

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 21<sup>st</sup> 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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<b>Colorado 2020 Academic Standards for Science, Grade 5</b>	<b>Elevate Science Grade 5, ©2018</b>
1. Physical Science	
<b>Prepared Graduates:</b>	
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.	
<b>Grade Level Expectation:</b>	
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.	
<b>Evidence Outcomes</b>	
<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) <i>(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.)</i></p>	<p><b>SE/TE:</b>  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) <i>(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.)</i></p>	<p><b>SE/TE:</b>            Topic 1 uConnect Lab: What’s in the box?, 4            Topic 1 uInvestigate 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 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            Topic 1 uInvestigate 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>
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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><b>SE/TE:</b>            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</p> <p>Science and Engineering Practices Handbook: Science Practices, Carry Out Investigations, EM1</p>
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<b>Colorado 2020 Academic Standards for Science, Grade 5</b>	<b>Elevate Science Grade 5, ©2018</b>
<i>Cross Cutting Concepts:</i>	
<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><b>SE/TE:</b> 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</p> <p><b>TE Only:</b> Topic 1 Focus on Mastery!: Using standard units..., 7 Topic 1 Focus on Mastery!: Scale, Proportion, and Quantity, 8, 11</p>
<b>Grade Level Expectation:</b>	
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.	
<b>Evidence Outcomes</b>	
<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) <i>(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.)</i></p>	<p><b>SE/TE:</b> 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>
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<b>Academic Context and Connections</b>	
<i>Colorado Essential Skills and Science and Engineering Practices:</i>	
<p>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).</p>	<p><b>SE/TE:</b> Topic 2 uInvestigate 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</p>
<i>Elaboration on the GLE:</i>	
<p>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?</p>	<p><b>SE/TE:</b> Topic 2 Lesson 3 Chemical Changes: STEM Connection, 64 Topic 2 uInvestigate Lab: How can you identify chemical changes?, 65 Topic 2 Quest Connection, 69</p>
<p>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.</p>	<p><b>SE/TE:</b> Topic 2 uInvestigate 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</p>
<i>Cross Cutting Concepts:</i>	
<p>1. Scale, Proportion and Quantity: Standard units are used to measure and describe physical quantities such as weight, time, temperature and volume.</p>	<p><b>SE/TE:</b> Topic 1 Mass and volume, 29 Topic 2 Lesson 3 Check: Question 2, 73 <b>TE Only:</b> Topic 2 Focus on Mastery: Using Mathematics and Computational Thinking, 65</p>



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2. Scientific Knowledge to Assumes an Order and Consistency in Natural Systems: Science assumes consistent patterns in natural systems.	<b>SE/TE:</b> Topic 2 uBe a Scientist: Mass and Plant Growth, 72 Topic 2 Examples of Chemical Changes, 72-73
3. Cause and Effect: Cause - and - effect relationships are routinely identified, tested and used to explain change.	<b>SE/TE:</b> Topic 2 Lesson 3 Chemical Changes: STEM Connection, 64 Topic 2 uInvestigate 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
<b>Grade Level Expectation:</b>	
3. The gravitational force of Earth acting on an object near Earth's surface pulls that object toward the planet's center.	
<b>Evidence Outcomes</b>	
<i>Students Can:</i>	
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).	<b>SE/TE:</b> 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

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<i>Colorado Essential Skills and Science and Engineering Practices:</i>	
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<b>Grade Level Expectation:</b>	
4. The energy released from food was once energy from the sun.	
<b>Evidence Outcomes</b>	
<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) <i>(Clarification Statement: Examples of models could include diagrams and flowcharts.)</i></p>	<p><b>SE/TE:</b>  Topic 8 uConnect Lab: How much food do you need?, 318  Topic 8 uInvestigate Lab: How is the sun involved in your meals?, 321  Topic 8 Energy Paths to the Sun; Identify, 326  Topic 8 uInvestigate 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>
<b>Academic Context and Connections</b>	
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<p>1. Use models to describe phenomena (Developing and Using Models) (Personal: Initiative/Self-direction).</p>	<p><b>SE/TE:</b>  Topic 8 uConnect Lab: How much food do you need?, 318  Topic 8 uInvestigate Lab: How is the sun involved in your meals?, 321  Topic 8 uInvestigate Lab: What matter do plants need to make food?, 329  Topic 8 uInvestigate 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><b>SE/TE:</b> 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 uInvestigate Lab: How is the sun involved in your meals?, 321 Topic 8 Plants and Energy, 322 Topic 8 Animals and Energy, 323 Topic 8 uInvestigate Lab: How do animals get energy from the sun?, 339 Topic 8 Crosscutting Concepts Toolbox: Energy and Matter, 340 <b>TE Only:</b> 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><b>SE/TE:</b> Topic 6: Earth’s Sun, 238 Topic 8 Energy and Food: The Essential Question, Show What You Know, 315 Topic 8 uInvestigate 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 uInvestigate Lab: How do animals get energy from the sun?, 339</p>

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<i>Cross Cutting Concepts:</i>	
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2. Life Science	
<b>Prepared Graduates:</b>	
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.	
<b>Grade Level Expectation:</b>	
1. Plants acquire their material from growth chiefly from air and water.	
<b>Evidence Outcomes</b>	
<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) <i>(Clarification Statement: Emphasis is on the idea that plant matter comes mostly from air and water, not from the soil.)</i>	<b>SE/TE:</b> Topic 8 uInvestigate 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

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<b>Grade Level Expectation:</b>	
2. Matter cycles between air and soil and among plants, animals and microbes as these organisms live and die.	
<b>Evidence Outcomes</b>	
<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) <i>(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.)</i></p>	<p><b>SE/TE:</b>  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  <b>TE Only:</b>  Topic 9 Focus on Mastery!, Developing and Using Models, 364</p>
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<p>1. Develop a model to describe phenomena (Developing and Using Models) (Personal: Initiative/Self-direction).</p>	<p><b>SE/TE:</b>  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><b>SE/TE:</b> 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>
<i>Elaboration on the GLE:</i>	
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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><b>SE/TE:</b> 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>



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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><b>SE/TE:</b> 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</p> <p><b>TE Only:</b> Topic 9 21<sup>st</sup> Century Skills: Understanding Current Science and Technology, 389</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><b>SE/TE:</b> 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>
3. Earth and Space Science	
<b>Prepared Graduates:</b>	
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.	

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<b>Grade Level Expectation:</b>	
1. Stars range greatly in size and distance from Earth, and this can explain their relative brightness.	
<b>Evidence Outcomes</b>	
<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><b>SE/TE:</b> 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>
<b>Academic Context and Connections</b>	
<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><b>SE/TE:</b> 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>
<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><b>SE/TE:</b> 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><b>SE/TE:</b> 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>
<i>Cross Cutting Concepts:</i>	
<p>1. Scale, Proportion and Quantity: Natural objects exist from the very small to the immensely large.</p>	<p><b>SE/TE:</b> Topic 6 uConnect Lab: How big is the sun?, 234</p>
<b>Grade Level Expectation:</b>	
2. Earth's orbit and rotation and the orbit of the moon around earth cause observable patterns.	
<b>Evidence Outcomes</b>	
<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><b>SE/TE:</b> 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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<b>Academic Context and Connections</b>	
<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><b>SE/TE:</b> 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><b>TE Only:</b> 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><b>SE/TE:</b> 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><b>SE/TE:</b>  Topic 7 Lesson 2 Earth’s Movements in Space: Local-To-Global Connection, 284  Topic 7 uInvestigate 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 uInvestigate 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>
<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><b>SE/TE:</b>  Topic 7 Lesson 2 Check: Questions 1 &amp; 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  <b>TE Only:</b>  Topic 7 Scaffolded Questions, Classify, Compare, 289</p>

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<b>Prepared Graduates:</b>	
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.	
<b>Grade Level Expectation:</b>	
3. Earth's major systems interact in multiple ways to affect Earth's surface materials and processes.	
<b>Evidence Outcomes</b>	
<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><b>SE/TE:</b> 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>
<b>Academic Context and Connections</b>	
<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><b>SE/TE:</b> 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>

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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><b>SE/TE:</b>  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><b>SE/TE:</b>  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 and 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>



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<i>Cross Cutting Concepts:</i>	
1. Systems and System Models: A system can be described in terms of its components and their interactions.	<b>SE/TE:</b> Topic 3 uConnect Lab: How can you model Earth?, 100 Topic 3 uInvestigate 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
<b>Grade Level Expectation:</b>	
4. Most of Earth's water is in the ocean and much of Earth's freshwater in glaciers or underground.	
<b>Evidence Outcomes</b>	
<i>Students Can:</i>	
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.)	<b>SE/TE:</b> Topic 4 Freshwater Shortages, 158 Topic 4 Where Is Water?: Graph Data, 164 Topic 4 Evidence-Based Assessment: Question 1, 176
<b>Academic Context and Connections</b>	
Colorado Essential Skills and Science and Engineering Practices:	
1. Describe and graph quantities such as area and volume to address scientific questions (Using Mathematics and Computational Thinking) (Entrepreneurial: Critical thinking/Problem solving).	<b>SE/TE:</b> Topic 4 Model It!, 159 Topic 4 Where Is Water?: Graph Data, 164 Topic 4 Evidence-Based Assessment: Question 1, 176

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<i>Elaboration on the GLE:</i>	
1. Students can answer the question: How do the properties and movements of water shape Earth's surface and affect its systems?	<b>SE/TE:</b> 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
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.	<b>SE/TE:</b> 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
<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.	<b>SE/TE:</b> Topic 4 Model It!, 159 Topic 4 Where Is Water?: Graph Data, 164 Topic 4 Evidence-Based Assessment: Question 1, 176

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<b>Grade Level Expectation:</b>	
5. Societal activities have had major effects on land, ocean, atmosphere and even outer space	
<b>Evidence Outcomes</b>	
<i>Students Can:</i>	
<p>a. Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment. (5-ESS3-1)</p>	<p><b>SE/TE:</b> 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</p> <p><b>TE Only:</b> Topic 5 Differentiated Instruction: Support Advanced Learners, 209</p>
<b>Academic Context and Connections</b>	
<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><b>SE/TE:</b> 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><b>TE Only:</b> Topic 5 Differentiated Instruction: Support Advanced Learners, 209</p>

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<i>Elaboration on the GLE:</i>	
<p>1. Students can answer the question: How do humans change the planet?</p>	<p><b>SE/TE:</b>            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><b>SE/TE:</b>  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 ulnvestigate 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>

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<i>Cross Cutting Concepts:</i>	
1. Systems and System Models: A system can be described in terms of its components and their interactions.	<b>SE/TE:</b> 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.	<b>SE/TE:</b> 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