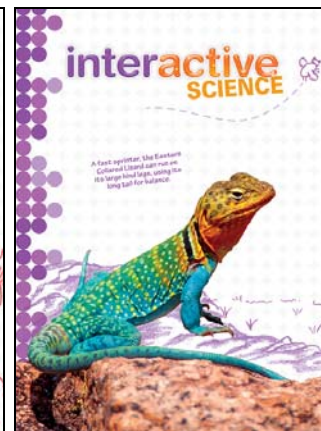
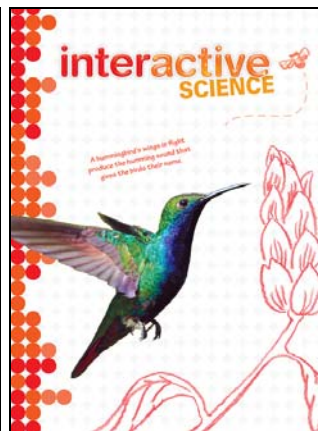
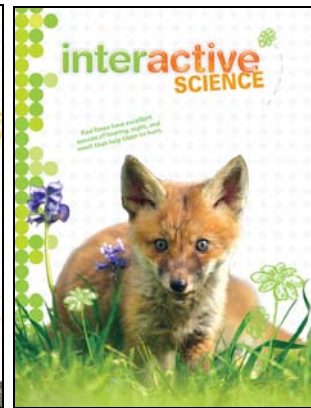
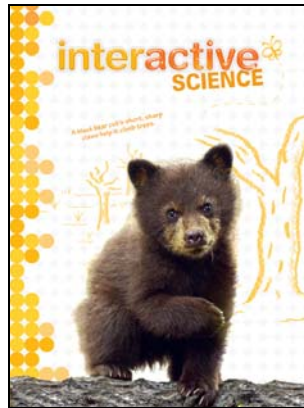


A Correlation of  
**Savvas**  
**Interactive Science**  
©2016



To the  
**Next Generation  
Science Standards  
Grades Kindergarten-5**

## Introduction

The following document demonstrates how the *Interactive Science, ©2016* program closely reflects the Next Generation Science Standards for grades K-5. Correlation references are to the Student Edition and Teacher Edition. Please note that the Kindergarten Student Edition text pages are two-sided; each singular page contains a corresponding Activity Page on the reverse side.

*Interactive Science* is an elementary science program that makes learning personal, engaging, and relevant for today's student. The program features an innovative Write-in Student Edition that enables students to become active participants in their learning and truly connect the Big Ideas of science to their world.

The 2016 editions of *Interactive Science* were developed to support the Next Generation Science Standards (NGSS) for Grades K-5 in several ways. In the Student Edition, lessons provide interactive opportunities for students to acquire the Disciplinary Core Ideas that are the building blocks of the NGSS Performance Expectations at each grade level. STEM Activities, Apply It! activities, Design It! Activities, and Performance-Based Assessments enable students to research, investigate, and apply Science and Engineering Practices to real-world problems in a meaningful way. In the Teacher's Edition, the NGSS Cross-Cutting Concepts that link across grade levels and across disciplines within grade levels are noted at the chapter level, and a detailed and focused Performance Expectation Activity is provided for each NGSS standard.

**A Correlation of Interactive Science, ©2016, to the  
Next Generation Science Standards**

**Table of Contents**

<b>Kindergarten .....</b>	<b>4</b>
<b>Grade 1 .....</b>	<b>13</b>
<b>Grade 2 .....</b>	<b>21</b>
<b>Grade 3 .....</b>	<b>37</b>
<b>Grade 4 .....</b>	<b>51</b>
<b>Grade 5 .....</b>	<b>67</b>

**A Correlation of Interactive Science, ©2016, to the  
Next Generation Science Standards**

Next Generation Science Standards	Interactive Science, ©2016 Kindergarten	
<b>Kindergarten</b>		
<b>K. Forces and Interactions: Pushes and Pulls</b>		
Students who demonstrate understanding can:		
<p><b>K-PS2-1. Plan and conduct an investigation to compare the effects of different strengths or different directions of pushes and pulls on the motion of an object.</b>  <i>[Clarification Statement: Examples of pushes or pulls could include a string attached to an object being pulled, a person pushing an object, a person stopping a rolling ball, and two objects colliding and pushing on each other.] [Assessment Boundary: Assessment is limited to different relative strengths or different directions, but not both at the same time. Assessment does not include non-contact pushes or pulls such as those produced by magnets.]</i>            Chapter 1 Performance Expectation Activity, 33a</p> <p><b>K-PS2-2. Analyze data to determine if a design solution works as intended to change the speed or direction of an object with a push or a pull.*</b> <i>[Clarification Statement: Examples of problems requiring a solution could include having a marble or other object move a certain distance, follow a particular path, and knock down other objects. Examples of solutions could include tools such as a ramp to increase the speed of the object and a structure that would cause an object such as a marble or ball to turn.] [Assessment Boundary: Assessment does not include friction as a mechanism for change in speed.]</i>            Chapter 1 Performance Expectation Activity, 33b</p>	<p>The performance expectations above were developed using the following elements from the NRC document <i>A Framework for K-12 Science Education</i>:</p>	
	<p align="center">The performance expectations above were developed using the following elements from the NRC document <i>A Framework for K-12 Science Education</i>:</p>	
Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p><b>Planning and Carrying Out Investigations</b>            Planning and carrying out investigations to answer questions or test solutions to problems in K–2 builds on prior experiences and progresses to simple investigations, based on fair tests, which provide data to support explanations or design solutions.</p> <ul style="list-style-type: none"> <li>With guidance, plan and conduct an investigation in collaboration with peers. (K-PS2-1)</li> </ul> <p><b>SE Only:</b> 2, Try It!; 4-13, STEM Activity; 18, Investigate It!; 77, Lesson 3; 99, Investigate It!  <b>TE Only:</b> 9, SEP: Planning and Carrying Out Investigations; 10, Inquiry; 12-13, STEM Activity; 24, Investigate It!; 28-29, Activity Card Support; 33a, Performance Expectation Activity; 33b, Performance Expectation Activity; 128-129; 166, Investigate It!</p>	<p><b>PS2.A: Forces and Motion</b></p> <ul style="list-style-type: none"> <li>Pushes and pulls can have different strengths and directions. (K-PS2-1),(K-PS2-2)</li> </ul> <p><b>SE Only:</b> 3, Let’s Read Science!; 10-11, STEM Activity; 15, Lesson 2; 16, Lesson 3; 17, Lesson 4; 18, Investigate It!  <b>TE Only:</b> 7A-7B, Leveled Content Reader Support; 11, Let’s Read Science!; 18-23; 24, Investigate It!; 33, Write About Pushes and Pulls; 33a, Performance Expectation Activity <ul style="list-style-type: none"> <li>Pushing or pulling on an object can change the speed or direction of its motion and can start or stop it. (K-PS2-1),(K-PS2-2)</li> </ul> <p><b>SE Only:</b> 2, Try It!; 3, Let’s Read Science!; 4-13, STEM Activity; 15, Lesson 2; 16, Lesson 3; 17, Lesson 4; 18, Investigate It!</p> </p>	<p><b>Cause and Effect</b></p> <ul style="list-style-type: none"> <li>Simple tests can be designed to gather evidence to support or refute student ideas about causes. (K-PS2-1),(K-PS2-2)</li> </ul> <p><b>SE Only:</b> 2, Try It!; Activity 3, Home Activity; 4-13, STEM Activity; 18, Investigate It!  <b>TE Only:</b> 8, CCC: Cause and Effect; 10, Try It!; 12-13, STEM Activity; 22, Differentiated Instruction; 24, Investigate It!; 28-29, Activity Card Support; 33a Performance Expectation Activity</p>

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Next Generation Science Standards	Interactive Science, ©2016 Kindergarten	
Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p><b>Analyzing and Interpreting Data</b> Analyzing data in K–2 builds on prior experiences and progresses to collecting, recording, and sharing observations.</p> <ul style="list-style-type: none"> <li>Analyze data from tests of an object or tool to determine if it works as intended. (K-PS2-2)</li> </ul> <p><b>SE Only:</b> 10-13, STEM Activity; 18, Investigate It!; 99, Investigate It! <b>TE Only:</b> 9, SEP: Planning and Carrying Out Investigations; 10, Inquiry; 12-13, STEM Activity; 24, Investigate It!; 33b, Performance Expectation Activity; 166, Investigate It!</p> <p>----- <b>Connections to the Nature of Science</b></p> <p><b>Scientific Investigations Use a Variety of Methods</b> Scientists use different ways to study the world. (K-PS2-1) <b>SE Only:</b> 63, Try It!; 75, Lesson 1; 76, Lesson 2; 77, Lesson 3 <b>TE Only:</b> 33b, ELA/Literacy; 115A-115B, Leveled Content Reader Support; 118, Try It!; 124-127</p>	<p><b>TE Only:</b> 4, Reading; 5, Writing; 5, Teacher Background; 7A-7B, Leveled Content Reader Support; 12-13, STEM Activity; 18, Envision It!; 18-23; 24, Investigate It!; 28-29, Activity Card Support; 33, Write About Pushes and Pulls; 33b, Performance Expectation Activity</p> <p><b>PS2.B: Types of Interactions</b></p> <ul style="list-style-type: none"> <li>When objects touch or collide, they push on one another and can change motion. (K-PS2-1)</li> </ul> <p><b>SE Only:</b> 15, Lesson 2; 17, Lesson 4 <b>TE Only:</b> 7A-7B, Leveled Content Reader Support; 18-19; 22-23; 31, Chapter 1 Test, Question 6</p> <p><b>PS3.C: Relationship Between Energy and Forces</b></p> <ul style="list-style-type: none"> <li>A bigger push or pull makes things speed up or slow down more quickly. (<i>secondary to K-PS2-1</i>)</li> </ul> <p><b>SE Only:</b> 4-13, STEM Activity; 16, Lesson 3; 17, Lesson 4; 18, Investigate It! <b>TE Only:</b> 7A-7B, Leveled Content Reader Support; 8-9; 12-13, STEM Activity; 20-23; 24, Investigate It!; 33, Write About Pushes and Pulls</p> <p><b>ETS1.A: Defining Engineering Problems</b></p> <ul style="list-style-type: none"> <li>A situation that people want to change or create can be approached as a problem to be solved through engineering. Such problems may have many acceptable solutions. (<i>secondary to K-PS2-2</i>)</li> </ul> <p><b>SE Only:</b> 4-13, STEM Activity; 19, Slide Engineer <b>TE Only:</b> 12-13, STEM Activity; 25, STEM</p>	

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Next Generation Science Standards	Interactive Science, ©2016 Kindergarten	
<b>K. Interdependent Relationships in Ecosystems: Animals, Plants, and Their Environment</b>		
Students who demonstrate understanding can:		
	<p><b>K-LS1-1. Use observations to describe patterns of what plants and animals (including humans) need to survive.</b> [Clarification Statement: Examples of patterns could include that animals need to take in food but plants do not; the different kinds of food needed by different types of animals; the requirement of plants to have light; and, that all living things need water.] Chapter 2 Performance Expectation Activity, 71a</p> <p><b>K-ESS2-2. Construct an argument supported by evidence for how plants and animals (including humans) can change the environment to meet their needs.</b> [Clarification Statement: Examples of plants and animals changing their environment could include a squirrel digs in the ground to hide its food and tree roots can break concrete.] Chapter 2 Performance Expectation Activity, 71b</p> <p><b>K-ESS3-1. Use a model to represent the relationship between the needs of different plants and animals (including humans) and the places they live.</b> [Clarification Statement: Examples of relationships could include that deer eat buds and leaves, therefore, they usually live in forested areas; and, grasses need sunlight so they often grow in meadows. Plants, animals, and their surroundings make up a system.] Chapter 2 Performance Expectation Activity, 71c</p> <p><b>K-ESS3-3. Communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living things in the local environment.*</b> [Clarification Statement: Examples of human impact on the land could include cutting trees to produce paper and using resources to produce bottles. Examples of solutions could include reusing paper and recycling cans and bottles.] Chapter 3 Performance Expectation Activity, 109e</p>	
The performance expectations above were developed using the following elements from the NRC document <i>A Framework for K-12 Science Education</i> :		
Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p><b>Developing and Using Models</b> Modeling in K–2 builds on prior experiences and progresses to include using and developing models (i.e., diagram, drawing, physical replica, diorama, dramatization, storyboard) that represent concrete events or design solutions.</p> <ul style="list-style-type: none"> <li>Use a model to represent relationships in the natural world. (K-ESS3-1)</li> </ul> <p><b>SE Only:</b> 23-32, STEM Activity; 39, Investigate It! <b>TE Only:</b> 44-45, STEM Activity; 60, Investigate It!; 64-65, Activity Card Support; 69, Make an Animal World; 71c, Performance Expectation</p>	<p><b>LS1.C: Organization for Matter and Energy Flow in Organisms</b></p> <ul style="list-style-type: none"> <li>All animals need food in order to live and grow. They obtain their food from plants or from other animals. Plants need water and light to live and grow. (K-LS1-1)</li> </ul> <p><b>SE Only:</b> 21, Try It!; 34, Lesson 2; 35, Lesson 3; 36, Lesson 4; 37, Lesson 5 <b>TE Only:</b> 36, Social Studies; 37, Rhyme; 39A-39B, Leveled Content Reader Support; 42, Try It!; 50-57; 58, 21<sup>st</sup> Century Learning; 66, Chapter 2 Test-Questions 3, 4; 67, Chapter 2 Test- Question 5; 69, Write Plant Sentences; 71a, Performance Expectation</p>	<p><b>Patterns</b></p> <ul style="list-style-type: none"> <li>Patterns in the natural and human designed world can be observed and used as evidence. (K-LS1-1)</li> </ul> <p><b>SE Only:</b> 21, Try It!; 35, Lesson 3; 36, Lesson 4; 37, Lesson 5 <b>TE Only:</b> 40, CCC: Patterns; 42, Try It!; 52-57; 69, Write Plant Sentences; 71a, Performance Expectation Activity</p> <p><b>Cause and Effect</b></p> <ul style="list-style-type: none"> <li>Events have causes that generate observable patterns. (K-ESS3-3)</li> </ul> <p><b>SE Only:</b> 21, Try It! 35, Lesson 3; 36, Lesson 4; 37, Lesson 5</p>

**A Correlation of Interactive Science, ©2016, to the  
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Next Generation Science Standards	Interactive Science, ©2016 Kindergarten	
Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p>Activity; 71c, ELA/Literacy</p> <p><b>Analyzing and Interpreting Data</b></p> <p>Analyzing data in K–2 builds on prior experiences and progresses to collecting, recording, and sharing observations.</p> <ul style="list-style-type: none"> <li>Use observations (firsthand or from media) to describe patterns in the natural world in order to answer scientific questions. (K-LS1-1)</li> </ul> <p><b>SE Only:</b> 21, Try It!; 35, Lesson 3; 36, Lesson 4; 37, Lesson 5</p> <p><b>TE Only:</b> 41, SEP: Analyzing and Interpreting Data; 42, Try It!; 52-57; 71a, Performance Expectation Activity; 71a, ELA/Literacy</p> <p><b>Engaging in Argument from Evidence</b></p> <p>Engaging in argument from evidence in K–2 builds on prior experiences and progresses to comparing ideas and representations about the natural and designed world(s).</p> <ul style="list-style-type: none"> <li>Construct an argument with evidence to support a claim. (K-ESS2-2)</li> </ul> <p><b>SE Only:</b> 38, Lesson 6</p> <p><b>TE Only:</b> 36, Social Studies; 58-59; 71b, Performance Expectation Activity</p> <p><b>Obtaining, Evaluating, and Communicating Information</b></p> <p>Obtaining, evaluating, and communicating information in K–2 builds on prior experiences and uses observations and texts to communicate new information.</p>	<p>Activity; 71a, ELA/Literacy; 71c, Performance Expectation</p> <p><b>ESS2.E: Biogeology</b></p> <ul style="list-style-type: none"> <li>Plants and animals can change their environment. (K-ESS2-2)</li> </ul> <p><b>SE Only:</b> 38, Lesson 6; 39 Investigate It!</p> <p><b>TE Only:</b> 58-59; 60, Investigate It!; 67, Chapter 2 Test-Question 6</p> <p><b>ESS3.A: Natural Resources</b></p> <ul style="list-style-type: none"> <li>Living things need water, air, and resources from the land, and they live in places that have the things they need. Humans use natural resources for everything they do. (K-ESS3-1)</li> </ul> <p><b>SE Only:</b> 21, Try It!; 34, Lesson 2; 35, Lesson 3; 36, Lesson 4; 37, Lesson 5; 58, Lesson 5</p> <p><b>TE Only:</b> 36, Social Studies; 37, Rhyme; 39A-39B, Leveled Content Reader Support; 42, Try It!; 50-57; 71a, ELA/Literacy; 71c, Performance Expectation Activity; 94-95</p> <p><b>ESS3.C: Human Impacts on Earth Systems</b></p> <ul style="list-style-type: none"> <li>Things that people do to live comfortably can affect the world around them. But they can make choices that reduce their impacts on the land, water, air, and other living things. (K-ESS3-3)</li> </ul> <p><b>SE Only:</b> 38, Lesson 6; 59, Lesson 6</p> <p><b>TE Only:</b> 58-59; 96-97; 104, Chapter 3 Test–Question 2; 148, Social Studies; 109e, Performance Expectation Activity</p>	<p><b>TE Only:</b> 40, Try It!; 49, Cause and Effect; 53, Explain; 53, Elaborate; 55, Elaborate; 57 Elaborate; 71b, Performance Expectation Activity</p> <p><b>Systems and System Models</b></p> <ul style="list-style-type: none"> <li>Systems in the natural and designed world have parts that work together. (K-ESS2-2),(K-ESS3-1)</li> </ul> <p><b>SE Only:</b> 38, Lesson 6</p> <p><b>TE Only:</b> 58-59; 69, Make an Animal World; 71b, Performance Expectation Activity; 71c, Performance Expectation Activity</p>

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Next Generation Science Standards	Interactive Science, ©2016 Kindergarten	
Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<ul style="list-style-type: none"> <li>Communicate solutions with others in oral and/or written forms using models and/or drawings that provide detail about scientific ideas. (K-ESS3-3) <b>SE Only:</b> 21, Try It!; 23-32, STEM Activity; <b>TE Only:</b> 42, Try It!; 44-45, STEM Activity; 69, Make an Animal World; 71c, Performance Expectation Activity; 71c, ELA/Literacy</li> </ul> <p>-----</p> <p><b>Connections to Nature of Science</b></p> <p><b>Scientific Knowledge Is Based on Empirical Evidence</b></p> <ul style="list-style-type: none"> <li>Scientists look for patterns and order when making observations about the world. (K-LS1-1) <b>SE Only:</b> 21, Try It!; Lesson 3; 36, Lesson 4; 37, Lesson 5 <b>TE Only:</b> 42, Try It!; 52-57; 71a, Performance Expectation Activity</li> </ul>	<p><b>ETS1.B: Developing Possible Solutions</b></p> <ul style="list-style-type: none"> <li>Designs can be conveyed through sketches, drawings, or physical models. These representations are useful in communicating ideas for a problem's solutions to other people. (<i>secondary to K-ESS3-3</i>) <b>SE Only:</b> 21, Try It!; 23-32, STEM Activity; 39, Investigate It! <b>TE Only:</b> 42, Try It! 43, Extend the Lesson; 44-45, STEM Activity; 60, Investigate It!; 67, Chapter 2 Test-Question 6; 69, Make an Animal World; 71a, ELA/Literacy; 109e, Performance Expectation Activity</li> </ul>	



**A Correlation of Interactive Science, ©2016, to the  
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Next Generation Science Standards	Interactive Science, ©2016 Kindergarten	
<b>K. Weather and Climate</b>		
Students who demonstrate understanding can:		
	<p><b>K-PS3-1. Make observations to determine the effect of sunlight on Earth’s surface.</b> [Clarification Statement: Examples of Earth’s surface could include sand, soil, rocks, and water.] [Assessment Boundary: Assessment of temperature is limited to relative measures such as warmer/cooler.] Chapter 3 Performance Expectation Activity, 109c</p> <p><b>K-PS3-2. Use tools and materials to design and build a structure that will reduce the warming effect of sunlight on an area.*</b> [Clarification Statement: Examples of structures could include umbrellas, canopies, and tents that minimize the warming effect of the sun.] Chapter 3 Performance Expectation Activity, 109d</p> <p><b>K-ESS2-1. Use and share observations of local weather conditions to describe patterns over time.</b> [Clarification Statement: Examples of qualitative observations could include descriptions of the weather (such as sunny, cloudy, rainy, and warm); examples of quantitative observations could include numbers of sunny, windy, and rainy days in a month. Examples of patterns could include that it is usually cooler in the morning than in the afternoon and the number of sunny days versus cloudy days in different months.] [Assessment Boundary: Assessment of quantitative observations limited to whole numbers and relative measures such as warmer/cooler.] Chapter 3 Performance Expectation Activity, 109a</p> <p><b>K-ESS3-2. Ask questions to obtain information about the purpose of weather forecasting to prepare for, and respond to, severe weather.*</b> [Clarification Statement: Emphasis is on local forms of severe weather.] Chapter 3 Performance Expectation Activity, 109b</p>	
The performance expectations above were developed using the following elements from the NRC document <i>A Framework for K-12 Science Education</i> :		
Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p><b>Asking Questions and Defining Problems</b> Asking questions and defining problems in grades K–2 builds on prior experiences and progresses to simple descriptive questions that can be tested.</p> <ul style="list-style-type: none"> <li>Ask questions based on observations to find more information about the designed world. (K- ESS3-2)</li> </ul> <p><b>SE Only:</b> 44-53, STEM Activity; 75, Lesson 1; 65-74, STEM Activity <b>TE Only:</b> 82-83, STEM Activity; 109b, Performance Expectation Activity; 117, SEP: Asking Questions and Defining Problems; 124-125</p>	<p><b>PS3.B: Conservation of Energy and Energy Transfer</b></p> <ul style="list-style-type: none"> <li>Sunlight warms Earth’s surface. (K-PS3-1),(K-PS3-2)</li> </ul> <p><b>SE Only:</b> 44, STEM Activity; 56, Lesson 3; 60, Investigate It! <b>TE Only:</b> 82, STEM Activity; 90-91; 98, Investigate It!; 102-103, Activity Card Support; 109c, Performance Expectation Activity; 109c, ELA/Literacy</p>	<p><b>Patterns</b></p> <ul style="list-style-type: none"> <li>Patterns in the natural world can be observed, used to describe phenomena, and used as evidence. (K-ESS2-1)</li> </ul> <p><b>SE Only:</b> 42, Try It!; 55, Lesson 2; 56, Lesson 3 <b>TE Only:</b> 78, CCC: Patterns; 80, Try It!; 77A-77B, Leveled Content Reader Support; 88-91; 107, Make a Weather Calendar; 109a, Performance Expectation Activity; 109a, ELA/Literacy</p>

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Next Generation Science Standards	Interactive Science, ©2016 Kindergarten	
Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p><b>Planning and Carrying Out Investigations</b> Planning and carrying out investigations to answer questions or test solutions to problems in K–2 builds on prior experiences and progresses to simple investigations, based on fair tests, which provide data to support explanations or design solutions.</p> <ul style="list-style-type: none"> <li>Make observations (firsthand or from media) to collect data that can be used to make comparisons. (K-PS3-1)</li> </ul> <p><b>SE Only:</b> 44-53, STEM Activity; 60, Investigate It! <b>TE Only:</b> 82-83, STEM Activity; 98, Investigate It!; 109c, Performance Expectation Activity</p> <p><b>Analyzing and Interpreting Data</b> Analyzing data in K–2 builds on prior experiences and progresses to collecting, recording, and sharing observations.</p> <ul style="list-style-type: none"> <li>Use observations (firsthand or from media) to describe patterns in the natural world in order to answer scientific questions. (K-ESS2-1)</li> </ul> <p><b>SE Only:</b> 42, Try It!; 55, Lesson 2; 56, Lesson 3 <b>TE Only:</b> xxxvi-xxxvii, QUEST; 77A-77B, Leveled Content Reader Support; 79, SEP: Analyzing and Interpreting Data; 88-91; 107, Make a Weather Calendar; 109a, Performance Expectation Activity; 109a, ELA/Literacy</p>	<p><b>ESS2.D: Weather and Climate</b></p> <ul style="list-style-type: none"> <li>Weather is the combination of sunlight, wind, snow or rain, and temperature in a particular region at a particular time. People measure these conditions to describe and record the weather and to notice patterns over time. (K-ESS2-1)</li> </ul> <p><b>SE Only:</b> 42, Try It!; 57, Lesson 4 <b>TE Only:</b> xxxvi-xxxvii, QUEST; 80, Try It!; 92-93; 104, Chapter 3 Test-Questions 3, 4; 105, Chapter 3 Test-Question 6; 107, Make a Weather Calendar; 109a, Performance Expectation Activity; 109a, ELA/Literacy</p> <p><b>ESS3.B: Natural Hazards</b></p> <ul style="list-style-type: none"> <li>Some kinds of severe weather are more likely than others in a given region. Weather scientists forecast severe weather so that the communities can prepare for and respond to these events. (K-ESS3-2)</li> </ul> <p><b>SE Only:</b> 61, Ready for the Weather <b>TE Only:</b> xxxvi-xxxvii, QUEST; 92, 21<sup>st</sup> Century Learning; 99, Activate Prior Knowledge; 99, Teach with Visuals; 109b, Performance Expectation Activity; 109b, ELA Literacy</p>	<p><b>Cause and Effect</b></p> <ul style="list-style-type: none"> <li>Events have causes that generate observable patterns. (K-PS3-1), (K-PS3-2), (K-ESS3-2)</li> </ul> <p><b>SE Only:</b> 55, Lesson 2; 60, Investigate It! <b>TE Only:</b> 78, CCC Patterns; 88, Envision It!; 88-89; 98, Investigate It!; 102-103, Activity Card Support</p> <p>-----</p> <p><b>Connections to Engineering, Technology, and Applications of Science</b></p> <p><b>Interdependence of Science, Engineering, and Technology</b></p> <ul style="list-style-type: none"> <li>People encounter questions about the natural world every day. (K-ESS3-2)</li> </ul> <p><b>SE Only:</b> 41, Chapter 3, Earth and Sky; 42, Try It!; 43, Draw Conclusions; 44-53, STEM Activity; 75, Lesson 1; <b>TE Only:</b> 77B, Leveled Content Reader Support; 78, Read Aloud: Is it night or day?; 80, Try It!; 82-83, STEM Activity; 109b, Performance Expectation Activity; 109b, ELA/Literacy; 124-125</p> <p><b>Influence of Engineering, Technology, and Science on Society and the Natural World</b></p> <ul style="list-style-type: none"> <li>People depend on various technologies in their lives; human life would be very different without technology. (K-ESS3-2)</li> </ul>

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Next Generation Science Standards	Interactive Science, ©2016 Kindergarten	
Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p><b>Constructing Explanations and Designing Solutions</b> Constructing explanations and designing solutions in K–2 builds on prior experiences and progresses to the use of evidence and ideas in constructing evidence-based accounts of natural phenomena and designing solutions.</p> <ul style="list-style-type: none"> <li>Use tools and materials provided to design and build a device that solves a specific problem or a solution to a specific problem. (K-PS3-2)</li> </ul> <p><b>SE Only:</b> 44-53, STEM Activity <b>TE Only:</b> 82-83, STEM Activity; 109d, Performance Expectation Activity; 175, Write About Solving a Need</p> <p><b>Obtaining, Evaluating, and Communicating Information</b> Obtaining, evaluating, and communicating information in K–2 builds on prior experiences and uses observations and texts to communicate new information.</p> <ul style="list-style-type: none"> <li>Read grade-appropriate texts and/or use media to obtain scientific information to describe patterns in the natural world. (K-ESS3-2)</li> </ul> <p><b>SE Only:</b> 61, Ready for the Weather <b>TE Only:</b> xxxvi-xxxvii, QUEST; 74, Reading; 77A-77B, Leveled Content Reader Support; 81, 21<sup>st</sup> Century Learning; 92, 21<sup>st</sup> Century Learning; 96, 21<sup>st</sup> Century Learning; 99, Teach with Visuals; 109b, Performance Expectation Activity; 109c, ELA Literacy</p> <p>-----</p>	<p><b>ETS1.A: Defining and Delimiting an Engineering Problem</b></p> <ul style="list-style-type: none"> <li>Asking questions, making observations, and gathering information are helpful in thinking about problems. <i>(secondary to K-ESS3-2)</i></li> </ul> <p><b>SE Only:</b> 42, Try It!; 44-53, STEM Activity; 60, Investigate It!; 75, Lesson 1; 76, Lesson 2; 79, Lesson 5 <b>TE Only:</b> xxxvi-xxxvii, QUEST; 80, Try It!; 82-83, STEM Activity; 98, Investigate It!; 107, Make a Weather Calendar; 109a, Performance Expectation Activity; 109b, Performance Expectation Activity; 109b, ELA/Literacy; 109c, Performance Expectation Activity; 124-127; 132-133</p>	<p><b>SE Only:</b> 61, Ready for the Weather <b>TE Only:</b> 81, 21<sup>st</sup> Century Learning; 92, 21<sup>st</sup> Century Learning; 99, Teach with Visuals</p>

**A Correlation of Interactive Science, ©2016, to the  
Next Generation Science Standards**

Next Generation Science Standards	Interactive Science, ©2016 Kindergarten	
Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p><i>Connections to Nature of Science</i></p> <p><b>Scientific Investigations Use a Variety of Methods</b></p> <ul style="list-style-type: none"> <li>Scientists use different ways to study the world. (K-PS3-1)</li> </ul> <p><b>SE Only:</b> 61, Ready for the Weather; 75, Lesson 1; 76; Lesson 2; 77, Lesson 3; 78, Lesson 4; 79, Lesson 5</p> <p><b>TE Only:</b> 99, Teach with Visuals; 124-125; 126-127, 128; 130-131; 132-133; 142, Part 1 Text- Questions 1-4; 143, Part 1 Test- Question 5</p> <p><b>Science Knowledge Is Based on Empirical Evidence</b></p> <ul style="list-style-type: none"> <li>Scientists look for patterns and order when making observations about the world. (K-ESS2-1)</li> </ul> <p><b>SE Only:</b> 42, Try It!; 55, Lesson 2; 56, Lesson 3</p> <p><b>TE Only:</b> 77A-77B, Leveled Content Reader Support; 79, SEP: Analyzing and Interpreting Data; 80, Try It!; 88-91; 107, Make a Weather Calendar; 109a, Performance Expectation Activity; 109a, ELA/Literacy</p>		

**A Correlation of Interactive Science, ©2016, to the  
Next Generation Science Standards**

Next Generation Science Standards		Interactive Science, ©2016 Grade 1	
<b>Grade 1</b>			
<b>1. Waves: Light and Sound</b>			
Students who demonstrate understanding can:			
<p><b>1-PS4-1. Plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate.</b> [Clarification Statement: Examples of vibrating materials that make sound could include tuning forks and plucking a stretched string. Examples of how sound can make matter vibrate could include holding a piece of paper near a speaker making sound and holding an object near a vibrating tuning fork.] Chapter 1 Performance Expectation Activity, 43a</p> <p><b>1-PS4-2. Make observations to construct an evidence-based account that objects in darkness can be seen only when illuminated.</b> [Clarification Statement: Examples of observations could include those made in a completely dark room, a pinhole box, and a video of a cave explorer with a flashlight. Illumination could be from an external light source or by an object giving off its own light.] Chapter 1 Performance Expectation Activity, 43b</p> <p><b>1-PS4-3. Plan and conduct investigations to determine the effect of placing objects made with different materials in the path of a beam of light.</b> [Clarification Statement: Examples of materials could include those that are transparent (such as clear plastic), translucent (such as wax paper), opaque (such as cardboard), and reflective (such as a mirror).] [Assessment Boundary: Assessment does not include the speed of light.] Chapter 1 Performance Expectation Activity, 43c</p> <p><b>1-PS4-4. Use tools and materials to design and build a device that uses light or sound to solve the problem of communicating over a distance.*</b> [Clarification Statement: Examples of devices could include a light source to send signals, paper cup and string “telephones,” and a pattern of drum beats.] [Assessment Boundary: Assessment does not include technological details for how communication devices work.] Chapter 1 Performance Expectation Activity, 43d</p>			
The performance expectations above were developed using the following elements from the NRC document <i>A Framework for K-12 Science Education</i> :			
Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts	
<p><b>Planning and Carrying Out Investigations</b> Planning and carrying out investigations to answer questions or test solutions to problems in K–2 builds on prior experiences and progresses to simple investigations, based on fair tests, which provide data to support explanations or design solutions.</p> <ul style="list-style-type: none"> <li>Plan and conduct investigations collaboratively to produce evidence to answer a question. (1-PS4-1),(1-PS4-3)</li> </ul>	<p><b>PS4.A: Wave Properties</b></p> <ul style="list-style-type: none"> <li>Sound can make matter vibrate, and vibrating matter can make sound. (1-PS4-1)</li> </ul> <p><b>SE/TE:</b> 6-15, STEM Activity; 28, Explore It!; 29, Sounds; 32-33, Investigate It!; <b>TE Only:</b> 31, Professional Development Note; 31a, Explore It!; 31b, Lesson 4 Check – Questions 1, 4; 33a-33d, Activity Card Support; 43a, Performance Expectation Activity</p>	<p><b>Cause and Effect</b></p> <ul style="list-style-type: none"> <li>Simple tests can be designed to gather evidence to support or refute student ideas about causes. (1-PS4-1),(1-PS4-2),(1-PS4-3)</li> </ul> <p><b>SE/TE:</b> 28, Explore It!; 29, Cause and Effect; 31, At-Home Lab; 40, Apply It! <b>TE Only:</b> 30, At-Home Lab; 43a, Performance Expectation Activity</p> <p>-----</p>	

**A Correlation of Interactive Science, ©2016, to the  
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Next Generation Science Standards	Interactive Science, ©2016 Grade 1	
Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p><b>SE/TE:</b> 4, Try It!; 27, Lightning Lab; 32-33, Investigate It!; 40-41, Apply It!; 128-129, Investigate It! <b>TE Only:</b> xliv-xlv, STEMQuest; 3, SEP: Planning and Carrying Our Investigations; 26, Lightning Lab; 33a-33d, Activity Card Support; 43c, Performance Expectation Activity; 171, Differentiated Instruction</p> <p><b>Constructing Explanations and Designing Solutions</b> Constructing explanations and designing solutions in K–2 builds on prior experiences and progresses to the use of evidence and ideas in constructing evidence-based accounts of natural phenomena and designing solutions.</p> <ul style="list-style-type: none"> <li>Make observations (firsthand or from media) to construct an evidence-based account for natural phenomena. (1-PS4-2) <b>SE/TE:</b> 6-15, STEM Activity; 28, Explore It!; 40-41, Apply It!; 128-129, Investigate It! <b>TE Only:</b> 43b, Performance Expectation Activity; 43b, ELA/Literacy</li> <li>Use tools and materials provided to design a device that solves a specific problem. (1-PS4-4) <b>SE/TE:</b> 6-15, STEM Activity; 43, Send a Message with Sound; 128-129, Investigate It; 144-153, STEM Activity <b>TE Only:</b> xliv-xlv, STEMQuest; 3, SEP: Planning and Carrying Our Investigations; 43d, Performance Expectation Activity</li> </ul> <p>-----</p>	<p><b>PS4.B: Electromagnetic Radiation</b></p> <ul style="list-style-type: none"> <li>Objects can be seen if light is available to illuminate them or if they give off their own light. (1-PS4-2) <b>SE/TE:</b> 17, Energy; 24-25, Envision It!; 24-27, Lesson 3; 40-41, Apply It!; 128-129, Investigate It! <b>TE Only:</b> xliv-xlv, STEMQuest; 27, 21<sup>st</sup> Century Learning; 27b, Lesson 3 Check – Questions 1-4; 43b, Performance Expectation Activity; 43b, ELA/Literacy</li> <li>Some materials allow light to pass through them, others allow only some light through and others block all the light and create a dark shadow on any surface beyond them, where the light cannot reach. Mirrors can be used to redirect a light beam. (Boundary: The idea that light travels from place to place is developed through experiences with light sources, mirrors, and shadows, but no attempt is made to discuss the speed of light.) (1-PS4-3) <b>SE/TE:</b> 4, Try It!; 26, Light Shines Through; 27, What Light Can Do; 39, Chapter Review – Lesson 3; 40-41, Apply It!; 43, Make a Presentation <b>TE Only:</b> xliv-xlv, STEMQuest; 2C, Art; 27b, Lesson 3 Check – Questions 3, 4; 39b, Chapter 1 Test – Question 5; 43c, Performance Expectation Activity</li> </ul>	<p><i>Connections to Engineering, Technology, and Applications of Science</i></p> <p><b>Influence of Engineering, Technology, and Science, on Society and the Natural World</b></p> <ul style="list-style-type: none"> <li>People depend on various technologies in their lives; human life would be very different without technology. (1-PS4-4) <b>SE/TE:</b> 16, My Planet Diary; 17, Energy; 24, My Planet Diary; 34 <b>TE Only:</b> 2C, Social Studies; 2D, Writing; 2G-2H, Leveled Content Reader Support; 19a, My Planet Diary; 27a, My Planet Diary; 43d, ELA/Literacy; 186C, Social Studies; 186G-186H, Leveled Content Reader Support</li> </ul>

**A Correlation of Interactive Science, ©2016, to the  
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Next Generation Science Standards	Interactive Science, ©2016 Grade 1	
Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p><b>Connections to Nature of Science</b></p> <p><b>Scientific Investigations Use a Variety of Methods</b></p> <ul style="list-style-type: none"> <li>Science investigations begin with a question. (1-PS4-1) <b>SE/TE:</b> 40-41, Apply It!; 154-157, Lesson 1; 169, Picture Clues; 170, Scientific Method <b>TE Only:</b> 140G-104H, Leveled Content Reader Support; 141, SEP: Asking Questions and Defining Problems; 157b, Lesson 1 Check – Questions 4, 5</li> <li>Scientists use different ways to study the world. (1-PS4-1) <b>SE/TE:</b> 154-157, Lesson 1; 158-161, Lesson 2; 162-167, Lesson 3; 168-171, Lesson 4; 172-175, Lesson 5; 178, Hubble Space Telescope; 184-185, Chapter Review – Lessons 1-5 <b>TE Only:</b> 43b, ELA/Literacy; 140G-140H, Leveled Content Reader Support; 157b, Lesson 1 Check – Questions 1-5; 161b, Lesson 2 Check – Questions 1-6; 167b, Lesson 3 Check – Questions 1-6; 171b, Lesson 4 Check – Questions 1-6; 175b, Lesson 5 Check – Questions 1-5</li> </ul>	<p><b>PS4.C: Information Technologies and Instrumentation</b></p> <ul style="list-style-type: none"> <li>People also use a variety of devices to communicate (send and receive information) over long distances. (1-PS4-4) <b>SE/TE:</b> 6-15, STEM Activity; 29, Sounds; 43, Send a Message with Sound; 202, Solve Problems <b>TE Only:</b> 43a, Performance Expectation Activity; 43d, ELA/Literacy</li> </ul>	

**A Correlation of Interactive Science, ©2016, to the  
Next Generation Science Standards**

Next Generation Science Standards	Interactive Science, ©2016 Grade 1	
<b>1. Structure, Function, and Information Processing</b>		
Students who demonstrate understanding can:		
	<p><b>1-LS1-1. Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts to help them survive, grow, and meet their needs.*</b> [Clarification Statement: Examples of human problems that can be solved by mimicking plant or animal solutions could include designing clothing or equipment to protect bicyclists by mimicking turtle shells, acorn shells, and animal scales; stabilizing structures by mimicking animal tails and roots on plants; keeping out intruders by mimicking thorns on branches and animal quills; and, detecting intruders by mimicking eyes and ears.] Chapter 2 Performance Expectation Activity, 99a</p> <p><b>1-LS1-2. Read texts and use media to determine patterns in behavior of parents and offspring that help offspring survive.</b> [Clarification Statement: Examples of patterns of behaviors could include the signals that offspring make (such as crying, cheeping, and other vocalizations) and the responses of the parents (such as feeding, comforting, and protecting the offspring).] Chapter 2 Performance Expectation Activity, 99b</p> <p><b>1-LS3-1. Make observations to construct an evidence-based account that young plants and animals are like, but not exactly like, their parents.</b> [Clarification Statement: Examples of patterns could include features plants or animals share. Examples of observations could include leaves from the same kind of plant are the same shape but can differ in size; and, a particular breed of dog looks like its parents but is not exactly the same.] [Assessment Boundary: Assessment does not include inheritance or animals that undergo metamorphosis or hybrids.] Chapter 2 Performance Expectation Activity, 99c</p>	
The performance expectations above were developed using the following elements from the NRC document <i>A Framework for K-12 Science Education</i> :		
Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p><b>Constructing Explanations and Designing Solutions</b> Constructing explanations and designing solutions in K–2 builds on prior experiences and progresses to the use of evidence and ideas in constructing evidence-based accounts of natural phenomena and designing solutions.</p> <ul style="list-style-type: none"> <li>Make observations (firsthand or from media) to construct an evidence-based account for natural phenomena. (1-LS3-1)</li> </ul> <p><b>SE/TE:</b> 46, Try It!; 54-55, Make and Test; 68, Explore It!; 82, Explore It!; 86-87, Investigate It!</p>	<p><b>LS1.A: Structure and Function</b></p> <ul style="list-style-type: none"> <li>All organisms have external parts. Different animals use their body parts in different ways to see, hear, grasp objects, protect themselves, move from place to place, and seek, find, and take in food, water and air. Plants also have different parts (roots, stems, leaves, flowers, fruits) that help them survive and grow. (1-LS1-1)</li> </ul> <p><b>SE/TE:</b> 62-63, Animal Groups; 64-67, Lesson 2; 72-77, Lesson 3; 94, Chapter Review – Lessons 2, 3; 96-97, Apply It!; 98, Draw a Picture; 99, Design a Helmet</p>	<p><b>Patterns</b></p> <ul style="list-style-type: none"> <li>Patterns in the natural and human designed world can be observed, used to describe phenomena, and used as evidence. (1-LS1-2),(1-LS3-1)</li> </ul> <p><b>SE/TE:</b> 46, Try It!; 68, Explore It!; 70-71, Life Cycle of a Plant; 73, Animal Life Cycles; 74-75, Life Cycle of a Sea Turtle; 76-77, Life Cycle of a Grasshopper; 82, Explore It!; 98, Draw a Picture</p> <p><b>TE Only:</b> 44, CCC: Patterns; 71a, Explore It!; 95, Chapter Review – Lesson 4; 99b, Performance Expectation Activity</p>



**A Correlation of Interactive Science, ©2016, to the  
Next Generation Science Standards**

Next Generation Science Standards	Interactive Science, ©2016 Grade 1	
<b>Science and Engineering Practices</b>	<b>Disciplinary Core Ideas</b>	<b>Crosscutting Concepts</b>
<p><b>TE Only:</b> 44G-44H, Leveled Content Reader Support; 85a, Explore It!; 87a-87d, Activity Card Support; 99c, Performance Expectation Activity;</p> <ul style="list-style-type: none"> <li>Use materials to design a device that solves a specific problem or a solution to a specific problem. (1-LS1-1)</li> </ul> <p><b>SE/TE:</b> 48-57, STEM Activity; 99, Design a Helmet; 208, Explore It!; 208-213, Lesson 3; 222-227, Design It!</p> <p><b>TE Only:</b> 99a, Performance Expectation Activity</p> <p><b>Obtaining, Evaluating, and Communicating Information</b> Obtaining, evaluating, and communicating information in K–2 builds on prior experiences and uses observations and texts to communicate new information.</p> <ul style="list-style-type: none"> <li>Read grade-appropriate texts and use media to obtain scientific information to determine patterns in the natural world. (1-LS1-2)</li> </ul> <p><b>SE/TE:</b> 47, Let’s Read Science; 96-97, Apply It!</p> <p><b>TE Only:</b> 44C, Reading; 44G-44H, Leveled Content Reader Support; 45, SEP: Obtaining, Evaluating, and Communicating Information; 99a, ELA/Literacy; 99b, Performance Expectation Activity; 99b, ELA/Literacy; 99c, Performance Expectation Activity; 99c, ELA/Literacy</p> <p>-----</p>	<p><b>TE Only:</b> 44G-44H, Leveled Content Reader Support; 63b, Lesson 1 Check – Questions 1, 2; 67a, My Planet Diary; 67b, Lesson 2 Check – Questions 1-6; 77a, My Planet Diary; 77b, Lesson 3 Check – Questions 1-5; 95b, Chapter 2 Test – Question 6</p> <p><b>LS1.B: Growth and Development of Organisms</b></p> <ul style="list-style-type: none"> <li>Adult plants and animals can have young. In many kinds of animals, parents and the offspring themselves engage in behaviors that help the offspring to survive. (1-LS1-2)</li> </ul> <p><b>SE/TE:</b> 69, Seeds to Trees; 70, Life Cycle of a Plant; 72-77, Lesson 4;</p> <p><b>TE Only:</b> 71b, Lesson 3 Check – Question 3; 77b, Lesson 4 Check – Questions 1-5; 99b, Performance Expectation Activity</p> <p><b>LS1.D: Information Processing</b></p> <ul style="list-style-type: none"> <li>Animals have body parts that capture and convey different kinds of information needed for growth and survival. Animals respond to these inputs with behaviors that help them survive. Plants also respond to some external inputs. (1-LS1-1)</li> </ul> <p><b>SE/TE:</b> 72-77, Lesson 4; 84, Kinds of Animals; 95, Chapter Review – Lesson 4; 96-97, Apply It!; 99, Design a Helmet</p> <p><b>TE Only:</b> 71b, Lesson 3 Check – Question 4; 99a, Performance Expectation Activity; 99b, Performance Expectation Activity</p>	<p><b>Structure and Function</b></p> <ul style="list-style-type: none"> <li>The shape and stability of structures of natural and designed objects are related to their function(s). (1-LS1-1)</li> </ul> <p><b>SE/TE:</b> 66, Roots, Stems, and Leaves; 84, Kinds of Animals; 85, Different Animals of One Kind; 94, Chapter Review - Lesson 2</p> <p><b>TE Only:</b> 99a, Performance Expectation Activity; 99a, ELA/Literacy; 140, CCC: Structure and Function; 186, CCC: Structure and Function</p> <p>-----</p> <p><b>Connections to Engineering, Technology, and Applications of Science</b></p> <p><b>Influence of Science, Engineering and Technology on Society and the Natural World</b></p> <ul style="list-style-type: none"> <li>Every human-made product is designed by applying some knowledge of the natural world and is built using materials derived from the natural world. (1-LS1-1)</li> </ul> <p><b>SE/TE:</b> 204-207, Lesson 2</p> <p><b>TE Only:</b> 99a, Performance Expectation Activity; 186G-186H, Leveled Content Reader Support; 207b, Lesson 2 Check – Questions 1-6</p>

**A Correlation of Interactive Science, ©2016, to the  
Next Generation Science Standards**

Next Generation Science Standards	Interactive Science, ©2016 Grade 1	
Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p><b>Connections to Nature of Science</b></p> <p><b>Scientific Knowledge Is Based on Empirical Evidence</b></p> <ul style="list-style-type: none"> <li>Scientists look for patterns and order when making observations about the world. (1-LS1-2)</li> </ul> <p><b>SE/TE:</b> 70-71, Life Cycle of a Plant; 73, Animal Life Cycles; 74-75, Life Cycle of a Sea Turtle; 76-77, Life Cycle of a Grasshopper; 98, Draw a Picture</p> <p><b>TE Only:</b> 44, CCC: Patterns; 95, Chapter Review – Lesson 4; 99b, Performance Expectation Activity</p>	<p><b>LS3.A: Inheritance of Traits</b></p> <ul style="list-style-type: none"> <li>Young animals are very much, but not exactly like, their parents. Plants also are very much, but not exactly, like their parents. (1-LS3-1)</li> </ul> <p><b>SE/TE:</b> 44-45, How is a young orangutan like its mother?; 72-73, Envision It!; 75, A baby sea turtle...; 76, Life Cycle of a Grasshopper; 78-81, Lesson 5; 95, Chapter Review – Lesson 5</p> <p><b>TE Only:</b> 44C, Critical Thinking; 44G-44H, Leveled Content Reader Support; 81a, Explore It!; 81b, Lesson 5 Check, Question 4; 95a, Chapter 2 Test – Question 3; 95b, Chapter 2 Test – Question 8; 99c, Performance Expectation Activity</p> <p><b>LS3.B: Variation of Traits</b></p> <ul style="list-style-type: none"> <li>Individuals of the same kind of plant or animal are recognizable as similar but can also vary in many ways. (1-LS3-1)</li> </ul> <p><b>SE/TE:</b> 46, Try It!; 82-85, Lesson 6;</p> <p><b>TE Only:</b> 44G-44H, Leveled Content Reader Support; 81, 21<sup>st</sup> Century Learning; 85a, Explore It!; 85b, Lesson 6 Check – Question 5; 94, ELL Support</p>	

**A Correlation of Interactive Science, ©2016, to the  
Next Generation Science Standards**

Next Generation Science Standards	Interactive Science, ©2016 Grade 1	
<b>1. Space Systems: Patterns and Cycles</b>		
Students who demonstrate understanding can:		
<b>1-ESS1-1. Use observations of the sun, moon, and stars to describe patterns that can be predicted.</b> [Clarification Statement: Examples of patterns could include that the sun and moon appear to rise in one part of the sky, move across the sky, and set; and stars other than our sun are visible at night but not during the day.] [Assessment Boundary: Assessment of star patterns is limited to stars being seen at night and not during the day.] Chapter 3 Performance Expectation Activity, 139a		
<b>1-ESS1-2. Make observations at different times of year to relate the amount of daylight to the time of year.</b> [Clarification Statement: Emphasis is on relative comparisons of the amount of daylight in the winter to the amount in the spring or fall.] [Assessment Boundary: Assessment is limited to relative amounts of daylight, not quantifying the hours or time of daylight.] Chapter 3 Performance Expectation Activity, 139b		
The performance expectations above were developed using the following elements from the NRC document <i>A Framework for K-12 Science Education</i> :		
Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<b>Planning and Carrying Out Investigations</b> Planning and carrying out investigations to answer questions or test solutions to problems in K–2 builds on prior experiences and progresses to simple investigations, based on fair tests, which provide data to support explanations or design solutions. <ul style="list-style-type: none"> <li>Make observations (firsthand or from media) to collect data that can be used to make comparisons. (1-ESS1-2)</li> </ul> <b>SE/TE:</b> 102, Try It!; 118, Explore It!; 128-129, Investigate It!; 136-137, Apply It!; 142, Try It!; 168, Explore It! <b>TE Only:</b> 123a, Explore It!; 139b, Performance Expectation Activity; 139b, ELA/Literacy; 139b, Mathematics; 171a, Explore It!	<b>ESS1.A: The Universe and its Stars</b> <ul style="list-style-type: none"> <li>Patterns of the motion of the sun, moon, and stars in the sky can be observed, described, and predicted. (1-ESS1-1)  <b>SE/TE:</b> 118-123, Lesson 2; Chapter Review – Lesson 2; 139, Day and Night  <b>TE Only:</b> 100C, Reading; 100C, Social Studies; 123a, Explore It!; 123b, Lesson 2 Check – Questions 1-5; 139a, Performance Expectation Activity</li> </ul> <b>ESS1.B: Earth and the Solar System</b> <ul style="list-style-type: none"> <li>Seasonal patterns of sunrise and sunset can be observed, described, and predicted. (1-ESS1-2)  <b>SE/TE:</b> 122, Sunrise and Sunset; 125, Spring; 126, Summer and Fall; 127, Winter; 139, Sunrise, Sunset  <b>TE Only:</b> 100C, Writing; 139b, Performance Expectation Activity</li> </ul>	<b>Patterns</b> <ul style="list-style-type: none"> <li>Patterns in the natural world can be observed, used to describe phenomena, and used as evidence. (1-ESS1-1),(1-ESS1-2)  <b>SE/TE:</b> 102, Try It!; 118-123, Lesson 2; 125, Spring; 126, Summer and Fall; 127, Winter; 139, Day and Night; 139, Sunrise, Sunset  <b>TE Only:</b> 100, CCC: Patterns; 116, Science Notebook; 123a, Explore It!; 127b, Lesson 3 Check – Question 2; 139a, Performance Expectation Activity; 139b, Performance Expectation Activity</li> </ul> <p>-----</p>

**A Correlation of Interactive Science, ©2016, to the  
Next Generation Science Standards**

Next Generation Science Standards	Interactive Science, ©2016 Grade 1	
Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p><b>Analyzing and Interpreting Data</b> Analyzing data in K–2 builds on prior experiences and progresses to collecting, recording, and sharing observations.</p> <ul style="list-style-type: none"> <li>Use observations (firsthand or from media) to describe patterns in the natural world in order to answer scientific questions. (1-ESS1-1)</li> </ul> <p><b>SE/TE:</b> 102, Try It!; 118, Explore It!; 119, Write; 121, Draw; 122, At-Home Lab; 125, Write; 126, Write; 127, Lightning Lab; 139, Day and Night; 139, Sunrise, Sunset <b>TE Only:</b> 101, SEP: Analyzing and Interpreting Data; 116, Science Notebook; 123a, Explore It!; 127a, My Planet Diary; 129c, Guided Inquiry; 139a, Performance Expectation Activity; 139a, ELA/Literacy; 139b, Performance Expectation Activity</p>		<p><i>Connections to Nature of Science</i></p> <p><b>Scientific Knowledge Assumes an Order and Consistency in Natural Systems</b></p> <ul style="list-style-type: none"> <li>Science assumes natural events happen today as they happened in the past. (1-ESS1-1) <b>SE/TE:</b> 121, Moon; 122, Sunrise and Sunset; 125, Spring; 126, Summer and Fall; 127, Winter <b>TE Only:</b> 139a, Performance Expectation Activity; 139b, Performance Expectation Activity</li> <li>Many events are repeated. (1-ESS1-1) <b>SE/TE:</b> 122, Sunrise and Sunset; 123, Day and Night; 125, Spring; 126, Summer and Fall; 127, Winter; 139, Day and Night; 139, Sunrise, Sunset <b>TE Only:</b> 116, Science Notebook; 139a, Performance Expectation Activity; 139b, Performance Expectation Activity</li> </ul>

**A Correlation of Interactive Science, ©2016, to the  
Next Generation Science Standards**

Next Generation Science Standards	Interactive Science, ©2016 Grade 2	
<b>Grade 2</b>		
<b>2. Structure and Properties of Matter</b>		
<p>Students who demonstrate understanding can:</p> <p><b>2-PS1-1. Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties.</b> [Clarification Statement: Observations could include color, texture, hardness, and flexibility. Patterns could include the similar properties that different materials share.] Chapter 1 Performance Expectation Activity, 61a</p> <p><b>2-PS1-2. Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose.*</b> [Clarification Statement: Examples of properties could include, strength, flexibility, hardness, texture, and absorbency.] [Assessment Boundary: Assessment of quantitative measurements is limited to length.] Chapter 1 Performance Expectation Activity, 61b</p> <p><b>2-PS1-3. Make observations to construct an evidence-based account of how an object made of a small set of pieces can be disassembled and made into a new object.</b> [Clarification Statement: Examples of pieces could include blocks, building bricks, or other assorted small objects.] Chapter 1 Performance Expectation Activity, 61c</p> <p><b>2-PS1-4. Construct an argument with evidence that some changes caused by heating or cooling can be reversed and some cannot.</b> [Clarification Statement: Examples of reversible changes could include materials such as water and butter at different temperatures. Examples of irreversible changes could include cooking an egg, freezing a plant leaf, and heating paper.] Chapter 1 Performance Expectation Activity, 61d</p>		
The performance expectations above were developed using the following elements from the NRC document <i>A Framework for K-12 Science Education</i> :		
Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p><b>Planning and Carrying Out Investigations</b> Planning and carrying out investigations to answer questions or test solutions to problems in K–2 builds on prior experiences and progresses to simple investigations, based on fair tests, which provide data to support explanations or design solutions.</p> <ul style="list-style-type: none"> <li>Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence to answer a question.(2-PS1-1)</li> </ul> <p><b>SE/TE:</b> 6-15, STEM Activity; 48-49, Investigate It!; 58-59, Apply It! 148-149, Investigate It!; 196-197, Investigate It!</p>	<p><b>PS1.A: Structure and Properties of Matter</b></p> <ul style="list-style-type: none"> <li>Different kinds of matter exist and many of them can be either solid or liquid, depending on temperature. Matter can be described and classified by its observable properties. (2-PS1-1)</li> </ul> <p><b>SE/TE:</b> 16-23, Lesson 1; 24-29, Lesson 2; 36, Explore It!; 38, Cooling Matter; 41, Properties of Materials; 56, Chapter Review – Lessons 1, 2; 58-59, Apply It!; 60, Group Objects; 181, Classify</p>	<p><b>Patterns</b></p> <ul style="list-style-type: none"> <li>Patterns in the natural and human designed world can be observed. (2-PS1-1)</li> </ul> <p><b>SE/TE:</b> 16, Explore It!; 18, At-Home Lab; 27, At-Home Lab; 36, Explore It!; 194, Record Data; 196-197, Investigate It! <b>TE Only:</b> 39a, Explore It!; 118G-118H, Leveled Content Reader Support; 197a-197c, Activity Card Support</p>

**A Correlation of Interactive Science, ©2016, to the  
Next Generation Science Standards**

Next Generation Science Standards	Interactive Science, ©2016 Grade 2	
Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p><b>TE Only:</b> 3, SEP: Planning and Carrying Out Investigations; 49a-49c, Activity Card Support; 59, Possible Extensions; 61a, Performance Expectation Activity; 197a-197c, Activity Card Support</p> <p><b>Analyzing and Interpreting Data</b> Analyzing data in K–2 builds on prior experiences and progresses to collecting, recording, and sharing observations.</p> <ul style="list-style-type: none"> <li>Analyze data from tests of an object or tool to determine if it works as intended. (2-PS1-2)</li> </ul> <p><b>SE/TE:</b> 12-15, STEM Activity; 49, Investigate It! <b>TE Only:</b> 49b, Investigate It!; 61b, Performance Expectation Activity</p> <p><b>Constructing Explanations and Designing Solutions</b> Constructing explanations and designing solutions in K–2 builds on prior experiences and progresses to the use of evidence and ideas in constructing evidence-based accounts of natural phenomena and designing solutions.</p> <ul style="list-style-type: none"> <li>Make observations (firsthand or from media) to construct an evidence-based account for natural phenomena. (2-PS1-3)</li> </ul> <p><b>SE/TE:</b> 4, Try It!; 18, At-Home Lab; 27, At-Home Lab; 48-49, Investigate It! <b>TE Only:</b> 49a-49c, Activity Card Support; 61c, Performance Expectation Activity</p>	<p><b>TE Only:</b> 2C, Reading; 2D, Social Studies; 2D, Writing; 2G-2H, Leveled Content Reader Support; 23b, Chapter 1 Test – Questions 2, 5; 29a, My Planet Diary; 43, Differentiated Instruction; 49, Teach for Understanding; 52, Differentiated Instruction; 57a, Chapter 1 Test – Question 1; 61a, Performance Expectation Activity; 61a, ELA/Literacy; 61a, Mathematics</p> <ul style="list-style-type: none"> <li>Different properties are suited to different purposes. (2-PS1-2), (2-PS1-3)</li> </ul> <p><b>SE/TE:</b> 6-15, STEM Activity; 40-47, Lesson 5; 57, Chapter 1 Review – Lesson 5; 225, Choose Materials <b>TE Only:</b> 20, Professional Development Note; 22, Evaluate; 33, Professional Development Note; 42, Professional Development Note; 43, Differentiated Instruction; 47, Common Misconception; 47a, Explore It!; 47b, Lesson 5 Check – Questions 3, 4; 57b, Chapter 1 Test – Question 8; 61b, Performance Expectation Activity; 61b, ELA/Literacy; 225, 21<sup>st</sup> Century Learning</p> <ul style="list-style-type: none"> <li>A great variety of objects can be built up from a small set of pieces. (2-PS1-3)</li> </ul> <p><b>SE/TE:</b> 32, Mold It, Fold It, Tear It, Bend It; 34, Mix and Separate Matter; 40-47, Lesson 5; 57, Chapter Review – Lesson 5; 61, Make a Presentation <b>TE Only:</b> 35a, Explore It!; 47a, Explore It!; 47b, Lesson 5 Check – Questions 3, 4; 61c, Performance Expectation Activity; 61c, ELA/Literacy</p>	<p><b>Cause and Effect</b></p> <ul style="list-style-type: none"> <li>Events have causes that generate observable patterns. (2-PS1-4)</li> </ul> <p><b>SE/TE:</b> 4, Try It!; 24, My Planet Diary; 27, At-Home Lab; 38, Lightning Lab; 148-149, Investigate It!; 196-197, Investigate It!; 206, Try It!; 222, Explore It! <b>TE Only:</b> 29a, My Planet Diary; 197a-197c, Activity Card Support; 227a, Explore It! <li>Simple tests can be designed to gather evidence to support or refute student ideas about causes. (2-PS1-2)</li> <p><b>SE/TE:</b> 4, Try It!; 38, Lightning Lab; 58-59, Apply It!; 148-149, Investigate It!; 222, Explore It! <b>TE Only:</b> 23, Common Misconceptions; 58, Science Misconception; 149a-149d, Activity Card Support</p> <p><b>Energy and Matter</b></p> <ul style="list-style-type: none"> <li>Objects may break into smaller pieces and be put together into larger pieces, or change shapes. (2-PS1-3)</li> </ul> <p><b>SE/TE:</b> 30-35, Lesson 3; 40-47, Lesson 5; 57, Chapter 1 Review – Lesson 3; 61, Make a Presentation <b>TE Only:</b> 2, CCC: Energy and Matter; 35a, Explore It!; 35b, Lesson 3 Check – Questions 1-4; 61c, Performance Expectation Activity; 61c, ELA/Literacy</p> <p>-----</p> </p>

**A Correlation of Interactive Science, ©2016, to the  
Next Generation Science Standards**

Next Generation Science Standards	Interactive Science, ©2016 Grade 2	
Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p><b>Engaging in Argument from Evidence</b> Engaging in argument from evidence in K–2 builds on prior experiences and progresses to comparing ideas and representations about the natural and designed world(s).</p> <ul style="list-style-type: none"> <li>Construct an argument with evidence to support a claim. (2-PS1-4)</li> </ul> <p><b>SE/TE:</b> 30, Explore It!; 32, Draw; 33, Write; 188-191, Lesson 4 <b>TE Only:</b> 32-33 Explain; 35a, Explore It!; 61d, Performance Expectation Activity; 61d, ELA/Literacy; 191a, Explore It!; 191b, Lesson 4 Check – Questions 1-5</p> <p>-----</p> <p><b>Connections to Nature of Science</b></p> <p><b>Science Models, Laws, Mechanisms, and Theories Explain Natural Phenomena</b></p> <ul style="list-style-type: none"> <li>Scientists search for cause and effect relationships to explain natural events. (2-PS1-4)</li> </ul> <p><b>SE/TE:</b> 4, Try It!; 27, At-Home Lab; 38, Lightning Lab <b>TE Only:</b> 61d, Performance Expectation Activity; 61d, ELA/Literacy</p>	<p><b>PS1.B: Chemical Reactions</b></p> <ul style="list-style-type: none"> <li>Heating or cooling a substance may cause changes that can be observed. Sometimes these changes are reversible, and sometimes they are not. (2-PS1-4)</li> </ul> <p><b>SE/TE:</b> 5, Let’s Read Science; 24, My Planet Diary; 33, Other Ways Matter Can Change; 38, Cooling Matter; 38, Lightning Lab; 39, Heating Matter; 50, From Sand to Glass; 56, Chapter 1 Review – Lesson 3; 60, Cool a Balloon <b>TE Only:</b> 2G-2H, Leveled Content Reader Support; 20, Professional Development Note; 39b, Chapter 1 Lesson Check – Questions 2-4; 61d, Performance Expectation Activity; 61d, ELA/Literacy</p>	<p><b>Connections to Engineering, Technology, and Applications of Science</b></p> <p><b>Influence of Engineering, Technology, and Science, on Society and the Natural World</b></p> <ul style="list-style-type: none"> <li>Every human-made product is designed by applying some knowledge of the natural world and is built using materials derived from the natural world. (2-PS1-2)</li> </ul> <p><b>SE/TE:</b> 6-15, STEM Activity; 45, Materials in Bridges <b>TE only:</b> 20, Professional Development Note</p>

**A Correlation of Interactive Science, ©2016, to the  
Next Generation Science Standards**

Next Generation Science Standards	Interactive Science, ©2016 Grade 2	
<b>2. Interdependent Relationships in Ecosystems</b>		
Students who demonstrate understanding can:		
<b>2-LS2-1. Plan and conduct an investigation to determine if plants need sunlight and water to grow.</b> <i>[Assessment Boundary: Assessment is limited to testing one variable at a time.]</i> Chapter 2 Performance Expectation Activity, 117a		
<b>2-LS2-2. Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants.*</b> Chapter 2 Performance Expectation Activity, 117b		
<b>2-LS4-1. Make observations of plants and animals to compare the diversity of life in different habitats.</b> <i>[Clarification Statement: Emphasis is on the diversity of living things in each of a variety of different habitats.] [Assessment Boundary: Assessment does not include specific animal and plant names in specific habitats.]</i> Chapter 2 Performance Expectation Activity, 117c		
The performance expectations above were developed using the following elements from the NRC document <i>A Framework for K-12 Science Education</i> :		
Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<b>Developing and Using Models</b> Modeling in K–2 builds on prior experiences and progresses to include using and developing models (i.e., diagram, drawing, physical replica, diorama, dramatization, or storyboard) that represent concrete events or design solutions. <ul style="list-style-type: none"> <li>Develop a simple model based on evidence to represent a proposed object or tool. (2-LS2-2) <b>SE/TE:</b> 88, Explore It!; 100, Explore It!; 114-115, Apply It!; 208-217, STEM Activity; 232, Lightning Lab <b>TE Only:</b> 63, SEP: Developing and Using Models; 93a, Explore It!; 103a, Explore It!; 117b, Performance Expectation Activity</li> </ul>	<b>LS2.A: Interdependent Relationships in Ecosystems</b> <ul style="list-style-type: none"> <li>Plants depend on water and light to grow. (2-LS2-1) <b>SE/TE:</b> 64, Try It!; 77, Plant Needs; 94, Explore It!; 96, Forest; 99, Wetland/Rain Forest; 101, Energy from Food; 104-105, Investigate It!; 116, Light and Seeds <b>TE Only:</b> 62G-62H, Leveled Content Reader Support; 105a-105d, Activity Card Support; 117a, Performance Expectation Activity</li> <li>Plants depend on animals for pollination or to move their seeds around. (2-LS2-2) <b>SE/TE:</b> 79, Plant Parts; 81, Seed plants; 96, Forest <b>TE Only:</b> 117b, Performance Expectation Activity</li> </ul>	<b>Cause and Effect</b> <ul style="list-style-type: none"> <li>Events have causes that generate observable patterns. (2-LS2-1) <b>SE/TE:</b> 64, Try It!; 77, Plant Needs; 79, Go Green; 104-105, Investigate It!; 116, Light and Seeds <b>TE Only:</b> 62, CCC: Cause and Effect; 105c, Guided Inquiry; 117a, Performance Expectation Activity</li> </ul> <b>Structure and Function</b> <ul style="list-style-type: none"> <li>The shape and stability of structures of natural and designed objects are related to their function(s). (2-LS2-2) <b>SE/TE:</b> 78-79, Plant Parts; 84-85, Animals with Backbones; 86-87, Animals Without Backbones; 90-91, Animal Body Parts; 114-115, Apply It!; 232-233, Animal Body Parts as Tools <b>TE Only:</b> 63, SEP: Developing and Using Models; 117b, Performance Expectation Activity</li> </ul>



**A Correlation of Interactive Science, ©2016, to the  
Next Generation Science Standards**

Next Generation Science Standards	Interactive Science, ©2016 Grade 2	
Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p><b>Planning and Carrying Out Investigations</b> Planning and carrying out investigations to answer questions or test solutions to problems in K–2 builds on prior experiences and progresses to simple investigations, based on fair tests, which provide data to support explanations or design solutions.</p> <ul style="list-style-type: none"> <li>Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence to answer a question. (2-LS2-1) <b>SE/TE:</b> 64, Try It!; 79, Go Green; 94, Explore It!; 104-105, Investigate It!; 116, Light and Seeds <b>TE Only:</b> 105a-105c, Activity Card Support; 117a, Performance Expectation Activity</li> <li>Make observations (firsthand or from media) to collect data which can be used to make comparisons. (2-LS4-1) <b>SE/TE:</b> 65, Let’s Read Science; 66-78, STEM Activity; 94, Explore It!; 104-105, Investigate It!; 117, Make Observations; 180, Science Skills <b>TE Only:</b> xlv-xlv, Quest; 97, Professional Development Note; 117c, Performance Expectation Activity; 117c, ELA/Literacy; 117c, Mathematics</li> </ul> <p>-----</p>	<p><b>LS4.D: Biodiversity and Humans</b></p> <ul style="list-style-type: none"> <li>There are many different kinds of living things in any area, and they exist in different places on land and in water. (2-LS4-1) <b>SE/TE:</b> 76, My Planet Diary; 82, My Planet Diary; 94-99, Lesson 4; 113, Chapter Review – Lesson 4; 116, Put on a Play; 117, Write a Song <b>TE Only:</b> xlv-xlv, Quest; 62G-62H, Leveled Content Reader Support; 99a, Explore It; 99b, Lesson 4, Check – Questions 1-5; 113b, Chapter 2 Test – Questions 5, 8; 117c, Performance Expectation Activity</li> </ul> <p><b>ETS1.B: Developing Possible Solutions</b></p> <ul style="list-style-type: none"> <li>Designs can be conveyed through sketches, drawings, or physical models. These representations are useful in communicating ideas for a problem’s solutions to other people. (<i>secondary to 2-LS2-2</i>) <b>SE/TE:</b> 66-75, STEM Activity; 79, Draw; 87, Draw; 88, Explore It!; 90, Lightning Lab; 114-115, Apply It! <b>TE Only:</b> 62C, Social Studies; 93a, Explore It!; 117b, Performance Expectation Activity</li> </ul>	

**A Correlation of Interactive Science, ©2016, to the  
Next Generation Science Standards**

Next Generation Science Standards	Interactive Science, ©2016 Grade 2	
Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p><i>Connections to Nature of Science</i></p> <p><b>Scientific Knowledge is Based on Empirical Evidence</b></p> <ul style="list-style-type: none"> <li>Scientists look for patterns and order when making observations about the world. (2-LS4-1)</li> </ul> <p><b>SE/TE:</b> 100-103, Lesson 5  <b>TE Only:</b> 103a, Explore It; 103b, Lesson 5 Check – Questions 1, 6; 117c, Performance Expectation Activity</p>		

**A Correlation of Interactive Science, ©2016, to the  
Next Generation Science Standards**

Next Generation Science Standards	Interactive Science, ©2016 Grade 2	
<b>2. Earth's Systems: Processes that Shape the Earth</b>		
Students who demonstrate understanding can:		
<p><b>2-ESS1-1. Use information from several sources to provide evidence that Earth events can occur quickly or slowly.</b> [Clarification Statement: Examples of events and timescales could include volcanic explosions and earthquakes, which happen quickly and erosion of rocks, which occurs slowly.] [Assessment Boundary: Assessment does not include quantitative measurements of timescales.] Chapter 3 Performance Expectation Activity, 159a</p>		
<p><b>2-ESS2-1. Compare multiple solutions designed to slow or prevent wind or water from changing the shape of the land.*</b> [Clarification Statement: Examples of solutions could include different designs of dikes and windbreaks to hold back wind and water, and different designs for using shrubs, grass, and trees to hold back the land.] Chapter 3 Performance Expectation Activity, 159b</p>		
<p><b>2-ESS2-2. Develop a model to represent the shapes and kinds of land and bodies of water in an area.</b> [Assessment Boundary: Assessment does not include quantitative scaling in models.] Chapter 3 Performance Expectation Activity, 159c</p>		
<p><b>2-ESS2-3. Obtain information to identify where water is found on Earth and that it can be solid or liquid.</b> Chapter 3 Performance Expectation Activity, 159d</p>		
<p align="center">The performance expectations above were developed using the following elements from the NRC document <i>A Framework for K-12 Science Education</i>:</p>		
Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p><b>Developing and Using Models</b> Modeling in K–2 builds on prior experiences and progresses to include using and developing models (i.e., diagram, drawing, physical replica, diorama, dramatization, or storyboard) that represent concrete events or design solutions.</p> <ul style="list-style-type: none"> <li>Develop a model to represent patterns in the natural world. (2-ESS2-2) <b>SE/TE:</b> 138, Explore It!; 141, Lightning Lab; 144, Explore It!; 146, At-Home Lab; 159, Model Earthquake Damage <b>TE Only:</b> 135, 21<sup>st</sup> Century Learning; 159c, Performance Expectation Activity</li> </ul>	<p><b>ESS1.C: The History of Planet Earth</b></p> <ul style="list-style-type: none"> <li>Some events happen very quickly; others occur very slowly, over a time period much longer than one can observe. (2-ESS1- 1) <b>SE/TE:</b> 138-143, Lesson 2; 146, How Fossils Form; 147, What Fossils Show; 148-149, Investigate It!; 158, Erosion <b>TE Only:</b> 118, Professional Development Note; 141, Science Notebook; 143a, Explore It!; 143b, Lesson 2 Check; 155b, Chapter 3 Test – Questions 7, 8; 159a, Performance Expectation Activity</li> </ul>	<p><b>Patterns</b></p> <ul style="list-style-type: none"> <li>Patterns in the natural world can be observed. (2-ESS2-2),(2-ESS2-3) <b>SE/TE:</b> 120, Try It!; 134-137; 148-149, Investigate It!; 156-157, Apply It!; 158, Erosion; 196-197, Investigate It! <b>TE Only:</b> 118D, Teacher Background; 118G-118H, Leveled Content Reader Support; 136, Explain; 149c, Guided Inquiry; 159c, Mathematics; 159d, Performance Expectation Activity; 197c, Guided Inquiry</li> </ul>

**A Correlation of Interactive Science, ©2016, to the  
Next Generation Science Standards**

Next Generation Science Standards	Interactive Science, ©2016 Grade 2	
Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p><b>Constructing Explanations and Designing Solutions</b> Constructing explanations and designing solutions in K–2 builds on prior experiences and progresses to the use of evidence and ideas in constructing evidence-based accounts of natural phenomena and designing solutions.</p> <ul style="list-style-type: none"> <li>Make observations from several sources to construct an evidence-based account for natural phenomena. (2-ESS1-1) <b>SE/TE:</b> 138, Explore It!; 141, Lightning Lab; 144, Explore It!; 148-149, Investigate It!; 158, Erosion <b>TE Only:</b> 119, SEP: Constructing Explanations and Designing Solutions; 159a, Performance Expectation Activity; 159a, ELA/Literacy</li> <li>Compare multiple solutions to a problem. (2-ESS2-1) <b>SE/TE:</b> 122-131, STEM Activity; 159, Model Earthquake Damage <b>TE Only:</b> 159b, Performance Expectation Activity; 159b, ELA/Literacy</li> </ul> <p><b>Obtaining, Evaluating, and Communicating Information</b> Obtaining, evaluating, and communicating information in K–2 builds on prior experiences and uses observations and texts to communicate new information.</p> <ul style="list-style-type: none"> <li>Obtain information using various texts, text features (e.g., headings, tables of contents, glossaries, electronic menus, icons), and other media that will be useful in answering a scientific question. (2-ESS2-3)</li> </ul>	<p><b>ESS2.A: Earth Materials and Systems</b></p> <ul style="list-style-type: none"> <li>Wind and water can change the shape of the land. (2-ESS2-1) <b>SE/TE:</b> 133, Land and Water; 139, Changes on Earth; 140, Earthquakes and Volcanoes; 141, Weathering and Erosion; 142, Water Changes the Land; 143, Other Causes of Erosion; 148-149, Investigate It!; 154-155, Chapter Review, Lesson 2; 158, Erosion <b>TE Only:</b> 118D, Teacher Background; 118G, Leveled Content Reader Support; 118, Talk About the Picture; 140, Differentiated Instruction; 143b, Lesson 2 Check, Questions 1, 2, 4; 149a-149d, Investigate It!; 155a, Chapter 3 Test – Questions 3, 4; 155b, Chapter 3 Test – Question 8; 159a, Performance Expectation Activity</li> </ul> <p><b>ESS2.B: Plate Tectonics and Large-Scale System Interactions</b></p> <ul style="list-style-type: none"> <li>Maps show where things are located. One can map the shapes and kinds of land and water in any area. (2-ESS2-2) <b>SE/TE:</b> 120, Try It!; 133, Land and Water; 159, Make a Puzzle <b>TE Only:</b> 134, At-Home Lab; 135, Elaborate; 155a, Chapter 3 Test – Questions 1, 6; 159a, ELA/Literacy; 159c, Mathematics; 176, Science, Social Studies</li> </ul>	<p><b>Stability and Change</b></p> <ul style="list-style-type: none"> <li>Things may change slowly or rapidly. (2-ESS2-1) <b>SE/TE:</b> 138-143, Lesson 2; 146, How Fossils Form; 147, What Fossils Show; 148-149, Investigate It!; 158, Erosion <b>TE Only:</b> 118, CCC: Stability and Change; 141, Science Notebook; 143a, Explore It!; 143b, Lesson 2 Check; 155b, Chapter 3 Test – Questions 7, 8; 159a, Performance Expectation Activity</li> </ul> <p>-----</p> <p><b>Connections to Engineering, Technology, and Applications of Science</b></p> <p><b>Influence of Engineering, Technology, and Science on Society and the Natural World</b></p> <ul style="list-style-type: none"> <li>Developing and using technology has impacts on the natural world. (2-ESS2-1) <b>SE/TE:</b> 122-131, STEM Activity; 139, Changes on Earth <b>TE Only:</b> 122, Background; 140 Differentiated Instruction; 141, Professional Development Note; 159b, Performance Expectation Activity; 159b, ELA/Literacy</li> </ul> <p>-----</p>

**A Correlation of Interactive Science, ©2016, to the  
Next Generation Science Standards**

Next Generation Science Standards	Interactive Science, ©2016 Grade 2	
Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p><b>SE/TE:</b> 158, Make a Poster <b>TE Only:</b> 140, Differentiated Instruction; 143, Differentiated Instruction; 159a, Performance Expectation Activity; 159a, ELA/Literacy; 159c, Performance Expectation Activity; 159c, ELA/Literacy; 159d, Performance Expectation Activity</p>	<p><b>ESS2.C: The Roles of Water in Earth’s Surface Processes</b></p> <ul style="list-style-type: none"> <li>Water is found in the ocean, rivers, lakes, and ponds. Water exists as solid ice and in liquid form. (2-ESS2-3)</li> </ul> <p><b>SE/TE:</b> 120, Try It!; 133, Land and Water; 135, Water surrounds an island; 136, The Ocean/Lakes and Ponds; 137, Rivers and Streams/Glaciers; 154, Chapter Review – Lesson 1; 159, Make a Puzzle <b>TE Only:</b> 137b, Lesson 1 Check – Question 4; 159c, Performance Expectation Activity; 159d, Performance Expectation Activity; 159d, ELA/Literacy</p> <p><b>ETS1.C: Optimizing the Design Solution</b></p> <ul style="list-style-type: none"> <li>Because there is always more than one possible solution to a problem, it is useful to compare and test designs. (<i>secondary to 2-ESS2-1</i>)</li> </ul> <p><b>SE/TE:</b> 122-131, STEM Activity <b>TE Only:</b> 159b, Performance Expectation Activity</p>	<p><b>Connections to Nature of Science</b></p> <p><b>Science Addresses Questions About the Natural and Material World</b></p> <ul style="list-style-type: none"> <li>Scientists study the natural and material world. (2-ESS2-1)</li> </ul> <p><b>SE/TE:</b> 174-177, Lesson 1; 198, Shonte Wright; 202, Part 1 Review – Lessons 1, 2 <b>TE Only:</b> 160G, Leveled Content Reader Support; 160, Talk About the Picture; 177a, My Planet Diary; 177b, Lesson 1 Check – Questions 1-5</p>

**A Correlation of Interactive Science, ©2016, to the  
Next Generation Science Standards**

Next Generation Science Standards	Interactive Science, ©2016 Kindergarten - 2	
<b>K-2. Engineering Design</b>		
<p>Students who demonstrate understanding can:</p> <p><b>K-2-ETS1-1. Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.</b>  <b>Grade K:</b> Chapter 3 Performance Expectation Activity, 109d  <b>Grade 1:</b> Chapter 1 Performance Expectation Activity, 43d  <b>Grade 2:</b> Chapter 1 Performance Expectation Activity, 61c</p> <p><b>K-2-ETS1-2. Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.</b>  <b>Grade K:</b> Chapter 2 Performance Expectation Activity, 71c  <b>Grade 1:</b> Chapter 2 Performance Expectation Activity, 99a  <b>Grade 2:</b> Chapter 2 Performance Expectation Activity, 117b</p> <p><b>K-2-ETS1-3. Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.</b>  <b>Grade K:</b> Chapter 1 Performance Expectation Activity, 33b  <b>Grade 1:</b> Chapter 1 Performance Expectation Activity, 43d  <b>Grade 2:</b> Chapter 3 Performance Expectation Activity, 159b</p>		
The performance expectations above were developed using the following elements from the NRC document <i>A Framework for K-12 Science Education</i> :		
Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p><b>Asking Questions and Defining Problems</b>            Asking questions and defining problems in K–2 builds on prior experiences and progresses to simple descriptive questions.</p> <ul style="list-style-type: none"> <li>Ask questions based on observations to find more information about the natural and/or designed world(s). (K-2-ETS1-1)</li> </ul> <p><b>Grade K SE only:</b> 24-25, STEM Activity; 45-47, STEM Activity; 75, Lesson 1  <b>Grade K TE Only:</b> 117, SEP: Asking Questions and Defining Problems; 153, SEP: Asking Questions and Defining Problems; 124, Activate Prior Knowledge; 125, ELL Support; 125, Formative Assessment</p>	<p><b>ETS1.A: Defining and Delimiting Engineering Problems</b></p> <ul style="list-style-type: none"> <li>A situation that people want to change or create can be approached as a problem to be solved through engineering. (K-2-ETS1-1)</li> </ul> <p><b>Grade K SE only:</b> 4-13, STEM Activity; 23-32, STEM Activity; 44-53, STEM Activity; 65-74, STEM Activity; 86-95, STEM Activity; 96, Lesson 1; 99, Investigate It!  <b>Grade K TE Only:</b> 12-13, STEM Activity; 44-45, STEM Activity; 82-83, STEM Activity; 109d, Performance Expectation Activity; 120-121, STEM Activity; 156-157, STEM Activity, 166, Investigate It!</p>	<p><b>Structure and Function</b></p> <ul style="list-style-type: none"> <li>The shape and stability of structures of natural and designed objects are related to their function(s). (K-2-ETS1-2)</li> </ul> <p><b>Grade K SE only:</b> 44-53, STEM Activity; 86-93, STEM Activity  <b>Grade K TE Only:</b> 82-83, STEM Activity; 116, CCC: Structure and Function and Effect; 152, CCC: Structure and Function; 156-157, STEM Activity</p> <p><b>Grade 1 SE/TE:</b> 6-15, STEM Activity; 48-57, STEM Activity; 66, Roots, Stems, and Leaves; 84, Kinds of Animals; 85, Different Animals of One Kind; 104-113, STEM Activity; 144-153, STEM Activity; 178, Hubble Space Telescope; 222-227, Design It!</p>

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Next Generation Science Standards**

Next Generation Science Standards	Interactive Science, ©2016 Kindergarten - 2	
Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p><b>Grade 1 SE/TE:</b> 4, Try It!; 40-41, Apply It!; 46, Try It!; 68, Explore It!; 78, Explore It!; 82, Explore It!; 87, Investigate It!; 96, Apply It!; 102, Try It!; 118, Explore It!; 128-129, Investigate It!; 136-137, Apply It!; 142, Try It!; 156, Questions; 158, Explore It!; 168, Explore It!; 169, Science Inquiry; 208, Explore It!</p> <p><b>Grade 1 TE Only:</b> 71a, Explore It!; 81a, Explore It!; 85a, Explore It!; 123a, Explore It!; 141, SEP: Asking Questions and Defining Problems; 161a, Explore It!; 171a, Explore It!; 213a, Explore It!</p> <p><b>Grade 2 SE/TE:</b> 58, Apply It!; 156, Apply It!; 174-177, Lesson 1; 190, Ask a Question</p> <p><b>Grade 2 TE Only:</b> 117a, Performance Expectation Activity; 143, Differentiated Instruction; 197a, Activity Card Support</p> <ul style="list-style-type: none"> <li>Define a simple problem that can be solved through the development of a new or improved object or tool. (K-2-ETS1-1)</li> </ul> <p><b>Grade K SE only:</b> 4, Find a Problem; 23, Find a Problem; 44, Find a Problem; 65, Find a Problem; 86, Find a Problem; 96, Lesson 1</p> <p><b>Grade K TE Only:</b> 12, STEM Activity; 44, STEM Activity; 82, STEM Activity; 109d, Performance Expectation Activity; 120, STEM Activity; 156, STEM Activity; 160, Envision It!; 160, Activate Prior Knowledge; 160, For Interactive Whiteboard Classrooms; 160, Differentiated Instruction; 161, ELL Support; 161, Explain; 161, Elaborate; 161, Formative Assessment; 164, Differentiated Instruction</p>	<p><b>Grade 1 SE/TE:</b> 6-15, STEM Activity; 48-57, STEM Activity; 104-113, STEM Activity; 144-153, STEM Activity; 190-199, STEM Activity; 202, Solve Problems; 203, Help People; 208, A Problem and a Goal; 222-227, Design It!</p> <p><b>Grade 1 TE Only:</b> 186G-186H, Leveled Content Reader Support</p> <p><b>Grade 2 SE/TE:</b> 6-15, STEM Activity; 66-75, STEM Activity; 122-131, STEM Activity; 164-173, STEM Activity; 208-217, STEM Activity; 222-227, Lesson 2; 242-247, Design It!; 248, Design a Solution</p> <p><b>Grade 2 TE Only:</b> 160G-160H, Leveled Content Reader Support; 227a, Explore It!; Lesson 2 Check- Questions 1-5</p> <ul style="list-style-type: none"> <li>Asking questions, making observations, and gathering information are helpful in thinking about problems. (K-2-ETS1-1)</li> </ul> <p><b>Grade K SE only:</b> 4-13, STEM Activity; 23-32, STEM Activity; 44-53, STEM Activity; 65-74, STEM Activity; 86-95, STEM Activity; 96, Lesson 1</p> <p><b>Grade K TE Only:</b> 12-13, STEM Activity; 44-45, STEM Activity; 82-83, STEM Activity; 109d, Performance Expectation Activity; 120-121, STEM Activity; 156-157, STEM Activity</p>	<p><b>Grade 1 TE Only:</b> 99a, Performance Expectation Activity; 140, CCC: Structure and Function; 186, CCC: Structure and Function</p> <p><b>Grade 2 SE/TE:</b> 45, Materials in Bridges; 47, Materials in Towers; 182, Explore It!; 183, Tools; 184-185, More Tools</p> <p><b>Grade 2 TE Only:</b> 47a, Explore It!; 117b, Performance Expectation Activity; 187, 21<sup>st</sup> Century Learning; 187a, Explore It!; 204, CCC: Structure and Function</p>

**A Correlation of Interactive Science, ©2016, to the  
Next Generation Science Standards**

Next Generation Science Standards	Interactive Science, ©2016 Kindergarten - 2	
Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p><b>Grade 1 SE/TE:</b> 7, Find a Problem; 145, Find a Problem; 202, Solve Problems; 208, Explore It!; 209, A Problem and a Goal; 222, Find a Problem</p> <p><b>Grade 1 TE Only:</b> 186G-186H, Leveled Content Reader Support; 213a, Explore It!</p> <p><b>Grade 2 SE/TE:</b> 6-7, Find a Problem; 67, Find a Problem; 122-123, Find a Problem; 164-165, Find a Problem; 208-209, Find a Problem; 242, Find a Problem</p> <p><b>Grade 2 TE Only:</b> 160G-160H, Leveled Content Reader Support</p> <p><b>Developing and Using Models</b> Modeling in K–2 builds on prior experiences and progresses to include using and developing models (i.e., diagram, drawing, physical replica, diorama, dramatization, or storyboard) that represent concrete events or design solutions.</p> <ul style="list-style-type: none"> <li>Develop a simple model based on evidence to represent a proposed object or tool. (K-2-ETS1-2)</li> </ul> <p><b>Grade K SE only:</b> 23-32, STEM Activity; 44-53, STEM Activity</p> <p><b>Grade K TE Only:</b> 44-45, STEM Activity; 71c, Performance Expectation Activity; 82-83, STEM Activity</p> <p><b>Grade 1 SE/TE:</b> 99, Design a Helmet; 128-129, Investigate It!; 139, Day and Night; 208, Explore It!; 214-215, Investigate It!; 222-227, Design It!</p> <p><b>Grade 1 TE Only:</b> 187, SEP: Developing and Using Models; 213a, Explore It!; 215a-215c, Activity Card Support</p>	<p><b>Grade 1 SE/TE:</b> 6, Let's Talk; 7, Find a Problem; 8-9, Plan and Draw; 10, Choose Materials; 48, Mix It Up!; 49, Find a Problem; 50-51, Plan and Draw; 52, Choose Materials; 104, How Does a Greenhouse Work?; 105, Find a Problem; 106-107, Plan and Draw; 108, Choose Materials; 144, What's Over the Wall?; 145, Find a Problem; 146-147, Plan and Draw; 148, Choose Materials; 190, Reach, Grab, Pull; 191, Find a Problem; 192-193, Plan and Draw; 194, Choose Materials; 222-227, Design It!</p> <p><b>Grade 1 TE Only:</b> 186G-186H, Leveled Content Reader Support</p> <p><b>Grade 2 SE/TE:</b> 6-7, Find a Problem; 66-67, Find a Problem; 122-123, Find a Problem; 164-165, Find a Problem; 208-209, Find a Problem; 242-243, Find a Problem; 248, Find a Problem</p> <p><b>Grade 2 TE Only:</b> 160G-160H, Leveled Content Reader Support</p> <ul style="list-style-type: none"> <li>Before beginning to design a solution, it is important to clearly understand the problem. (K-2-ETS1-1)</li> </ul> <p><b>Grade K SE only:</b> 4, STEM Activity; 23, STEM Activity; 44, STEM Activity; 65, STEM Activity; 86, STEM Activity; 96, Lesson 1; 97, Lesson 2</p> <p><b>Grade K TE Only:</b> 12, STEM Activity; 44, STEM Activity; 82, STEM Activity; 109d, Performance Expectation Activity; 120, STEM Activity; 156, STEM Activity; 160, Envision It!; 160, Activate Prior Knowledge; 160, For Interactive Whiteboard Classrooms; 160, Differentiated Instruction; 161, ELL Support; 161, Explain; 161,</p>	



**A Correlation of Interactive Science, ©2016, to the  
Next Generation Science Standards**

Next Generation Science Standards	Interactive Science, ©2016 Kindergarten - 2	
Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p><b>Grade 2 SE/TE:</b> 6-15, STEM Activity; 40, Explore It!; 47, Explore It!; 88, Explore It!; 144, Explore It!; 159, Model Earthquake Damage; 232, Lightning Lab</p> <p><b>Grade 2 TE Only:</b> 63, SEP: Developing and Using Models; 93a, Explore It!; 135, 21<sup>st</sup> Century Learning; 147a, Explore It!</p> <p><b>Analyzing and Interpreting Data</b> Analyzing data in K–2 builds on prior experiences and progresses to collecting, recording, and sharing observations.</p> <ul style="list-style-type: none"> <li>Analyze data from tests of an object or tool to determine if it works as intended. (K-2-ETS1-3)</li> </ul> <p><b>Grade K SE only:</b> 10-11, Record and Share; 30, Make and Test; 31, Record and Share; 51, Make and Test; 52, Record and Share; 72, Make and Test; 73, Record and Share; 93, Make and Test; 94, Record and Share</p> <p><b>Grade K TE Only:</b> 12-13, STEM Activity; 33b, Performance Expectation Activity; 44-45, STEM Activity; 82-83, STEM Activity; 109a, Performance Expectation Activity; 120-121, STEM Activity; 156-157, STEM Activity</p> <p><b>Grade 1 SE/TE:</b> 12-13, Make and Test; 33, Analyze and Conclude; 54-55, Make and Test; 110-111, Make and Test; 150-151, Make and Test; 196-197, Make and Test; 208, Explore It!; 215, Analyze and Conclude; 226-227, Record and Share 228, Test Materials</p> <p><b>Grade 1 TE Only:</b> 213a, Explore It!</p>	<p>Elaborate; 161, Formative Assessment; 164, Differentiated Instruction</p> <p><b>Grade 1 SE/TE:</b> 7, Find a Problem; 8-9, Plan and Draw; 10, Choose Materials; 49, Find a Problem; 50-51, Plan and Draw; 52, Choose Materials; 105, Find a Problem; 106-107, Plan and Draw; 108, Choose Materials; 145, Find a Problem; 146-147, Plan and Draw; 148, Choose Materials; 191, Find a Problem; 192-193, Plan and Draw; 194, Choose Materials; 210, Plan and Draw; 211, Choose Materials; 222, Find a Problem; 223, Plan and Draw; 224, Choose Materials</p> <p><b>Grade 1 TE Only:</b> 186G-186H, Leveled Content Reader Support</p> <p><b>Grade 2 SE/TE:</b> 6-7, Find a Problem; 8-9, Plan and Draw; 10-11, Choose Materials; 66-67, Find a Problem; 68-69, Plan and Draw; 70-71, Choose Materials; 122-123, Find a Problem; 124-125, Plan and Draw; 126-127, Choose Materials; 164-165, Find a Problem; 166-167, Plan and Draw; 168-169, Choose Materials; 208-209, Find a Problem; 210-211, Plan and Draw; 212-213, Choose Materials; 242, Find a Problem; 243, Plan and Draw; 244, Choose Materials; 248, Find a Problem</p> <p><b>Grade 2 TE Only:</b> 160G-160H, Leveled Content Reader Support</p>	

**A Correlation of Interactive Science, ©2016, to the  
Next Generation Science Standards**

Next Generation Science Standards	Interactive Science, ©2016 Kindergarten - 2	
Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p><b>Grade 2 SE/TE:</b> 12-13, Make and Test; 72-73, Make and Test; 74, Question 13; 114-115, Apply It!; 128-129, Make and Test; 130, Record and Share; 170-171, Make and Test; 214-215, Make and Test; 235, Analyze and Conclude; 245, Make and Test</p> <p><b>Grade 2 TE Only:</b> 61b, Performance Expectation Activity; 205, SEP: Analyzing and Interpreting Data</p>	<p><b>ETS1.B: Developing Possible Solutions</b></p> <ul style="list-style-type: none"> <li>• Designs can be conveyed through sketches, drawings, or physical models. These representations are useful in communicating ideas for a problem's solutions to other people. (K-2-ETS1-2)</li> </ul> <p><b>Grade K SE only:</b> 8-9, Make and Test; 23-32, STEM Activity; 44-53, STEM Activity; 68, Draw; 71, Make and Test; 89, Draw; 92, Make and Test; 97, Lesson 2; 98, Lesson 3</p> <p><b>Grade K TE Only:</b> 12-13, STEM Activity; 44-45, STEM Activity; 82-83, STEM Activity; 109d, Performance Expectation Activity; 120-121, STEM Activity; 156-157, STEM Activity; 162, Envision It!; 162, Activate Prior Knowledge; 162, For Interactive Whiteboard Classrooms; 163, ELL Support; 161, Explain; 163, Elaborate; 163, Formative Assessment; 164, Envision It!; 164, Activate Prior Knowledge; 164, For Interactive Whiteboard Classrooms; 164, Differentiated Instruction; 165, ELL Support; 165, Explain; 165, Elaborate; 165, Formative Assessment</p> <p><b>Grade 1 SE/TE:</b> 7, Question 2; 8, Question 4; 11, Question 10; 12, Question 12; 14, Question 15; 15, Question 18; 49, Question 2; 51, Question 7; 53, Question 10; 55, Question 12; 57, Question 16; 105, Question 2; 107, Question 5; 109, Question 9; 110, Question 11; 111, Question 12; 113, Question 16; 145, Question 2; 146, Questions 3, 4; 147, Question 5; 148, Question 6; 149, Question 9; 151, Question 12; 153, Question 16; 191,</p>	

**A Correlation of Interactive Science, ©2016, to the  
Next Generation Science Standards**

Next Generation Science Standards	Interactive Science, ©2016 Kindergarten - 2	
Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
	<p>Question 2; 192, Question 4; 195, Question 9; 196, Question 11; 199, Question 18; 223, Question 3; 210, Lightning Lab; 225, Question 7</p> <p><b>Grade 1 TE Only:</b> 186G-186H, Leveled Content Reader Support</p> <p><b>Grade 2 SE/TE:</b> 7, Question 3; 11, Question 9; 67, Question 2; 69, Question 6; 71, Question 9; 72, Question 10; 73, Question 12; 75, Question 15; 128, Question 12; 130, Question 15; 165, Question 2; 166, Question 3; 169, Question 9; 170, Question 10; 173, Question 17; 210, Question 3; 211, Question 6; 213, Question 9; 214, Question 10; 217, Question 15; 243, Question 3</p> <p><b>Grade 2 TE Only:</b> 160G-160H, Leveled Content Reader Support</p> <p><b>ETS1.C: Optimizing the Design Solution</b></p> <ul style="list-style-type: none"> <li>Because there is always more than one possible solution to a problem, it is useful to compare and test designs. (K-2-ETS1-3)</li> </ul> <p><b>Grade K SE only:</b> 10-11, Record and Share; 31, Record and Share; 52, Record and Share; 73, Record and Share; 94, Record and Share; 98, Lesson 3</p> <p><b>Grade K TE Only:</b> 12-13, STEM Activity; 44-45, STEM Activity; 82-83, STEM Activity; 109d, Performance Expectation Activity; 120-121, STEM Activity; 156-157, STEM Activity; 164, Differentiated Instruction; 165, Compare and Contrast</p>	

**A Correlation of Interactive Science, ©2016, to the  
Next Generation Science Standards**

Next Generation Science Standards		Interactive Science, ©2016 Kindergarten - 2
Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
	<p><b>Grade 1 SE/TE:</b> 14-15, Record and Share; 56-57, Record and Share; 112-113, Record and Share; 152-153, Record and Share; 198-199, Record and Share; 226-227, Record and Share</p> <p><b>Grade 1 TE Only:</b> 186G-186H, Leveled Content Reader Support</p> <p><b>Grade 2 SE/TE:</b> 9, Question 6; 12-13, Make and Test; 14-15, Record and Share; 74-75, Record and Share; 131, Record and Share; 172-173, Record and Share; 216-217, Record and Share; 246-247, Record and Share</p> <p><b>Grade 2 TE Only:</b> 160G-160H, Leveled Content Reader Support</p>	

**A Correlation of Interactive Science, ©2016, to the  
Next Generation Science Standards**

Next Generation Science Standards	Interactive Science, ©2016 Grade 3
<b>Grade 3</b>	
<b>3. Forces and Interactions</b>	
Students who demonstrate understanding can:	
<p><b>3-PS2-1. Plan and conduct an investigation to provide evidence of the effects of balanced and unbalanced forces on the motion of an object.</b> <i>[Clarification Statement: Examples could include an unbalanced force on one side of a ball can make it start moving; and, balanced forces pushing on a box from both sides will not produce any motion at all.] [Assessment Boundary: Assessment is limited to one variable at a time: number, size, or direction of forces. Assessment does not include quantitative force size, only qualitative and relative. Assessment is limited to gravity being addressed as a force that pulls objects down.]</i> Chapter 1 Performance Expectation Activity, 99a</p> <p><b>3-PS2-2. Make observations and/or measurements of an object’s motion to provide evidence that a pattern can be used to predict future motion.</b> <i>[Clarification Statement: Examples of motion with a predictable pattern could include a child swinging in a swing, a ball rolling back and forth in a bowl, and two children on a see-saw.] [Assessment Boundary: Assessment does not include technical terms such as period and frequency.]</i> Chapter 1 Performance Expectation Activity, 99b</p> <p><b>3-PS2-3. Ask questions to determine cause and effect relationships of electric or magnetic interactions between two objects not in contact with each other.</b> <i>[Clarification Statement: Examples of an electric force could include the force on hair from an electrically charged balloon and the electrical forces between a charged rod and pieces of paper; examples of a magnetic force could include the force between two permanent magnets, the force between an electromagnet and steel paperclips, and the force exerted by one magnet versus the force exerted by two magnets. Examples of cause and effect relationships could include how the distance between objects affects strength of the force and how the orientation of magnets affects the direction of the magnetic force.] [Assessment Boundary: Assessment is limited to forces produced by objects that can be manipulated by students, and electrical interactions are limited to static electricity.]</i> Chapter 1 Performance Expectation Activity, 99c</p> <p><b>3-PS2-4. Define a simple design problem that can be solved by applying scientific ideas about magnets.*</b> <i>[Clarification Statement: Examples of problems could include constructing a latch to keep a door shut and creating a device to keep two moving objects from touching each other.]</i> Chapter 1 Performance Expectation Activity, 99d</p>	
<p>The performance expectations above were developed using the following elements from the NRC document <i>A Framework for K-12 Science Education</i>:</p>	

**A Correlation of Interactive Science, ©2016, to the  
Next Generation Science Standards**

Next Generation Science Standards	Interactive Science, ©2016 Grade 3	
Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p><b>Asking Questions and Defining Problems</b> Asking questions and defining problems in grades 3–5 builds on grades K–2 experiences and progresses to specifying qualitative relationships.</p> <ul style="list-style-type: none"> <li>Ask questions that can be investigated based on patterns such as cause and effect relationships. (3-PS2-3)</li> </ul> <p><b>SE/TE:</b> 99, Plan an Investigation; 300, Questions</p> <p><b>TE Only:</b> 27d, Open Inquiry; 39, SEP: Asking Questions and Defining Problems; 83d, Open Inquiry; 99c, Performance Expectation Activity</p> <ul style="list-style-type: none"> <li>Define a simple problem that can be solved through the development of a new or improved object or tool. (3-PS2-4)</li> </ul> <p><b>SE/TE:</b> 4-7, STEM Activity; 99, Solve a Problem; 356-361, Lesson 3;</p> <p><b>TE Only:</b> 24, 21<sup>st</sup> Century Learning; 99d, Performance Expectation Activity; 349a, My Planet Diary; 349b, Lesson 1 Check – Questions 3, 4</p> <p><b>Planning and Carrying Out Investigations</b> Planning and carrying out investigations to answer questions or test solutions to problems in 3–5 builds on K–2 experiences and progresses to include investigations that control variables and provide evidence to support explanations or design solutions.</p> <ul style="list-style-type: none"> <li>Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence, using fair tests in which variables are controlled and the number of trials considered. (3-PS2-1)</li> </ul>	<p><b>PS2.A: Forces and Motion</b></p> <ul style="list-style-type: none"> <li>Each force acts on one particular object and has both strength and a direction. An object at rest typically has multiple forces acting on it, but they add to give zero net force on the object. Forces that do not sum to zero can cause changes in the object’s speed or direction of motion. (Boundary: Qualitative and conceptual, but not quantitative addition of forces are used at this level.) (3-PS2-1)</li> </ul> <p><b>SE/TE:</b> 2, Try It!; 14, Explore It!; 15, Causes of Motion; 16-17, Effects of Mass and Friction; 18-19, Motion and Combined Forces; 23-25, Lesson 3; 34, Chapter 1 Review – Lesson 2; 36, Benchmark Practice – Questions 1-6; 99, Plan an Investigation</p> <p><b>TE Only:</b> 1C-1D, Teacher Background; 1G-1H, Leveled Content Reader Support; 11, Professional Development Note; 21a, Explore It!; 21b, Lesson 2 Check – Questions 2, 6, 7; 35a-35b, Chapter 1 Test – Questions 4, 5, 9, 10; 99a, Performance Expectation Activity; 99a, ELA/Literacy</p> <ul style="list-style-type: none"> <li>The patterns of an object’s motion in various situations can be observed and measured; when that past motion exhibits a regular pattern, future motion can be predicted from it. (Boundary: Technical terms, such as magnitude, velocity, momentum, and vector quantity, are not introduced at this level, but the concept that some quantities need both size and direction to be described is developed.) (3-PS2-2)</li> </ul>	<p><b>Patterns</b></p> <ul style="list-style-type: none"> <li>Patterns of change can be used to make predictions. (3-PS2-2)</li> </ul> <p><b>SE/TE:</b> 12, How Fast Objects Move; 13, Variable Speed; 14-15, Envision It!; 14, Explore It!; 25, Got It? – Question 5; 34, Chapter Review – Lesson 2</p> <p><b>TE Only:</b> 21a, Explore It!; 27c, Guided Inquiry; 99b, Performance Expectation Activity; 99b, ELA/Literacy</p> <p><b>Cause and Effect</b></p> <ul style="list-style-type: none"> <li>Cause and effect relationships are routinely identified. (3-PS2-1)</li> </ul> <p><b>SE/TE:</b> 4-7, STEM Activity; 14, Explore It!; 15, Causes of Motion; 16, Effects of Mass and Friction; 16, Lightning Lab; 21, Got It?; 26-27, Investigate It!; 35, Chapter Review – Question 10</p> <p><b>TE Only:</b> 11, CCC: Cause and Effect; 17, Common Misconception; 21a, Explore It!; 99a, Performance Expectation Activity</p> <ul style="list-style-type: none"> <li>Cause and effect relationships are routinely identified, tested, and used to explain change. (3-PS2-3)</li> </ul> <p><b>SE/TE:</b> 2, Try It!; 77, Electric Charges</p> <p><b>TE Only:</b> 11, CCC: Cause and Effect; 21, Common Misconception; 38, CCC: Cause and Effect; 80, Professional Development Note; 99c, Performance Expectation Activity</p> <p>-----</p>

**A Correlation of Interactive Science, ©2016, to the  
Next Generation Science Standards**

Next Generation Science Standards	Interactive Science, ©2016 Grade 3	
<b>Science and Engineering Practices</b>	<b>Disciplinary Core Ideas</b>	<b>Crosscutting Concepts</b>
<p><b>SE/TE:</b> 4-7, STEM Activity; 14, Explore It!; 22, Explore It!; 26-27, Investigate It!; 99, Plan an Investigation; 314-319, Lesson 4</p> <p><b>TE Only:</b> 1, SEP: Planning and Carrying Out Investigations; 21a, Explore It!; 25a, Explore It!; 27a-27d, Activity Card Support; 99a, Performance Expectation Activity</p> <ul style="list-style-type: none"> <li>Make observations and/or measurements to produce data to serve as the basis for evidence for an explanation of a phenomenon or test a design solution. (3-PS2-2)</li> </ul> <p><b>SE/TE:</b> 10, At-Home Lab; 22, Explore It!; 26-27, Investigate It!; 50, At-Home Lab; 94-97, Apply It!; 99, Plan an Investigation</p> <p><b>TE Only:</b> 25a, Explore It!; 27a-27d, Activity Card Support; 99b, Performance Expectation Activity; 99b, ELA/Literacy</p> <p>-----</p> <p><b>Connections to Nature of Science</b></p> <p><b>Science Knowledge Is Based on Empirical Evidence</b></p> <ul style="list-style-type: none"> <li>Science findings are based on recognizing patterns. (3-PS2-2)</li> </ul> <p><b>SE/TE:</b> 10, At-Home Lab; 22, Explore It!</p> <p><b>TE Only:</b> 25a, Explore It!; 27c, Guided Inquiry; 99b, Performance Expectation Activity</p>	<p><b>SE/TE:</b> 10, At-Home Lab; 12, How Fast Objects Move; 13, Variable Speed; 26-27, Investigate It; 34, Chapter Review - Lesson 1; 94-97, Investigate It!</p> <p><b>TE Only:</b> 1G-1H, Leveled Content Reader Support; 12, Professional Development Note; 13b, Lesson 1 Check, Questions 2, 5, 6; 25a, Explore It!; 27a-27d, Activity Card Support; 99b, Performance Expectation Activity; 99b, ELA/Literacy</p> <p><b>PS2.B: Types of Interactions</b></p> <ul style="list-style-type: none"> <li>Objects in contact exert forces on each other. (3-PS2-1)</li> </ul> <p><b>SE/TE:</b> 14, Explore It!; 15, Causes of Motion; 16-17, Effects of Mass and Friction; 34, Chapter Review - Lesson 2; 99, Plan an Investigation</p> <p><b>TE Only:</b> 1G-1H, Leveled Content Reader Support; 21a, Explore It!; 21b, Lesson 2 Check – Question 3; 35a, Chapter 1 Test – Questions 1, 3, 5; 99a, Performance Expectation Activity;</p> <ul style="list-style-type: none"> <li>Electric and magnetic forces between a pair of objects do not require that the objects be in contact. The sizes of the forces in each situation depend on the properties of the objects and their distances apart and, for forces between two magnets, on their orientation relative to each other. (3-PS2-3),(3-PS2-4)</li> </ul> <p><b>SE/TE:</b> 2, Try It!; 15, Causes of Motion; 20-21, Magnetism; 77, Electric Charges</p>	<p><b>Connections to Engineering, Technology, and Applications of Science</b></p> <p><b>Interdependence of Science, Engineering, and Technology</b></p> <ul style="list-style-type: none"> <li>Scientific discoveries about the natural world can often lead to new and improved technologies, which are developed through the engineering design process. (3-PS2-4)</li> </ul> <p><b>SE/TE:</b> 4-7, STEM Activity; 99, Solve a Problem; 347, Problems and Solutions; 348-349, Scientific Discoveries and Technology; 357-361, Lesson 3; 371, Chapter Review – Lesson 3</p> <p><b>TE Only:</b> 99d, Performance Expectation Activity</p>

**A Correlation of Interactive Science, ©2016, to the  
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Next Generation Science Standards	Interactive Science, ©2016 Grade 3	
Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p><b>Scientific Investigations Use a Variety of Methods</b></p> <ul style="list-style-type: none"> <li>Science investigations use a variety of methods, tools, and techniques. (3-PS2-1)</li> </ul> <p><b>SE/TE:</b> 4-7, STEM Activity; 14, Explore it!; 16, Lightning Lab, 22, Explore It!; 25, Lightning Lab; 26-27, Investigate It!; 99, Plan an Investigation; 308-313, Lesson 3; 320-325, Lesson 5</p> <p><b>TE Only:</b> 1, SEP: Planning and Carrying Out Investigations; 21a, Explore It!; 25a, Explore It; 27a-27d, Activity Card Support; 99a, Performance Expectation Activity</p>	<p><b>TE Only:</b> 21b, Lesson 2 Check, Question 1; 38, CCC: Cause and Effect; 77, Infer; 99c, Performance Expectation Activity; 99c, ELA/Literacy; 99d, Performance Expectation Activity; 99d, Mathematics</p>	



**A Correlation of Interactive Science, ©2016, to the  
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Next Generation Science Standards	Interactive Science, ©2016 Grade 3	
<b>3. Interdependent Relationships in Ecosystems: Environmental Impacts on Organisms</b>		
Students who demonstrate understanding can:		
<p><b>3-LS2-1. Construct an argument that some animals form groups that help members survive.</b> Chapter 5 Performance Expectation Activity, 245f</p> <p><b>3-LS4-1. Analyze and interpret data from fossils to provide evidence of the organisms and the environments in which they lived long ago.</b> [Clarification Statement: Examples of data could include type, size, and distributions of fossil organisms. Examples of fossils and environments could include marine fossils found on dry land, tropical plant fossils found in Arctic areas, and fossils of extinct organisms.] [Assessment Boundary: Assessment does not include identification of specific fossils or present plants and animals. Assessment is limited to major fossil types and relative ages.] Chapter 5 Performance Expectation Activity, 245e</p> <p><b>3-LS4-3. Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all.</b> [Clarification Statement: Examples of evidence could include needs and characteristics of the organisms and habitats involved. The organisms and their habitat make up a system in which the parts depend on each other.] Chapter 5 Performance Expectation Activity, 245g</p> <p><b>3-LS4-4. Make a claim about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change.*</b> [Clarification Statement: Examples of environmental changes could include changes in land characteristics, water distribution, temperature, food, and other organisms.] [Assessment Boundary: Assessment is limited to a single environmental change. Assessment does not include the greenhouse effect or climate change.] Chapters 3 and 5 Performance Expectation Activity, 245h</p>		
The performance expectations above were developed using the following elements from the NRC document <i>A Framework for K-12 Science Education</i> :		
Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p><b>Analyzing and Interpreting Data</b> Analyzing data in 3–5 builds on K–2 experiences and progresses to introducing quantitative approaches to collecting data and conducting multiple trials of qualitative observations. When possible and feasible, digital tools should be used.</p> <ul style="list-style-type: none"> <li>Analyze and interpret data to make sense of phenomena using logical reasoning. (3-LS4-1)</li> </ul> <p><b>SE/TE:</b> 224, Explore It!; 227, Lightning Lab; 228-229, Investigate It!; 342-345, STEM Activity</p>	<p><b>LS2.C: Ecosystem Dynamics, Functioning, and Resilience</b></p> <ul style="list-style-type: none"> <li>When the environment changes in ways that affect a place’s physical characteristics, temperature, or availability of resources, some organisms survive and reproduce, others move to new locations, yet others move into the transformed environment, and some die. (<i>secondary to 3-LS4-4</i>)</li> </ul> <p><b>SE/TE:</b> 209, Ecosystems Change; 215, Changes in Food Webs; 216-223, Lesson 3; 230, Field Trip; 237, Chapter Review – Lesson 3; 238, Benchmark Practice, Question 3</p>	<p><b>Cause and Effect</b></p> <ul style="list-style-type: none"> <li>Cause and effect relationships are routinely identified and used to explain change. (3-LS2-1), (3-LS4-3)</li> </ul> <p><b>SE/TE:</b> 199, Let’s Read Science; 210, Explore It!; 216-217, Envision It!; 215, Lightning Lab; 216, Explore It!; 216-223, Lesson 3; <b>TE Only:</b> xlvii-xlviii, STEMQuest; 215, Differentiated Instruction; 215a, Explore It!; 215b, Lesson 2 Check – Question 6; 223a, Explore It!; 223b, Lesson 3 Check – Questions 4, 5; 245h, Performance Expectation Activity; 245h, ELA/Literacy</p>

**A Correlation of Interactive Science, ©2016, to the  
Next Generation Science Standards**

Next Generation Science Standards	Interactive Science, ©2016 Grade 3	
Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p><b>TE Only:</b> 227, Differentiated Instruction; 245e, Performance Expectation Activity; 245e, ELA/Literacy; 245f, ELA/Literacy</p> <p><b>Engaging in Argument from Evidence</b> Engaging in argument from evidence in 3–5 builds on K–2 experiences and progresses to critiquing the scientific explanations or solutions proposed by peers by citing relevant evidence about the natural and designed world(s).</p> <ul style="list-style-type: none"> <li>Construct an argument with evidence, data, and/or a model. (3-LS2-1)</li> </ul> <p><b>SE/TE:</b> 216, Explore It!; 244, Animals and Seasons; 245, Matching Traits</p> <p><b>TE Only:</b> xlvi-xlvi, STEMQuest; 197, SEP: Engaging in Argument from Evidence; 223a, Explore It!; 245f, Performance Expectation Activity; 245f, ELA/Literacy; 245g, Performance Expectation Activity; 245g, ELA/Literacy</p> <ul style="list-style-type: none"> <li>Construct an argument with evidence. (3-LS4-3)</li> </ul> <p><b>SE/TE:</b> 244, Animals and Seasons; 245, Matching Traits</p> <p><b>TE Only:</b> xlvi-xlvi, STEMQuest; 197, SEP: Engaging in Argument from Evidence; 245f, Performance Expectation Activity; 245f, ELA/Literacy; 245g, Performance Expectation Activity; 245g, ELA/Literacy</p>	<p><b>TE Only:</b> xlvi-xlvi, STEMQuest; 196G-196H, Leveled Content Reader Support; 196, Professional Development Note; 215, Differentiated Instruction; 219, 21<sup>st</sup> Century Learning; 223a, Explore It!; 223b, Lesson 3 Check- Questions 4, 5; 230, Professional Development Note; 237a-237b, Chapter 5 Test – Questions 6; 8, 9; 245h, Performance Expectation Activity</p> <p><b>LS2.D: Social Interactions and Group Behavior</b></p> <ul style="list-style-type: none"> <li>Being part of a group helps animals obtain food, defend themselves, and cope with changes. Groups may serve different functions and vary dramatically in size (<i>Note: Moved from K–2</i>). (3-LS2-1)</li> </ul> <p><b>SE/TE:</b> 208, Groups Within Ecosystems; 219, Do the Math</p> <p><b>TE Only:</b> xlvi-xlvi, STEMQuest; 196C, Adaptations; 245f, Performance Expectation Activity; 245f, ELA/Literacy</p> <p><b>LS4.A: Evidence of Common Ancestry and Diversity</b></p> <ul style="list-style-type: none"> <li>Some kinds of plants and animals that once lived on Earth are no longer found anywhere. (<i>Note: moved from K-2</i>) (3-LS4-1)</li> </ul> <p><b>SE/TE:</b> 225, Fossils; 237, Chapter Review – Question 10</p> <p><b>TE Only:</b> 219, 21<sup>st</sup> Century Learning; 227b, Lesson 4 Check - Question 2</p>	<p><b>Scale, Proportion, and Quantity</b></p> <ul style="list-style-type: none"> <li>Observable phenomena exist from very short to very long time periods. (3-LS4-1)</li> </ul> <p><b>SE/TE:</b> 219, Do the Math; 220, Natural Events Cause Change; 221, Seasonal Change; 222-223, Living Things Return</p> <p><b>TE Only:</b> 207, Differentiated Instruction; 245h, Performance Expectation Activity; 245h, ELA/Literacy</p> <p><b>Systems and System Models</b></p> <ul style="list-style-type: none"> <li>A system can be described in terms of its components and their interactions. (3-LS4-4)</li> </ul> <p><b>SE/TE:</b> 204-209, Lesson 1; 210-215, Lesson 2; 228-229, Investigate It!; 230, Field Trip; 236; Chapter Review – Lesson 1; 238, Benchmark Practice – Question 5</p> <p><b>TE Only:</b> xlvi-xlvi, STEMQuest; 196G-196H, Leveled Content Reader Support; 196, CCC: Systems and System Models; 209b, Lesson 1 Check – Questions 1-7; 229a-229d, Activity Card Support; 237a, Chapter 5 Test – Question 1</p> <p>-----</p>

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Next Generation Science Standards	Interactive Science, ©2016 Grade 3	
Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<ul style="list-style-type: none"> <li>Make a claim about the merit of a solution to a problem by citing relevant evidence about how it meets the criteria and constraints of the problem. (3-LS4-4) <b>SE/TE:</b> 156-159, STEM Activity; 198, Try It!, 200-203, STEM Activity; 345, Communicate Results <b>TE Only:</b> xlvi-xlvii, STEMQuest; 198, Lab Support; 245h, Performance Expectation Activity; 245h, ELA/Literacy</li> </ul>	<ul style="list-style-type: none"> <li>Fossils provide evidence about the types of organisms that lived long ago and also about the nature of their environments. (3-LS4-1) <b>SE/TE:</b> 224-227, Lesson 4; 237, Chapter Review – Lesson 4; 238, Benchmark Practice – Question 6 <b>TE Only:</b> 227, Differentiated Instruction; 227a, Explore It!; 227b, Lesson 4 Check – Questions 1-5; 237b, Chapter 5 Test – Question 10; 245e, Performance Expectation Activity; 245e, ELA/Literacy; 245e, Mathematics</li> <li><b>LS4.C: Adaptation</b> <ul style="list-style-type: none"> <li>For any particular environment, some kinds of organisms survive well, some survive less well, and some cannot survive at all. (3-LS4-3) <b>SE/TE:</b> 217, Ecosystem Change; 221, Seasonal Change; 228-229, Investigate It!; 237, Chapter Review – Lesson 4; 239, Science Careers; 240-243, Apply It!; 244, Germinating Seeds/Animals and Seasons <b>TE Only:</b> 196C, Adaptations; 196D, Plant Adaptations/Trees During the Seasons/Grasslands; 196G-196H, Leveled Content Reader Support; 229a-229d, Activity Card Support; 245b, Performance Expectation Activity; 245g, Performance Expectation Activity; 245g, ELA/Literacy</li> </ul> </li> </ul>	<p><b><i>Connections to Engineering, Technology, and Applications of Science</i></b></p> <p><b>Interdependence of Engineering, Technology, and Science on Society and the Natural World</b></p> <ul style="list-style-type: none"> <li>Knowledge of relevant scientific concepts and research findings is important in engineering. (3-LS4-4) <b>SE/TE:</b> 156-159, STEM Activity; 200-203, STEM Activity; 204, My Planet Diary; 216, Explore It!; 239, Science Careers; 342-345, STEM Activity; 346-349, Lesson 1 <b>TE Only:</b> xlvi-xlvii, STEMQuest; 156-157, Background; 204, 21<sup>st</sup> Century Learning; 209a, My Planet Diary; 223a, Explore It!;</li> </ul> <p>-----</p> <p><b><i>Connections to Nature of Science</i></b></p> <p><b>Scientific Knowledge Assumes an Order and Consistency in Natural Systems</b></p> <ul style="list-style-type: none"> <li>Science assumes consistent patterns in natural systems. (3-LS4-1) <b>SE/TE:</b> 225, Fossils; 226-227, What Fossils Show; 237, Chapter Review – Question 10; 238; Benchmark Practice – Question 6; 245, Matching Traits <b>TE Only:</b> 227, Differentiated Instruction; 237b, Chapter 5 Test – Question 10; 245e, Performance Expectation Activity</li> </ul>

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Next Generation Science Standards		Interactive Science, ©2016 Grade 3
Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
	<p><b>LS4.D: Biodiversity and Humans</b></p> <ul style="list-style-type: none"> <li>Populations live in a variety of habitats, and change in those habitats affects the organisms living there. (3-LS4-4)</li> </ul> <p><b>SE/TE:</b> 205, Places for Living Things; 208, Habitats; 209, At-Home Lab; 219, Do the Math; 220, Natural Events Cause Change; 222-223, Living Things Return; 238, Benchmark Practice – Question 3</p> <p><b>TE Only:</b> 156-157, Background; 196G-196H, Leveled Content Reader Support; 196, Professional Development Note; 237b, Chapter 5 Test – Question 9; 245h, Performance Expectation Activity; 245h, ELA/Literacy</p>	

**A Correlation of Interactive Science, ©2016, to the  
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Next Generation Science Standards	Interactive Science, ©2016 Grade 3	
<b>3. Inheritance and Variation of Traits: Life Cycles and Traits</b>		
Students who demonstrate understanding can:		
<p><b>3-LS1-1.</b> Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death. [Clarification Statement: Changes organisms go through during their life form a pattern.] [Assessment Boundary: Assessment of plant life cycles is limited to those of flowering plants. Assessment does not include details of human reproduction.] Chapters 3, 4, 5 Performance Expectation Activity, 245a</p> <p><b>3-LS3-1.</b> Analyze and interpret data to provide evidence that plants and animals have traits inherited from parents and that variation of these traits exists in a group of similar organisms. [Clarification Statement: Patterns are the similarities and differences in traits shared between offspring and their parents, or among siblings. Emphasis is on organisms other than humans.] [Assessment Boundary: Assessment does not include genetic mechanisms of inheritance and prediction of traits. Assessment is limited to non-human examples.] Chapter 3 and 4 Performance Expectation Activity, 245c</p> <p><b>3-LS3-2.</b> Use evidence to support the explanation that traits can be influenced by the environment. [Clarification Statement: Examples of the environment affecting a trait could include normally tall plants grown with insufficient water are stunted; and, a pet dog that is given too much food and little exercise may become overweight.] Chapter 4 Performance Expectation Activity, 245d</p> <p><b>3-LS4-2.</b> Use evidence to construct an explanation for how the variations in characteristics among individuals of the same species may provide advantages in surviving, finding mates, and reproducing. [Clarification Statement: Examples of cause and effect relationships could be plants that have larger thorns than other plants may be less likely to be eaten by predators; and, animals that have better camouflage coloration than other animals may be more likely to survive and therefore more likely to leave offspring.] Chapter 4 Performance Expectation Activity, 245b</p>	<p>Chapters 3, 4, 5 Performance Expectation Activity, 245a</p> <p>Chapter 3 and 4 Performance Expectation Activity, 245c</p> <p>Chapter 4 Performance Expectation Activity, 245d</p> <p>Chapter 4 Performance Expectation Activity, 245b</p>	
The performance expectations above were developed using the following elements from the NRC document <i>A Framework for K-12 Science Education</i> :		
Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p><b>Developing and Using Models</b> Modeling in 3–5 builds on K–2 experiences and progresses to building and revising simple models and using models to represent events and design solutions.</p> <ul style="list-style-type: none"> <li>Develop models to describe phenomena. (3-LS1-1)</li> </ul> <p><b>SE/TE:</b> 138, At-Home Lab; 245, Life Cycle Poster; 312, Models</p>	<p><b>LS1.B: Growth and Development of Organisms</b></p> <ul style="list-style-type: none"> <li>Reproduction is essential to the continued existence of every kind of organism. Plants and animals have unique and diverse life cycles. (3-LS1-1)</li> </ul> <p><b>SE/TE:</b> 128-133, Lesson 4; 134-139, Lesson 5; 176-183, Lesson 3; 193, Chapter Review – Lesson 3; 245, Life Cycle Poster</p>	<p><b>Patterns</b></p> <ul style="list-style-type: none"> <li>Similarities and differences in patterns can be used to sort and classify natural phenomena. (3-LS3-1)</li> </ul> <p><b>SE/TE:</b> 135, Science Careers; 154, Try It!; 161-167, Lesson 1; 170, At-Home Lab; 184-185, Investigate It!; 195, Science in Your Backyard, 245, Matching Traits</p> <p><b>TE Only:</b> 152, CCC: Patterns; 170, Differentiated Instruction; 176, Explore It!; 185c, Guided Inquiry; 245c, Performance Expectation Activity</p>

**A Correlation of Interactive Science, ©2016, to the  
Next Generation Science Standards**

Next Generation Science Standards	Interactive Science, ©2016 Grade 3	
Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p><b>TE Only:</b> 101, SEP: Developing and Using Models; 179, 21<sup>st</sup> Century Learning; 245a, Performance Expectation Activity; 245a, ELA/Literacy</p> <p><b>Analyzing and Interpreting Data</b> Analyzing data in 3–5 builds on K–2 experiences and progresses to introducing quantitative approaches to collecting data and conducting multiple trials of qualitative observations. When possible and feasible, digital tools should be used.</p> <ul style="list-style-type: none"> <li>Analyze and interpret data to make sense of phenomena using logical reasoning. (3-LS3-1)</li> </ul> <p><b>SE/TE:</b> 162, Science Notebook; 164; Lightning Lab; 170, At-Home Lab;</p> <p><b>TE Only:</b> 153, SEP: Analyzing and Interpreting Data; 175, 21<sup>st</sup> Century Learning; 245c, Performance Expectation Activity; 245c, ELA/Literacy</p> <p><b>Constructing Explanations and Designing Solutions</b> Constructing explanations and designing solutions in 3–5 builds on K–2 experiences and progresses to the use of evidence in constructing explanations that specify variables that describe and predict phenomena and in designing multiple solutions to design problems.</p>	<p><b>TE Only:</b> 133a, Explore It!; 133b, Lesson 4 Check – Questions 1-5; 139a, My Planet Diary; 139b, Lesson 5 Check – Questions 1-6; 152D, Animal Reproduction/Metamorphosis; 178, Differentiated Learning; 180, Professional Development Note; 183, Differentiated Learning; 183a, Explore It!; 183b, Lesson 3 Check – Questions 1-6; 245a, Performance Expectation Activity; 245a, ELA/Literacy</p> <p><b>LS3.A: Inheritance of Traits</b></p> <ul style="list-style-type: none"> <li>Many characteristics of organisms are inherited from their parents. (3-LS3-1)</li> </ul> <p><b>SE/TE:</b> 129, Reproduction; 168, My Planet Diary; 161-167, Lesson 1; 169, Both Alike and Different; 170, Inherited Characteristics; 172, Inherited Behavior; 192, Chapter Review – Question 6; 194, Benchmark Practice – Questions 2, 5; 245, Matching Traits</p> <p><b>TE Only:</b> 167b, Lesson 1 Check; 168, Professional Development Note; 172, 21<sup>st</sup> Century Learning; 175a, My Planet Diary; 175b, Lesson 2 Check – Question 3; 193a-193b, Chapter 4 Test; 245c, Performance Expectation Activity</p>	<ul style="list-style-type: none"> <li>Patterns of change can be used to make predictions. (3-LS1-1)</li> </ul> <p><b>SE/TE:</b> 102, Try It!; 104-107, STEM Activity; 133, Do the Math!; 136, Life Cycle of a Flowering Plant; 176, Explore It!; 176-183, Lesson; 186, STEM: Shark Tracking;</p> <p><b>TE Only:</b> 100, CCC: Patterns; 136, 21<sup>st</sup> Century Learning; 137, Science Notebook; 139, Professional Development Note; 176, Lab Support</p> <p><b>Cause and Effect</b></p> <ul style="list-style-type: none"> <li>Cause and effect relationships are routinely identified and used to explain change. (3-LS3-2), (3-LS4-2)</li> </ul> <p><b>SE/TE:</b> 116, Explore It!; 171, Acquired Characteristics; 174-175, Small Differences in Traits; 244, Animals and Seasons</p> <p><b>TE Only:</b> 121a, Explore!; 121b, Lesson 2 Check – Question 5; 171, Demonstrate/Decide; 171, Science Notebook; 174, Conclude/Execute; 174, Professional Development Note; 245b, Performance Expectation Activity; 245b, ELA/Literacy; 245d, ELA/Literacy</p>

**A Correlation of Interactive Science, ©2016, to the  
Next Generation Science Standards**

Next Generation Science Standards	Interactive Science, ©2016 Grade 3	
Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<ul style="list-style-type: none"> <li>Use evidence (e.g., observations, patterns) to support an explanation. (3-LS3-2) <b>SE/TE:</b> 102, Try It!; 106, Test the Prototype; 107, Communicate Results; 116, Explore It!; 176, Explore It!; 307, Interpret and Explain Data; 328, Observe Insect Behavior <b>TE Only:</b> 121a, Explore It!; 183a, Explore It!; 245b, Performance Expectation Activity; 245d, Performance Expectation Activity; 245g, Performance Expectation Activity; 245g, ELA/Literacy</li> <li>Use evidence (e.g., observations, patterns) to construct an explanation. (3-LS4-2) <b>SE/TE:</b> 107, Communicate Results; 120, At-Home Lab; 122, Explore It!; <b>TE Only:</b> 127a, Explore It!; 196E, At-Home Labs; 245d, Performance Expectation Activity; 245g, Performance Expectation Activity; 245g, ELA/Literacy</li> </ul> <p>-----</p> <p><b>Connections to Nature of Science</b></p> <p><b>Scientific Knowledge Is Based on Empirical Evidence</b></p> <ul style="list-style-type: none"> <li>Science findings are based on recognizing patterns. (3-LS1-1) <b>SE/TE:</b> 102, Try It!; 136, Life Cycle of a Flowering Plant; 137, Life Cycle of a Conifer Plant; 184-185, Investigate It! <b>TE Only:</b> 152, CCC: Patterns; 245a, Performance Expectation Activity</li> </ul>	<ul style="list-style-type: none"> <li>Other characteristics result from individuals' interactions with the environment, which can range from diet to learning. Many characteristics involve both inheritance and environment. (3-LS3-2) <b>SE/TE:</b> 171, Acquired Characteristics; 172, Inherited Behavior; 173, Learned Behavior; 175, Got It? – Question 12; 192, Chapter Review – Questions 5, 6 <b>TE Only:</b> 171, Science Notebook; 173, Science Notebook; 175b, Lesson 2 Check – Questions 4, 6; 182, Elaborate; 193a-193b, Chapter 4 Test – Questions 2, 7, 10; 245d, Performance Expectation Activity; 245d, ELA/Literacy</li> <li><b>LS3.B: Variation of Traits</b></li> <li>Different organisms vary in how they look and function because they have different inherited information. (3-LS3-1) <b>SE/TE:</b> 169, Both Alike and Different; 174-175, Small Differences in Traits <b>TE Only:</b> 174, Professional Development Note; 175, 21<sup>st</sup> Century Learning; 245c, Performance Expectation Activity; 245c, ELA/Literacy</li> <li>The environment also affects the traits that an organism develops. (3-LS3-2) <b>SE/TE:</b> 171, Acquired Characteristics; 173, Learned Behaviors; 245, Matching Traits <b>TE Only:</b> 245d, Performance Expectation Activity; 245d, ELA/Literacy</li> </ul>	

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Next Generation Science Standards		Interactive Science, ©2016 Grade 3
Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
	<p><b>LS4.B: Natural Selection</b></p> <ul style="list-style-type: none"> <li>Sometimes the differences in characteristics between individuals of the same species provide advantages in surviving, finding mates, and reproducing. (3-LS4-2)</li> </ul> <p><b>SE/TE:</b> 170, Inherited Characteristics; 171, Acquired Characteristics; 174-175, Small Differences in Traits</p> <p><b>TE Only:</b> 174, Science – Writing; 174, Professional Development Note; 175, 21<sup>st</sup> Century Learning; 245b, Performance Expectation Activity; 245c, Performance Expectation Activity</p>	



**A Correlation of Interactive Science, ©2016, to the  
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Next Generation Science Standards	Interactive Science, ©2016 Grade 3	
<b>3. Weather and Climate</b>		
Students who demonstrate understanding can:		
<p><b>3-ESS2-1. Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season.</b> [Clarification Statement: Examples of data could include average temperature, precipitation, and wind direction.] [Assessment Boundary: Assessment of graphical displays is limited to pictographs and bar graphs. Assessment does not include climate change.] Chapter 6 Performance Expectation Activity, 289a</p>		
<p><b>3-ESS2-2. Obtain and combine information to describe climates in different regions of the world.</b> Chapter 6 Performance Expectation Activity, 289b</p>		
<p><b>3-ESS3-1. Make a claim about the merit of a design solution that reduces the impacts of a weather-related hazard.*</b> [Clarification Statement: Examples of design solutions to weather-related hazards could include barriers to prevent flooding, wind resistant roofs, and lightning rods.] Chapter 6 Performance Expectation Activity, 289c</p>		
The performance expectations above were developed using the following elements from the NRC document <i>A Framework for K-12 Science Education</i> :		
Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p><b>Analyzing and Interpreting Data</b> Analyzing data in 3–5 builds on K–2 experiences and progresses to introducing quantitative approaches to collecting data and conducting multiple trials of qualitative observations. When possible and feasible, digital tools should be used.</p> <ul style="list-style-type: none"> <li>Represent data in tables and various graphical displays (bar graphs and pictographs) to reveal patterns that indicate relationships. (3-ESS2-1) <b>SE/TE:</b> 258, Explore It!; 268, Lightning Lab; 276-277, Investigate It!; 289, Measure Rainfall; 306, Do the Math <b>TE Only:</b> 247, SEP: Analyzing and Interpreting Data; 265a, Explore It!; 277a-277d, Activity Card Support; 289a, Performance Expectation Activity; 289a, Mathematics; 319a, Explore It!</li> </ul>	<p><b>ESS2.D: Weather and Climate</b></p> <ul style="list-style-type: none"> <li>Scientists record patterns of the weather across different times and areas so that they can make predictions about what kind of weather might happen next. (3-ESS2-1) <b>SE/TE:</b> 258, Explore It!; 259, Weather; 260-261, Climate; 266-269, Lesson 3; 282, Chapter Review – Lesson; 283, Chapter Review – Lesson 3; 284, Benchmark Practice – Question 2; 289, Measure Rainfall; 303, Science Skills; 307, Interpret and Explain Data <b>TE Only:</b> 246G-246H, Leveled Content Reader Support; 246, Predict; 265a, Explore It!; 265b, Lesson 2 Check – Questions 1, 4; 269a, Explore It!; 269b, Lesson 3 Check – Questions 3, 4; 283a, Chapter 6 Test – Question 4; 283b, Chapter 6 Test – Question 10</li> </ul>	<p><b>Patterns</b></p> <ul style="list-style-type: none"> <li>Patterns of change can be used to make predictions. (3-ESS2-1),(3-ESS2-2) <b>SE/TE:</b> 248, Try It!; 258, Explore It!; 269, Predict; 283, Chapter Review – Lesson 3 <b>TE Only:</b> 246D, Under Pressure; 246G-246H, Leveled Content Reader Support; 246, CCC: Patterns; 265a, Explore It!; 269, Science Notebook; 289a, Performance Expectation Activity; 289b, Performance Expectation Activity</li> </ul> <p><b>Cause and Effect</b></p> <ul style="list-style-type: none"> <li>Cause and effect relationships are routinely identified, tested, and used to explain change. (3-ESS3-1) <b>SE/TE:</b> 248, Try It!; 250-253, STEM Activity; 256-257, Water Cycle; 262-263, Factors That Affect Climate; 288, Make a Booklet <b>TE only:</b> 246C, The Water Cycle; 246, Lab Support; 265b, Lesson 2 Check – Question 5</li> </ul>

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Next Generation Science Standards	Interactive Science, ©2016 Grade 3	
Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p><b>Engaging in Argument from Evidence</b> Engaging in argument from evidence in 3–5 builds on K–2 experiences and progresses to critiquing the scientific explanations or solutions proposed by peers by citing relevant evidence about the natural and designed world (s).</p> <ul style="list-style-type: none"> <li>Make a claim about the merit of a solution to a problem by citing relevant evidence about how it meets the criteria and constraints of the problem. (3-ESS3-1)</li> </ul> <p><b>SE/TE:</b> 250-253, STEM Activity; 361, Evaluate and Redesign; 362-363, Investigate It!</p> <p><b>TE Only:</b> 289c, Performance Expectation Activity; 289c, ELA/Literacy; 363a-363d, Activity Card Support</p> <p><b>Obtaining, Evaluating, and Communicating Information</b> Obtaining, evaluating, and communicating information in 3–5 builds on K–2 experiences and progresses to evaluating the merit and accuracy of ideas and methods.</p> <ul style="list-style-type: none"> <li>Obtain and combine information from books and other reliable media to explain phenomena. (3-ESS2-2)</li> </ul> <p><b>SE/TE:</b> 250-253, STEM Activity; 358, Do Research</p> <p><b>TE Only:</b> 254, 21<sup>st</sup> Century Learning; 261, 21<sup>st</sup> Century Learning; 262, Differentiated Instruction – Advanced; 289a, Performance Expectation Activity; 289b, Performance Expectation Activity; 289b, ELA/Literacy; 289c, Performance Expectation Activity; 289c, ELA/Literacy</p>	<ul style="list-style-type: none"> <li>Climate describes a range of an area's typical weather conditions and the extent to which those conditions vary over years. (3-ESS2-2)</li> </ul> <p><b>SE/TE:</b> 254, My Planet Diary; 260-261, Climate; 262-263, Factors That Affect Climate; 264-265, Seasonal Weather Patterns; Chapter Review – Lesson 2; 284, Benchmark Practice – Questions 1, 3</p> <p><b>TE Only:</b> 246D, Climate Classification/Did You Know? (CloudSat); 246G-246H, Leveled Content Reader Support; 260, Professional Development Note; 261, Science Notebook; 265b, Lesson 2 Check – Questions 2, 3; 283a, Chapter 6 Test – Question 3; 283b, Chapter 6 Test – Questions 3, 9; 289b, Performance Expectation Activity</p> <p><b>ESS3.B: Natural Hazards</b></p> <ul style="list-style-type: none"> <li>A variety of natural hazards result from natural processes. Humans cannot eliminate natural hazards but can take steps to reduce their impacts. (3-ESS3-1) (<i>Note: This Disciplinary Core Idea is also addressed by 4-ESS3-2.</i>)</li> </ul> <p><b>SE/TE:</b> 249, Let's Read Science; 250-253, STEM Activity; 270-275, Lesson 4; 283, Chapter Review – Lesson 4; 284, Benchmark Practice – Question 6; 288, Make a Poster; 303, Science Skills; 307, Interpret and Explain Data</p> <p><b>TE Only:</b> 246G-246H, Leveled Content Reader Support; 250, Background; 275a, Explore It!; 275b, Lesson 4 Check – Questions 1-6; 283a, Chapter 6 Test – Question 5; 289c, Performance Expectation Activity</p>	<p><b>Connections to Engineering, Technology, and Applications of Science</b></p> <p><b>Influence of Engineering, Technology, and Science on Society and the Natural World</b></p> <ul style="list-style-type: none"> <li>Engineers improve existing technologies or develop new ones to increase their benefits (e.g., better artificial limbs), decrease known risks (e.g., seatbelts in cars), and meet societal demands (e.g., cell phones). (3-ESS3-1)</li> </ul> <p><b>SE/TE:</b> 250-253, STEM Activity; 278, Science Careers; 285, Big World, My World; 346-349, Lesson 1; 359, 356-361, Lesson 3</p> <p><b>TE Only:</b> 254, 21<sup>st</sup> Century Learning; 338: CCC: Influence of Engineering, Technology, and Science on Society and the Natural World</p> <p>-----</p> <p><b>Connections to Nature of Science</b></p> <p><b>Science Is a Human Endeavor</b></p> <ul style="list-style-type: none"> <li>Science affects everyday life. (3-ESS3-1)</li> </ul> <p><b>SE/TE:</b> 288, Make a Poster/Make a Booklet; 346-349, Lesson 1</p> <p><b>TE Only:</b> 246G-246H, Leveled Content Reader Support; 338: CCC: Influence of Engineering, Technology, and Science on Society and the Natural World</p>

**A Correlation of Interactive Science, ©2016, to the  
Next Generation Science Standards**

Next Generation Science Standards	Interactive Science, ©2016 Grade 4	
<b>Grade 4</b>		
<b>4. Energy</b>		
Students who demonstrate understanding can:		
<p><b>4-PS3-1. Use evidence to construct an explanation relating the speed of an object to the energy of that object.</b> <i>[Assessment Boundary: Assessment does not include quantitative measures of changes in the speed of an object or on any precise or quantitative definition of energy.]</i> Chapters 1 and 2 Performance Expectation Activity, 111a</p> <p><b>4-PS3-2. Make observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electric currents.</b> <i>[Assessment Boundary: Assessment does not include quantitative measurements of energy.]</i> Chapters 1 and 3 Performance Expectation Activity, 111b</p> <p><b>4-PS3-3. Ask questions and predict outcomes about the changes in energy that occur when objects collide.</b> <i>[Clarification Statement: Emphasis is on the change in the energy due to the change in speed, not on the forces, as objects interact.] [Assessment Boundary: Assessment does not include quantitative measurements of energy.]</i> Chapters 1 and 2 Performance Expectation Activity, 111c</p> <p><b>4-PS3-4. Apply scientific ideas to design, test, and refine a device that converts energy from one form to another.*</b> <i>[Clarification Statement: Examples of devices could include electric circuits that convert electrical energy into motion energy of a vehicle, light, or sound; and, a passive solar heater that converts light into heat. Examples of constraints could include the materials, cost, or time to design the device.] [Assessment Boundary: Devices should be limited to those that convert motion energy to electric energy or use stored energy to cause motion or produce light or sound.]</i> Chapters 1, 3, 4 Performance Expectation Activity, 111d</p> <p><b>4-ESS3-1. Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment.</b> <i>[Clarification Statement: Examples of renewable energy resources could include wind energy, water behind dams, and sunlight; non-renewable energy resources are fossil fuels and fissile materials. Examples of environmental effects could include loss of habitat due to dams, loss of habitat due to surface mining, and air pollution from burning of fossil fuels.]</i> Chapter 5 Performance Expectation Activity, 229d</p>		
The performance expectations above were developed using the following elements from the NRC document <i>A Framework for K-12 Science Education</i> :		
Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p><b>Asking Questions and Defining Problems</b> Asking questions and defining problems in grades 3–5 builds on grades K–2 experiences and progresses to specifying qualitative relationships.</p> <ul style="list-style-type: none"> <li>Ask questions that can be investigated and predict reasonable outcomes based on patterns such as cause and effect relationships. (4-PS3-3)</li> </ul>	<p><b>PS3.A: Definitions of Energy</b></p> <ul style="list-style-type: none"> <li>The faster a given object is moving, the more energy it possesses. (4-PS3-1)</li> </ul> <p><b>SE/TE:</b> 10-11, Forms of Energy; 30, A Conduction Example; 31, Convection/Radiation; 62, Explore It! 63, Speed; 64, At-Home Lab; 75, Chapter Review, Lesson 2; Benchmark Practice-Question 3; 77, Go Green!</p>	<p><b>Cause and Effect</b></p> <ul style="list-style-type: none"> <li>Cause and effect relationships are routinely identified and used to explain change. (4-ESS3-1)</li> </ul> <p><b>SE/TE:</b> 87, Electric Charges; 81, Let’s Read Science; 88, Cause and Effect; 91, Got It? – Question 11</p>

**A Correlation of Interactive Science, ©2016, to the  
Next Generation Science Standards**

Next Generation Science Standards	Interactive Science, ©2016 Grade 4	
Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p><b>SE/TE:</b> 59, Lightning Lab; 110, Height and Potential Energy; 316-317, A Bouncing-Ball Experiment; 328, Go Further</p> <p><b>TE Only:</b> 47, SEP: Asking Questions and Defining Problems; 111c, Performance Expectation Activity; 328, 21<sup>st</sup> Century Learning</p> <p><b>Planning and Carrying Out Investigations</b> Planning and carrying out investigations to answer questions or test solutions to problems in 3–5 builds on K–2 experiences and progresses to include investigations that control variables and provide evidence to support explanations or design solutions.</p> <ul style="list-style-type: none"> <li>Make observations to produce data to serve as the basis for evidence for an explanation of a phenomenon or test a design solution. (4-PS3-2)</li> </ul> <p><b>SE/TE:</b> 2, Try It!; 28, Explore It!; 34-35, Investigate It!; 68-69, Investigate It!; 80, Try It!; 106-109, Apply It!; 110, Height and Potential Energy; 194, Explore It!</p> <p><b>TE Only:</b> 1, SEP: Planning and Carrying Out Investigations; 33a, Explore It!; 67a, Explore It!; 78C, Electrical Charges and Interactions; 111a, Performance Expectation Activity; 111c, Performance Expectation Activity; 199a, Explore It!</p>	<p><b>TE Only:</b> 1G-1H, Leveled Content Reader Support; 8, Professional Development Note; 30, Professional Development Note; 67a, Explore It! 111a, Performance Expectation Activity; 111a, ELA/Literacy</p> <ul style="list-style-type: none"> <li>Energy can be moved from place to place by moving objects or through sound, light, or electric currents. (4-PS3-2),(4-PS3-3)</li> </ul> <p><b>SE/TE:</b> 14-15, Energy and Motion/Forms of Potential Energy; 16, My Planet Diary; 17, Sound Energy; 18, How Sounds Travels; 24, Light Waves We See; 26-27, Light and Matter; 36, Science in Your Backyard; 80, Try It!; 88, How Electric Charges Flow; 90-91, Circuits; 92-95, Lesson 2; 102, Chapter Review – Lesson 1; 103, Chapter Review – Lesson 2; 104, Benchmark Practice – Question 3</p> <p><b>TE Only:</b> 1G-1H, Leveled Content Reader Support; 91b, Lesson 1 Check – Questions 1, 6; 95a, Explore It!; 95b, Lesson 2 Check – Questions 1-6; 103a, Chapter 3 Test – Questions 3, 4; 103b, Chapter 3 Test – Questions 9, 10; 111b, Performance Expectation Activity; 111b, ELA/Literacy; 111e, Performance Expectation Activity</p>	<p><b>TE Only:</b> 11, Science Writing; 78, CCC: Energy and Matter; 93, ELL Support; 111e, Performance Expectation Activity; 111e, ELA/Literacy</p> <p><b>Energy and Matter</b></p> <ul style="list-style-type: none"> <li>Energy can be transferred in various ways and between objects. (4-PS3-1),(4-PS3-2),(4-PS3-3),(4-PS3-4)</li> </ul> <p><b>SE/TE:</b> 16, My Planet Diary; 17, Sound Energy; 18, How Sounds Travels; 24, Light Waves We See; 27, Absorption; 28-34, Lesson 4; 34-35, Investigate It!; 36, Science in Your Backyard; 42-43, Chapter Review – Lessons 2 and 4; 44, Benchmark Practice – Question 5; 59, Lightning Lab; 80, Try It!; 81, Let’s Read Science; 82-85, STEM Activity; 86-91, Lesson 1; 92-95, Lesson 2; 103, Chapter Review, Lesson 2; 104, Benchmark Practice – Question 5; 111, Design a Device</p> <p><b>TE Only:</b> 11, CCC: Energy and Matter; 33a, Explore It!; 33b, Lesson 1 Check – Questions 1-6; 35a-35d, Activity Card Support; 43a-43b, Chapter 1 Test – Questions 7-10; 46, CCC: Energy and Matter; 78, CCC: Energy and Matter; 95a, Explore It!; 95b, Lesson 2 Check – Questions 1-6; 97b, Investigate It!; 103a, Chapter 3 Test – Questions 1, 3, 5; 103b, Chapter 3 Test – Questions 9, 10; 111b, Performance Expectation Activity; 111b, ELA/Literacy; 111d, Performance Expectation Activity</p> <p>-----</p>

**A Correlation of Interactive Science, ©2016, to the  
Next Generation Science Standards**

Next Generation Science Standards	Interactive Science, ©2016 Grade 4	
Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p><b>Constructing Explanations and Designing Solutions</b> Constructing explanations and designing solutions in 3–5 builds on K–2 experiences and progresses to the use of evidence in constructing explanations that specify variables that describe and predict phenomena and in designing multiple solutions to design problems.</p> <ul style="list-style-type: none"> <li>Use evidence (e.g., measurements, observations, patterns) to construct an explanation. (4-PS3-1)</li> </ul> <p><b>SE/TE:</b> 36, Science in Your Backyard; 48, Try It!; 62, Explore It!; 64, At-Home Lab; 68-69, Investigate It <b>TE Only:</b> 46D, The Force of Seatbelts and Airbags; 67a, Explore It!; 79, SEP: Construction Explanations and Designing Solutions; 111a, Performance Expectation Activity</p> <ul style="list-style-type: none"> <li>Apply scientific ideas to solve design problems. (4-PS3-4)</li> </ul> <p><b>SE/TE:</b> 4-7, STEM Activity; 50-53, STEM Activity; 96-97, Investigate It!; 344, Try It! <b>TE Only:</b> 35b, Investigate It!; 97a-97d, Activity Card Support; 79, SEP: Construction Explanations and Designing Solutions; 111d, Performance Expectation Activity</p>	<p><b>PS3.B: Conservation of Energy and Energy Transfer</b></p> <ul style="list-style-type: none"> <li>Energy is present whenever there are moving objects, sound, light, or heat. When objects collide, energy can be transferred from one object to another, thereby changing their motion. In such collisions, some energy is typically also transferred to the surrounding air; as a result, the air gets heated and sound is produced. (4-PS3-2), (4-PS3-3)</li> </ul> <p><b>SE/TE:</b> 2, Try It!; 9, Energy; 10-11, Forms of Energy; 12-13, Where is the Energy?; 14, Energy and Motion; 17, Sound Energy, 24, Light Waves We See; 29, Conduction; 30, At-Home Lab; 31, Convection/Radiation; 44, Benchmark Practice – Question 1; 58, Forces Affect Objects; 59, Force and Motion; 59, Lightning Lab; 82-85, STEM Activity; 110, Height and Potential Energy <b>TE Only:</b> 1C-1D, Teacher Background; 1G-1H, Leveled Content Reader Support; 15b, Lesson 1 Check – Question 5; 43a, Chapter 1 Test – Question 1; 43b, Chapter 1 Test – Question 7; 111b, Performance Expectation Activity; 111b, ELA/Literacy; 111c, Performance Expectation Activity; 111c, ELA/Literacy</p>	<p><i>Connections to Engineering, Technology, and Applications of Science</i></p> <p><b>Interdependence of Science, Engineering, and Technology</b></p> <ul style="list-style-type: none"> <li>Knowledge of relevant scientific concepts and research findings is important in engineering. (4-ESS3-1)</li> </ul> <p><b>SE/TE:</b> 45, Field Trip; 82-85, STEM Activity; 350-355, Lesson 1; 358, Step2: Do Research <b>TE Only:</b> 13, 21<sup>st</sup> Century Learning; 32, 21<sup>st</sup> Century Learning; 71, 21<sup>st</sup> Century Learning; 94, 21<sup>st</sup> Century Learning; 296G-296H, Leveled Content Reader Support; 342C, Science and Technology</p> <p><b>Influence of Engineering, Technology, and Science on Society and the Natural World</b></p> <ul style="list-style-type: none"> <li>Over time, people’s needs and wants change, as do their demands for new and improved technologies. (4-ESS3-1)</li> </ul> <p><b>SE/TE:</b> 45, Field Trip; 350-355, Lesson 1 <b>TE Only:</b> 296, CCC: Influence of Engineering, Technology, and Science on Society and the Natural World; 342G-342H, Leveled Content Reader Support; 355a, My Planet Diary; 355b, Lesson 1 Check – Questions 1-6</p>

**A Correlation of Interactive Science, ©2016, to the  
Next Generation Science Standards**

Next Generation Science Standards	Interactive Science, ©2016 Grade 4	
Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p><b>Obtaining, Evaluating, and Communicating Information</b> Obtaining, evaluating, and communicating information in 3–5 builds on K–2 experiences and progresses to evaluate the merit and accuracy of ideas and methods.</p> <ul style="list-style-type: none"> <li>Obtain and combine information from books and other reliable media to explain phenomena. (4-ESS3-1)</li> </ul> <p><b>SE/TE:</b> 45, Field Trip; 300-303, Do Research; 357, Design Process; 358, Step 2: Do Research</p> <p><b>TE Only:</b> 13, 21<sup>st</sup> Century Learning; 27, 21<sup>st</sup> Century Learning; 32, 21<sup>st</sup> Century Learning; 93, Science – Social Studies; 111b, ELA/Literacy; 111c, Performance Expectation Activity; 111d, Performance Expectation Activity; 111d, ELA/Literacy; 196, 21<sup>st</sup> Century Learning; 229d, Performance Expectation Activity; 229d, ELA/Literacy</p>	<ul style="list-style-type: none"> <li>Light also transfers energy from place to place. (4-PS3-2) <b>SE/TE:</b> 11, Light Energy; 22-27, Lesson 3; 93, Energy Changing Form; 94, Light from Electricity; 103, Chapter Review – Do the Math <b>TE Only:</b> 1C, Teacher Background; 1G-1H, Leveled Content Reader Support; 27b, Lesson 3 Check – Question 5; 95b, Lesson 2 Check – Question 1; 111b, Performance Expectation Activity; 111b, Mathematics</li> <li>Energy can also be transferred from place to place by electric currents, which can then be used locally to produce motion, sound, heat, or light. The currents may have been produced to begin with by transforming the energy of motion into electrical energy. (4-PS3-2),(4-PS3-4) <b>SE/TE:</b> 10, Electrical Energy; 88-89, How Electric Charges Flow; 90-91, Circuits; 92-95, Lesson 2; 98, Science Careers; 102, Chapter Review – Lesson 1; 103, Chapter Review – Lesson 2; 104, Benchmark Practice – Question 5 <b>TE Only:</b> 1G-1H, Leveled Content Reader Support; 78D, Transformer Basics; 91b, Lesson 1 Check – Questions 2, 4, 6; 95a, Explore It!; 95b, Lesson 2 Check – Questions 1-6; 103b, Chapter 3 Test – Question 10; 111b, Performance Expectation Activity; 111b, ELA/Literacy; 111e, Performance Expectation Activity</li> </ul>	<ul style="list-style-type: none"> <li>Engineers improve existing technologies or develop new ones. (4-PS3-4) <b>SE/TE:</b> 8, My Planet Diary; 45, Field Trip; 70, Smart Plane; 111, Design a Device; 350-355, Lesson 1; 356-363, Lesson 2; 370, Chapter Review – Lesson 1 <b>TE Only:</b> 296, CCC: Influence of Engineering, Technology, and Science on Society and the Natural World; 342G-342H, Leveled Content Reader Support; 355a, My Planet Diary; 355b, Lesson 1 Check – Questions 1-6</li> </ul> <p align="center">-----</p> <p><b>Connections to Nature of Science</b></p> <p><b>Science Is a Human Endeavor</b></p> <ul style="list-style-type: none"> <li>Most scientists and engineers work in teams. (4-PS3-4) <b>SE/TE:</b> 298, Try It!; 338, Chapter Review – Lesson 1; 362, Step 7: Communicate Results; 366, STEM <b>TE Only:</b> 307b, Lesson 1 Check – Question 5</li> <li>Science affects everyday life. (4-PS3-4) <b>SE/TE:</b> 8, My Planet Diary; 10-11, Where is the energy?; 32, Changes of Other Energy to Heat; 45, Field Trip; 88, Lightning Lab; 94, Light from Electricity; 95, Heat from Electricity; 98, Science Careers; 105, Go Green!; 110, Cooking Up Science; 350-355, Lesson 1; 370, Chapter Review – Lesson 1 <b>TE Only:</b> 13, 21<sup>st</sup> Century Learning; 15a, My Planet Diary; 32, 21<sup>st</sup> Century Learning; 60, Science Notebook; 342G-342H, Leveled Content Reader Support</li> </ul>

**A Correlation of Interactive Science, ©2016, to the  
Next Generation Science Standards**

Next Generation Science Standards	Interactive Science, ©2016 Grade 4	
Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
	<p><b>PS3.C: Relationship Between Energy and Forces</b></p> <ul style="list-style-type: none"> <li>When objects collide, the contact forces transfer energy so as to change the objects' motions. (4-PS3-3)</li> </ul> <p><b>SE/TE:</b> 17, Sound Energy; 58, Forces Affect Objects; 59, Force and Motion; 59, Lightning Lab; 110, Height and Potential Energy</p> <p><b>TE Only:</b> 111c, Performance Expectation Activity; 111c, ELA/Literacy</p> <p><b>PS3.D: Energy in Chemical Processes and Everyday Life</b></p> <ul style="list-style-type: none"> <li>The expression "produce energy" typically refers to the conversion of stored energy into a desired form for practical use. (4-PS3-4)</li> </ul> <p><b>SE/TE:</b> 9, Energy; 10-11, Forms of Energy; 14-15, Forms of Potential Energy; 42, Chapter Review – Lesson 1</p> <p><b>TE Only:</b> 15b, Lesson 1 Check – Questions 1-4, 6</p> <p><b>ESS3.A: Natural Resources</b></p> <ul style="list-style-type: none"> <li>Energy and fuels that humans use are derived from natural sources, and their use affects the environment in multiple ways. Some resources are renewable over time, and others are not. (4-ESS3-1)</li> </ul> <p><b>SE/TE:</b> 13, Go Green; 45, Field Trip; 194-199, Lesson 3; 211, Fossil Fuels; 220, Chapter Review – Lesson 3; 222, Benchmark Practice</p>	

**A Correlation of Interactive Science, ©2016, to the  
Next Generation Science Standards**

Next Generation Science Standards		Interactive Science, ©2016 Grade 4
Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
	<p><b>TE Only:</b> 4, Background; 77, Build Enduring Understanding; 197, Professional Development Note; 199, Professional Development Note; 199a, Explore It!; 199b, Lesson 3 Check – Questions 1-6; 221a, Chapter 5 Test – Question 5; 221b, Chapter 5 Test – Questions 7, 9; 229d, Performance Expectation Activity; 230D, Harnessing Solar Energy; 230G-230H, Leveled Content Reader Support</p> <p><b>ETS1.A: Defining Engineering Problems</b></p> <ul style="list-style-type: none"> <li>Possible solutions to a problem are limited by available materials and resources (constraints). The success of a designed solution is determined by considering the desired features of a solution (criteria). Different proposals for solutions can be compared on the basis of how well each one meets the specified criteria for success or how well each takes the constraints into account. <i>(secondary to 4-PS3-4)</i></li> </ul> <p><b>SE/TE:</b> 4-7, STEM Activity; 32, Changes of Other Energy to Heat; 50-53, STEM Activity; 96-97, Investigate It!; 111, Design a Device; 344, Try It!; 356-363, Design Process</p> <p><b>TE only:</b> 97a-97d, Activity Card Support</p>	



**A Correlation of Interactive Science, ©2016, to the  
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Next Generation Science Standards	Interactive Science, ©2016 Grade 4	
<b>4. Waves</b>		
Students who demonstrate understanding can:		
<p><b>4-PS4-1. Develop a model of waves to describe patterns in terms of amplitude and wavelength and that waves can cause objects to move.</b> [Clarification Statement: Examples of models could include diagrams, analogies, and physical models using wire to illustrate wavelength and amplitude of waves.] [Assessment Boundary: Assessment does not include interference effects, electromagnetic waves, non-periodic waves, or quantitative models of amplitude and wavelength.] Chapter 1 Performance Expectation Activity, 111e</p> <p><b>4-PS4-3. Generate and compare multiple solutions that use patterns to transfer information.*</b> [Clarification Statement: Examples of solutions could include drums sending coded information through sound waves, using a grid of 1's and 0's representing black and white to send information about a picture, and using Morse code to send text.] Chapter 1 Performance Expectation Activity, 111f</p>		
The performance expectations above were developed using the following elements from the NRC document <i>A Framework for K-12 Science Education</i> :		
Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p><b>Developing and Using Models</b> Modeling in 3–5 builds on K–2 experiences and progresses to building and revising simple models and using models to represent events and design solutions.</p> <ul style="list-style-type: none"> <li>Develop a model using an analogy, example, or abstract representation to describe a scientific principle. (4-PS4-1)</li> </ul> <p><b>SE/TE:</b> 20, Lightning Lab; 320, Models <b>TE Only:</b> 111e, Performance Expectation Activity</p>	<p><b>PS4.A: Wave Properties</b></p> <ul style="list-style-type: none"> <li>Waves, which are regular patterns of motion, can be made in water by disturbing the surface. When waves move across the surface of deep water, the water goes up and down in place; there is no net motion in the direction of the wave except when the water meets a beach. (<i>Note: This grade band endpoint was moved from K–2.</i>) (4-PS4-1)</li> </ul> <p><b>SE/TE:</b> 18, How Sound Travels; 19, Frequency and Wavelength; 269, Ocean and Seas <b>TE Only:</b> 1G-1H, Leveled Content Reader Support; 18, Professional Development Note</p>	<p><b>Patterns</b></p> <ul style="list-style-type: none"> <li>Similarities and differences in patterns can be used to sort, classify, and analyze simple rates of change for natural phenomena. (4-PS4-1) <b>SE/TE:</b> 16-21, Lesson 1; 20, Lightning Lab <b>TE Only:</b> 1C, The Speed of Sound; 1G, Leveled Content Reader Support; 111e, Performance Expectation Activity; 111f, Performance Expectation Activity</li> <li>Similarities and differences in patterns can be used to sort and classify designed products. (4-PS4-3) <b>SE/TE:</b> 359, Step3: Develop Possible Solutions; 362, Step7: Communicate Results <b>TE Only:</b> 111f, Performance Expectation Activity</li> </ul> <p>-----</p>

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Next Generation Science Standards**

Next Generation Science Standards	Interactive Science, ©2016 Grade 4	
Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p><b>Constructing Explanations and Designing Solutions</b> Constructing explanations and designing solutions in 3–5 builds on K–2 experiences and progresses to the use of evidence in constructing explanations that specify variables that describe and predict phenomena and in designing multiple solutions to design problems.</p> <ul style="list-style-type: none"> <li>Generate and compare multiple solutions to a problem based on how well they meet the criteria and constraints of the design solution. (4-PS4-3)</li> </ul> <p><b>SE/TE:</b> 359, Step3: Develop Possible Solutions; 362, Step7: Communicate Results <b>TE Only:</b> 111f, Performance Expectation Activity; 343, SEP: Constructing Explanations and Designing Solutions</p> <p>-----</p> <p><b>Connections to Nature of Science</b></p> <p><b>Scientific Knowledge Is Based on Empirical Evidence</b></p> <ul style="list-style-type: none"> <li>Science findings are based on recognizing patterns. (4-PS4-1)</li> </ul> <p><b>SE/TE:</b> 18, How Sound Travels; 19, Frequency and Wavelength; 319, Observations and Evidence <b>TE Only:</b> 111e, Performance Expectation Activity; 111f, Performance Expectation Activity</p>	<ul style="list-style-type: none"> <li>Waves of the same type can differ in amplitude (height of the wave) and wavelength (spacing between wave peaks). (4-PS4-1)</li> </ul> <p><b>SE/TE:</b> 18, How Sound Travels; 19, Frequency and Wavelength; 20-21, Frequency/Volume; 36, Science in Your Backyard <b>TE Only:</b> 19, Common Misconception; 19, Science Notebook; 21b, Lesson 2 Check – Questions 1, 4; 111e, Performance Expectation Activity</p> <p><b>PS4.C: Information Technologies and Instrumentation</b></p> <ul style="list-style-type: none"> <li>Digitized information can be transmitted over long distances without significant degradation. High-tech devices, such as computers or cell phones, can receive and decode information—convert it from digitized form to voice—and vice versa. (4-PS4-3)</li> </ul> <p><b>SE/TE:</b> 10-11, Forms of Energy; 93, Energy Changing Form; 96-97, Investigate It!; 350-351, Envision It!; 351, Scientific Discoveries; 353, Today’s transportation systems...; 354-355, Everyday Technologies <b>TE Only:</b> 1G-1H Leveled Content Reader Support; 97a-97d, Activity Card Support; 296G-296H, Leveled Content Reader Support; 342G-342H, Leveled Content Reader Support; 355b, Lesson 1 Check – Question 2</p>	<p><b>Connections to Engineering, Technology, and Applications of Science</b></p> <p><b>Interdependence of Science, Engineering, and Technology</b></p> <ul style="list-style-type: none"> <li>Knowledge of relevant scientific concepts and research findings is important in engineering. (4-PS4-3)</li> </ul> <p><b>SE/TE:</b> 16, My Planet Diary; 350-355, Lesson 1; 358, Step 2: Do Research <b>TE Only:</b> 21a, My Planet Diary; 296G-296H, Leveled Content Reader Support; 342C, Science and Technology</p>

**A Correlation of Interactive Science, ©2016, to the  
Next Generation Science Standards**

Next Generation Science Standards	Interactive Science, ©2016 Grade 4	
Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
	<p><b>ETS1.C: Optimizing the Design Solution</b></p> <ul style="list-style-type: none"> <li>Different solutions need to be tested in order to determine which of them best solves the problem, given the criteria and the constraints. (<i>secondary to 4-PS4-3</i>)</li> </ul> <p><b>SE/TE:</b> 356-363, Lesson 2  <b>TE Only:</b> 111f, Performance Expectation Activity; 343, SEP: Constructing Explanations and Designing Solutions</p>	

**A Correlation of Interactive Science, ©2016, to the  
Next Generation Science Standards**

Next Generation Science Standards	Interactive Science, ©2016 Grade 4	
<b>4. Structure, Function, and Information Processing</b>		
Students who demonstrate understanding can:		
<p><b>4-PS4-2. Develop a model to describe that light reflecting from objects and entering the eye allows objects to be seen.</b> <i>[Assessment Boundary: Assessment does not include knowledge of specific colors reflected and seen, the cellular mechanisms of vision, or how the retina works.]</i></p> <p>Chapter 1 Performance Expectation Activity, 111g</p> <p><b>4-LS1-1. Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.</b> <i>[Clarification Statement: Examples of structures could include thorns, stems, roots, colored petals, heart, stomach, lung, brain, and skin.] [Assessment Boundary: Assessment is limited to macroscopic structures within plant and animal systems.]</i></p> <p>Chapter 4 Performance Expectation Activity, 229a</p> <p><b>4-LS1-2. Use a model to describe that animals receive different types of information through their senses, process the information in their brain, and respond to the information in different ways.</b> <i>[Clarification Statement: Emphasis is on systems of information transfer.] [Assessment Boundary: Assessment does not include the mechanisms by which the brain stores and recalls information or the mechanisms of how sensory receptors function.]</i></p> <p>Chapter 4 Performance Expectation Activity, 229b</p>		
The performance expectations above were developed using the following elements from the NRC document <i>A Framework for K-12 Science Education</i> :		
Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p><b>Developing and Using Models</b></p> <p>Modeling in 3–5 builds on K–2 experiences and progresses to building and revising simple models and using models to represent events and design solutions.</p> <ul style="list-style-type: none"> <li>Develop a model to describe phenomena. (4-PS4-2)</li> </ul> <p><b>SE/TE:</b> 22, Explore It!; 22a111, Design a Device; <b>TE Only:</b> 111g, Performance Expectation Activity; 111g, ELA/Literacy;</p>	<p><b>PS4.B: Electromagnetic Radiation</b></p> <ul style="list-style-type: none"> <li>An object can be seen when light reflected from its surface enters the eyes. (4-PS4-2)</li> </ul> <p><b>SE/TE:</b> 22, Explore It!; 26-27, Light and Matter; 43, Chapter Review – Lesson 3; 308, Explore It!</p> <p><b>TE Only:</b> 1G-1H, Leveled Content Reader Support; 23, Build Background; 26, Science – Writing; 26, Common Misconception; 27a, Explore It!; 27b, Lesson 3 Check – Question 4; 111b, Mathematics; 111g, Performance Expectation Activity; 111g, ELA/Literacy; 111g, Mathematics; 296D, Using a Microscope; 313a, Explore It!</p>	<p><b>Cause and Effect</b></p> <ul style="list-style-type: none"> <li>Cause and effect relationships are routinely identified. (4-PS4-2)</li> </ul> <p><b>SE/TE:</b> 2, Try It! <b>TE Only:</b> 27, Infer; 26, Determine; 78, CCC: Energy and Matter; 111g, Performance Expectation Activity</p> <p><b>Systems and System Models</b></p> <ul style="list-style-type: none"> <li>A system can be described in terms of its components and their interactions. (4-LS1-1),(4-LS1-2)</li> </ul> <p><b>SE/TE:</b> 116-119, STEM Activity; 128-135, Lesson 2; 136-141, Lesson 3; 154, My Planet Diary; 178-181, STEM Activity; 228, Write a Biography <b>TE Only:</b> xlvi-xlvii, QUEST; 112, CCC: Systems and System Models; 154, Professional Development Note; 159a, My Planet Diary</p>

**A Correlation of Interactive Science, ©2016, to the  
Next Generation Science Standards**

Next Generation Science Standards	Interactive Science, ©2016 Grade 4	
Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<ul style="list-style-type: none"> <li>Use a model to test interactions concerning the functioning of a natural system. (4-LS1-2) <b>SE/TE:</b> 142, Explore It <b>TE Only:</b> xlvi-xlvii, QUEST; 111g, Performance Expectation Activity; 147a, Explore It!; 229b, Performance Expectation Activity</li> </ul> <p><b>Engaging in Argument from Evidence</b> Engaging in argument from evidence in 3–5 builds on K–2 experiences and progresses to critiquing the scientific explanations or solutions proposed by peers by citing relevant evidence about the natural and designed world(s).</p> <ul style="list-style-type: none"> <li>Construct an argument with evidence, data, and/or a model. (4-LS1-1) <b>SE/TE:</b> 136, Explore It!; 142, Explore It!; 228, Write a Biography <b>TE Only:</b> xlvi-xlvii, Quest; 113, SEP: Engaging in Argument from Evidence; 125, Differentiated Instruction; 133, Differentiated Instruction; 141a, Explore It!; 144, Differentiated Instruction – Advanced; 146, Science Notebook; 147a, Explore It!; 151, Differentiated Instruction; 229a, Performance Expectation Activity; 229a, ELA/Literacy</li> </ul>	<p><b>LS1.A: Structure and Function</b></p> <ul style="list-style-type: none"> <li>Plants and animals have both internal and external structures that serve various functions in growth, survival, behavior, and reproduction. (4-LS1-1) <b>SE/TE:</b> 114, Try It!; 122-123, Classifying Plants; 124-127, Classifying Animals; 128-135, Lesson 2; 136-141, Lesson 3; 142-147, Lesson 4; 170, Chapter Review – Lessons 1-4; 172, Benchmark Practice – Questions 4, 5, 6 <b>TE Only:</b> xlvi-xlvii, Quest; 112C, What Do Leaves and Stems Do?; 112G-112H, Leveled Content Reader Support; 126, Professional Development Note; 127b, Lesson 1 Check – Questions 1-5; 135a, My Planet Diary; 134, 21<sup>st</sup> Century Learning; 135b, Lesson 2 Check – Questions 1-6; 141a, Explore It!; 141b, Lesson 3 Check – Questions 1-6; 147a, Explore It!; 147b, Lesson 4 Check – Questions 1-6; 171a, Chapter 4 Test – Questions 2, 3; 171b, Chapter 4 Test – Question 9; 229a, Performance Expectation Activity</li> </ul>	

**A Correlation of Interactive Science, ©2016, to the  
Next Generation Science Standards**

Next Generation Science Standards		Interactive Science, ©2016 Grade 4
Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
	<p><b>LS1.D: Information Processing</b></p> <ul style="list-style-type: none"> <li>Different sense receptors are specialized for particular kinds of information, which may be then processed by the animal's brain. Animals are able to use their perceptions and memories to guide their actions. (4-LS1-2)</li> </ul> <p><b>SE/TE:</b> 128, My Planet Diary; 132, Pollen on the Move; 154-159, Lesson 6; 171, Chapter Review – Lesson 6</p> <p><b>TE Only:</b> 135a, My Planet Diary; 159a, My Planet Diary; 159b, Lesson 6 Check – Questions 1-6; 171a, Chapter 4 Test – Questions 3, 6; 229b, Performance Expectation Activity</p>	

**A Correlation of Interactive Science, ©2016, to the  
Next Generation Science Standards**

Next Generation Science Standards	Interactive Science, ©2016 Grade 4	
<b>4. Earth's Systems: Processes that Shape the Earth</b>		
Students who demonstrate understanding can:		
<p><b>4-ESS1-1. Identify evidence from patterns in rock formations and fossils in rock layers to support an explanation for changes in a landscape over time.</b> [Clarification Statement: Examples of evidence from patterns could include rock layers with marine shell fossils above rock layers with plant fossils and no shells, indicating a change from land to water over time; and, a canyon with different rock layers in the walls and a river in the bottom, indicating that over time a river cut through the rock.] [Assessment Boundary: Assessment does not include specific knowledge of the mechanism of rock formation or memorization of specific rock formations and layers. Assessment is limited to relative time.] Chapter 6 Performance Expectation Activity, 295d</p> <p><b>4-ESS2-1. Make observations and/or measurements to provide evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation.</b> [Clarification Statement: Examples of variables to test could include angle of slope in the downhill movement of water, amount of vegetation, speed of wind, relative rate of deposition, cycles of freezing and thawing of water, cycles of heating and cooling, and volume of water flow.] [Assessment Boundary: Assessment is limited to a single form of weathering or erosion.] Chapter 6 Performance Expectation Activity, 295a</p> <p><b>4-ESS2-2. Analyze and interpret data from maps to describe patterns of Earth’s features.</b> [Clarification Statement: Maps can include topographic maps of Earth’s land and ocean floor, as well as maps of the locations of mountains, continental boundaries, volcanoes, and earthquakes.] Chapter 6 Performance Expectation Activity, 295b</p> <p><b>4-ESS3-2. Generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans.*</b> [Clarification Statement: Examples of solutions could include designing an earthquake resistant building and improving monitoring of volcanic activity.] [Assessment Boundary: Assessment is limited to earthquakes, floods, tsunamis, and volcanic eruptions.] Chapter 6 Performance Expectation Activity, 295c See also Grade 3, Chapter 6 STEM Activity and Lesson 6.4.</p>		
The performance expectations above were developed using the following elements from the NRC document <i>A Framework for K-12 Science Education</i> :		
Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p><b>Planning and Carrying Out Investigations</b> Planning and carrying out investigations to answer questions or test solutions to problems in 3–5 builds on K–2 experiences and progresses to include investigations that control variables and provide evidence to support explanations or design solutions.</p>	<p><b>ESS1.C: The History of Planet Earth</b></p> <ul style="list-style-type: none"> <li>Local, regional, and global patterns of rock formations reveal changes over time due to earth forces, such as earthquakes. The presence and location of certain fossil types indicate the order in which rock layers were formed. (4-ESS1-1)</li> </ul>	<p><b>Patterns</b></p> <ul style="list-style-type: none"> <li>Patterns can be used as evidence to support an explanation. (4-ESS1-1), (4-ESS2-2)</li> </ul> <p><b>SE/TE:</b> 244, Explore It!; 246-247, Igneous Rocks; 248-249, Sedimentary Rock; 252-253, The Rock Cycle; 254, Explore It!; 259, Deposition; 277, Water Cycle and Climate</p> <p><b>TE Only:</b> 229c, Performance Expectation Activity; 295d, Performance Expectation Activity; 295d, ELA/Literacy</p>

**A Correlation of Interactive Science, ©2016, to the  
Next Generation Science Standards**

Next Generation Science Standards	Interactive Science, ©2016 Grade 4	
Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<ul style="list-style-type: none"> <li>Make observations and/or measurements to produce data to serve as the basis for evidence for an explanation of a phenomenon. (4-ESS2-1) <b>SE/TE:</b> 234-237, STEM Activity; 278-279, Investigate It!; 290-293, Apply It!; 319, Observation and Evidence <b>TE Only:</b> 229c, Performance Expectation Activity; 231, SEP: Planning and Carrying Out Investigations; 257, Science Notebook; 279a-179d, Activity Card Support; 295a, Performance Expectation Activity</li> </ul> <p><b>Analyzing and Interpreting Data</b> Analyzing data in 3–5 builds on K–2 experiences and progresses to introducing quantitative approaches to collecting data and conducting multiple trials of qualitative observations. When possible and feasible, digital tools should be used.</p> <ul style="list-style-type: none"> <li>Analyze and interpret data to make sense of phenomena using logical reasoning. (4-ESS2-2) <b>SE/TE:</b> 234-237, STEM Activity; 278-279, Investigate It!; <b>TE Only:</b> 279a-279d, Activity Card Support; 295b, Performance Expectation Activity;</li> </ul>	<p><b>SE/TE:</b> 210, Fossil Age; 244-251, Lesson 2; 260, My Planet Diary; 261, Earth’s Moving Plates; 262, Volcanoes; 263, Earthquakes; 286, Lesson 2; 295, Create a Booklet <b>TE Only:</b> 211b, Lesson 5 Check – Question 4; 221b, Chapter 5 Test – Question 8; 229c, Performance Expectation Activity; 229c, ELA/Literacy; 230C, Uncovering Fossils; 230G-230H, Leveled Content Reader Support; 249, Professional Development Note; 253a, Explore It!; 253b, Lesson 2 Check – Questions 1-6; 287b, Chapter 6 Test – Questions 7, 8; 295d, Performance Expectation Activity; 295d, ELA/Literacy</p> <p><b>ESS2.A: Earth Materials and Systems</b></p> <ul style="list-style-type: none"> <li>Rainfall helps to shape the land and affects the types of living things found in a region. Water, ice, wind, living organisms, and gravity break rocks, soils, and sediments into smaller particles and move them around. (4-ESS2-1) <b>SE/TE:</b> 254-259, Lesson 3; 286, Chapter Review – Lesson 3; Benchmark Practice – Questions 7, 8; 290-293, Apply It! <b>TE Only:</b> 230D, Look Out Below!; 246, Common Misconception; 259a, Explore It!; 259b, Lesson 3 Check – Questions 1-6; 287b, Chapter 6 Test – Questions 9, 10); 295a, Performance Expectation Activity; 295a, ELA/Literacy</li> </ul>	<p><b>Cause and Effect</b></p> <ul style="list-style-type: none"> <li>Cause and effect relationships are routinely identified, tested, and used to explain change. (4-ESS2-1),(4-ESS3-2) <b>SE/TE:</b> 244-245, Envision It!; 254-255, Envision It!; 256-257, Weathering; 258, Erosion; 260-265, Lesson 4; 276, Water Cycle and Weather; 278-279, Investigate It!; 290-293, Apply It! <b>TE Only:</b> 230, CCC: Cause and Effect; 258, Science Notebook; 265b, Lesson 4 Check – Question 6; 279a-279d, Activity Card Support; 295a, Performance Expectation Activity</li> </ul> <p>-----</p> <p><i><b>Connections to Engineering, Technology, and Applications of Science</b></i></p> <p><b>Influence of Engineering, Technology, and Science on Society and the Natural World</b></p> <ul style="list-style-type: none"> <li>Engineers improve existing technologies or develop new ones to increase their benefits, to decrease known risks, and to meet societal demands. (4-ESS3-2) <b>SE/TE:</b> 234-237, STEM Activity; 289, STEM: Robotic Fish; 295, Create a Booklet; <b>TE Only:</b> 230D, How Hybrids Save Energy; 230G-230H, Leveled Content Reader Support; 260, Professional Development Note; 342G-342H, Leveled Content Reader Support; 342, CCC: Influence of Engineering, Technology, and Science on Society and the Natural World</li> </ul> <p>-----</p>



**A Correlation of Interactive Science, ©2016, to the  
Next Generation Science Standards**

Next Generation Science Standards	Interactive Science, ©2016 Grade 4	
Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p><b>Constructing Explanations and Designing Solutions</b> Constructing explanations and designing solutions in 3–5 builds on K–2 experiences and progresses to the use of evidence in constructing explanations that specify variables that describe and predict phenomena and in designing multiple solutions to design problems.</p> <ul style="list-style-type: none"> <li>Identify the evidence that supports particular points in an explanation. (4-ESS1-1) <b>SE/TE:</b> 244, Explore It!; 247, Classify; 249, Identify; 293, Interpret Your Data; 321, Explanations; 326, Evidence and Inferences <b>TE Only:</b> 203, 21<sup>st</sup> Century Learning; 204, Differentiated Instruction; 229c, Performance Expectation Activity; 229c, 248, Differentiated Instruction; 251, Differentiated Instruction – Advanced; 253a, Explore It!; ELA/Literacy; 295d, Performance Expectation Activity</li> <li>Generate and compare multiple solutions to a problem based on how well they meet the criteria and constraints of the design solution. (4-ESS3-2) <b>SE/TE:</b> 234-237, STEM Activity; 357-363, Design Process <b>TE Only:</b> 295c, Performance Expectation Activity; 295c, ELA/Literacy</li> </ul>	<p><b>ESS2.B: Plate Tectonics and Large-Scale System Interactions</b></p> <ul style="list-style-type: none"> <li>The locations of mountain ranges, deep ocean trenches, ocean floor structures, earthquakes, and volcanoes occur in patterns. Most earthquakes and volcanoes occur in bands that are often along the boundaries between continents and oceans. Major mountain chains form inside continents or near their edges. Maps can help locate the different land and water features areas of Earth. (4-ESS2-2) <b>SE/TE:</b> 255, Earth’s Surface; 260, My Planet Diary; 261, Earth’s Moving Plates; 262, Volcanoes; 263, Earthquakes; 268-269, Surface Water; 280, The Galápagos Islands; 287, Chapter Review – Lesson 4; 295, Create a Booklet; 295, Make a Map <b>TE Only:</b> 262, 21<sup>st</sup> Century Learning; 265a, My Planet Diary; 265b, Lesson 4 Check – Questions 1, 4, 5; 248, Science – Social Studies; 263, Science – Social Studies; 269, Science – Social Studies; 287b, Chapter 6 Test – Question 8; 295b, Performance Expectation Activity; 295b, ELA/Literacy</li> </ul> <p><b>ESS2.E: Biogeology</b></p> <ul style="list-style-type: none"> <li>Living things affect the physical characteristics of their regions. (4-ESS2-1) <b>SE/TE:</b> 188-193, Lesson 2; 214, Rachel Carson; 220, Chapter Review – Lesson 2; 229, Make a Presentation; 256-257, Weathering <b>TE Only:</b> 193b, Lesson 2 Check – Questions 5, 6; 215, 21<sup>st</sup> Century Learning; 221b, Chapter 5 Test – Question 9</li> </ul>	<p><i>Connections to Nature of Science</i></p> <p><b>Scientific Knowledge Assumes an Order and Consistency in Natural Systems</b></p> <ul style="list-style-type: none"> <li>Science assumes consistent patterns in natural systems. (4-ESS1-1) <b>SE/TE:</b> 202-203, How Fossils Form; 248-249, Sedimentary Rock; 252-253, The Rock Cycle; 258, Erosion; 260, My Planet Diary; 261, Earth’s Moving Plates <b>TE Only:</b> 229c, Performance Expectation Activity; 249, Professional Development Note; 252, Science Notebook; 265a, My Planet Diary; 277a, Explore It!; 277b, Lesson 6 Check – Questions 1-6; 295d, Performance Expectation Activity</li> </ul>

**A Correlation of Interactive Science, ©2016, to the  
Next Generation Science Standards**

Next Generation Science Standards	Interactive Science, ©2016 Grade 4	
Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
	<p><b>ESS3.B: Natural Hazards</b></p> <ul style="list-style-type: none"> <li>A variety of hazards result from natural processes (e.g., earthquakes, tsunamis, volcanic eruptions). Humans cannot eliminate the hazards but can take steps to reduce their impacts. (4-ESS3-2) <i>(Note: This Disciplinary Core Idea can also be found in 3.WC.)</i></li> </ul> <p><b>SE/TE:</b> 260-265, Lesson 4; 295, Create a Booklet  <b>TE Only:</b> 265a, My Planet Diary; 265b, Lesson 4 Check – Questions 2, 3, 6; 295c, Performance Expectation Activity; 295c, ELA/Literacy</p> <p><b>ETS1.B: Designing Solutions to Engineering Problems</b></p> <ul style="list-style-type: none"> <li>Testing a solution involves investigating how well it performs under a range of likely conditions. <i>(secondary to 4-ESS3-2)</i></li> </ul> <p><b>SE/TE:</b> 234-237, STEM Activity  <b>TE Only:</b> 295c, Performance Expectation Activity; 295c, ELA/Literacy</p>	

**A Correlation of Interactive Science, ©2016, to the  
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Next Generation Science Standards	Interactive Science, ©2016 Grade 5	
<b>Grade 5</b>		
<b>5. Structure and Properties of Matter</b>		
Students who demonstrate understanding can:		
<p><b>5-PS1-1. Develop a model to describe that matter is made of particles too small to be seen.</b> [Clarification Statement: Examples of evidence supporting a model could include adding air to expand a basketball, compressing air in a syringe, dissolving sugar in water, and evaporating salt water.] [Assessment Boundary: Assessment does not include the atomic-scale mechanism of evaporation and condensation or defining the unseen particles.] Chapter 1 Performance Expectation Activity, 99a</p> <p><b>5-PS1-2. Measure and graph quantities to provide evidence that regardless of the type of change that occurs when heating, cooling, or mixing substances, the total weight of matter is conserved.</b> [Clarification Statement: Examples of reactions or changes could include phase changes, dissolving, and mixing that form new substances.] [Assessment Boundary: Assessment does not include distinguishing mass and weight.] Chapter 1 Performance Expectation Activity, 99b</p> <p><b>5-PS1-3. Make observations and measurements to identify materials based on their properties.</b> [Clarification Statement: Examples of materials to be identified could include baking soda and other powders, metals, minerals, and liquids. Examples of properties could include color, hardness, reflectivity, electrical conductivity, thermal conductivity, response to magnetic forces, and solubility; density is not intended as an identifiable property.] [Assessment Boundary: Assessment does not include density or distinguishing mass and weight.] Chapter 1 Performance Expectation Activity, 99c</p> <p><b>5-PS1-4. Conduct an investigation to determine whether the mixing of two or more substances results in new substances.</b> Chapter 1 Performance Expectation Activity, 99d</p>		
The performance expectations above were developed using the following elements from the NRC document <i>A Framework for K-12 Science Education</i> :		
<b>Science and Engineering Practices</b>	<b>Disciplinary Core Ideas</b>	<b>Crosscutting Concepts</b>
<p><b>Developing and Using Models</b> Modeling in 3–5 builds on K–2 experiences and progresses to building and revising simple models and using models to represent events and design solutions.</p> <ul style="list-style-type: none"> <li>Use models to describe phenomena. (5-PS1-1)</li> </ul> <p><b>SE/TE:</b> 4-7, STEM Activity; 13, Lightning Lab; 16, Explore It!; 34, Explore It!; 36, At-Home Lab</p>	<p><b>PS1.A: Structure and Properties of Matter</b></p> <ul style="list-style-type: none"> <li>Matter of any type can be subdivided into particles that are too small to see, but even then the matter still exists and can be detected by other means. A model showing that gases are made from matter particles that are too small to see and are moving freely around in space can explain many observations, including the inflation and shape of a balloon and the effects of air on larger particles or objects. (5-PS1-1)</li> </ul>	<p><b>Cause and Effect</b></p> <ul style="list-style-type: none"> <li>Cause and effect relationships are routinely identified and used to explain change. (5-PS1-4)</li> </ul> <p><b>SE/TE:</b> 16, Explore It!; 22, Explore It!; 34, Explore It! <b>TE Only:</b> 21a, Explore It!; 27a, Explore It!; 27b, Lesson 3 Check – Question 6; 32, 21<sup>st</sup> Century Learning; 52</p>

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Next Generation Science Standards	Interactive Science, ©2016 Grade 5	
Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p><b>TE Only:</b> 9, ELA Support; 12, Differentiated Instruction; 15, RTI: Response to Intervention; 21a, Explore It!; 39a, Explore It!; 54, 99a, Performance Expectation Activity</p> <p><b>Planning and Carrying Out Investigations</b> Planning and carrying out investigations to answer questions or test solutions to problems in 3–5 builds on K–2 experiences and progresses to include investigations that control variables and provide evidence to support explanations or design solutions.</p> <ul style="list-style-type: none"> <li>Conduct an investigation collaboratively to produce data to serve as the basis for evidence, using fair tests in which variables are controlled and the number of trials considered. (5-PS1-4)</li> </ul> <p><b>SE/TE:</b> 16, Explore It!; 38, Lightning Lab; 40-41, Investigate It!; 98, Plan an Investigation; 99, Investigate Mixtures; 348-349, Investigate It!</p> <p><b>TE Only:</b> 21a, Explore It!; 30, Professional Development Note; 41a-41d, Activity Card Support; 99d, Performance Expectation Activity</p> <ul style="list-style-type: none"> <li>Make observations and measurements to produce data to serve as the basis for evidence for an explanation of a phenomenon. (5-PS1-3)</li> </ul> <p><b>SE/TE:</b> 16, Explore It!; 22, Explore It!; 25, Lightning Lab; 28, Explore It!; 34, Explore It!; 98, Plan an Investigation 336, Explore It!; 344, Explore It!</p>	<p><b>SE/TE:</b> 8, My Planet Diary; 9, Matter; 12, Atoms; 13, Atomic Arrangement; 14-15, Compounds; 48, Chapter Review – Lesson 1</p> <p><b>TE Only:</b> 1C-1D, Teacher Background; 1G-1H, Leveled Content Reader Support; 8, Common Misconception; 15, Professional Development Note; 15a, My Planet Diary; 15b, Lesson 1 Check – Questions 1, 3, 4; 49a, Chapter 1 Test – Question 5; 99a, Performance Expectation Activity</p> <ul style="list-style-type: none"> <li>The amount (weight) of matter is conserved when it changes form, even in transitions in which it seems to vanish. (5-PS1-2)</li> </ul> <p><b>SE/TE:</b> 2, Try It!; 9, Matter</p> <p><b>TE Only:</b> 1C, Teacher Background; 99b, Performance Expectation Activity; 99b, ELA/Literacy; 99b, Mathematics</p> <ul style="list-style-type: none"> <li>Measurements of a variety of properties can be used to identify materials. (Boundary: At this grade level, mass and weight are not distinguished, and no attempt is made to define the unseen particles or explain the atomic-scale mechanism of evaporation and condensation.) (5-PS1-3)</li> </ul> <p><b>SE/TE:</b> 2, Try It!; 3, Let's Read Science!; 10-11, Elements; 16-21, Lesson 2; 25, Freezing and Melting; 28, Explore It!; 33 Solubility</p> <p><b>TE Only:</b> 21b, Lesson 2 Check – Questions 1-4, 7; 33a, Explore It!; 99b, Performance Expectation Activity; 99b, Mathematics; 99c, Performance Expectation Activity</p>	<p><b>Scale, Proportion, and Quantity</b></p> <ul style="list-style-type: none"> <li>Natural objects exist from the very small to the immensely large. (5-PS1-1)</li> </ul> <p><b>SE/TE:</b> 1, What makes up these giant crystals?; 9, Matter; 12, Atoms; 13, Atomic Arrangement; 48, Chapter Review – Lesson 1</p> <p><b>TE Only:</b> 1G-1H, Leveled Content Reader Support; 11, Read Aloud; 11, Professional Development Note; 15b, Lesson 1 Check – Questions 1, 3, 4; 49a, Chapter 1 Test – Question 5; 99a, Performance Expectation Activity</p> <ul style="list-style-type: none"> <li>Standard units are used to measure and describe physical quantities such as weight, time, temperature, and volume. (5-PS1-2),(5-PS1-3)</li> </ul> <p><b>SE/TE:</b> 2, Try It!; 19, Volume; 20, Temperature; 24, Solids, Liquids, Gases, Plasmas; 26, Do the Math!; 48, Chapter Review – Lesson 3; 336, Explore It!; 342, Lightning Lab; EM1, Measurements</p> <p><b>TE Only:</b> 11, CCC: Scale, Proportion, and Quantity; 21b, Lesson 2 Check – Questions 1, 3, 4, 6); 99a, Performance Expectation Activity; 99a, Mathematics; 99b, Performance Expectation Activity; 99b, Mathematics; EM1, Measurements</p> <p>-----</p>

**A Correlation of Interactive Science, ©2016, to the  
Next Generation Science Standards**

Next Generation Science Standards	Interactive Science, ©2016 Grade 5	
Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p><b>TE Only:</b> 21a, Explore It!; 27a, Explore It!; 33a, Explore It!; 39a, Explore It!; 99b, Performance Expectation Activity; 99c, Performance Expectation Activity; 343a, Explore It!; 347a, Explore It!</p> <p><b>Using Mathematics and Computational Thinking</b> Mathematical and computational thinking in 3–5 builds on K–2 experiences and progresses to extending quantitative measurements to a variety of physical properties and using computation and mathematics to analyze data and compare alternative design solutions.</p> <ul style="list-style-type: none"> <li>Measure and graph quantities such as weight to address scientific and engineering questions and problems. (5-PS1-2)</li> </ul> <p><b>SE/TE:</b> 2, Try It! <b>TE Only:</b> 1, SEP: Using Mathematics and Computational Thinking; 99b, Performance Expectation Activity</p>	<p><b>PS1.B: Chemical Reactions</b></p> <ul style="list-style-type: none"> <li>When two or more different substances are mixed, a new substance with different properties may be formed. (5-PS1-4)</li> </ul> <p><b>SE/TE:</b> 14-15, Compounds; 37, Chemical Changes; 38-39, Temperature and Chemical Changes; 42, Sidewalks and Playgrounds; 49, Chapter Review – Lessons 4 and 5; 50, Benchmark Practice – Questions 8, 9; 99, Investigate Mixtures</p> <p><b>TE Only:</b> 1G-1H, Leveled Content Reader Support; 39b, Lesson 5 Check – Questions 2, 5, 6; 49b, Chapter 1 Test – Question 8; 99d, Performance Expectation Activity; 99d, ELA/Literacy</p> <ul style="list-style-type: none"> <li>No matter what reaction or change in properties occurs, the total weight of the substances does not change. (Boundary: Mass and weight are not distinguished at this grade level.) (5-PS1-2)</li> </ul> <p><b>SE/TE:</b> 2, Try It!; 9, Matter</p> <p><b>TE Only:</b> 1C, Teacher Background; 99b, Performance Expectation Activity; 99b, ELA/Literacy; 99b, Mathematics</p>	<p><b>Connections to Nature of Science</b></p> <p><b>Scientific Knowledge Assumes an Order and Consistency in Natural Systems</b></p> <ul style="list-style-type: none"> <li>Science assumes consistent patterns in natural systems. (5-PS1-2)</li> </ul> <p><b>SE/TE:</b> 2, Try It!; 20, Temperature; 22, Explore It!; 25, Freezing and Melting; 25, Lightning Lab; 26, Evaporation; 27, Condensation</p> <p><b>TE Only:</b> 27a, Explore It!</p>

**A Correlation of Interactive Science, ©2016, to the  
Next Generation Science Standards**

Next Generation Science Standards	Interactive Science, ©2016 Grade 5	
<b>5. Matter and Energy in Organisms and Ecosystems</b>		
Students who demonstrate understanding can:		
<b>5-PS3-1.</b> Use models to describe that energy in animals’ food (used for body repair, growth, motion, and to maintain body warmth) was once energy from the sun. [Clarification Statement: Examples of models could include diagrams, and flow charts.] Chapter 4 Performance Expectation Activity, 195a		
<b>5-LS1-1.</b> Support an argument that plants get the materials they need for growth chiefly from air and water. [Clarification Statement: Emphasis is on the idea that plant matter comes mostly from air and water, not from the soil.] Chapters 3 and 4 Performance Expectation Activity, 195b		
<b>5-LS2-1.</b> Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment. [Clarification Statement: Emphasis is on the idea that matter that is not food (air, water, decomposed materials in soil) is changed by plants into matter that is food. Examples of systems could include organisms, ecosystems, and the Earth.] [Assessment Boundary: Assessment does not include molecular explanations.] Chapter 4 Performance Expectation Activity, 195c		
The performance expectations above were developed using the following elements from the NRC document <i>A Framework for K-12 Science Education</i> :		
Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<b>Developing and Using Models</b> Modeling in 3–5 builds on K–2 experiences and progresses to building and revising simple models and using models to represent events and design solutions. <ul style="list-style-type: none"> <li>Use models to describe phenomena. (5-PS3-1) <b>SE/TE:</b> 162, Lightning Lab; 195, Create a Food Web Model <b>TE Only:</b> 143, SEP: Developing and Using Models; 163, Science Notebook; 195a, Performance Expectation Activity; 195c, Performance Expectation Activity</li> <li>Develop a model to describe phenomena. (5-LS2-1) <b>SE/TE:</b> 162, Lightning Lab; 195, Create a Food Web Model <b>TE Only:</b> 143, SEP: Developing and Using Models; 163, Science Notebook; 195a, Performance Expectation Activity; 195c, Performance Expectation Activity</li> </ul>	<b>PS3.D: Energy in Chemical Processes and Everyday Life</b> <ul style="list-style-type: none"> <li>The energy released [from] food was once energy from the sun that was captured by plants in the chemical process that forms plant matter (from air and water). (5-PS3-1) <b>SE/TE:</b> 37, Chemical Changes; 112-113, Structures for Respiration and Circulation; 150-157, Lesson1; 186, Chapter Review, Lesson 1 <b>TE Only:</b> 157b, Lesson 1 Check – Questions 3, 6; 187a, Chapter 1 Test – Questions 1, 3; 195a, Performance Expectation Activity; 195c, Performance Expectation Activity; 195c, ELA/Literacy</li> </ul>	<b>Systems and System Models</b> <ul style="list-style-type: none"> <li>A system can be described in terms of its components and their interactions. (5-LS2-1) <b>SE/TE:</b> 111, At-Home Lab; 144, Try It!; 158-165, Lesson 2; 187, Chapter Review – Question 11 <b>TE Only:</b> 142, CCC: Systems and System Models; 195a, Performance Expectation Activity</li> </ul> <b>Energy and Matter</b> <ul style="list-style-type: none"> <li>Matter is transported into, out of, and within systems. (5-LS1-1) <b>SE/TE:</b> 111, At-Home Lab; 144, Try It!; 158-165, Lesson 2; 187, Chapter Review - Question 11, 189. Go Green! <b>TE Only:</b> 100, CCC: Energy and Matter; 195a, Performance Expectation Activity; 195c, Performance Expectation Activity</li> </ul>

**A Correlation of Interactive Science, ©2016, to the  
Next Generation Science Standards**

Next Generation Science Standards	Interactive Science, ©2016 Grade 5	
Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p><b>Engaging in Argument from Evidence</b> Engaging in argument from evidence in 3–5 builds on K–2 experiences and progresses to critiquing the scientific explanations or solutions proposed by peers by citing relevant evidence about the natural and designed world(s).</p> <ul style="list-style-type: none"> <li>Support an argument with evidence, data, or a model. (5-LS1-1)</li> </ul> <p><b>SE/TE:</b> 132-133, Investigate It!; 133a-133d, Activity Card Support <b>TE Only:</b> 100D, In Thin Air; 101, SEP: Engaging in Argument from Evidence; 195b, Performance Expectation Activity; 195b, ELA/Literacy</p> <p>-----</p> <p><b>Connections to the Nature of Science</b></p> <p><b>Science Models, Laws, Mechanisms, and Theories Explain Natural Phenomena</b></p> <ul style="list-style-type: none"> <li>Science explanations describe the mechanisms for natural events. (5-LS2-1)</li> </ul> <p><b>SE/TE:</b> 144, Try It!; 151, Plants and Energy; 158, Explore It!; 162, Food Chains; 163, Food Webs; 348-349, Investigate It! <b>TE Only:</b> 152, Elaborate; 153, 21<sup>st</sup> Century Learning; 157, Differentiated Instruction; 165a, Explore It!; 349a-349d Activity Card Support</p>	<p><b>LS1.C: Organization for Matter and Energy Flow in Organisms</b></p> <ul style="list-style-type: none"> <li>Food provides animals with the materials they need for body repair and growth and the energy they need to maintain body warmth and for motion. (<i>secondary to 5-PS3-1</i>) <b>SE/TE:</b> 151, Plants and Energy; 156-157, Respiration <b>TE Only:</b> 195a, Performance Expectation Activity</li> <li>Plants acquire their material for growth chiefly from air and water. (5-LS1-1) <b>SE/TE:</b> 112-113, Structures for Respiration and Circulation; 114, Explore It!; 132-133, Investigate It!; 146-149, STEM Activity; 150-157, Lesson 1 <b>TE Only:</b> 119a, Explore It!; 155, Science Notebook; 133a-133d, Activity Card Support; 157, Differentiated Instruction; 195b, Performance Expectation Activity; 195b, ELA/Literacy</li> </ul> <p><b>LS2.A: Interdependent Relationships in Ecosystems</b></p> <ul style="list-style-type: none"> <li>The food of almost any kind of animal can be traced back to plants. Organisms are related in food webs in which some animals eat plants for food and other animals eat the animals that eat plants. Some organisms, such as fungi and bacteria, break down dead organisms (both plants or plants parts and animals) and therefore operate as “decomposers.” Decomposition eventually restores (recycles) some materials back to the soil. Organisms can survive only in environments in which their particular needs are met. A healthy ecosystem is</li> </ul>	<ul style="list-style-type: none"> <li>Energy can be transferred in various ways and between objects. (5-PS3-1)</li> </ul> <p><b>SE/TE:</b> 151, Plants and Energy; 162, Food Chains; 163, Food Webs <b>TE Only:</b> 100, CCC: Energy and Matter; 154, Differentiated Instruction; 195a, Performance Expectation Activity; 195c, Performance Expectation Activity</p>

**A Correlation of Interactive Science, ©2016, to the  
Next Generation Science Standards**

Next Generation Science Standards		Interactive Science, ©2016 Grade 5
Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
	<p>one in which multiple species of different types are each able to meet their needs in a relatively stable web of life. Newly introduced species can damage the balance of an ecosystem. (5-LS2-1)</p> <p><b>SE/TE:</b> 151, Plants and Energy; 158-165, Lesson 2; 167, Environmental Changes; 176, Nonnative Species; 186, Chapter Review – Lesson 2; 188, Benchmark Practice – Questions 3, 4, 5; 195, Create a Food Web Model</p> <p><b>TE Only:</b> 142, Predict; 165a, Explore It!; 165b, Lesson 2 Check – Questions 1-7; 187a, Chapter 4 Test – Questions 4, 5; 187b, Chapter 4 Test – Questions 8, 9, 10; 195a, Performance Expectation Activity; 195a, ELA/Literacy; 195c, Performance Expectation Activity; 195c, ELA/Literacy</p> <p><b>LS2.B: Cycles of Matter and Energy Transfer in Ecosystems</b></p> <ul style="list-style-type: none"> <li>Matter cycles between the air and soil and among plants, animals, and microbes as these organisms live and die. Organisms obtain gases, and water, from the environment, and release waste matter (gas, liquid, or solid) back into the environment. (5-LS2-1)</li> </ul> <p><b>SE/TE:</b> 151, Plants and Energy; 154-155, Photosynthesis; 159, Interactions in Ecosystems; 162, Food Chains; 163, Food Webs; 186, Chapter Review – Lessons 1, 2; 189, Go Green!</p> <p><b>TE Only:</b> 157b, Lesson 1 Check – Questions 1, 4, 6; 165b, Lesson 2 Check – Questions 1-5; 187b, Chapter 4 Test – Question 9; 195a, Performance Expectation Activity; 195c, Performance Expectation Activity</p>	



**A Correlation of Interactive Science, ©2016, to the  
Next Generation Science Standards**

Next Generation Science Standards	Interactive Science, ©2016 Grade 5	
<b>5. Earth's Systems</b>		
Students who demonstrate understanding can:		
<p><b>5-ESS2-1. Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact.</b> [Clarification Statement: Examples could include the influence of the ocean on ecosystems, landform shape, and climate; the influence of the atmosphere on landforms and ecosystems through weather and climate; and the influence of mountain ranges on winds and clouds in the atmosphere. The geosphere, hydrosphere, atmosphere, and biosphere are each a system.] [Assessment Boundary: Assessment is limited to the interactions of two systems at a time.] Chapter 5 Performance Expectation Activity, 313a</p> <p><b>5-ESS2-2. Describe and graph the amounts and percentages of water and fresh water in various reservoirs to provide evidence about the distribution of water on Earth.</b> [Assessment Boundary: Assessment is limited to oceans, lakes, rivers, glaciers, ground water, and polar ice caps, and does not include the atmosphere.] Chapter 5 Performance Expectation Activity, 313b See also Grade 4, Lesson 6.5.</p> <p><b>5-ESS3-1. Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.</b> Chapter 4 Performance Expectation Activity, 195d</p>		
The performance expectations above were developed using the following elements from the NRC document <i>A Framework for K- 12 Science Education</i> :		
Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p><b>Developing and Using Models</b> Modeling in 3–5 builds on K–2 experiences and progresses to building and revising simple models and using models to represent events and design solutions.</p> <ul style="list-style-type: none"> <li>Develop a model using an example to describe a scientific principle. (5-ESS2-1)</li> </ul> <p><b>SE/TE:</b> 198, Try It!; 200-203, STEM Activity; 224, Explore It!; 313, Landforms and Weather <b>TE Only:</b> 197, SEP: Developing and Using Models; 207, Differentiated Instruction; 214, Differentiated Instruction; 229a, Explore It!; 313a, Performance Expectation Activity; 313a, ELA/Literacy</p>	<p><b>ESS2.A: Earth Materials and Systems</b></p> <ul style="list-style-type: none"> <li>Earth's major systems are the geosphere (solid and molten rock, soil, and sediments), the hydrosphere (water and ice), the atmosphere (air), and the biosphere (living things, including humans). These systems interact in multiple ways to affect Earth's surface materials and processes. The ocean supports a variety of ecosystems and organisms, shapes landforms, and influences climate. Winds and clouds in the atmosphere interact with the landforms to determine patterns of weather. (5-ESS2-1)</li> </ul> <p><b>SE/TE:</b> 4-7, STEM Activity; 206-207, The Water Cycle; 210-215, Lesson 2; 216-223, Lesson 3; 224, Explore It!; 228-229, Types of Clouds; 234, Bodies of Water; 252, Chapter Review – Lessons</p>	<p><b>Scale, Proportion, and Quantity</b></p> <ul style="list-style-type: none"> <li>Standard units are used to measure and describe physical quantities such as weight and volume. (5-ESS2-2)</li> </ul> <p><b>SE/TE:</b> 214, Calculate; 260-263, STEM Activity; 312, Rain Gauge; 339, Tools; EM1, Measurements <b>TE Only:</b> 313a, Mathematics; 313b, Performance Expectation Activity</p> <p><b>Systems and System Models</b></p> <ul style="list-style-type: none"> <li>A system can be described in terms of its components and their interactions. (5-ESS2-1), (5-ESS3-1)</li> </ul> <p><b>SE/TE:</b> 206-207, The Water Cycle; 211, The Earth as a System</p>

**A Correlation of Interactive Science, ©2016, to the  
Next Generation Science Standards**

Next Generation Science Standards	Interactive Science, ©2016 Grade 5	
Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p><b>Using Mathematics and Computational Thinking</b> Mathematical and computational thinking in 3–5 builds on K–2 experiences and progresses to extending quantitative measurements to a variety of physical properties and using computation and mathematics to analyze data and compare alternative design solutions.</p> <ul style="list-style-type: none"> <li>Describe and graph quantities such as area and volume to address scientific questions. (5-ESS2-2)</li> </ul> <p><b>SE/TE:</b> 178-179, Investigate It!; 209, Do the Math; 213, Do the Math!</p> <p><b>TE Only:</b> 179a-179c, Activity Card Support; 313a, Mathematics; 313b, Performance Expectation Activity; 313b, ELA/Literacy</p> <p><b>Obtaining, Evaluating, and Communicating Information</b> Obtaining, evaluating, and communicating information in 3–5 builds on K–2 experiences and progresses to evaluating the merit and accuracy of ideas and methods.</p> <ul style="list-style-type: none"> <li>Obtain and combine information from books and/or other reliable media to explain phenomena or solutions to a design problem. (5-ESS3-1)</li> </ul> <p><b>SE/TE:</b> 176, Go Green!; 195, Local Resources</p> <p><b>TE Only:</b> 176, 21<sup>st</sup> Century Learning; 177, Science – Writing; 180, Science Notebook; 195d, Performance Expectation Activity; 195d, ELA/Literacy; 196G-196H, Leveled Content Reader Support; 215, 21<sup>st</sup> Century Learning; 313a, Performance Expectation Activity; 313a, ELA/Literacy; 313a, Mathematics</p>	<p>1, 2, 3; 253, Chapter Review – Lesson 4; 254, Benchmark Practice – Question 2; 313, Landforms and Weather; 318-321, STEM Activity</p> <p><b>TE Only:</b> 198, Teacher Background; 209, Professional Development Note; 215a, My Planet Diary; 215b, Lesson 2 Check – Questions 1-6; 229a, Explore It!; 229b, Lesson 4 Check – Questions 5, 6; 253a, Chapter 5 Test – Questions 3, 5; Chapter 5 Test – Question 9; 313a, Performance Expectation Activity; 313a, ELA/Literacy</p> <p><b>ESS2.C: The Roles of Water in Earth’s Surface Processes</b></p> <ul style="list-style-type: none"> <li>Nearly all of Earth’s available water is in the ocean. Most fresh water is in glaciers or underground; only a tiny fraction is in streams, lakes, wetlands, and the atmosphere. (5-ESS2-2)</li> </ul> <p><b>SE/TE:</b> 206-207, The Water Cycle; 212, Atmosphere; 213, Hydrosphere; 213, Lightning Lab; 234, Bodies of Water; 238-239, Water Erosion and Deposition</p> <p><b>TE Only:</b> 196C, Teacher Background; 196G-196H, Leveled Content Reader Support; 206, Common Misconception; 213, Differentiated Instruction; 313b, Performance Expectation Activity</p> <p><b>ESS3.C: Human Impacts on Earth Systems</b></p> <ul style="list-style-type: none"> <li>Human activities in agriculture, industry, and everyday life have had major effects on the land, vegetation, streams, ocean, air, and even outer space. But individuals and communities are doing things to help protect Earth’s resources and environments. (5-ESS3-1)</li> </ul>	<p><b>TE Only:</b> 196, CCC: Systems and System Models; 313a, Performance Expectation Activity; 313a, ELA/Literacy; 313a, Mathematics</p> <p>-----</p> <p><b>Connections to Nature of Science</b></p> <p><b>Science Addresses Questions About the Natural and Material World</b></p> <ul style="list-style-type: none"> <li>Science findings are limited to questions that can be answered with empirical evidence. (5-ESS3-1)</li> </ul> <p><b>SE/TE:</b> 174, Explore It!; 178-179, Investigate It!; 195, Local Resources; 316, Try It!</p> <p><b>TE Only:</b> 177a, Explore It!; 179a-179d, Activity Card Support; 195d, Performance Expectation Activity</p>

**A Correlation of Interactive Science, ©2016, to the  
Next Generation Science Standards**

Next Generation Science Standards		Interactive Science, ©2016 Grade 5	
Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts	
	<p><b>SE/TE:</b> 169, Changes Caused by Humans; 174-177, Lesson 4; 178-179, Investigate It!; 187, Chapter Review – Lesson 4; 188, Benchmark Practice; 189, Create a Compost Pile; 195, Local Resources</p> <p><b>TE Only:</b> 142D, Teacher Background; 142G-142H, Leveled Content Reader Support; 173a, My Planet Diary; 177a, Explore It!; 177b, Lesson 4 Check – Questions 5, 6; 179a-179d, Activity Card Support; 195d, Performance Expectation Activity; 195d, ELA/Literacy; 215, 21<sup>st</sup> Century Learning</p>		

**A Correlation of Interactive Science, ©2016, to the  
Next Generation Science Standards**

Next Generation Science Standards	Interactive Science, ©2016 Grade 5	
<b>5. Space Systems: Stars and the Solar System</b>		
Students who demonstrate understanding can:		
<p><b>5-PS2-1. Support an argument that the gravitational force exerted by Earth on objects is directed down.</b> [Clarification Statement: “Down” is a local description of the direction that points toward the center of the spherical Earth.] [Assessment Boundary: Assessment does not include mathematical representation of gravitational force.] Chapter 2 Performance Expectation Activity, 99e</p>		
<p><b>5-ESS1-1. Support an argument that differences in the apparent brightness of the sun compared to other stars is due to their relative distances from the Earth.</b> [Assessment Boundary: Assessment is limited to relative distances, not sizes, of stars. Assessment does not include other factors that affect apparent brightness (such as stellar masses, age, stage).] Chapter 6 Performance Expectation Activity, 313c</p>		
<p><b>5-ESS1-2. Represent data in graphical displays to reveal patterns of daily changes in length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky.</b> [Clarification Statement: Examples of patterns could include the position and motion of Earth with respect to the sun and selected stars that are visible only in particular months.] [Assessment Boundary: Assessment does not include causes of seasons.] Chapter 6 Performance Expectation Activity, 313d</p>		
The performance expectations above were developed using the following elements from the NRC document <i>A Framework for K- 12 Science Education</i> :		
Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p><b>Analyzing and Interpreting Data</b> Analyzing data in 3–5 builds on K–2 experiences and progresses to introducing quantitative approaches to collecting data and conducting multiple trials of qualitative observations. When possible and feasible, digital tools should be used.</p> <ul style="list-style-type: none"> <li>Represent data in graphical displays (bar graphs, pictographs and/or pie charts) to reveal patterns that indicate relationships. (5-ESS1-2)</li> </ul> <p><b>TE Only:</b> xlvi-xlvii, QUEST; 313a, Mathematics; 313b, Performance Expectation Activity; 313b, ELA/Literacy; 313d, Performance Expectation Activity</p>	<p><b>PS2.B: Types of Interactions</b></p> <ul style="list-style-type: none"> <li>The gravitational force of Earth acting on an object near Earth’s surface pulls that object toward the planet’s center. (5- PS2-1)</li> </ul> <p><b>SE/TE:</b> 60, My Planet Diary, 64, Gravity; 64, At-Home Lab; 74, Explore It!; 76-77, Balanced Forces; 218, Barometric Pressure; 238-239, Water Erosion and Deposition</p> <p><b>TE Only:</b> 65, RTI: Response to Intervention; 77a, Explore It!; 99e, Performance Expectation Activity; 99e, ELA/Literacy</p> <p><b>ESS1.A: The Universe and its Stars</b></p> <ul style="list-style-type: none"> <li>The sun is a star that appears larger and brighter than other stars because it is closer. Stars range greatly in their distance from Earth. (5-ESS1-1)</li> </ul> <p><b>SE/TE:</b> 271,-275, Lesson 2</p>	<p><b>Patterns</b></p> <ul style="list-style-type: none"> <li>Similarities and differences in patterns can be used to sort, classify, communicate and analyze simple rates of change for natural phenomena. (5-ESS1-2)</li> </ul> <p><b>SE/TE:</b> 275, Stars on the Move; 313, Model a Planet’s Orbit</p> <p><b>TE Only:</b> xlvi-xlvii, QUEST; 256, CCC: Patterns; 313d, Performance Expectation Activity; 313d, ELA/Literacy</p> <p><b>Cause and Effect</b></p> <ul style="list-style-type: none"> <li>Cause and effect relationships are routinely identified and used to explain change. (5-PS2-1)</li> </ul> <p><b>SE/TE:</b> 272, Lightning Lab; 296-297, Investigate It!; 312, Crater Formation</p> <p><b>TE Only:</b> xlvi-xlvii, QUEST; 52, CCC: Cause and Effect; 297a-297c, Activity Card Support; 313d, Performance Expectation Activity</p>

**A Correlation of Interactive Science, ©2016, to the  
Next Generation Science Standards**

Next Generation Science Standards	Interactive Science, ©2016 Grade 5	
Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p><b>Engaging in Argument from Evidence</b> Engaging in argument from evidence in 3–5 builds on K–2 experiences and progresses to critiquing the scientific explanations or solutions proposed by peers by citing relevant evidence about the natural and designed world(s).</p> <ul style="list-style-type: none"> <li>Support an argument with evidence, data, or a model. (5-PS2-1),(5-ESS1-1)</li> </ul> <p><b>TE Only:</b> 53, Engaging in Argument from Evidence; 99e, Performance Expectation Activity; 99e, ELA/Literacy; 257, SEP: Engaging in Argument from Evidence; 313c, Performance Expectation Activity; 313c, ELA/Literacy</p>	<p><b>TE Only:</b> 275b, Lesson 2 Check – Question 4; 313c, Performance Expectation Activity; 313c, ELA/Literacy; 313c, Mathematics</p> <p><b>ESS1.B: Earth and the Solar System</b></p> <ul style="list-style-type: none"> <li>The orbits of Earth around the sun and of the moon around Earth, together with the rotation of Earth about an axis between its North and South poles, cause observable patterns. These include day and night; daily changes in the length and direction of shadows; and different positions of the sun, moon, and stars at different times of the day, month, and year. (5-ESS1-2)</li> </ul> <p><b>SE/TE:</b> 264-269, Lesson 1; 272, Lightning Lab; 274, Constellations; 275, Stars on the Move; 278, Orbiting Objects; 281, Earth and Moon; 304, Chapter Review – Lesson 1; 306, Benchmark Practice – Question 5</p> <p><b>TE Only:</b> xlvi-xlvi, QUEST; 269a, Explore It!; 269b, Lesson 1 Check – Questions 1-6; 281, Science Notebook; 305a, Chapter 6 Test – Question 1; 305b, Chapter 6 Test – Question 9; 313d, Performance Expectation Activity; 313d, ELA/Literacy; 313d, Mathematics</p>	<p><b>Cause and Effect</b></p> <ul style="list-style-type: none"> <li>Cause and effect relationships are routinely identified and used to explain change. (5-PS2-1)</li> </ul> <p><b>SE/TE:</b> 272, Lightning Lab; 296-297, Investigate It!; 312, Crater Formation</p> <p><b>TE Only:</b> xlvi-xlvi, QUEST; 52, CCC: Cause and Effect; 297a-297c, Activity Card Support; 313d, Performance Expectation Activity</p> <p><b>Scale, Proportion, and Quantity</b></p> <ul style="list-style-type: none"> <li>Natural objects exist from the very small to the immensely large. (5-ESS1-1)</li> </ul> <p><b>SE/TE:</b> 271, Stars; 272, Lightning Lab; 279, Mercury; 284, Explore It!; 285, Gas Giants; 289, Exploring the Giants; 292, Meteors; 293, Comets; 294, Dwarf Planets</p> <p><b>TE Only:</b> 256G-256H, Leveled Content Reader Support; 289a, Explore It!</p>

**A Correlation of Interactive Science, ©2016, to the  
Next Generation Science Standards**

Next Generation Science Standards	Interactive Science, ©2016 Grade 5	
<b>3-5. Engineering Design</b>		
Students who demonstrate understanding can:		
<p><b>3-5-ETS1-1. Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.</b></p> <p><b>Grade 3:</b> Chapters 1 and 2 Performance Expectation Activity, 99d  <b>Grade 4:</b> Chapters 1 and 3 Performance Expectation Activity, 111d  <b>Grade 5:</b> Performance Based Assessment, 98</p> <p><b>3-5-ETS1-2. Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.</b></p> <p><b>Grade 3:</b> Chapter 6 Performance Expectation Activity, 289c  <b>Grade 4:</b> Chapter 6 Performance Expectation Activity, 295c  <b>Grade 5:</b> Performance Based Assessment, 195</p> <p><b>3-5-ETS1-3. Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.</b></p> <p><b>Grade 3:</b> Chapter 1 Performance Expectation Activity, 99a  <b>Grade 4:</b> Chapter 6 Performance Expectation Activity, 295a; Chapter 6 Performance Expectation Activity, 295c  <b>Grade 5:</b> Performance Based Assessment, 404</p>		
The performance expectations above were developed using the following elements from the NRC document <i>A Framework for K- 12 Science Education</i> :		
Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p><b>Asking Questions and Defining Problems</b>            Asking questions and defining problems in 3–5 builds on grades K–2 experiences and progresses to specifying qualitative relationships.</p> <ul style="list-style-type: none"> <li>Define a simple design problem that can be solved through the development of an object, tool, process, or system and includes several criteria for success and constraints on materials, time, or cost. (3-5-ETS1-1)</li> </ul> <p><b>Grade 3 SE/TE:</b> 4, Identify the Problem; 42, Identify the Problem; 104, Identify the Problem; 156, Identify the Problem; 200, Identify the Problem; 250, Identify the Problem; 294, Identify the Problem; 342, Identify the Problem; 358, Identify the Problem; 374, Identify the Problem</p>	<p><b>ETS1.A: Defining and Delimiting Engineering Problems</b></p> <ul style="list-style-type: none"> <li>Possible solutions to a problem are limited by available materials and resources (constraints). The success of a designed solution is determined by considering the desired features of a solution (criteria). Different proposals for solutions can be compared on the basis of how well each one meets the specified criteria for success or how well each takes the constraints into account. (3-5-ETS1-1)</li> </ul> <p><b>Grade 3 SE/TE:</b> 4-7, STEM Activity; 42-45, STEM Activity; 104-107; 156-159, STEM Activity; 200-203, STEM Activity; 250-253, STEM Activity; 294-297, STEM Activity; 342-345, STEM Activity; 357-361, Design Process; 374-379, Design It!</p>	<p><b>Influence of Science, Engineering, and Technology on Society and the Natural World</b></p> <ul style="list-style-type: none"> <li>People’s needs and wants change over time, as do their demands for new and improved technologies. (3-5-ETS1-1)</li> </ul> <p><b>Grade 3 SE/TE:</b> 28, The Wright Brothers; 198, Try It!; 337, Cary Fowler; 346, My Planet Diary; 348-349, Scientific Discoveries and Technology; 359, 21<sup>st</sup> Century Learning; 361, Evaluate and Redesign</p> <p><b>Grade 3 TE Only:</b> 290, CCC: Influence of Engineering, Technology, and Science on Society and the Natural World; 349a, My Planet Diary</p> <p><b>Grade 4 SE/TE:</b> 45, Solar Cooking; 350-355, Lesson 1</p>

**A Correlation of Interactive Science, ©2016, to the  
Next Generation Science Standards**

Next Generation Science Standards	Interactive Science, ©2016 Grade 5	
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<p><b>Grade 3 TE Only:</b> 291, SEP: Asking Questions and Defining Problems</p> <p><b>Grade 4 SE/TE:</b> 4, Identify the Problem; 50, Identify the Problem; 82, Identify the Problem; 116, Identify the Problem; 178, Identify the Problem; 234, Identify the Problem; 300, Identify the Problem; 346, Identify the Problem; 374, Identify the Problem;</p> <p><b>Grade 4 TE Only:</b> 297, SEP: Asking Questions and Defining Problems</p> <p><b>Grade 5 SE/TE:</b> 4, Identify the Problem; 56, Identify the Problem; 104, Identify the Problem; 146, Identify the Problem; 200, Identify the Problem; 260, Identify the Problem; 318, Identify the Problem; 364, Identify the Problem; 383, Identify the Problem; 398, Identify the Problem</p> <p><b>Grade 5 TE Only:</b> 315: SEP: Asking Questions and Defining Problems</p> <p><b>Planning and Carrying Out Investigations</b> Planning and carrying out investigations to answer questions or test solutions to problems in 3–5 builds on K–2 experiences and progresses to include investigations that control variables and provide evidence to support explanations or design solutions.</p> <ul style="list-style-type: none"> <li>Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence, using fair tests in which variables are controlled and the number of trials considered. (3-5-ETS1-3)</li> </ul>	<p><b>Grade 3 TE Only:</b> 361b, Lesson 3 Check – Question 4</p> <p><b>Grade 4 SE/TE:</b> 4-7, STEM Activity; 50-53, STEM Activity; 82-85, STEM Activity; 116-119, STEM Activity; 178-181, STEM Activity; 234-237, STEM Activity; 300-303, STEM Activity; 346-349, STEM Activity; 357-363, Design Process; 374-379, Design It!</p> <p><b>Grade 5 SE/TE:</b> 4-7, STEM Activity; 56-59, STEM Activity; 104-107, STEM Activity; 146-149, STEM Activity; 200-203, STEM Activity; 260-263, STEM Activity; 318-321, STEM Activity; 364-367, STEM Activity; 381-385, Design Process; 398-403, Design It!</p> <p><b>ETS1.B: Developing Possible Solutions</b></p> <ul style="list-style-type: none"> <li>Research on a problem should be carried out before beginning to design a solution. Testing a solution involves investigating how well it performs under a range of likely conditions. (3-5-ETS1-2)</li> </ul> <p><b>Grade 3 SE/TE:</b> 4-5, Do Research; 42, Do Research; 104-105, Do Research; 156-157, Do Research; 200-201, Do Research; 250-251, Do Research; 294-295, Do Research; 342-343, Do Research; 358, Do Research; 374, Do Research</p> <p><b>Grade 3 TE Only:</b> 55, 21<sup>st</sup> Century Learning</p> <p><b>Grade 4 SE/TE:</b> 4, Do Research; 50-52, Do Research; 82-83, Do Research; 116-117, Do Research; 178-179, Do Research; 234-235, Do Research; 300-301, Do Research; 357, Design Process; 358, Step 2: Do Research; 375, Do Research</p>	<p><b>Grade 4 TE Only:</b> 296, CCC: Influence of Engineering, Technology, and Science on Society and the Natural World; 342G-342H, Leveled Content Reader Support; 355a, My Planet Diary; 355b, Lesson 1 Check – Questions 1-6</p> <p><b>Grade 5 SE/TE:</b> 363, Technology and Our Homes; 368-369, Envision it!; 369-373, Lesson 1; 374-379, Lesson 2; 386-387, Designing Robotic Arms; 390, Denim Insulation; 394, Chapter Review – Lessons 1, 2</p> <p><b>Grade 5 TE Only:</b> 373b, Lesson 1 Check – Questions 1-6; 379a, My Planet Diary; 379b, Lesson 2 Check – Questions 1-6</p> <ul style="list-style-type: none"> <li>Engineers improve existing technologies or develop new ones to increase their benefits, decrease known risks, and meet societal demands. (3-5-ETS1-2)</li> </ul> <p><b>Grade 3 SE/TE:</b> 28, The Wright Brothers; 84, Electrical Engineer; 341, Let’s Read Science; 346-349, Lesson 1; 359, Develop Possible Solutions; 364, Lawn Mowers</p> <p><b>Grade 3 TE Only:</b> 290, CCC: Influence of Engineering, Technology, and Science on Society and the Natural World; 349a, My Planet Diary</p> <p><b>Grade 4 SE/TE:</b> 70, Smart Plane; 234-237, STEM Activity; 289, Robotic Fish; 295, Make a Booklet; 350-351, Envision It!; 350-355, Lesson 1; 357-363, Design Process; 366, Submersibles; 370, Chapter Review – Lesson 1; 371, Chapter Review – Lesson 2; 372, Benchmark Practice – Questions 2, 3, 5</p>

**A Correlation of Interactive Science, ©2016, to the  
Next Generation Science Standards**

Next Generation Science Standards	Interactive Science, ©2016 Grade 5	
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<p><b>Grade 3 SE/TE:</b> 4-7, STEM Activity; 42-45, STEM Activity; 104-107; 156-159, STEM Activity; 200-203, STEM Activity; 250-253, STEM Activity; 294-297, STEM Activity; 342-345, STEM Activity; 357-361, Design Process; 374-379, Design It!</p> <p><b>Grade 4 SE/TE:</b> 4-7, STEM Activity; 50-53, STEM Activity; 82-85, STEM Activity; 116-119, STEM Activity; 178-181, STEM Activity; 234-237, STEM Activity; 300-303, STEM Activity; 346-349, STEM Activity; 357-363, Design Process; 374-379, Design It!</p> <p><b>Grade 5 SE/TE:</b> 4-7, STEM Activity; 56-59, STEM Activity; 104-107, STEM Activity; 146-149, STEM Activity; 200-203, STEM Activity; 260-263, STEM Activity; 318-321, STEM Activity; 364-367, STEM Activity; 381-385, Design Process; 398-403, Design It!</p> <p><b>Constructing Explanations and Designing Solutions</b> Constructing explanations and designing solutions in 3–5 builds on K–2 experiences and progresses to the use of evidence in constructing explanations that specify variables that describe and predict phenomena and in designing multiple solutions to design problems.</p> <ul style="list-style-type: none"> <li>Generate and compare multiple solutions to a problem based on how well they meet the criteria and constraints of the design problem. (3-5-ETS1-2)</li> </ul>	<p><b>Grade 5 SE/TE:</b> 4-5, Do Research; 56-57, Do Research; 104-105, Do Research; 146, Do Research; 200, Do Research; 260-261, Do Research; 318-319, Do Research; 364-365, Do Research; 382, Do Research; 399, Do Research</p> <ul style="list-style-type: none"> <li>At whatever stage, communicating with peers about proposed solutions is an important part of the design process, and shared ideas can lead to improved designs. (3-5-ETS1-2)</li> </ul> <p><b>Grade 3 SE/TE:</b> 7, Question 14; 107, Communicate Results; 345, Question 14</p> <p><b>Grade 3 TE Only:</b> 5, Pre-Activity Discussion; 6, Post-Activity Discussion; 43, Pre-Activity Discussion; 44, Post-Activity Discussion; 105, Pre-Activity Discussion; 106, Post-Activity Discussion; 157, Pre-Activity Discussion; 158, Post-Activity Discussion; 201, Pre-Activity Discussion; 202, Post-Activity Discussion; 251, Pre-Activity Discussion; 252, Post-Activity Discussion; 295, Pre-Activity Discussion; 296, Post-Activity Discussion; 343, Pre-Activity Discussion; 344, Post-Activity Discussion</p> <p><b>Grade 4 SE/TE:</b> 363, Communicate Results</p> <p><b>Grade 4 TE Only:</b> 5, Pre-Activity Discussion; 6, Post-Activity Discussion; 51, Pre-Activity Discussion; 52, Post-Activity Discussion; 83, Pre-Activity Discussion; 84, Post-Activity Discussion; 117, Pre-Activity Discussion; 118, Post-Activity Discussion; 179, Pre-Activity Discussion; 180, Post-Activity Discussion; 235, Pre-Activity Discussion; 236, Post-Activity Discussion; 301, Pre-Activity Discussion</p>	<p><b>Grade 4 TE Only:</b> 260, Professional Development Note; 342G-342H, Leveled Content Reader Support; 342, CCC: Influence of Engineering, Technology, and Science on Society and the Natural World; 355a, My Planet Diary; 355b, Lesson 1 Check – Questions 1-6; 363b, Lesson 2 Check – Questions 1-6; 371a, Part 2 Test – Questions 1-6; 371b, Part 2 Test – Questions 7, 9</p> <p><b>Grade 5 SE/TE:</b> 359, Flight Simulators; 361, Predict; 363, Technology and Our Homes; 369, Problems and Solutions; 370-371, Tools in Medicine; 374, My Planet Diary; 375-377, Technology and the Human Body; 378, Animals and Technology; 379, Nanobots; 381-385, Design Process; 386-387; 390, Denim Insulation; 394, Chapter Review – Lesson 2; 395, Chapter Review – Lesson 3; 396, Benchmark Practice – Questions 2, 3, 5; 397, Infrared Technology</p> <p><b>Grade 5 TE Only:</b> 360G-360H, Leveled Content Reader Support; 360, CCC: Influence of Engineering, Technology, and Science on Society and the Natural World; 379a, My Planet Diary; 379b, Lesson 2 Check</p>



**A Correlation of Interactive Science, ©2016, to the  
Next Generation Science Standards**

Next Generation Science Standards	Interactive Science, ©2016 Grade 5	
Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p><b>Grade 3 SE/TE:</b> 4-7, STEM Activity; 42-45, STEM Activity; 104-107; 156-159, STEM Activity; 200-203, STEM Activity; 250-253, STEM Activity; 294-297, STEM Activity; 342-345, STEM Activity; 357-361, Design Process; 374-379, Design It!</p> <p><b>Grade 3 TE Only:</b> 339, SEP: Constructing Explanations and Designing Solutions</p> <p><b>Grade 4 SE/TE:</b> 4-7, STEM Activity; 50-53, STEM Activity; 82-85, STEM Activity; 116-119, STEM Activity; 178-181, STEM Activity; 234-237, STEM Activity; 300-303, STEM Activity; 346-349, STEM Activity; 357-363, Design Process; 374-379, Design It!</p> <p><b>Grade 4 TE Only:</b> 343, SEP: Constructing Explanations and Designing Solutions</p> <p><b>Grade 5 SE/TE:</b> 4-7, STEM Activity; 56-59, STEM Activity; 104-107, STEM Activity; 146-149, STEM Activity; 200-203, STEM Activity; 260-263, STEM Activity; 318-321, STEM Activity; 364-367, STEM Activity; 381-385, Design Process; 398-403, Design It!</p> <p><b>Grade 5 TE Only:</b> 361, SEP: Constructing Explanations and Designing Solutions</p>	<p>Discussion; 302, Post-Activity Discussion; 347, Pre-Activity Discussion; 348, Post-Activity Discussion</p> <p><b>Grade 5 SE/TE:</b> 385, Communicate Results</p> <p><b>Grade 5 TE Only:</b> 5, Pre-Activity Discussion; 6, Post-Activity Discussion; 57, Pre-Activity Discussion; 58, Post-Activity Discussion; 105, Pre-Activity Discussion; 106, Post-Activity Discussion; 147, Pre-Activity Discussion; 148, Post-Activity Discussion; 201, Pre-Activity Discussion; 202, Post-Activity Discussion; 261, Pre-Activity Discussion; 262, Post-Activity Discussion; 319, Pre-Activity Discussion; 320, Post-Activity Discussion; 365, Pre-Activity Discussion; 366, Post-Activity Discussion</p> <ul style="list-style-type: none"> <li>• Tests are often designed to identify failure points or difficulties, which suggest the elements of the design that need to be improved. (3-5-ETS1-3)</li> </ul> <p><b>Grade 3 SE/TE:</b> 6-7, Test the Prototype; 44-45, Test the Prototype; 106, Test the Prototype; 158, Test the Prototype; 203, Test the Prototype; 252, Test the Prototype; 296, Test the Prototype; 345, Test the Prototype; 378, Test the Prototype</p> <p><b>Grade 4 SE/TE:</b> 6, Test the Prototype; 53, Test the Prototype; 84, Test the Prototype; 119, Test the Prototype; 180-181, Test the Prototype; 236, Test the Prototype; 303, Test the Prototype; 349, Test the Prototype; 361, Step 6: Test the Prototype; 378, Test the Prototype</p>	

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Next Generation Science Standards**

Next Generation Science Standards		Interactive Science, ©2016 Grade 5
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	<p><b>Grade 5 SE/TE:</b> 6, Test the Prototype; 59, Test the Prototype; 106, Test the Prototype; 148, Test the Prototype; 202, Test the Prototype; 262-263, Test the Prototype; 320, Test the Prototype; 366, Test the Prototype; 384, Test the Prototype</p> <p><b>ETS1.C: Optimizing the Design Solution</b></p> <ul style="list-style-type: none"> <li>Different solutions need to be tested in order to determine which of them best solves the problem, given the criteria and the constraints. (3-5-ETS1-3)</li> </ul> <p><b>Grade 3 SE/TE:</b> 7, Evaluate and Redesign; 45, Evaluate and Redesign; 107, Evaluate and Redesign; 159, Evaluate and Redesign; 203, Evaluate and Redesign; 252-253, Evaluate and Redesign; 297, Evaluate and Redesign; 345, Evaluate and Redesign; 361, Evaluate and Redesign; 379, Evaluate and Redesign</p> <p><b>Grade 4 SE/TE:</b> 7, Evaluate and Redesign; 53, Evaluate and Redesign; 85, Evaluate and Redesign; 119, Evaluate and Redesign; 181, Evaluate and Redesign; 237, Evaluate and Redesign; 303, Evaluate and Redesign; 349, Evaluate and Redesign; 363, Step 8: Evaluate and Redesign; 379, Evaluate and Redesign</p> <p><b>Grade 5 SE/TE:</b> 7, Evaluate and Redesign; 59, Evaluate and Redesign; 106-107, Evaluate and Redesign; 149, Evaluate and Redesign; 203, Evaluate and Redesign; 263, Evaluate and Redesign; 321, Evaluate and Redesign; 367, Evaluate and Redesign; 385, Evaluate and Redesign; 403, Evaluate and Redesign</p>	