify living and nonliving things in an environment.</p>	
<p>a. Identify characteristics of living things (i.e., growth, movement, reproduction).</p>	<p>Related content: SE/TE: 99-102, 105-109, 111-114, 115, 117-121, 155, 179</p>
<p>b. Identify characteristics of nonliving things.</p>	<p>Related content: SE/TE: 99-102, 105-109, 111-114, 115, 117-121, 155, 179</p>
<p>c. Classify living and nonliving things in an environment.</p>	<p>SE/TE: 179, 182, 198-199</p>
<p>Objective 2 Describe the interactions between living and nonliving things in a small environment.</p>	
<p>a. Identify living and nonliving things in a small environment (e.g., terrarium, aquarium, flowerbed) composed of living and nonliving things.</p>	<p>SE/TE:179, 182, 198-199</p>
<p>b. Predict the effects of changes in the environment (e.g., temperature, light, moisture) on a living organism.</p>	<p>Related content: SE/TE: 183</p>
<p>c. Observe and record the effect of changes (e.g., temperature, amount of water, light) upon the living organisms and nonliving things in a small-scale environment.</p>	<p>SE/TE:190, 199, 199c</p>
<p>d. Compare a small-scale environment to a larger environment (e.g., aquarium to a pond, terrarium to a forest).</p>	<p>Related content: SE/TE: 179, 182, 190</p>
<p>e. Pose a question about the interaction between living and nonliving things in the environment that could be investigated by observation.</p>	<p>SE/TE:180-181</p>

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<p>Science Benchmark Forces cause changes in the speed or direction of the motion of an object. The greater the force placed on an object, the greater the change in motion. The more massive an object is, the less effect a given force will have upon the motion of the object. Earth's gravity pulls objects toward it without touching them.</p>	
<p>Standard 3 Students will understand the relationship between the force applied to an object and resulting motion of the object.</p>	
<p>Objective 1 Demonstrate how forces cause changes in speed or direction of objects.</p>	
a. Show that objects at rest will not move unless a force is applied to them.	SE/TE: 414-421, 422, 423-425
b. Compare the forces of pushing and pulling.	SE/TE: 415
c. Investigate how forces applied through simple machines affect the direction and/or amount of resulting force.	SE/TE: 54, 58
<p>Objective 2 Demonstrate that the greater the force applied to an object, the greater the change in speed or direction of the object.</p>	
a. Predict and observe what happens when a force is applied to an object (e.g., wind, flowing water).	SE/TE: 414, 425
b. Compare and chart the relative effects of a force of the same strength on objects of different weight (e.g., the breeze from a fan will move a piece of paper but may not move a piece of cardboard).	SE/TE: 414, 416
c. Compare the relative effects of forces of different strengths on an object (e.g., strong wind affects an object differently than a breeze).	SE/TE: 416
d. Conduct a simple investigation to show what happens when objects of various weights collide with one another (e.g., marbles, balls).	Related content: SE/TE: 415-417
e. Show how these concepts apply to various activities (e.g., batting a ball, kicking a ball, hitting a golf ball with a golf club) in terms of force, motion, speed, direction, and distance (e.g. slow, fast, hit hard, hit soft).	SE/TE: 414-421, 423-425

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<p>Science Benchmark Forces cause changes in the speed or direction of the motion of an object. The greater the force placed on an object, the greater the change in motion. The more massive an object is, the less effect a given force will have upon the motion of the object. Earth's gravity pulls objects toward it without touching them.</p>	
<p>Standard 4 Students will understand that objects near Earth are pulled toward Earth by gravity.</p>	
<p>Objective 1 Demonstrate that gravity is a force.</p>	
<p>a. Demonstrate that a force is required to overcome gravity.</p>	<p>SE/TE: 422, 425</p>
<p>b. Use measurement to demonstrate that heavier objects require more force than lighter ones to overcome gravity.</p>	<p>SE/TE: 425</p>
<p>Objective 2 Describe the effects of gravity on the motion of an object.</p>	
<p>a. Compare how the motion of an object rolling up or down a hill changes with the incline of the hill.</p>	<p>SE/TE: 426-427</p>
<p>b. Observe, record, and compare the effect of gravity on several objects in motion (e.g., a thrown ball and a dropped ball falling to Earth).</p>	<p>Related content: SE/TE: 422, 424-425</p>
<p>c. Pose questions about gravity and forces.</p>	<p>Related content: SE/TE: 414, 421</p>
<p>Science Benchmark Light is produced by the sun and observed on Earth. Living organisms use heat and light from the sun. Heat is also produced from motion when one thing rubs against another. Things that give off heat often give off light. While operating, mechanical and electrical machines produce heat and/or light.</p>	
<p>Standard 5 Students will understand that the sun is the main source of heat and light for things living on Earth. They will also understand that the motion of rubbing objects together may produce heat.</p>	
<p>Objective 1 Provide evidence showing that the sun is the source of heat and light for Earth.</p>	
<p>a. Compare temperatures in sunny and shady places.</p>	<p>Related content: SE/TE: 339, 374</p>
<p>b. Observe and report how sunlight affects plant growth.</p>	<p>SE/TE: 88, 98</p>
<p>c. Provide examples of how sunlight affects people and animals by providing heat and light.</p>	<p>Related content: SE/TE: 179, 227, 357-358</p>

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d. Identify and discuss as a class some misconceptions about heat sources (e.g., clothes do not produce heat, ice cubes do not give off cold).	Related content: SE/TE: 224, 328, 358
Objective 2 Demonstrate that mechanical and electrical machines produce heat and sometimes light.	
a. Identify and classify mechanical and electrical sources of heat.	SE/TE: 358-359, 361b
b. List examples of mechanical or electrical devices that produce light.	Related content: SE/TE: 0358, 359
c. Predict, measure, and graph the temperature changes produced by a variety of mechanical machines and electrical devices while they are operating.	Related content: SE/TE: 356-359, 361b
Objective 3 Demonstrate that heat may be produced when objects are rubbed against one another.	
a. Identify several examples of how rubbing one object against another produces heat.	Related content: SE/TE: 417
b. Compare relative differences in the amount of heat given off or force required to move an object over lubricated/non-lubricated surfaces and smooth/rough surfaces (e.g., waterslide with and without water, hands rubbing together with and without lotion).	SE/TE: 417

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Science - 4th Grade	
Core Standards of the Course	
Science Benchmark Matter on Earth cycles from one form to another. The cycling of matter on Earth requires energy. The cycling of water is an example of this process. The sun is the source of energy for the water cycle. Water changes state as it cycles between the atmosphere, land, and bodies of water on Earth.	
Standard 1 Students will understand that water changes state as it moves through the water cycle.	
Objective 1 Describe the relationship between heat energy, evaporation and condensation of water on Earth	
a. Identify the relative amount and kind of water found in various locations on Earth (e.g., oceans have most of the water, glaciers and snowfields contain most fresh water).	SE/TE: 230, 231-235, 235b
b. Identify the sun as the source of energy that evaporates water from the surface of Earth.	SE/TE: 236-237, 241
c. Compare the processes of evaporation and condensation of water.	SE/TE: 238
d. Investigate and record temperature data to show the effects of heat energy on changing the states of water.	Related content: SE/TE: 318, 320
Objective 2 Describe the water cycle.	
a. Locate examples of evaporation and condensation in the water cycle (e.g., water evaporates when heated and clouds or dew forms when vapor is cooled).	SE/TE: 238-239, 241
b. Describe the processes of evaporation, condensation, and precipitation as they relate to the water cycle.	SE/TE: 238-239, 241a, 241b
c. Identify locations that hold water as it passes through the water cycle (e.g., oceans, atmosphere, fresh surface water, snow, ice, and ground water).	SE/TE: 232-234, 236-239, 241
d. Construct a model or diagram to show how water continuously moves through the water cycle over time.	SE/TE: 236, 241a
e. Describe how the water cycle relates to the water supply in your community.	SE/TE: 232, 234-235

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<p>Science Benchmark Weather describes conditions in the atmosphere at a certain place and time. Water, energy from the sun, and wind create a cycle of changing weather. The sun's energy warms the oceans and lands at Earth's surface, creating changes in the atmosphere that cause the weather. The temperature and movement of air can be observed and measured to determine the effect on cloud formation and precipitation. Recording weather observations provides data that can be used to predict future weather conditions and establish patterns over time. Weather affects many aspects of people's lives.</p>	
<p>Standard 2 Students will understand that the elements of weather can be observed, measured, and recorded to make predictions and determine simple weather patterns.</p>	
<p>Objective 1 Observe, measure, and record the basic elements of weather.</p>	
<p>a. Identify basic cloud types (i.e., cumulus, cirrus, stratus clouds).</p>	<p>Related content: SE/TE: 237, 239-240</p>
<p>b. Observe, measure, and record data on the basic elements of weather over a period of time (i.e., precipitation, air temperature, wind speed and direction, and air pressure).</p>	<p>Related content: SE/TE: 240</p>
<p>c. Investigate evidence that air is a substance (e.g., takes up space, moves as wind, temperature can be measured).</p>	<p>SE/TE: 320, 321, 328</p>
<p>d. Compare the components of severe weather phenomena to normal weather conditions (e.g., thunderstorm with lightning and high winds compared to rainstorm with rain showers and breezes).</p>	<p>SE/TE: 240</p>
<p>Objective 2 Interpret recorded weather data for simple patterns.</p>	
<p>a. Observe and record effects of air temperature on precipitation (e.g., below freezing results in snow, above freezing results in rain).</p>	<p>Related content: SE/TE: 320-323, 323b</p>
<p>b. Graph recorded data to show daily and seasonal patterns in weather.</p>	<p>Related content: SE/TE: 264</p>
<p>c. Infer relationships between wind and weather change (e.g., windy days often precede changes in the weather; south winds in Utah often precede a cold front coming from the north).</p>	<p>Related content: SE/TE: 240, 241</p>

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Objective 3 Evaluate weather predictions based upon observational data.	
a. Identify and use the tools of a meteorologist (e.g., measure rainfall using rain gauge, measure air pressure using barometer, measure temperature using a thermometer).	Related content: SE/TE: 13, 240-241
b. Describe how weather and forecasts affect people's lives.	Related content: SE/TE: 240-241
c. Predict weather and justify prediction with observable evidence.	Related content: SE/TE: 240-241
d. Evaluate the accuracy of student and professional weather forecasts.	Related content: SE/TE: 240-241
e. Relate weather forecast accuracy to evidence or tools used to make the forecast (e.g., feels like rain vs. barometer is dropping).	Related content: SE/TE: 240-241
Science Benchmark Earth materials include rocks, soils, water, and gases. Rock is composed of minerals. Earth materials change over time from one form to another. These changes require energy. Erosion is the movement of materials and weathering is the breakage of bedrock and larger rocks into smaller rocks and soil materials. Soil is continually being formed from weathered rock and plant remains. Soil contains many living organisms. Plants generally get water and minerals from soil.	
Standard 3 Students will understand the basic properties of rocks, the processes involved in the formation of soils, and the needs of plants provided by soil.	
Objective 1 Identify basic properties of minerals and rocks.	
a. Describe the differences between minerals and rocks.	SE/TE: 203
b. Observe rocks using a magnifying glass and draw shapes and colors of the minerals.	SE/TE: 200
c. Sort rocks by appearance according to the three basic types: sedimentary, igneous and metamorphic (e.g., sedimentary-rounded-appearing mineral and rock particles that are cemented together, often in layers; igneous-with or without observable crystals that are not in layers or with or without air holes or glass like; metamorphic - crystals/minerals, often in layers).	Related content: SE/TE: 209-215, 217b

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d. Classify common rocks found in Utah as sedimentary (i.e., sandstone, conglomerate, shale), igneous (i.e., basalt, granite, obsidian, pumice) and metamorphic (i.e., marble, gneiss, schist).	Related content: SE/TE: 212
Objective 2 Explain how the processes of weathering and erosion change and move materials that become soil.	
a. Identify the processes of physical weathering that break down rocks at Earth's surface (i.e., water movement, freezing, plant growth, wind).	SE/TE: 221
b. Distinguish between weathering (i.e., wearing down and breaking of rock surfaces) and erosion (i.e., the movement of materials).	SE/TE: 222
c. Model erosion of Earth materials and collection of these materials as part of the process that leads to soil (e.g., water moving sand in a playground area and depositing this sand in another area).	SE/TE: 218, 222, 296-299
d. Investigate layers of soil in the local area and predict the sources of the sand and rocks in the soil.	Related content: SE/TE: 229
Objective 3 Observe the basic components of soil and relate the components to plant growth.	
a. Observe and list the components of soil (i.e., minerals, rocks, air, water, living and dead organisms) and distinguish between the living, nonliving, and once living components of soil.	Related content: SE/TE: 218, 222, 229, 296-299
b. Diagram or model a soil profile showing topsoil, subsoil, and bedrock, and how the layers differ in composition.	Related content: SE/TE: 218, 222, 229, 296-299
c. Relate the components of soils to the growth of plants in soil (e.g., mineral nutrients, water).	Related content: SE/TE: 86, 98
d. Explain how plants may help control the erosion of soil.	SE/TE: 164, 229
e. Research and investigate ways to provide mineral nutrients for plants to grow without soil (e.g., grow plants in wet towels, grow plants in wet gravel, grow plants in water).	Related content: SE/TE: 86, 100

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<p>Science Benchmark Fossils are evidence of living organisms from the past and are usually preserved in sedimentary rocks. A fossil may be an impression left in sediments, the preserved remains of an organism, or a trace mark showing that an organism once existed. Fossils are usually made from the hard parts of an organism because soft parts decay quickly. Fossils provide clues to Earth's history. They provide evidence that can be used to make inferences about past environments. Fossils can be compared to one another, to living organisms, and to organisms that lived long ago.</p>	
<p>Standard 4 Students will understand how fossils are formed, where they may be found in Utah, and how they can be used to make inferences.</p>	
<p>Objective 1 Describe Utah fossils and explain how they were formed.</p>	
<p>a. Identify features of fossils that can be used to compare them to living organisms that are familiar (e.g., shape, size and structure of skeleton, patterns of leaves).</p>	<p>SE/TE: 168-169, 172-173, 173a, 173b, 175-177</p>
<p>b. Describe three ways fossils are formed in sedimentary rock (i.e., preserved organisms, mineral replacement of organisms, impressions or tracks).</p>	<p>SE/TE: 170-171, 172-173</p>
<p>c. Research locations where fossils are found in Utah and construct a simple fossil map.</p>	<p>Related content: SE/TE: 168-173</p>
<p>Objective 2 Explain how fossils can be used to make inferences about past life, climate, geology, and environments.</p>	
<p>a. Explain why fossils are usually found in sedimentary rock.</p>	<p>SE/TE: 170-171, 173b</p>
<p>b. Based on the fossils found in various locations, infer how Utah environments have changed over time (e.g., trilobite fossils indicate that Millard County was once covered by a large shallow ocean; dinosaur fossils and coal indicate that Emery and Uintah County were once tropical and swampy).</p>	<p>Related content: SE/TE: 171, 173, 177</p>
<p>c. Research information on two scientific explanations for the extinction of dinosaurs and other prehistoric organisms.</p>	<p>Related content: SE/TE: 169, 173, 173a, 174-175</p>
<p>d. Formulate questions that can be answered using information gathered on the extinction of dinosaurs.</p>	<p>Related content: SE/TE: 169, 170-171, 173a, 174, 181d</p>

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<p>Science Benchmark Utah has diverse plant and animal life that is adapted to and interacts in areas that can be described as wetlands, forests, and deserts. The characteristics of the wetlands, forests, and deserts influence which plants and animals survive best there. Living and nonliving things in these areas are classified based on physical features.</p>	
<p>Standard 5 Students will understand the physical characteristics of Utah's wetlands, forests, and deserts and identify common organisms for each environment.</p>	
<p>Objective 1 Describe the physical characteristics of Utah's wetlands, forests, and deserts.</p>	
<p>a. Compare the physical characteristics (e.g., precipitation, temperature, and surface terrain) of Utah's wetlands, forests, and deserts.</p>	<p>Related content: SE/TE: 144-145, 147b</p>
<p>b. Describe Utah's wetlands (e.g., river, lake, stream, and marsh areas where water is a major feature of the environment) forests (e.g., oak, pine, aspen, juniper areas where trees are a major feature of the environment), and deserts (e.g., areas where the lack of water provided an environment where plants needing little water are a major feature of the environment).</p>	<p>Related content: SE/TE: 144-145, 147b</p>
<p>c. Locate examples of areas that have characteristics of wetlands, forests, or deserts in Utah.</p>	<p>Related content: SE/TE: 144-145, 147b</p>
<p>d. Based upon information gathered, classify areas of Utah that are generally identified as wetlands, forests, or deserts.</p>	<p>Related content: SE/TE: 144-145</p>
<p>e. Create models of wetlands, forests, and deserts.</p>	<p>SE/TE: 146</p>
<p>Objective 2 Describe the common plants and animals found in Utah environments and how these organisms have adapted to the environment in which they live.</p>	
<p>a. Identify common plants and animals that inhabit Utah's forests, wetlands, and deserts.</p>	<p>Related content: SE/TE: 144-145, 147a</p>
<p>b. Cite examples of physical features that allow particular plants and animals to live in specific environments (e.g., duck has webbed feet, cactus has waxy coating).</p>	<p>SE/TE: 147</p>

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c. Describe some of the interactions between animals and plants of a given environment (e.g., woodpecker eats insects that live on trees of a forest, brine shrimp of the Great Salt Lake eat algae and birds feed on brine shrimp).	SE/TE: 156-157, 158-159, 160-161, 161b
d. Identify the effect elevation has on types of plants and animals that live in a specific wetland, forest, or desert.	SE/TE: 144-145
e. Find examples of endangered Utah plants and animals and describe steps being taken to protect them.	Related content: SE/TE: 153, 167
Objective 3 Use a simple scheme to classify Utah plants and animals.	
a. Explain how scientists use classification schemes.	SE/TE: 84-91
b. Use a simple classification system to classify unfamiliar Utah plants or animals (e.g., fish/amphibians/reptile/bird/mammal, invertebrate/vertebrate, tree/shrub/grass, deciduous/conifers).	Related content: SE/TE: 84-91
Objective 4 Observe and record the behavior of Utah animals.	
a. Observe and record the behavior of birds (e.g., caring for young, obtaining food, surviving winter).	Related content: SE/TE: 89, 118-123
b. Describe how the behavior and adaptations of Utah mammals help them survive winter (e.g., obtaining food, building homes, hibernation, migration).	Related content: SE/TE: 105-109, 118-123, 147
c. Research and report on the behavior of a species of Utah fish (e.g., feeding on the bottom or surface, time of year and movement of fish to spawn, types of food and how it is obtained).	Related content: SE/TE: 88-89, 108-109, 111b
d. Compare the structure and behavior of Utah amphibians and reptiles.	Related content: SE/TE: 108-109
e. Use simple classification schemes to sort Utah's common insects and spiders.	Related content: SE/TE: 90-91

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Science - 5th Grade	
Core Standards of the Course	
Science Benchmark The weight of an object is always equal to the sum of its parts, regardless of how it is assembled. In a chemical reaction or physical change matter is neither created nor destroyed. When two or more materials are combined, either a chemical reaction or physical change may occur. Chemical reactions are often indicated when materials give off heat or cool as they take in heat, give off light, give off gas, or change colors. In a chemical reaction, materials are changed into new substances. In a physical change a new substance is not formed.	
Standard 1 Students will understand that chemical and physical changes occur in matter.	
Objective 1 Describe that matter is neither created nor destroyed even though it may undergo change.	
a. Compare the total weight of an object to the weight of its individual parts after being disassembled.	Related content: SE/TE: 426, 443-445, 448-449, 449a
b. Compare the weight of a specified quantity of matter before and after it undergoes melting or freezing.	Related content: SE/TE: 426, 430-433
c. Investigate the results of the combined weights of a liquid and a solid after the solid has been dissolved and then recovered from the liquid (e.g., salt dissolved in water then water evaporated).	Related content: SE/TE: 426, 436, 440
d. Investigate chemical reactions in which the total weight of the materials before and after reaction is the same (e.g., cream and vinegar before and after mixing, borax and glue mixed to make a new substance).	Related content: SE/TE: 445-447
Objective 2 Evaluate evidence that indicates a physical change has occurred.	
a. Identify the physical properties of matter (e.g., hard, soft, solid, liquid, gas).	SE/TE: 424-429, 429b
b. Compare changes in substances that indicate a physical change has occurred.	SE/TE: 442, 443-444
c. Describe the appearance of a substance before and after a physical change.	SE/TE: 442, 443-444

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Objective 3 Investigate evidence for changes in matter that occur during a chemical reaction.	
a. Identify observable evidence of a chemical reaction (e.g., color change, heat or light given off, heat absorbed, gas given off).	SE/TE: 445-447, 447b
b. Explain why the measured weight of a remaining product is less than its reactants when a gas is produced.	Related content: SE/TE: 445-447, 447b
c. Cite examples of chemical reactions in daily life.	SE/TE: 412C, 445
d. Compare a physical change to a chemical change.	SE/TE: 445
e. Hypothesize how changing one of the materials in a chemical reaction will change the results.	Related content: SE/TE: 446
Science Benchmark The Earth's surface is constantly changing. Some changes happen very slowly over long periods of time, such as weathering, erosion, and uplift. Other changes happen abruptly, such as landslides, volcanic eruptions, and earthquakes. All around us, we see the visible effects of the building up and breaking down of the Earth's surface.	
Standard 2 Students will understand that volcanoes, earthquakes, uplift, weathering, and erosion reshape Earth's surface.	
Objective 1 Describe how weathering and erosion change Earth's surface.	
a. Identify the objects, processes, or forces that weather and erode Earth's surface (e.g., ice, plants, animals, abrasion, gravity, water, wind).	SE/TE: 226, 316-317, 322-327
b. Describe how geological features (e.g., valleys, canyons, buttes, arches) are changed through erosion (e.g., waves, wind, glaciers, gravity, running water).	SE/TE: 322-327
c. Explain the relationship between time and specific geological changes.	SE/TE: 323, 325, 330
Objective 2 Explain how volcanoes, earthquakes, and uplift affect Earth's surface.	
a. Identify specific geological features created by volcanoes, earthquakes, and uplift.	SE/TE: 328-333

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b. Give examples of different landforms that are formed by volcanoes, earthquakes, and uplift (e.g., mountains, valleys, new lakes, canyons).	SE/TE: 224, 328-329, 331- 333, 333b
c. Describe how volcanoes, earthquakes, and uplift change landforms.	SE/TE: 330-333, 333b
d. Cite examples of how technology is used to predict volcanoes and earthquakes.	Related content: SE/TE: 48-53, 54-59, 332-333
Objective 3 Relate the building up and breaking down of Earth's surface over time to the various physical land features.	
a. Explain how layers of exposed rock, such as those observed in the Grand Canyon, are the result of natural processes acting over long periods of time.	Related content: SE/TE: 322-323, 325, 330
b. Describe the role of deposition in the processes that change Earth's surface.	SE/TE: 323-325
c. Use a time line to identify the sequence and time required for building and breaking down of geologic features on Earth.	Related content: SE/TE: 325
d. Describe and justify how the surface of Earth would appear if there were no mountain uplift, weathering, or erosion.	Related content: SE/TE: 317, 326-327, 328-331
Science Benchmark Earth and some earth materials have magnetic properties. Without touching them, a magnet attracts things made of iron and either pushes or pulls on other magnets. Electricity is a form of energy. Current electricity can be generated and transmitted through pathways. Some materials are capable of carrying electricity more effectively than other materials. Static electricity is a result of objects being electrically charged. Without touching them, materials that are electrically charged may either push or pull other charged materials.	
Standard 3 Students will understand that magnetism can be observed when there is an interaction between the magnetic fields of magnets or between a magnet and materials made of iron.	
Objective 1 Investigate and compare the behavior of magnetism using magnets.	
a. Compare various types of magnets (e.g., permanent, temporary, and natural magnets) and their abilities to push or pull iron objects they are not touching.	Related content: SE/TE: 307, 436, 469, 509
b. Investigate how magnets will both attract and repel other magnets.	SE/TE: 307, 469, 509
c. Compare permanent magnets and electromagnets.	Related content: SE/TE: 469, 509, 519

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d. Research and report the use of magnets that is supported by sound scientific principles.	Related Content: SE/TE: 50, 469, 509
Objective 2 Describe how the magnetic field of Earth and a magnet are similar.	
a. Compare the magnetic fields of various types of magnets (e.g., bar magnet, disk magnet, horseshoe magnet).	Related Content: SE/TE: 436, 469, 509
b. Compare Earth's magnetic field to the magnetic field of a magnet.	Related Content: SE/TE: 436, 469, 509
c. Construct a compass and explain how it works.	This standard lies outside of the program scope and sequence.
d. Investigate the effects of magnets on the needle of a compass and compare this to the effects of Earth's magnetic field on the needle of a compass (e.g., magnets effect the needle only at close distances, Earth's magnetic field affects the needle at great distances, magnets close to a compass overrides the Earth's effect on the needle).	This standard lies outside of the program scope and sequence.
Science Benchmark Earth and some earth materials have magnetic properties. Without touching them, a magnet attracts things made of iron and either pushes or pulls on other magnets. Electricity is a form of energy. Current electricity can be generated and transmitted through pathways. Some materials are capable of carrying electricity more effectively than other materials. Static electricity is a result of objects being electrically charged. Without touching them, materials that are electrically charged may either push or pull other charged materials.	
Standard 4 Students will understand features of static and current electricity.	
Objective 1 Describe the behavior of static electricity as observed in nature and everyday occurrences.	
a. List several occurrences of static electricity that happen in everyday life.	Related Content: SE/TE: 469
b. Describe the relationship between static electricity and lightning.	Related Content: SE/TE: 226, 469
c. Describe the behavior of objects charged with static electricity in attracting or repelling without touching.	Related Content: SE/TE: 469

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d. Compare the amount of static charge produced by rubbing various materials together (e.g., rubbing fur on a glass rod produces a greater charge than rubbing the fur with a metal rod, the static charge produced when a balloon is rubbed on hair is greater than when a plastic bag is rubbed on hair).	Related Content: SE/TE: 469
e. Investigate how various materials react differently to statically charged objects.	Related Content: SE/TE: 469
Objective 2 Analyze the behavior of current electricity.	
a. Draw and label the components of a complete electrical circuit that includes switches and loads (e.g., light bulb, bell, speaker, motor).	Related Content: SE/TE: 523
b. Predict the effect of changing one or more of the components (e.g., battery, load, wires) in an electric circuit.	Related Content: SE/TE: 522-523
c. Generalize the properties of materials that carry the flow of electricity using data by testing different materials.	Related Content: SE/TE: 522-523
d. Investigate materials that prevent the flow of electricity.	Related Content: SE/TE: 419, 423b
e. Make a working model of a complete circuit using a power source, switch, bell or light, and a conductor for a pathway.	Related Content: SE/TE: 522-523

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<p>Science Benchmark All living things inherit a set of characteristics or traits from their parents. Members of any given species transfer traits from one generation to the next. The passing of traits from parent to offspring is called heredity and causes the offspring to resemble the parent. Some traits differ among members of a population, and these variations may help a particular species to survive better in a given environment in getting food, finding shelter, protecting itself, and reproducing. These variations give the individual a survival advantage over other individuals of the same species.</p>	
<p>Standard 5 Students will understand that traits are passed from the parent organisms to their offspring, and that sometimes the offspring may possess variations of these traits that may help or hinder survival in a given environment.</p>	
<p>Objective 1 Using supporting evidence, show that traits are transferred from a parent organism to its offspring.</p>	
<p>a. Make a chart and collect data identifying various traits among a given population (e.g., the hand span of students in the classroom, the color and texture of different apples, the number of petals of a given flower).</p>	<p>SE/TE: 105, 105a, 106, 107b, 107c, 107d, 125, 230</p>
<p>b. Identify similar physical traits of a parent organism and its offspring (e.g., trees and saplings, leopards and cubs, chickens and chicks).</p>	<p>SE/TE: 125, 141, 189</p>
<p>c. Compare various examples of offspring that do not initially resemble the parent organism but mature to become similar to the parent organism (e.g., mealworms and darkling beetles, tadpoles and frogs, seedlings and vegetables, caterpillars and butterflies).</p>	<p>SE/TE: 140, 141</p>
<p>d. Contrast inherited traits with traits and behaviors that are not inherited but may be learned or induced by environmental factors (e.g., cat purring to cat meowing to be let out of the house; the round shape of a willow is inherited, while leaning away from the prevailing wind is induced).</p>	<p>SE/TE: 138, 139b</p>
<p>e. Investigate variations and similarities in plants grown from seeds of a parent plant (e.g., how seeds from the same plant species can produce different colored flowers or identical flowers).</p>	<p>Related Content: SE/TE: 230</p>

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to the
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Objective 2 Describe how some characteristics could give a species a survival advantage in a particular environment.	
a. Compare the traits of similar species for physical abilities, instinctual behaviors, and specialized body structures that increase the survival of one species in a specific environment over another species (e.g., difference between the feet of snowshoe hare and cottontail rabbit, differences in leaves of plants growing at different altitudes, differences between the feathers of an owl and a hummingbird, differences in parental behavior among various fish).	Related Content: SE/TE: 138-139, 211, 230-231, 234
b. Identify that some environments give one species a survival advantage over another (e.g., warm water favors fish such as carp, cold water favors fish such as trout, environments that burn regularly favor grasses, environments that do not often burn favor trees).	SE/TE: 225, 228-229
c. Describe how a particular physical attribute may provide an advantage for survival in one environment but not in another (e.g., heavy fur in arctic climates keep animals warm whereas in hot desert climates it would cause overheating; flippers on such animals as sea lions and seals provide excellent swimming structures in the water but become clumsy and awkward on land; cacti retain the right amount of water in arid regions but would develop root rot in a more temperate region; fish gills have the ability to absorb oxygen in water but not on land).	SE/TE: 228-231
d. Research a specific plant or animal and report how specific physical attributes provide an advantage for survival in a specific environment.	SE/TE: 228