

A Correlation of
Elevate Science
Grade 5, ©2019



To the
Colorado 2020 Academic Standards
for Science
Grade 5

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Introduction

The following document demonstrates how the ***Elevate Science***, ©2019 program supports Colorado 2020 Academic Standards for Science, Grade 5. For each standard, correlation references are to the Student Edition and Teacher Edition where applicable.

Elevate Science is a comprehensive K-5 science program that focuses on active, student-centered learning. It builds students' critical thinking, questioning, and collaboration skills, and fuels interest in STEM and creative problem solving while supporting literacy development for elementary-age learners. Developed to support Next Generation Science Standards (NGSS), ***Elevate Science*** integrates three dimensional learning of the Scientific and Engineering Practices, Crosscutting Concepts (CCC), and Disciplinary Core Ideas (DCIs).

The ***Elevate Science*** blended print and digital curriculum engages students in phenomena-based inquiry and hands-on investigations.

- Problem-based learning Quests put students on a journey of discovery
- Engineering-focused features infuse STEM learning
- Coding and innovation engage students and build 21st century skills

The Teacher's Edition of ***Elevate Science*** helps elementary educators teach science with confidence: Scaffolding, ELD, differentiated instruction, and an instructional organization based upon the 5E learning model, (Engage, Explore, Explain, Extend/Elaborate, Evaluate), provide all the support needed for successful teaching practices. Professional development offers point-of-use support. A full-view approach to inquiry and testing provides new options for a variety of hands-on labs and assessments for three-dimensional learning.

Elevate Science prepares students for the challenges of tomorrow, building strong reasoning skills and critical thinking strategies as they engage in explorations, formulate claims, and gather and analyze data that promote evidence-based argument. Designed for today's classroom, preparing students for tomorrow's world. ***Elevate Science*** promises to:

- Elevate thinking.
- Elevate learning.
- Elevate teaching

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The energy released from food was once energy from the sun. 12

Plants acquire their material from growth chiefly from air and water. 14

Matter cycles between air and soil and among plants, animals and microbes as these organisms live and die. 16

Stars range greatly in size and distance from Earth, and this can explain their relative brightness. 20

Earth's orbit and rotation and the orbit of the moon around earth cause observable patterns. 21

Earth's major systems interact in multiple ways to affect Earth's surface materials and processes. 25

Most of Earth's water is in the ocean and much of Earth's freshwater in glaciers or underground. 28

Societal activities have had major effects on land, ocean, atmosphere and even outer space. 30

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Colorado 2020 Academic Standards for Science, Grade 5	Elevate Science Grade 5, ©2018
1. Physical Science	
Prepared Graduates:	
1. Students can use the full range of science and engineering practices to make sense of natural phenomena and solve problems that require understanding structure, properties and interactions of matter.	
Grade Level Expectation:	
1. Matter exists as particles that are too small to be seen; measurements of a variety of observable properties can be used to identify particular materials.	
Evidence Outcomes	
<i>Students Can:</i>	
<p>a. Develop a model to describe that matter is made of particles too small to be seen. (5-PS1-1) 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. Does not include the atomic-scale mechanism of evaporation and condensation or defining the unseen particles.)</p>	<p>SE/TE: Topic 1 uInvestigate Lab: How can you detect matter without seeing it?, 17 Topic 1 uBe a Scientist: Disappearance of Particles, 18 Topic 1 STEM Quest Check-In Lab: How do you know that matter is still there?, 23 Topic 1 uInvestigate Lab: How can you use properties to identify solids?, 27 Topic 1 Model It!, 28 Topic 2 Math Toolbox: Use Models, 67 Science and Engineering Practices Handbook: Science Practices, Developing and Using Models, EM6</p>

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<p>b. Make observations and measurements to identify materials based on their properties. (5-PS1-3) 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. Does not include density or distinguishing mass and weight.) (Boundary Statement: 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.)</p>	<p>SE/TE: Topic 1 uConnect Lab: What's in the b□x?, 4 Topic 1 ulInvestigate Lab: How do we describe materials?, 7 Topic 1 Observing Properties, 8 Topic 1 Measuring Properties, 9 Topic 1 Visual Literacy Connection: Can you tell them apart?, 10-11 Topic 1 Quest Check-In Lab: How can you observe matter?, 14 Topic 1 ulInvestigate Lab: How can you detect matter without seeing it?, 17 Topic 1 STEM Quest Check-In Lab: How do you know that matter is still there?, 23 Topic 1 ulInvestigate Lab: How can you use properties to identify solids?, 27 Topic 1 Quest Findings: STEM Identify the Mystery Material, 34 Topic 1 uDemonstrate Lab: How do you know what it is?, 40-41</p> <p>Realize™ Digital Resources: Properties of Matter >Lesson 1, Observe Matter>Video: Observe Matter;>Interactivity: Measuring Matter;>Quiz: Observe Matter >Lesson 3, Properties of Matter>Video: Properties of Matter;>Interactivity: Matter and Its Properties;>Quiz: Properties of Matter</p>
Academic Context and Connections	
<i>Colorado Essential Skills and Science and Engineering Practices:</i>	
<p>1. Use models to describe phenomena (Developing and Using Models) (Personal: Initiative/Self-direction).</p>	<p>SE/TE: Topic 1 Visual Literacy Connection: What is the matter?, Infer, 21 Topic 1 Model It!, 28 Topic 2 Math Toolbox: Use Models, 67 Science and Engineering Practices Handbook: Science Practices, Developing and Using Models, EM6</p>

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<i>Colorado Essential Skills and Science and Engineering Practices:</i>	
<p>1. Make observations and measurements to produce data to serve as the basis for evidence for an explanation of a phenomenon (Planning and Carrying Out Investigations) (Personal: Personal responsibility).</p>	<p>SE/TE: Topic 1 Observing Properties, 8 Topic 1 uBe a Scientist: Identify Properties, 8 Topic 1 Measuring Properties, 9 Topic 1 Visual Literacy Connection: Can you tell them apart?, 10-11 Topic 1 uInvestigate Lab: How can you detect matter without seeing it?, 17 Topic 1 STEM Quest Check-In Lab: How do you know that matter is still there?, 23 Science and Engineering Practices Handbook: Science Practices, Carry Out Investigations, EM1</p> <p>Realize™ Digital Resources: Properties of Matter >Lesson 1, Observe Matter>Video: Observe Matter;>Interactivity: Measuring Matter;>Quiz: Observe Matter >Lesson 3, Properties of Matter>Video: Properties of Matter;>Interactivity: Matter and Its Properties;>Quiz: Properties of Matter</p>
<i>Elaboration on the GLE:</i>	
<p>1. Students can answer the question: How do particles combine to form the variety of matter one observes?</p>	<p>SE/TE: Topic 1 Molecules, 19 Topic 1 Literacy Toolbox: Use Evidence from Text, 19 Topic 1 Quest Connection, 19</p>
<p>2. PS1:A 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 the inflation and shape of a balloon and the effects of air on larger particles or objects. Measurements of a variety of properties can be used to identify materials.</p>	<p>SE/TE: Topic 1 Lesson 2 Model Matter: Engineering Connection, 16 Topic 1 uInvestigate Lab: How can you detect matter without seeing it?, 17 Topic 1 Visual Literacy Connection: What is the matter?, 20-21 Topic 2 Gas, 54</p> <p>Realize™ Digital Resources: Properties of Matter >Lesson 2, Model Matter>Video: Model Matter;>Quiz: Model Matter</p>

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Cross Cutting Concepts:	
<p>1. Scale, Proportion and Quantity: Natural objects exist from the very small to the immensely large. Standard units are used to measure and describe physical quantities such as weight, time, temperature and volume.</p>	<p>SE/TE: Topic 1 Lesson 1 Observe Matter: Local-To-Global Connection, 6 Topic 1 Measuring Properties, 9 Topic 1 uBe a Scientist: Disappearance of Particles, 18 Topic 1 Visual Literacy Connection: What is the matter?, 20-21 TE Only: Topic 1 Focus on Mastery!: Using standard units, 7 Topic 1 Focus on Mastery!: Scale, Proportion, and Quantity, 8, 11</p> <p>Realize™ Digital Resources: Properties of Matter >Lesson 2, Model Matter> >Lesson 2, Model Matter>Video: Model Matter;>Quiz: Model Matter</p>
Grade Level Expectation:	
2. Chemical Reactions that occur when substances are mixed can be identified by the emergence of substances with different properties; the total mass remains the same.	
Evidence Outcomes	
<i>Students Can:</i>	
<p>a. 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. (5-PS1-1) Clarification Statement: Examples of reactions or changes could include phase changes, dissolving and mixing that form new substances. Does not include distinguishing mass and weight.) (Boundary Statement: Mass and weight are not distinguished at this grade level.)</p>	<p>SE/TE: Topic 2 Particles and Chemical Changes, 67 Topic 2 Math Toolbox: Use Models, 67 Topic 2 Model It!, 67 Topic 2 Model It!, 68 Topic 2 Conservation of Matter, 68-69 Topic 2 Lesson 3 Check: Question 2, 73</p>
<p>b. Conduct an investigation to determine whether the mixing of two or more substances results in new substances. (5-PS1-4)</p>	<p>SE/TE: Topic 2 uInvestigate Lab: How can you identify chemical changes?, 65 Topic 2 Infographic: Baking a Cake, 66 Topic 2 Interactivity, 69 Science and Engineering Practices Handbook: Science Practices, Carry Out Investigations, EM1 Topic 2 uDemonstrate Lab: How does mass change when you make glop?, 94-95</p>

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Academic Context and Connections	
<i>Colorado Essential Skills and Science and Engineering Practices:</i>	
1. Measure and graph quantities such as weight to address scientific and engineering questions and problems (Using Mathematics and Computational Thinking) (Entrepreneurial: Critical thinking/Problem solving).	SE/TE: Topic 2 ulnvestigate Lab: How can you identify chemical changes?, 65 Topic 2 STEM Quest Check-In Lab: How can you make modeling dough?, 74-75 Topic 2 Quest Check-In Lab: How can you make a new and improved formula?, 86-87 Science and Engineering Practices Handbook: Science Practices, Using Math, EM5
<i>Elaboration on the GLE:</i>	
1. Students can answer the questions: How do substances combine or change (react) to make new substances? How does one characterize and explain these reactions and make predictions about them?	SE/TE: Topic 2 Lesson 3 Chemical Changes: STEM Connection, 64 Topic 2 ulnvestigate Lab: How can you identify chemical changes?, 65 Topic 2 Quest Connection, 69
2. PS1:B Chemical Reactions: No matter what reaction or change in properties occurs, the total weight of the substances does not change. (Boundary Statement: Mass and weight are not distinguished at this grade level.) When two or more different substances are mixed, a new substance with different properties may be formed.	SE/TE: Topic 2 ulnvestigate Lab: How can you identify chemical changes?, 65 Topic 2 Model It!, 68 Topic 2 Conservation of Matter, 68-69 Topic 2 STEM Quest Check-In Lab: How can you make modeling dough?, 74-75 Topic 2 Quest Check-In Lab: How can you make a new and improved formula?, 86-87 Realize™ Digital Resources: Changes in Matter >Lesson 3, Chemical Changes>Interactivity: Chemical Changes
<i>Cross Cutting Concepts:</i>	
1. Scale, Proportion and Quantity: Standard units are used to measure and describe physical quantities such as weight, time, temperature and volume.	SE/TE: Topic 1 Mass and volume, 29 Topic 2 Lesson 3 Check: Question 2, 73 TE Only: Topic 2 Focus on Mastery: Using Mathematics and Computational Thinking, 65 Realize™ Digital Resources: Properties of Matter >Lesson 3, Properties of Matter>Interactivity: Measuring Matter;>Interactivity: Matter and Its Properties

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<p>2. Scientific Knowledge to Assumes an Order and Consistency in Natural Systems: Science assumes consistent patterns in natural systems.</p>	<p>SE/TE: Topic 2 uBe a Scientist: Mass and Plant Growth, 72 Topic 2 Examples of Chemical Changes, 72-73</p> <p>Realize™ Digital Resources: Changes in Matter >Lesson 3, Chemical Changes>Interactivity: Chemical Changes</p>
<p>3. Cause and Effect: Cause - and - effect relationships are routinely identified, tested and used to explain change.</p>	<p>SE/TE: Topic 2 Lesson 3 Chemical Changes: STEM Connection, 64 Topic 2 ulnvestigate Lab: How can you identify chemical changes?, 65 Topic 2 Lesson 3 Check: Question 1, 73 Topic 2 Assessment: Questions 2, 3, 5, 92-93</p> <p>Realize™ Digital Resources: Changes in Matter >Lesson 2, Physical Changes>Interactivity: Changing States;>Interactivity: Physical Changes in Matter >Lesson 3, Chemical Changes;>Interactivity: Chemical Changes >Lesson 4, Mixtures and Solutions>Interactivity: Mixtures and Solutions</p>

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Grade Level Expectation:	
3. The gravitational force of Earth acting on an object near Earth's surface pulls that object toward the planet's center.	
Evidence Outcomes	
<i>Students Can:</i>	
<p>a. Support an argument that the gravitational force exerted by Earth on objects is directed down. (5-PS2-1) Clarification Statement: "Down" is a local description of the direction that points toward the center of the spherical Earth.) (Boundary Statement: Does not include mathematical representation of gravitational force).</p>	<p>SE/TE: Topic 7 uInvestigate Lab: How long do objects take to fall?, 279 Topic 7 Gravitational Force, 280 Topic 7 Interactivity, 280 Topic 7 Gravity on Earth, 281 Topic 7 uBe a Scientist: Explore Gravity, 281 Topic 7 Quest Check-In Lab: How does gravity affect matter?, 283 Topic 7 Assessment: Questions 1, 4, 308 Science and Engineering Practices Handbook: Science Practices, Engaging in Arguments from Evidence, EM7</p> <p>Realize™ Digital Resources: Patterns in Space >Lesson 1, Earth's Gravitational Forces> Interactivity: The Force of Gravity;>Virtual lab: Gravity Here and There</p>
Academic Context and Connections	
<i>Colorado Essential Skills and Science and Engineering Practices:</i>	
<p>1. Support an argument with evidence, data or a model (Engaging in Argument from Evidence) (Personal: Initiative/Self-direction).</p>	<p>SE/TE: Topic 7 uInvestigate Lab: How long do objects take to fall?, 279 Topic 7 Science Practice Toolbox: Engage in Argument from Evidence, 282 Science and Engineering Practices Handbook: Science Practices, Developing and Using Models, EM6 Science and Engineering Practices Handbook: Science Practices, Engaging in Arguments from Evidence, EM7</p> <p>Realize™ Digital Resources: Patterns in Space >Lesson 1, Earth's Gravitational Forces> Interactivity: The Force of Gravity;>Virtual lab: Gravity Here and There</p>

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<i>Elaboration on the GLE:</i>	
1. Students can answer the question: What underlying forces explain the variety of interactions observed?	<p>SE/TE: Topic 7 Gravitational Force, 280 Topic 7 Gravity on Earth, 281 Topic 7 uBe a Scientist: Explore Gravity, 281 Topic 7 Science Practice Toolbox: Engage in Argument from Evidence, 282 Topic 7 Lesson 1 Check: Question 1, 282</p>
2. PS2:B Types of Interactions: The gravitational force of Earth acting on an object near Earth's surface pulls that object toward the planet's center.	<p>SE/TE: Topic 7 uInvestigate Lab: How long do objects take to fall?, 279 Topic 7 Gravitational Force, 280 Topic 7 Gravity on Earth, 281 Topic 7 Science Practice Toolbox: Engage in Argument from Evidence, 282 Topic 7 Quest Check-In Lab: How does gravity affect matter?, 283 Topic 7 Assessment: Questions 1, 4, 308</p> <p>Realize™ Digital Resources: Patterns in Space >Lesson 1, Earth's Gravitational Forces>Video: Earth's Gravitational Forces;>Interactivity: The Force of Gravity;>Virtual lab: Gravity Here and There;>Quiz: Earth's Gravitational Forces</p>
<i>Cross Cutting Concepts:</i>	
1. Cause and Effect: Cause - and - effect relationships are routinely identified and used to explain change.	<p>SE/TE: Topic 7 uBe a Scientist: Explore Gravity, 281 Topic 7 Quest Check-In Lab: How does gravity affect matter?, 283</p> <p>TE Only: Topic 7 Investigate: Virtual Lab, 280 Topic 7 21st Century Skills: Critical Thinking, 281</p> <p>Realize™ Digital Resources: Human Impacts on Earth's Systems >Lesson 3, Human Activity and Earth's Systems>Video: Human Activity and Earth's Systems;>Interactivity: Causes of Environmental Damage;>Quiz: Human Activity and Earth's Systems</p>

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Grade Level Expectation:	
4. The energy released from food was once energy from the sun.	
Evidence Outcomes	
<i>Students Can:</i>	
<p>a. Use models to describe that energy in animals' food (used for body repair, growth and motion and to maintain body warmth) was once energy from the sun. (5-PS3-1) Clarification Statement: Examples of models could include diagrams and flowcharts.)</p>	<p>SE/TE: Topic 8 uConnect Lab: How much food do you need?, 318 Topic 8 ulInvestigate Lab: How is the sun involved in your meals?, 321 Topic 8 Energy Paths to the Sun; Identify, 326 Topic 8 ulInvestigate Lab: How do animals get energy from the sun?, 339 Topic 8 uDemonstrate Lab: How does matter move through an ecosystem, 352-353 Science and Engineering Practices Handbook: Science Practices, Developing and Using Models, EM6</p>
Academic Context and Connections	
<i>Colorado Essential Skills and Science and Engineering Practices:</i>	
<p>1. Use models to describe phenomena (Developing and Using Models) (Personal: Initiative/Self-direction).</p>	<p>SE/TE: Topic 8 uConnect Lab: How much food do you need?, 318 Topic 8 ulInvestigate Lab: How is the sun involved in your meals?, 321 Topic 8 ulInvestigate Lab: What matter do plants need to make food?, 329 Topic 8 ulInvestigate Lab: How do animals get energy from the sun?, 339 Topic 8 Crosscutting Concepts Toolbox: Energy and Matter, 340 Science and Engineering Practices Handbook: Science Practices, Developing and Using Models, EM6</p>

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<i>Elaboration on the GLE:</i>	
<p>1. Students can answer the questions: How do food and fuel provide energy? If energy is conserved, why do people say it is produced or used?</p>	<p>SE/TE: Topic 8 Energy and Food: The Essential Question, Show What You Know, 315 Topic 8 uConnect Lab: How much food do you need?, 318 Topic 8 ulinvestigate Lab: How is the sun involved in your meals?, 321 Topic 8 Plants and Energy, 322 Topic 8 Animals and Energy, 323 Topic 8 ulinvestigate Lab: How do animals get energy from the sun?, 339 Topic 8 Crosscutting Concepts Toolbox: Energy and Matter, 340</p> <p>TE Only: Topic 8 Differentiated Instruction: Support Advanced Learners, 315</p>
<p>2. PS3:D 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).</p>	<p>SE/TE: Topic 6: Earth’s Sun, 238 Topic 8 Energy and Food: The Essential Question, Show What You Know, 315 Topic 8 ulinvestigate Lab: How is the sun involved in your meals?, 321 Topic 8 Plants and Energy, 322 Topic 8 Animals and Energy, 323 Topic 8 Photosynthesis, 330 Topic 8 Quest Check-In Lab: What plant foods provide the most energy and nutrients?, 334-335 Topic 8 ulinvestigate Lab: How do animals get energy from the sun?, 339</p> <p>Realize™ Digital Resources: Energy and Food >Lesson 1, Energy in Food>Video: Energy in Food;>Interactivity: Energy in Food Chains;>Quiz: Energy in Food >Lesson 2, How Plants Make Food>Video: How Plants Make Food;>Interactivity: Photosynthesis;>Quiz: How Plants Make Food</p>

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<i>Cross Cutting Concepts:</i>	
1. Energy and Matter: Energy can be transferred in various ways and between objects.	<p>SE/TE: Topic 8 Energy and Food: The Essential Question, Show What You Know, 315 Topic 8 Teach with Visuals: What is a trophic level?, 324-325 Topic 8 Crosscutting Concepts Toolbox: Energy and Matter, 330, 340 Topic 8 ulnvestigate Lab: How do animals get energy from the sun?, 339</p> <p>TE Only: Topic 8 Focus on Mastery!: Developing and Using Models, 340</p>
2. Life Science	
Prepared Graduates:	
6. Students can use the full range of science and engineering practices to make sense of natural phenomena and solve problems that require understanding how living systems interact with the biotic and abiotic environment.	
Grade Level Expectation:	
1. Plants acquire their material from growth chiefly from air and water.	
Evidence Outcomes	
<i>Students Can:</i>	
a. Support an argument that plants get the materials they need for growth chiefly from air and water. (5-LS1-1) Clarification Statement: Emphasis is on the idea that plant matter comes mostly from air and water, not from the soil.)	<p>SE/TE: Topic 8 ulnvestigate Lab: What matter do plants need to make food?, 329 Topic 8 How Plants Gain Mass, 331 Science and Engineering Practices Handbook: Science Practices, Engaging in Arguments from Evidence, EM7</p>
Academic Context and Connections	
<i>Colorado Essential Skills and Science and Engineering Practices:</i>	
1. Support an argument with evidence, data or a model (Engaging in Argument from Evidence) (Personal: Initiative/Self-direction).	<p>SE/TE: Topic 8 Quest Check-In Lab: What plant foods provide the most energy and nutrients?, 334-335 Topic 8 How Plants Gain Mass, 331 Science and Engineering Practices Handbook: Science Practices, Developing and Using Models, EM6 Science and Engineering Practices Handbook: Science Practices, Engaging in Arguments from Evidence, EM7</p>

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<i>Elaboration on the GLE:</i>	
1. Students can answer the question: How do organisms obtain and use the matter and energy they need to live and grow?	SE/TE: Topic 8 ulnvestigate Lab: What matter do plants need to make food?, 329 Topic 8 Photosynthesis, 330 Topic 8 Model It!, 330 Topic 8 How Plants Gain Mass, 331
2. LS1:C Organization for Matter and Energy Flow in Organisms: Plants acquire their material for growth chiefly from air and water.	SE/TE: Topic 8 ulnvestigate Lab: What matter do plants need to make food?, 329 Topic 8 How Plants Gain Mass, 331 Topic 8 Quest Check-In Lab: What plant foods provide the most energy and nutrients?, 334-335 Realize™ Digital Resources: Energy and Food >Lesson 2, How Plants Make Food>Video: How Plants Make Food;>Interactivity: Photosynthesis;>Quiz: How Plants Make Food
<i>Cross Cutting Concepts:</i>	
1. Energy and Matter: Matter is transported into, out of and within systems.	SE/TE: Topic 8 ulnvestigate Lab: How is the sun involved in your meals?, 321 Topic 8 ulnvestigate Lab: What matter do plants need to make food?, 329 Topic 8 Crosscutting Concepts Toolbox: Energy and Matter, 330 Topic 8 Nutrients from Soil, 333 Realize™ Digital Resources: Energy and Food >Lesson 2, How Plants Make Food>Video: How Plants Make Food;>Interactivity: Photosynthesis;>Quiz: How Plants Make Food Matter and Energy in Ecosystems >Lesson 2, Organisms Within Ecosystems>Video: Organisms Within Ecosystems;>Interactivity: Producers, Consumers, and Decomposers;>Quiz: Organisms Within Ecosystems >Lesson 4, Matter and Energy Transfer Within Ecosystems>Video: Matter and Energy Transfer Within Ecosystems;>Interactivity: Matter and Energy Transfer;>Quiz: Matter and Energy Transfer Within Ecosystems

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Grade Level Expectation:	
2. Matter cycles between air and soil and among plants, animals and microbes as these organisms live and die.	
Evidence Outcomes	
<i>Students Can:</i>	
<p>a. Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment. (5-LS2-1) 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.) (Boundary Statement: Does not include molecular explanations.)</p>	<p>SE/TE: Topic 9 uInvestigate Lab: How does change affect organisms in an ecosystem?, 379 Topic 9 Quest Check-In Lab: How does change affect organisms in an ecosystem?, 384-385 Topic 9 uInvestigate Lab: How does matter move through an ecosystem?, 387 Topic 9 uEngineer It! Model STEM: Ecosystems in a Box, 394-395 Topic 9 Assessment: The Essential Question, 399 Topic 9 STEM uDemonstrate Lab: How can you model matter cycles in the Earth system?, 402-403 Science and Engineering Practices Handbook: Science Practices, Developing and Using Models, EM6</p> <p>TE Only: Topic 9 Focus on Mastery!, Developing and Using Models, 364</p> <p>Realize™ Digital Resources: Matter and Energy in Ecosystems >Lesson 4, Matter and Energy Transfer Within Ecosystems>uEngineer It! Interactivity: Plan an Ecosystem</p>
Academic Context and Connections	
<i>Colorado Essential Skills and Science and Engineering Practices:</i>	
<p>1. Develop a model to describe phenomena (Developing and Using Models) (Personal: Initiative/Self-direction).</p>	<p>SE/TE: Topic 9 uInvestigate Lab: How does change affect organisms in an ecosystem?, 379 Topic 9 Quest Check-In Lab: How does change affect organisms in an ecosystem?, 384-385 Topic 9 uEngineer It! Model STEM: Ecosystems in a Box, 394-395 Topic 9 STEM uDemonstrate Lab: How can you model matter cycles in the Earth system?, 402-403 Science and Engineering Practices Handbook: Science Practices, Developing and Using Models, EM6</p>

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<p>2. Connections to the Nature of Science: Science Models, Laws, Mechanisms and Theories Explain Natural Phenomena. Science explanations describe the mechanisms for natural events.</p>	<p>SE/TE: Topic 9 Decomposers (mechanism for decomposition), 371 Topic 9 Visual Literacy Connection: What happens to a forest ecosystem after a fire? (mechanism for succession), 380-381 Science and Engineering Practices Handbook: Science Practices, Developing and Using Models, EM6</p>
<p><i>Elaboration on the GLE:</i></p>	
<p>1. Students can answer the questions: How do organisms interact with the living and nonliving environments to obtain matter and energy? How do matter and energy move through an ecosystem?</p>	<p>SE/TE: Topic 9 Ecosystems, 362 Topic 9 Quest Connection: 362 Topic 9 Parts of an Ecosystem, 363 Topic 9 Literacy Toolbox: Compare and Contrast, 363 Topic 9 Visual Literacy Connection: How do factors interact in a forest ecosystem?, 364-365 389</p>

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<p>2. LS2:A 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. Some organisms, such as fungi and bacteria, break down dead organisms (both plants or plant 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 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.</p>	<p>SE/TE: Topic 3 uEngineer It! Improve STEM: A New Home, 118-119 Topic 5 Lesson 4 Protection of Earth's Resources and Environments: Curriculum Connection, 212 Topic 8 Teach with Visuals: What is a trophic level?, 324-325 Topic 8 uDemonstrate Lab: How does matter move through an ecosystem, 352-353 Topic 9 uInvestigate Lab: How can matter change in an ecosystem?, 369 Topic 9 Decomposers, 371 Topic 9 Visual Literacy Connection: Who eats whom?, 372-373 Topic 9 Food Webs, 375 Topic 9 Interactivity, 375 Topic 9 Stable Ecosystems, 382 Topic 9 Flow of Matter in Ecosystems, 388</p> <p>Realize™ Digital Resources: Energy and Food >Lesson 3, How Animals Use Food>Video: How Animals Use Food Matter and Energy in Ecosystems >Lesson 1, Ecosystems>Video: Ecosystems;>Interactivity: Interactions in an Ecosystem;>Quiz: Ecosystems >Lesson 2, Organisms Within Ecosystems>Video: Organisms Within Ecosystems;>Interactivity: Producers, Consumers, and Decomposers;>Quiz: Organisms Within Ecosystems >Lesson 4, Matter and Energy Transfer Within Ecosystems>Video: Matter and Energy Transfer Within Ecosystems;>Interactivity: Matter and Energy Transfer;>Quiz: Matter and Energy Transfer Within Ecosystems</p>

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<p>3. LS2:B Cycles of Matter and Energy Transfer in Ecosystems: 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.</p>	<p>SE/TE: Topic 8 uDemonstrate Lab: How does matter move through an ecosystem, 352-353 Topic 9 Visual Literacy Connection: Who eats whom?, 372-373 Topic 8 Crosscutting Concepts Toolbox: Systems, 370 Topic 9 Flow of Matter in Ecosystems, 388 Topic 9 Energy Flow in Ecosystems, 389 Topic 9 Cycles of Matter, 392 TE Only: Topic 9 21st Century Skills: Understanding Current Science and Technology, 389</p> <p>Realize™ Digital Resources: Energy and Food >Lesson 2, How Plants Make Food>Video: How Plants Make Food;>Interactivity: Photosynthesis;>Quiz: How Plants Make Food Matter and Energy in Ecosystems >Lesson 2, Organisms Within Ecosystems>Video: Organisms Within Ecosystems;>Interactivity: Producers, Consumers, and Decomposers;>Quiz: Organisms Within Ecosystems >Lesson 4, Matter and Energy Transfer Within Ecosystems>Video: Matter and Energy Transfer Within Ecosystems;>Interactivity: Matter and Energy Transfer;>Quiz: Matter and Energy Transfer Within Ecosystems</p>
<i>Cross Cutting Concepts:</i>	
<p>1. Systems and System Models: A system can be described in terms of its components and their interactions.</p>	<p>SE/TE: Topic 9 Ecosystems, 362 Topic 9 Quest Connection: 362 Topic 9 Parts of an Ecosystem, 363 Topic 9 Literacy Toolbox: Compare and Contrast, 363 Topic 9 Visual Literacy Connection: How do factors interact in a forest ecosystem?, 364-365 Topic 8 Crosscutting Concepts Toolbox: Systems, 370</p> <p>Realize™ Digital Resources: Matter and Energy in Ecosystems >Lesson 1, Ecosystems>Video: Ecosystems;>Interactivity: Interactions in an Ecosystem;>Quiz: Ecosystems</p>

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3. Earth and Space Science	
Prepared Graduates:	
9. Students can use the full range of science and engineering practices to make sense of natural phenomena and solve problems that require understanding the universe and Earth's place in it.	
Grade Level Expectation:	
1. Stars range greatly in size and distance from Earth, and this can explain their relative brightness.	
Evidence Outcomes	
<i>Students Can:</i>	
<p>a. 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. (5-ESS1-1) (Clarification Statement: Limited to relative distances, not sizes, of stars. Does not include other factors that affect apparent brightness [such as stellar masses, age and stage].</p>	<p>SE/TE: Topic 6 uInvestigate Lab: How are distance and brightness related?, 237 Topic 6 Evidence-Based Assessment, Questions 1-5, 268-269 Topic 7 Stars and Constellations, 297</p>
Academic Context and Connections	
<i>Colorado Essential Skills and Science and Engineering Practices:</i>	
<p>1. Support an argument with evidence, data or a model (Engaging in Argument from Evidence) (Civic/Interpersonal: Collaboration/Teamwork).</p>	<p>SE/TE: Topic 6 uConnect Lab: How big is the sun?, 234 Topic 6 uInvestigate Lab: How are distance and brightness related?, 237 Topic 6 uInvestigate Lab: How does a planets distance from the sun affect its path?, 247 Science and Engineering Practices Handbook: Science Practices, Engaging in Arguments from Evidence, EM7</p> <p>Realize™ Digital Resources: Solar System >Lesson 1, Brightness of the Sun and Other Stars>Video: Brightness of the Sun and Other Stars;>Interactivity: The Sun and Other Stars</p>
<i>Elaboration on the GLE:</i>	
<p>1. Students can answer the question: What is the universe, and what goes on in stars?</p>	<p>SE/TE: Topic 6 uConnect Lab: How big is the sun?, 234 Topic 6 Lesson 1 Brightness of the Sun and Other Stars: Local-To-Global, Connection, 236 Topic 6 Earth's Sun, 238 Topic 6 Structure of the Sun, 239 Topic 6 Brightness of Stars, 240 Topic 6j Star Temperature, 240 Topic 6 Lesson 1 Check: Question 1, 242 Topic 6 Visual Literacy Connection: What is in our solar system? 248-249</p>

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<p>2. ESS1:A The Universe and its Stars: 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.</p>	<p>SE/TE: Topic 6 Lesson 1 Brightness of the Sun and Other Stars: Local-To-Global, Connection, 236 Topic 6 uInvestigate Lab: How are distance and brightness related?, 237 Topic 6 Earth's Sun, 238 Topic 6 Structure of the Sun, 239 Topic 6 Distances of Stars, 240 Topic 6 Plan It!, 241 Topic 6 Lesson 1 Check: Question 1, 242 Topic 6 Evidence-Based Assessment, Questions 1-5, 268-269 Topic 7 Stars and Constellations, 297</p> <p>Realize™ Digital Resources: Solar System >Lesson 1, Brightness of the Sun and Other Stars>Video: Brightness of the Sun and Other Stars;>Interactivity: The Sun and Other Stars;>Quiz: Brightness of the Sun and Other Stars</p>
Cross Cutting Concepts:	
<p>1. Scale, Proportion and Quantity: Natural objects exist from the very small to the immensely large.</p>	<p>SE/TE: Topic 6 uConnect Lab: How big is the sun?, 234</p> <p>Realize™ Digital Resources: Solar System >Lesson 1, Brightness of the Sun and Other Stars>Video: Brightness of the Sun and Other Stars;>Interactivity: The Sun and Other Stars</p>
Grade Level Expectation:	
2. Earth's orbit and rotation and the orbit of the moon around earth cause observable patterns.	
Evidence Outcomes	
<i>Students Can:</i>	
<p>a. 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. (5-ESS1-2) (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.) (Boundary Statement: Does not include causes of seasons.)</p>	<p>SE/TE: Topic 7 Quest Kickoff: Plan a Trip Around the World of Patterns, 274-275 Topic 7 Shadow Patterns, 296 Topic 7 uBe a Scientist: Shadow Play, 296 Topic 7 Model It!, 296 Topic 7 Quest Findings: Plan a Trip Around the World of Patterns, 306</p>

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Academic Context and Connections	
<i>Colorado Essential Skills and Science and Engineering Practices:</i>	
<p>1. Represent data in graphical displays (bar graphs, pictographs and/or pie charts) to reveal patterns that indicate relationships. (Analyzing and Interpreting Data) (Entrepreneurial: Critical thinking/Problem solving).</p>	<p>SE/TE: Topic 7 uConnect Lab: How can spinning affect a planet's shape?, 276 Topic 7 Quest Findings: Plan a Trip Around the World of Patterns, 306 Topic 7 Evidenced-Based Assessment: Question 3, 311 Topic 7 uDemonstrate Lab: What can we tell from shadows?, 312-313 Science and Engineering Practices Handbook: Science Practices, Analyzing and Interpreting Data, EM4</p> <p>TE Only: Topic 7 Focus on Mastery!: Patterns, 301</p>
<i>Elaboration on the GLE:</i>	
<p>1. Students can answer the question: What are the predictable patterns caused by Earth's movement in the solar system?</p>	<p>SE/TE: Topic 7 Patterns in Space: The Essential Question, Show What You Know, 273 Topic 7 Lesson 3 Check: Question 1, 302 Topic 7 Earth's Revolution, 287 Topic 7 Quest Connection, 287 Topic 7 Interactivity, 290 Topic 7 Seasons, 290-291 Topic 7 Assessment: The Essential Question, 309 Topic 7 Evidenced-Based Assessment: Questions 1-4, 310-311 Topic 7 uDemonstrate Lab: What can we tell from shadows?, 312-313</p>

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<p>2. ESS1:B Earth and the Solar System: 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.</p>	<p>SE/TE: Topic 7 Lesson 2 Earth’s Movements in Space: Local-To-Global Connection, 284 Topic 7 ulnvestigate Lab: How are we spinning?, 285 Topic 7 Earth’s Rotation, 286 Topic 7 Earth’s Revolution, 287 Topic 7 Visual Literacy Connection: What is the movement of Earth’s moon in space?, 288-289 Topic 7 Lesson 2 Check: Question 2, 291 Topic 7 Quest Check-In: Sun Up, Sun Down, 292 Topic 7 ulnvestigate Lab: What star patterns can you see?, 295 Topic 7 Shadow Patterns, 296 Topic 7 uBe a Scientist: Shadow Play, 296 Topic 7 Model It!, 296 Topic 7 Quest Findings: Plan a Trip Around the World of Patterns, 306 Topic 7 Evidenced-Based Assessment: Questions 1-4, 310-311 Topic 7 uDemonstrate Lab: What can we tell from shadows?, 312-313 Topic 7 Lesson 3 Check: Question 2, 302</p> <p>Realize™ Digital Resources: Patterns in Space >Lesson 2, Earth’s Movements in Space>Video: Earth’s Movements in Space;>Interactivity: Earth’s Rotation: Day and Night;>Quiz: Earth’s Movements in Space >Lesson 3, Patterns Over Time>Video: Patterns Over Time;>Interactivity: Phases of the Moon;>Quiz: Patterns Over Time</p>

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<i>Cross Cutting Concepts:</i>	
<p>1. Patterns: Similarities and differences in patterns can be used to sort, classify, communicate and analyze simple rates of change for natural phenomena.</p>	<p>SE/TE: Topic 7 Lesson 2 Check: Questions 1 & 2, 291 Topic 7 Lesson 3 Patterns Over Time: Curriculum Connection, 294 Topic 7 uInvestigate Lab: What star patterns can you see?, 295 Topic 7 uBe a Scientist: Shadow Play, 296 Topic 7 Model It!, 296 Topic 7 Crosscutting Concepts Toolbox: Patterns, 300 Topic 7 Keeping Track of Time, 302 Topic 7 uEngineer It! Design STEM: Coding Moon Phases, 304-305</p> <p>TE Only: Topic 7 Scaffolded Questions, Classify, Compare, 289</p> <p>Realize™ Digital Resources: Patterns in Space >Lesson 2, Earth’s Movements in Space>Video: Earth’s Movements in Space;>Interactivity: Earth’s Rotation: Day and Night;>Quiz: Earth’s Movements in Space >Lesson 3, Patterns Over Time>Video: Patterns Over Time;>Interactivity: Phases of the Moon;>Quiz: Patterns Over Time</p>

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Prepared Graduates:	
10. Students can use the full range of science and engineering practices to make sense of natural phenomena and solve problems that require understanding how and why Earth is constantly changing.	
Grade Level Expectation:	
3. Earth's major systems interact in multiple ways to affect Earth's surface materials and processes.	
Evidence Outcomes	
<i>Students Can:</i>	
<p>a. Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere and/or atmosphere interact. (5-ESS2-1) 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.) (Boundary Statement: Limited to the interactions of two systems at a time.)</p>	<p>SE/TE: Topic 3 Quest Kickoff: Connect the Spheres, 98-99 Topic 3 uInvestigate Lab: How does water move through soil?, 103 Topic 3 uInvestigate Lab: How does the geosphere affect the hydrosphere?, 121 Topic 3 Evidence-Based Assessment: Questions 1-6, 134-135 Topic 3 uDemonstrate Lab: How are the spheres represented in a terrarium?, 136-137 Science and Engineering Practices Handbook: Science Practices, Developing and Using Models, EM6</p> <p>Realize™ Digital Resources: Earth's Systems >Lesson 3, Interactions Among Earth's Systems>Virtual Lab: Build Your Dream Park</p>
Academic Context and Connections	
<i>Colorado Essential Skills and Science and Engineering Practices:</i>	
<p>1. Develop a model using an example to describe a scientific principle. (Developing and Using Models) (Personal: Initiative/Self-direction).</p>	<p>SE/TE: Topic 3 Quest Kickoff: Connect the Spheres, 98-99 Topic 3 uConnect Lab: How can you model Earth?, 100 Topic 3 uInvestigate Lab: How does water move through soil?, 103 Topic 3 uInvestigate Lab: How does a greenhouse work?, 111 Topic 3 uDemonstrate Lab: How are the spheres represented in a terrarium?, 136-137 Science and Engineering Practices Handbook: Science Practices, Developing and Using Models, EM6</p> <p>Realize™ Digital Resources: Earth's Systems >Lesson 3, Interactions Among Earth's Systems>Virtual Lab: Build Your Dream Park</p>

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<i>Elaboration on the GLE:</i>	
<p>1. Students can answer the question: How do Earth's major systems interact? How do the properties and movements of water shape Earth's surface and affect its systems?</p>	<p>SE/TE: Topic 3 Earth's Systems: The Essential Question, Show What You Know, 97 Topic 3 Quest Kickoff: Connect the Spheres, 98-99 Topic 3 Visual Literacy Connection: What are parts of Earth's geosphere and biosphere?, Describe, 106-107 Topic 3 Quest Check-In: Raining Acid, 109 Topic 3 Visual Literacy Connection: What are parts of Earth's hydrosphere?, 112-113 Topic 3 Quest Connection, 114 Topic 3 Lesson 2 Check: Question 1, 115 Topic 3 uInvestigate Lab: How does the geosphere affect the hydrosphere?, 121 Topic 3 Visual Literacy Connection: How does the ocean affect other systems on Earth?, 124-125 Topic 3 Lesson 3 Check: Question 1, 127 Topic 3 Quest Check-In: Earth's Interactions, 128 Topic 3 uDemonstrate Lab: How are the spheres represented in a terrarium?, 136-137</p>

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<p>2. ESS2:A 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.</p>	<p>SE/TE: Topic 3 Quest Kickoff: Connect the Spheres, 98-99 Topic 3 Earth's Systems, 104 Topic 3 Geosphere and Biosphere, 105 Topic 3 Quest Connection, 105 Topic 3 Visual Literacy Connection: What are parts of Earth's geosphere and biosphere?, 106-107 Topic 3 Lithosphere, 108 Topic 3 Quest Check-In: Raining Acid, 109 Topic 3 Visual Literacy Connection: What are parts of Earth's hydrosphere?, 112-113 Topic 3 Atmosphere, 114 Topic 3 Quest Connection, 114 Topic 3 Hydrosphere-Atmosphere Together, 115 Topic 3 Lesson 2 Check: Question 1, 115 Topic 3 uInvestigate Lab: How does the geosphere affect the hydrosphere?, 121 Topic 3 Interdependence of Earth's Systems, 122 Topic 3 Crosscutting Concepts Toolbox: Systems and System Models, 122 Topic 3 Geosphere and Atmosphere: Reading Check, 123 Topic 3 Visual Literacy Connection: How does the ocean affect other systems on Earth?, 124-125 Topic 3 Lesson 3 Check: Question 1, 127 Topic 3 Quest Check-In: Earth's Interactions, 128 Topic 3 Quest Findings: Connect the Spheres, 130 Topic 3 Assessment: Questions 5, 6, 9, 132-133 Topic 3 Evidence-Based Assessment: Questions 1-6, 134-135 Topic 3 uDemonstrate Lab: How are the spheres represented in a terrarium?, 136-137</p> <p>Realize™ Digital Resources: Earth's Systems >Lesson 1, Geosphere and Biosphere>Video: Geosphere and Biosphere;>Quiz: Geosphere and Biosphere >Lesson 2, Hydrosphere and Atmosphere>Video: Hydrosphere and Atmosphere;>Interactivity: Earth's Four Spheres;>Quiz: Hydrosphere and Atmosphere >Lesson 3, Interactions Among Earth's Systems>Video: Interactions Among Earth's Systems;>Interactivity: Interactions Among Earth's Spheres;>Quiz: Interactions Among Earth's Systems</p>

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<i>Cross Cutting Concepts:</i>	
<p>1. Systems and System Models: A system can be described in terms of its components and their interactions.</p>	<p>SE/TE: Topic 3 uConnect Lab: How can you model Earth?, 100 Topic 3 ulnvestigate Lab: How does water move through soil?, 103 Topic 3 Earth's Systems, 104 Topic 3 Visual Literacy Connection: What are parts of Earth's geosphere and biosphere?, Describe, 106-107 Topic 3 Quest Connection, 114 Topic 3 Quest Check-In Lab: Where are Earth's spheres?, 116-117 Topic 3 Crosscutting Concepts Toolbox: Systems and System Models, 122 Topic 3 Evidence-Based Assessment: Questions 1-6, 134-135</p> <p>Realize™ Digital Resources: Earth's Systems >Lesson 1, Geosphere and Biosphere>Video: Geosphere and Biosphere;>Interactivity: The Organic Geosphere;>Quiz: Geosphere and Biosphere >Lesson 2, Hydrosphere and Atmosphere>Video: Hydrosphere and Atmosphere;>Interactivity: Earth's Four Spheres;>Quiz: Hydrosphere and Atmosphere >Lesson 3, Interactions Among Earth's Systems>Video: Interactions Among Earth's Systems;>Interactivity: Interactions Among Earth's Spheres;>Quiz: Interactions Among Earth's Systems</p>
Grade Level Expectation:	
4. Most of Earth's water is in the ocean and much of Earth's freshwater in glaciers or underground.	
Evidence Outcomes	
<i>Students Can:</i>	
<p>a. Describe and graph the amounts and percentages of saltwater and freshwater in various reservoirs to provide evidence about the distribution of water on Earth. (5-ESS2-2) (Boundary Statement: Limited to oceans, lakes, rivers, glaciers, ground water, and polar ice caps, and does not include the atmosphere.)</p>	<p>SE/TE: Topic 4 Freshwater Shortages, 158 Topic 4 Where Is Water?: Graph Data, 164 Topic 4 Evidence-Based Assessment: Question 1, 176</p> <p>Realize™ Digital Resources: Earth's Water >Lesson 3, Earth's Ocean>Interactivity: Earth's Waters</p>

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Academic Context and Connections	
Colorado Essential Skills and Science and Engineering Practices:	
<p>1. Describe and graph quantities such as area and volume to address scientific questions (Using Mathematics and Computational Thinking) (Entrepreneurial: Critical thinking/Problem solving).</p>	<p>SE/TE: Topic 4 Model It!, 159 Topic 4 Where Is Water?: Graph Data, 164 Topic 4 Evidence-Based Assessment: Question 1, 176</p> <p>Realize™ Digital Resources: Earth's Water >Lesson 3, Earth's Ocean>Interactivity: Earth's Waters</p>
<i>Elaboration on the GLE:</i>	
<p>1. Students can answer the question: How do the properties and movements of water shape Earth's surface and affect its systems?</p>	<p>SE/TE: Topic 4 Earth's Water: The Essential Question: Show What You Know, 139 Topic 4 Movement of Earth's Water, 147 Topic 4 Threats to Shoreline, 169</p>
<p>2. ESS2:C 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.</p>	<p>SE/TE: Topic 3 Visual Literacy Connection: How does the ocean affect other systems on Earth?, 124-125 Topic 4 Earth's Water: The Essential Question: Show What You Know, 139 Topic 4 Quest Kickoff: Water, Water, Everywhere!, 140-141 Topic 4 Visual Literacy Connection: How is freshwater distributed across Earth?, 156-157, Topic 4 uBe a Scientist: Modeling Water Distribution, 158, Topic 4 Lesson 2 Check, Question 1, 159 Topic 4 Where Is Water?: Graph Data, 164 Topic 4 Quest Check-In: Water Resources, 170 Topic 4 Assessment: Question 7, 175 Topic 4 Evidence-Based Assessment: Questions 1-6, 176-177</p> <p>Realize™ Digital Resources: Earth's Water >Lesson 2, Earth's Freshwater>Video: Earth's Freshwater;>Interactivity: Earth's Underground Water;>Quiz: Earth's Freshwater >Lesson 3, Earth's Ocean>Interactivity: Earth's Waters;>Quiz: Earth's Ocean</p>

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<i>Cross Cutting Concepts:</i>	
1. Scale, Proportion, and Quantity: Standard units are used to measure and describe physical quantities such as weight and volume.	SE/TE: Topic 4 Model It!, 159 Topic 4 Where Is Water?: Graph Data, 164 Topic 4 Evidence-Based Assessment: Question 1, 176
Grade Level Expectation:	
5. Societal activities have had major effects on land, ocean, atmosphere and even outer space	
Evidence Outcomes	
<i>Students Can:</i>	
a. Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment. (5-ESS3-1)	SE/TE: Topic 5 Quest Check-In: Increase Conservation, 220 Topic 5 Quest Findings: Take Care of Earth – It's Our Home!, 222 Topic 5 Interactivity, 222 TE Only: Topic 5 Differentiated Instruction: Support Advanced Learners, 209 Realize™ Digital Resources: Earth's Water >Lesson 3, Earth's Ocean>Video: Earth's Ocean Human Impacts on Earth's Systems >Lesson 4, Protection of Earth's Resources and Environments>Video: Protection of Earth's Resources and Environments;>Interactivity: Go Green;>Quiz: Protection of Earth's Resources and Environments

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Academic Context and Connections	
<i>Colorado Essential Skills and Science and Engineering Practices:</i>	
<p>1. Obtain and combine information from books and/or other reliable media to explain phenomena or solutions to a design problem. (Obtaining, Evaluating, and Communicating Information) (Civic/Interpersonal: Communication)</p>	<p>SE/TE: Topic 5 STEM uConnect Lab: How can we reuse materials to design new products?, 184 Topic 5 Science Practice Toolbox: Obtain Information, 199 Topic 5 STEM Quest Check-In Lab: How do building materials affect energy efficiency?, 210-211 Topic 5 uBe a Scientist: Recycling Plastic Investigation, 219 Topic 5 STEM uDemonstrate Lab: How can you use the energy of water?, 228-229</p> <p>TE Only: Topic 5 Differentiated Instruction: Support Advanced Learners, 209</p> <p>Realize™ Digital Resources: Earth's Water >Lesson 3, Earth's Ocean>Video: Earth's Ocean Human Impacts on Earth's Systems >Lesson 4, Protection of Earth's Resources and Environments>Video: Protection of Earth's Resources and Environments;>Interactivity: Go Green;>Quiz: Protection of Earth's Resources and Environments</p>
<i>Elaboration on the GLE:</i>	
<p>1. Students can answer the question: How do humans change the planet?</p>	<p>SE/TE: Topic 5 Visual Literacy Connection: How can human activities change Earth's Systems?, 206-207 Topic 5 Human Resource Use and Pollution, 208 Topic 5 uBe a Scientist: Changes in Habitat, 208 Topic 5 Interactivity, 201 Topic 5 Impacts of Energy Production, 202 Topic 5 Lesson 3 Human Activity and Earth's Systems: STEM Connection, 204 Topic 5 Visual Literacy Connection: How can human activities change Earth's Systems?, 206-207 Topic 5 Human Resource Use and Pollution, 208 Topic 5 Reduce Human Impacts, 209 Topic 5 Lesson 3 Check: Question 1, 209 Topic 5 Assessment: Question 6 and The Essential Question, 225</p>

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<p>2. ESS3:C Human Impacts on Earth Systems: 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.</p>	<p>SE/TE: Topic 5 Human Impacts on Earth's Systems: The Essential Question, Show What You Know, 181 Topic 5 Quest Kickoff: Take Care of Earth- It's Our Home!, 182-183 Topic 5 Literacy Connection: Compare and Contrast, Using Energy Resources, 185 Topic 5 Land and Forest Resources, 189 Topic 5 Quest Check-In: Efficient or Wasteful, 193 Topic 5 uEngineer It! Design STEM: Make Energy the Solar Way, 194-195 Topic 5 uBe a Scientist: Find Your Impact, 202 Topic 5 Quest Check-In: Save Energy, 203 Topic 5 Lesson 3 Human Activity and Earth's Systems: STEM Connection, 204 Topic 5 Human Resource Use and Pollution, 208 Topic 5 uBe a Scientist: Changes in Habitat, 208 Topic 5 Reduce Human Impacts, 209 Topic 5 STEM Quest Check-In Lab: How do building materials affect energy efficiency?, 210-211 Topic 5 STEM uInvestigate Lab: How can you collect rainwater?, 213 Topic 5 Resource Protection, 214 Topic 5 Environmental Conservation, 215 Topic 5 Visual Literacy Connection: How do people recycle?, 216-217 Topic 5 Reduce and Reuse, 218 Topic 5 Quest Connection, 218 Topic 5 Resource Use, 219 Topic 5 Lesson 4 Check: Questions 1, 2, 219 Topic 5 Quest Check-In: Increase Conservation, 220 Topic 5 Assessment: Question 6 and The Essential Question, 225</p> <p>Realize™ Digital Resources: Human Impacts on Earth's Systems >Lesson 1, Earth's Natural Resources>Video: Earth's Natural Resources;>Interactivity: Drinkable Water;>Quiz: Earth's Natural Resources >Lesson 2, Earth's Energy Resources>Video: Earth's Energy Resources;>Interactivity": How We Use Earth's Resources;>Quiz: Earth's Energy resources >Lesson 3, Human Activity and Earth's Systems>Video: Human Activity and Earth's Systems;>Interactivity: Causes of Environmental Damage;>Quiz: Human Activity and Earth's Systems</p>

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Continued: ESS3:C Human Impacts on Earth Systems: 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.	Continued: >Lesson 4, Protection of Earth's Resources and Environments>Video: Protection of Earth's Resources and Environments;>Interactivity: Go Green;>Quiz: Protection of Earth's Resources and Environments
<i>Cross Cutting Concepts:</i>	
1. Systems and System Models: A system can be described in terms of its components and their interactions.	SE/TE: Topic 5 Visual Literacy Connection: How can human activities change Earth's Systems?, 206-207 Topic 5 Human Resource Use and Pollution, 208 Topic 5 STEM uInvestigate Lab: How can you collect rainwater?, 213 Topic 5 Assessment: Question 3, 224 Topic 5 STEM uDemonstrate Lab: How can you use the energy of water?, 228-229
2. Science Addresses Questions About the Natural and Material World: Science findings are limited to questions that can be answered with empirical evidence.	SE/TE: Topic 5 uInvestigate Lab: Which color is best at capturing solar energy?, 197 Topic 5 uBe a Scientist: Recycling Plastic Investigation, 219 Topic 5 STEM uDemonstrate Lab: How can you use the energy of water?, 228-229 Science and Engineering Practices Handbook: Science Practices, Constructing Explanations, EM6

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