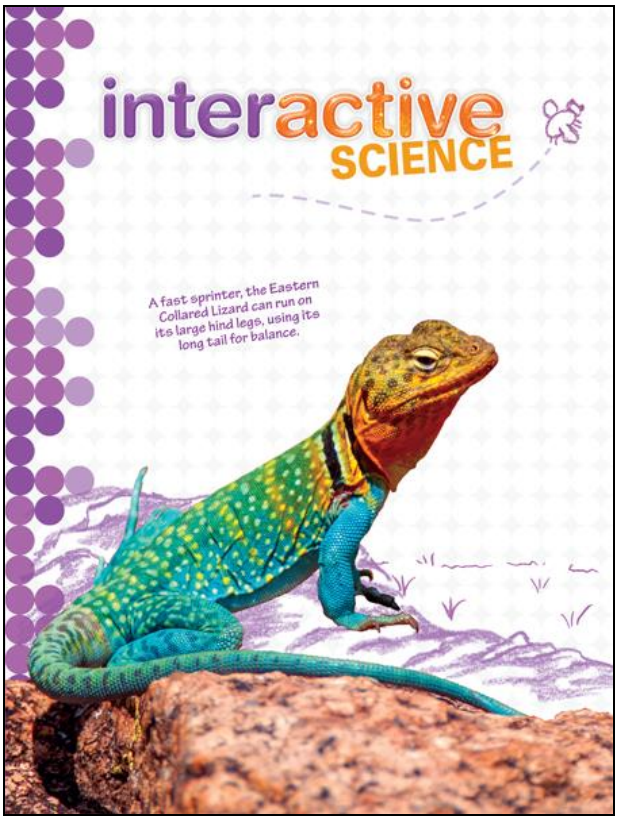
A Correlation of

Interactive Science

Grade 5, © 2016



To the

Louisiana Student Standards for Science

Pearson

A Correlation of Interactive Science, Grade 5, ©2016, to the Louisiana Student Standards for Science

Introduction

The following document indicates how closely ***Interactive Science,* ©2016, Grades K-5,** supports the Louisiana Student Standards for Science, 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*** support the Next Generation Science Standards (NGSS) 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.

Table of Contents

SE = Student Edition TE = Teacher's Edition

Louisiana Student Standards for Science	Interactive Science, Grade 5 ©2016
5-PS1-1 MATTER AND ITS INTERACTIONS	
Performance Expectation	
Develop a model to describe that matter is made of particles too small to be seen.	**TE Only:** 99a, Chapter 1 Performance Expectation Activity
Clarification Statement	
Examples of evidence could include adding air to expand a basketball, compressing air in a syringe, dissolving sugar in water, or evaporating salt water. Does not include atomic scale mechanism of evaporation and condensation or defining the unseen particles.	
Science & Engineering Practices	
2. Developing and using models: 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.	
• Develop and/or use models to describe and/or predict phenomena.	**SE/TE:** 4-7, STEM Activity; 13, Lightning Lab; 16, Explore It!; 34, Explore It!; 36, At-Home Lab **TE Only:** 9, ELA Support; 12, Differentiated Instruction; 15, RTI: Response to Intervention; 21a, Explore It!; 39a, Explore It!; 54, 99a, Performance Expectation Activity
Disciplinary Core Ideas	
STRUCTURE AND PROPERTIES OF MATTER	
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 boiling water, the inflation and shape of a balloon, and the effects of air on larger particles or objects. (UE.PS1A.a)	**SE/TE:** 8, My Planet Diary; 9, Matter; 12, Atoms; 13, Atomic Arrangement; 14-15, Compounds; 48, Chapter Review – Lesson 1 **TE Only:** 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
Crosscutting Concepts	
SCALE, PROPORTION, AND QUANTITY	
Natural objects and/or observable phenomena exist from the very small to the immensely large or from very short to very long time periods.	**SE/TE:** 1, What makes up these giant crystals?; 9, Matter; 12, Atoms; 13, Atomic Arrangement; 48, Chapter Review – Lesson 1 **TE Only:** 1G-1H, Leveled Content Reader Support; 1I, Read Aloud; 1I, Professional Development Note; 15b, Lesson 1 Check – Questions 1, 3, 4; 49a, Chapter 1 Test – Question 5; 99a, Performance Expectation Activity

Louisiana Student Standards for Science	Interactive Science, Grade 5 ©2016
5-PS1-2 MATTER AND ITS INTERACTIONS	
Performance Expectation	
Measure and graph quantities to provide evidence that regardless of the type of change that occurs when heating, cooling, or mixing substances, the total amount of matter is conserved.	**TE Only:** 99b, Chapter 1 Performance Expectation Activity
Clarification Statement	
Examples of chemical changes includes reactions that produce new substances with new properties. Examples of physical changes could include phase changes, dissolving, or mixing.	
Science & Engineering Practices	
5. Using mathematics and computational thinking: 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.	
• Describe, measure, estimate, and/or graph quantities (e.g., area, volume, time) to address scientific and engineering questions and problems.	**SE/TE:** 2, Try It! **TE Only:** 1, SEP: Using Mathematics and Computational Thinking; 99b, Performance Expectation Activity
Disciplinary Core Ideas	
STRUCTURE AND PROPERTIES OF MATTER	
The amount of mass in matter is conserved when it changes form, even in transitions in which it seems to vanish. (UE.PS1A.b)	**TE Only:** 1C, Properties of Matter: Teacher Background
CHEMICAL REACTIONS	
When two or more different substances are mixed, a new substance with different properties may be formed. (UE.PS1B.a)	**SE/TE:** 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 **TE Only:** 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
No matter what reaction or change in properties occurs, the total mass of the substances does not change. (UE.PS1B.b)	**SE/TE:** 2, Try It!; 9, Matter **TE Only:** 1C, Teacher Background; 99b, Performance Expectation Activity; 99b, ELA/Literacy; 99b, Mathematics

Louisiana Student Standards for Science	Interactive Science, Grade 5 ©2016
Crosscutting Concepts	
ENERGY AND MATTER	
Matter flows and cycles can be tracked in terms of mass of the substances before and after a process occurs. The total mass of the substances does not change. This is what is meant by conservation of matter. Matter is transported into, out of, and within systems.	**SE/TE:** 111, At-Home Lab; 144, Try It!; 158-165, Lesson 2; 187, Chapter Review - Question 11, 189. Go Green! **TE Only:** 100, CCC: Energy and Matter; 195a, Performance Expectation Activity; 195c Performance Expectation Activity
5-PS1-3 MATTER AND ITS INTERACTIONS	
Performance Expectation	
Make observations and measurements to identify materials based on their properties.	**TE Only:** 99c, Chapter 1 Performance Expectation Activity
Clarification Statement	
Examples of materials to be identified could include baking soda and other powders, metals, minerals, or liquids. Examples of properties could include color, hardness, reflectivity, electrical conductivity, thermal conductivity, response to magnetic forces, or solubility; density is not intended to be used as an identifiable property. No attempt is made to define the unseen particles or explain the atomic-scale mechanism of evaporation and condensation.	
Science & Engineering Practices	
3. Planning and carrying out Investigations: Planning and carrying out investigations to answer questions (science) or test solutions (engineering) 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.	
• 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.	**SE/TE:** 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! **TE Only:** 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!

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Disciplinary Core Ideas	
STRUCTURE AND PROPERTIES OF MATTER	
Measurements of a variety of properties can be used to identify materials. (UE.PS1A.c)	**SE/TE:** 2, Try It!; 3, Let's Read Science!; 10-11, Elements; 16-21, Lesson 2; 25, Freezing and Melting; 28, Explore It!; 33 Solubility **TE Only:** 21b, Lesson 2 Check – Questions 1-4, 7; 33a, Explore It!; 99b, Performance Expectation Activity; 99b, Mathematics; 99c, Performance Expectation Activity
Crosscutting Concepts	
SCALE, PROPORTION, AND QUANTITY	
Standard units are used to measure and describe physical quantities such as mass, time, temperature, and volume.	**SE/TE:** 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 **TE Only**: 21b, Lesson 2 Check – Questions 1, 3, 4, 6); 99a, Performance Expectation Activity; 99a, Mathematics; 99b, Performance Expectation Activity; 99b, Mathematics; EM1, Measurements

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5-PS1-4 MATTER AND ITS INTERACTIONS	
Performance Expectation	
Conduct an investigation to determine whether the mixing of two or more substances results in new substances.	**TE Only:** 99d, Chapter 1 Performance Expectation Activity
Clarification Statement	
Examples of interactions forming new substances can include mixing baking soda and vinegar. Examples of interactions not forming new substances can include mixing baking soda and water.	
Science & Engineering Practices	
3. Planning and carrying out Investigations: 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.	
• 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.	**SE/TE:** 16, Explore It!; 38, Lightning Lab; 40-41, Investigate It!; 98, Plan an Investigation; 99, Investigate Mixtures; 348-349, Investigate It! **TE Only:** 21a, Explore It!; 30, Professional Development Note; 41a-41d, Activity Card Support; 99d, Performance Expectation Activity
Disciplinary Core Ideas	
CHEMICAL REACTIONS	
When two or more different substances are mixed, a new substance with different properties may be formed. (UE.PS1B.a)	**SE/TE:** 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 **TE Only:** 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
Crosscutting Concepts	
CAUSE AND EFFECT	
Cause and effect relationships are routinely identified, tested, and used to explain change.	**SE/TE:** 16, Explore It!; 22, Explore It!; 34, Explore It! **TE Only:** 21a, Explore It!; 27a, Explore It!; 27b, Lesson 3 Check – Question 6; 32, 21st Century Learning; 52

Louisiana Student Standards for Science	Interactive Science, Grade 5 ©2016
5-PS2-1 MOTION AND STABILITY: FORCES AND INTERACTIONS	
Performance Expectation	
Support an argument that the gravitational force exerted by the Earth is directed down.	**TE Only:** 99e, Chapter 2 Performance Expectation Activity
Clarification Statement	
"Down" is a local description of the direction that points toward the center of the spherical Earth. Earth's mass causes objects to have a force on them that points toward the center of the Earth, "down". Support for arguments can be drawn from diagrams, evidence, and data that are provided. This does not include mathematical representation of gravitational force.	
Science & Engineering Practices	
7. Engaging in argument from evidence: 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)	
• Construct and/or support an argument with evidence, data, and/or a model.	**TE Only:** 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
Disciplinary Core Ideas	
TYPES OF INTERACTIONS	
The gravitational force of Earth acting on an object near Earth's surface pulls that object toward the planet's center. (UE.PS2B.c)	**SE/TE:** 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 **TE Only:** 65, RTI: Response to Intervention; 77a, Explore It!; 99e, Performance Expectation Activity; 99e, ELA/Literacy
Crosscutting Concepts	
CAUSE AND EFFECT	
Cause and effect relationships are routinely identified, tested, and used to explain change.	**SE/TE:** 272, Lightning Lab; 296-297, Investigate It!; 312, Crater Formation **TE Only:** xlvi-xlvii, QUEST; 52, CCC: Cause and Effect; 297a-297c, Activity Card Support; 313d, Performance Expectation Activity

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5-PS3-1 MATTER AND ENERGY IN ORGANISMS AND ECOSYSTEMS	
Performance Expectation	
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.	**TE Only:** Chapter 4 Performance Expectation Activity, 195c
Clarification Statement	
Examples of models could include diagrams or flowcharts.	
Science & Engineering Practices	
2. Developing and using models: 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.	
• Develop and/or use models to describe and/or predict phenomena.	**SE/TE:** 162, Lightning Lab; 195, Create a Food Web Model **TE Only:** 143, SEP: Developing and Using Models; 163, Science Notebook; 195a, Performance Expectation Activity; 195c, Performance Expectation Activity
Disciplinary Core Ideas	
ENERGY IN CHEMICAL PROCESSES AND EVERYDAY LIFE	
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). (UE.PS3D.b)	**SE/TE:** 37, Chemical Changes; 112-113, Structures for Respiration and Circulation; 150-157, Lesson1; 186, Chapter Review, Lesson 1 **TE Only:** 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
ORGANIZATION FOR MATTER AND ENERGY FLOW IN ORGANISMS	
Food provides animals with the materials they need for body repair and growth and energy they need to maintain body warmth and for motion. (UE.LS1C.a)	**SE/TE:** 151, Plants and Energy; 156-157, Respiration **TE Only:** 195a, Performance Expectation Activity

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Crosscutting Concepts	
ENERGY AND MATTER	
Energy can be transferred in various ways and between objects.	**SE/TE:** 151, Plants and Energy; 162, Food Chains; 163, Food Webs **TE Only:** 100, CCC: Energy and Matter; 154, Differentiated Instruction; 195a, Performance Expectation Activity; 195c, Performance Expectation Activity
5-LS1-1 FROM MOLECULES TO ORGANISMS: STRUCTURES AND PROCESSES	
Performance Expectation	
Ask questions about how air and water affect the growth of plants.	**SE/TE:** 115, Plant Adaptations
Clarification Statement	
Emphasis is on the idea that plant matter comes mostly from air and water, not from the soil. The chemical processes of photosynthesis and cellular respiration are not addressed at this grade level.	
Science & Engineering Practices	
1. Asking questions and defining problems: Asking questions (science) and defining problems (engineering) in 3-5 builds on K-2 experiences and progresses to specifying qualitative relationships.	
• Ask questions that can be investigated and predict reasonable outcomes based on patterns such as cause and effect relationships.	**SE/TE:** 132-133, Investigate it! How do seeds grow?
Disciplinary Core Ideas	
ORGANIZATION FOR MATTER AND ENERGY FLOW IN ORGANISMS	
Plants acquire their material for growth chiefly from air and water. (UE.LS1C.b)	**SE/TE:** 112-113, Structures for Respiration and Circulation; 114, Explore It!; 132-133, Investigate It!; 146-149, STEM Activity; 150-157, Lesson 1 **TE Only:** 119a, Explore It!; 155, Science Notebook; 133a-133d, Activity Card Support; 157, Differentiated Instruction; 195b, Performance Expectation Activity; 195b, ELA/Literacy

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Crosscutting Concepts	
ENERGY AND MATTER	
Matter is transported into, out of, and within systems.	**SE/TE:** 111, At-Home Lab; 144, Try It!; 158-165, Lesson 2; 187, Chapter Review - Question 11, 189. Go Green! **TE Only:** 100, CCC: Energy and Matter; 195a, Performance Expectation Activity; 195c Performance Expectation Activity
5-LS2-1 ECOSYSTEMS	
Performance Expectation	
Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment.	**TE Only:** Chapter 4 Performance Expectation Activity, 195a
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 of the Earth not including molecular explanations.	
Science & Engineering Practices	
2. Developing and using models: 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.	
• Develop and/or use models to describe and/or predict phenomena.	**SE/TE:** 162, Lightning Lab; 195, Create a Food Web Model **TE Only:** 143, SEP: Developing and Using Models; 163, Science Notebook; 195a, Performance Expectation Activity; 195c, Performance Expectation Activity

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Disciplinary Core Ideas	
INTERDEPENDENT RELATIONSHIPS IN ECOSYSTEMS	
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. (UE.LS2A.a)	**SE/TE:** 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 **TE Only:** 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
Some organisms, such as fungi and bacteria, break down dead organisms and therefore operate as "decomposers." Decomposition eventually restores (recycles) some materials back to the soil. (UE.LS2A.b)	**SE/TE:** 151, Plants and Energy; 158-165
Organisms can survive only in environments in which their particular needs are met. A healthy ecosystem is one in which multiple species of different types are each able to meet their needs in a relatively stable web of life. (UE.LS2A.c)	**SE/TE:** 167, Environmental Changes 176, Nonnative Species

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Newly introduced species can damage the balance of an ecosystem. (UE.LS2A.d)	**SE/TE:** 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 **TE Only:** 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
CYCLES OF MATTER AND ENERGY TRANSFER IN ECOSYSTEMS	
Matter cycles between the air and soil and among plants, animals, decomposers, 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. (UE.LS2B.a)	**SE/TE:** 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! **TE Only:** 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
Crosscutting Concepts	
SYSTEMS AND SYSTEM MODELS	
A system can be described in terms of its components and their interactions.	**SE/TE:** 111, At-Home Lab; 144, Try It!; 158-165, Lesson 2; 187, Chapter Review – Question 11 **TE Only:** 142, CCC: Systems and System Models; 195a, Performance Expectation Activity

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5-ESS1-1 EARTH'S PLACE IN THE UNIVERSE	
Performance Expectation	
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.	**TE Only:** Chapter 6 Performance Expectation Activity, 313c
Clarification Statement	
Examples include the relative distances of the stars, but not the sizes. It does not include other factors that affect apparent brightness (such as stellar masses, age, stage).	
Science & Engineering Practices	
7. Engaging in argument from evidence: 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).	
• Construct and/or support an argument with evidence, data, and/or a model.	**TE Only:** 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
Disciplinary Core Ideas	
THE UNIVERSE AND ITS STARS	
The sun is a star that appears larger and brighter then other stars because it is closer. Stars range greatly in their distance from Earth. (UE.ESS1A.a)	**SE/TE:** 271,-275, Lesson 2 **TE Only:** 275b, Lesson 2 Check – Question 4; 313c, Performance Expectation Activity; 313c, ELA/Literacy; 313c, Mathematics
Crosscutting Concepts	
SCALE, PROPORTION, AND QUANTITY	
Natural objects and/or observable phenomena exist from the very small to the immensely large or from very short to very long time periods.	**SE/TE:** 271, Stars; 272, Lightning Lab; 279, Mercury; 284, Explore It!; 285, Gas Giants; 289, Exploring the Giants; 292, Meteors; 293, Comets; 294, Dwarf Planets **TE Only:** 256G-256H, Leveled Content Reader Support; 289a, Explore It!
5-ESS1-2 EARTH'S PLACE IN THE UNIVERSE	
Performance Expectation	
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.	**TE Only:** 313d, Chapter 6 Performance Expectation Activity, 313d

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Clarification Statement	
Patterns could include the position and motion of Earth with respect to the sun and selected stars that are visible only in particular months; not including the causes of the seasons.	
Science & Engineering Practices	
4. Analyzing and interpreting data: 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.	
• Represent data in tables and/or various graphical displays (bar graphs, pictographs and/or pie charts) to reveal patterns that indicate relationships.	**TE Only:** xlvi-xlvii, QUEST; 313a, Mathematics; 313b, Performance Expectation Activity; 313b, ELA/Literacy; 313d, Performance Expectation Activity
Disciplinary Core Ideas	
HISTORY OF PLANET EARTH	
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. (UE.ESS1B.a)	**SE/TE:** 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 **TE Only:** xlvi-xlvii, 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
Crosscutting Concepts	
PATTERNS	
Similarities and differences in patterns can be used to sort, classify, communicate and analyze simple rates of change for natural phenomena and designed products.	**SE/TE:** 275, Stars on the Move; 313, Model a Planet's Orbit **TE Only:** xlvi-xlvii, QUEST; 256, CCC: Patterns; 313d, Performance Expectation Activity; 313d, ELA/Literacy

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5-ESS2-1 EARTH'S SYSTEMS	
Performance Expectation	
Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact.	**TE Only:** Chapter 5 Performance Expectation Activity, 313a
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.	
Science & Engineering Practices	
2. Developing and using models: 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.	
• Develop and/or use models to describe and/or predict phenomena.	**SE/TE:** 198, Try It!; 200-203, STEM Activity; 224, Explore It!; 313, Landforms and Weather **TE Only:** 197, SEP: Developing and Using Models; 207, Differentiated Instruction; 214, Differentiated Instruction; 229a, Explore It!; 313a, Performance Expectation Activity; 313a, ELA/Literacy
Disciplinary Core Ideas	
EARTH MATERIALS AND SYSTEMS	
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. (UE.ESS2A.b)	**SE/TE:** 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 1, 2, 3; 253, Chapter Review – Lesson 4; 254, Benchmark Practice – Question 2; 313, Landforms and Weather; 318-321, STEM Activity **TE Only:** 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

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Crosscutting Concepts	
SYSTEMS AND SYSTEM MODELS	
A system can be described in terms of its components and their interactions.	**SE/TE:** 206-207, The Water Cycle; 211, The Earth as a System **TE Only:** 196, CCC: Systems and System Models; 313a, Performance Expectation Activity; 313a, ELA/Literacy; 313a, Mathematics
5-ESS2-2 EARTH'S SYSTEMS	
Performance Expectation	
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.	**TE Only:** Chapter 5 Performance Expectation Activity, 313b See also Grade 4, Lesson 6.5.
Clarification Statement	
Examples include oceans, lakes, rivers, glaciers, ground water, and polar ice caps.	
Science & Engineering Practices	
5. Using mathematics and computational thinking: 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.	
• Describe, measure, estimate, and/or graph quantities (e.g., area, volume, time) to address scientific and engineering questions and problems.	**SE/TE:** 178-179, Investigate It!; 209, Do the Math; 213, Do the Math! **TE Only:** 179a-179c, Activity Card Support; 313a, Mathematics; 313b, Performance Expectation Activity; 313b, ELA/Literacy
Disciplinary Core Ideas	
THE ROLES OF WATER IN EARTH'S SURFACE PROCESSES	
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. (UE.ESS2C.a)	**SE/TE:** 206-207, The Water Cycle; 212, Atmosphere; 213, Hydrosphere; 213, Lightning Lab; 234, Bodies of Water; 238-239, Water Erosion and Deposition **TE Only:** 196C, Teacher Background; 196G-196H, Leveled Content Reader Support; 206, Common Misconception; 213, Differentiated Instruction; 313b, Performance Expectation Activity
Liquid water can become the gas form of water (water vapor) and liquid water can become a solid as ice. (UE.ESS2C.b)	**SE/TE:** States of Matter, 23 **TE Only:** Lightning Lab, 25

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Crosscutting Concepts	
SCALE, PROPORTION, AND QUANTITY	
Standard units are used to measure and describe physical quantities such as mass, time, temperature, and volume.	**SE/TE:** 214, Calculate; 260-263, STEM Activity; 312, Rain Gauge; 339, Tools; EM1, Measurements **TE Only:** 313a, Mathematics; 313b, Performance Expectation Activity
5-ESS3-1 EARTH AND HUMAN ACTIVITY	
Performance Expectation	
Generate and compare multiple solutions about ways individual communities can use science to protect the Earth's resources and environment.	**TE Only:** 195d, Chapter 4 Performance Expectation Activity
Clarification Statement	
Examples of solutions can include cleanup of oil spills, protecting against coastal erosion, or prevention of polluted runoff into waterways.	
Science & Engineering Practices	
6. Constructing explanations (science) and designing solutions (engineering) 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.	
• Generate and compare multiple solutions to a problem based on how well they meet the criteria and constraints of the design solution.	**SE/TE:** 318-321, STEM Activity; 362, Try It!; 368, Explore It!; 398, Design It! **TE Only**: 316, Lab Support 361, Constructing Explanations and Designing Solutions
Disciplinary Core Ideas	
HUMAN IMPACTS ON EARTH SYSTEMS	
Human activities in agriculture, industry, and everyday life have had major effects on the land, vegetation, streams, ocean and the atmosphere. But individuals and communities are doing things to help protect Earth's resources and environments. (UE.ESS3C.a)	**SE/TE:** 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 **TE Only:** 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, 21st Century Learning

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DEVELOPING POSSIBLE SOLUTIONS	
Tests are often designed to identify failure points or difficulties, which suggest the elements of the design that need to be improved. (ETS.UE.1B.c)	**SE/TE:** 6, 59, 106, 148, 202, 262-263, 320, 366, 384, Test the Prototype
Crosscutting Concepts	
SYSTEMS AND SYSTEM MODELS	
A system can be described in terms of its components and their interactions.	**SE/TE:** 206-207, The Water Cycle; 211, The Earth as a System **TE Only:** 196, CCC: Systems and System Models; 313a, Performance Expectation Activity; 313a, ELA/Literacy; 313a, Mathematics