



Correlation to the  
**SOUTH CAROLINA ACADEMIC STANDARDS AND  
PERFORMANCE INDICATORS FOR SCIENCE**

**Grade 4**  
**Delta Education**



# GRADE FOUR

## SCIENCE AND ENGINEERING PRACTICES

*NOTE: Scientific investigations should always be done in the context of content knowledge expected at this grade level. The standard describes how students should learn and demonstrate knowledge of the content outlined in the other standards.*

**Standard 4.S.1: The student will use the science and engineering practices, including the processes and skills of scientific inquiry, to develop understandings of science content.**

**4.S.1A. Conceptual Understanding:** The practices of science and engineering support the development of science concepts, develop the habits of mind that are necessary for scientific thinking, and allow students to engage in science in ways that are similar to those used by scientists and engineers.

*Students who demonstrate this understanding can:*

PERFORMANCE INDICATOR	DELTA EDUCATION WHERE TAUGHT
<b>4.S.1A.1</b> Ask questions that can be (1) answered using scientific investigations or (2) used to refine models, explanations, or designs.	FOSS and DSM modules provide opportunities to develop this science and engineering practice. Example: <b>FOSS Third Edition Weather on Earth</b> Investigation 2, Part 1, Pages 118 - 127
<b>4.S.1A.2</b> Develop, use, and refine models to (1) understand or represent phenomena, processes, and relationships, (2) test devices or solutions, or (3) communicate ideas to others.	FOSS and DSM modules provide opportunities to develop this science and engineering practice. Example: <b>FOSS Third Edition Sun, Moon and Planets</b> Investigation 2, Part 2, Pages 112 - 117
<b>4.S.1A.3</b> Plan and conduct scientific investigations to answer questions, test predictions and develop explanations: (1) formulate scientific questions and predict possible outcomes, (2) identify materials, procedures, and variables, (3) select and use appropriate tools or instruments to collect qualitative and quantitative data, and (4) record and represent data in an appropriate form. Use appropriate safety procedures.	FOSS and DSM modules provide opportunities to develop this science and engineering practice. Example: <b>FOSS Third Edition Weather on Earth</b> Investigation 1, Part 3, Pages 83 – 99  <b>DSM Color and Light</b> Activity 1, Page 13 – 17
<b>4.S.1A.4</b> Analyze and interpret data from informational texts, observations, measurements, or investigations using a range of methods (such as tabulation or graphing) to (1) reveal patterns and construct meaning or (2) support explanations, claims, or designs.	FOSS and DSM modules provide opportunities to develop this science and engineering practice. Example: <b>FOSS Third Edition Weather on Earth</b> Investigation 2, Part 3, Pages 141 - 150  <b>FOSS Third Edition Weather on Earth</b> – Science Resource Book “Uneven Heating”, Pages 17 - 20
<b>4.S.1A.5</b> Use mathematical and computational thinking to (1) express quantitative observations using appropriate English or metric units, (2) collect and analyze data, or (3) understand patterns, trends and relationships between variables.	FOSS and DSM modules provide opportunities to develop this science and engineering practice. Example: <b>FOSS Third Edition Weather on Earth</b> Investigation 1, Part 3, Pages 83 - 99
<b>4.S.1A.6</b> Construct explanations of phenomena using (1) scientific evidence and models, (2) conclusions from scientific investigations, (3) predictions based on observations and measurements, or (4) data communicated in graphs, tables, or diagrams.	FOSS and DSM modules provide opportunities to develop this science and engineering practice. Example: <b>FOSS Third Edition Weather on Earth</b> Investigation 3, Part 2, Pages 186 - 191
<b>4.S.1A.7</b> Construct scientific arguments to support claims, explanations, or designs using evidence from observations, data, or informational texts.	FOSS and DSM modules provide opportunities to develop this science and engineering practice. Example: <b>FOSS Third Edition Sun, Moon and Planets</b> Investigation 4, Part 1, Pages 174 - 185  <b>FOSS Third Edition Sun, Moon and Planets</b> – Science Resource Book “Stargazing”, Pages 58 - 62

**4.S.1A. Conceptual Understanding (CONT.):** The practices of science and engineering support the development of science concepts, develop the habits of mind that are necessary for scientific thinking, and allow students to engage in science in ways that are similar to those used by scientists and engineers.

*Students who demonstrate this understanding can:*

PERFORMANCE INDICATOR	DELTA EDUCATION WHERE TAUGHT
<p><b>4.S.1A.8</b> Obtain and evaluate informational texts, observations, data collected, or discussions to (1) generate and answer questions, (2) understand phenomena, (3) develop models, or (4) support explanations, claims, or designs. Communicate observations and explanations using the conventions and expectations of oral and written language phenomena, (3) develop models, or (4) support explanations, claims, or designs. Communicate observations and explanations using the conventions and expectations of oral and written language.</p>	<p><b>FOSS Third Edition Sun, Moon and Planets</b> Investigation 2, Part 1, Pages 102 - 11</p> <p><b>FOSS Third Edition Sun, Moon and Planets</b> – Science Resource Book “The Night Sky”, Pages 14 - 18</p>

**4.S.1B. Conceptual Understanding:** Technology is any modification to the natural world created to fulfill the wants and needs of humans. The engineering design process involves a series of iterative steps used to solve a problem and often leads to the development of a new or improved technology.

*Students who demonstrate this understanding can:*

PERFORMANCE INDICATOR	DELTA EDUCATION WHERE TAUGHT
<p><b>4.S.1B.1</b> Construct devices or design solutions to solve specific problems or needs: (1) ask questions to identify problems or needs, (2) ask questions about the criteria and constraints of the devices or solutions, (3) generate and communicate ideas for possible devices or solutions, (4) build and test devices or solutions, (5) determine if the devices or solutions solved the problem and refine the design if needed, and (6) communicate the results.</p>	<p>FOSS and DSM modules provide opportunities to develop this science and engineering practice. Example: <b>FOSS Third Edition Weather Earth</b> Investigation 2, Part 4, Pages 151 - 160</p>

# GRADE FOUR

## EARTH SCIENCE: WEATHER AND CLIMATE

**Standard 4.E.2: The student will demonstrate an understanding of the water cycle and weather and climate patterns.**

**4.E.2A. Conceptual Understanding:** Earth’s atmosphere is a mixture of gases, including water vapor and oxygen. The movement of water, which is found almost everywhere on Earth including the atmosphere, changes form and cycles between Earth’s surface and the air and back again. This cycling of water is driven by energy from the Sun. The movement of water in the water cycle is a major pattern that influences weather conditions. Clouds form during this cycle and various types of precipitation result.

*Students who demonstrate this understanding can:*

PERFORMANCE INDICATOR	DELTA EDUCATION WHERE TAUGHT
<b>4.E.2A.1</b> Obtain and communicate information about some of the gases in the atmosphere (including oxygen, nitrogen, and water vapor) to develop models that exemplify the composition of Earth’s atmosphere where weather takes place.	<p><b>FOSS Third Edition Weather on Earth</b> Investigation 1, Part 2, Pages 75 - 82 Investigation 1, Extension – Draw atmosphere posters, Page 103</p> <p><b>FOSS Third Edition Weather on Earth</b> – Science Resource Book “Earth’s Atmosphere”, Pages 7 - 13</p>
<b>4.E.2A.2</b> Develop and use models to explain how water changes as it moves between the atmosphere and Earth’s surface during each phase of the water cycle (including evaporation, condensation, precipitation, and runoff).	<p><b>FOSS Third Edition Weather on Earth</b> Investigation 3, Parts 1 - 3, Pages 174 - 204</p> <p><b>FOSS Third Edition Weather on Earth</b> – Science Resource Book “The Water Cycle”, Pages 48 - 52</p> <p><b>FOSS Third Edition Weather on Earth</b> – FOSSWEB, Streaming Videos “Water Cycle”</p>

**4.E.2B. Conceptual Understanding:** Scientists record patterns in weather conditions across time and place to make predictions about what kind of weather might occur next. Climate describes the range of an area’s typical weather conditions and the extent to which those conditions vary over long periods of time. Some weather conditions lead to severe weather phenomena that have different effects and safety concerns.

*Students who demonstrate this understanding can:*

PERFORMANCE INDICATOR	DELTA EDUCATION WHERE TAUGHT
<b>4.E.2B.1</b> Analyze and interpret data from observations, measurements, and weather maps to describe patterns in local weather conditions (including temperature, precipitation, wind speed/direction, relative humidity, and cloud types) and predict changes in weather over time.	<p><b>FOSS Third Edition Weather on Earth</b> Investigation 1, Part 3, Pages 83 - 99 Investigation 4, Part 2, Pages 228 - 236</p> <p><b>FOSS Third Edition Weather on Earth</b> – Science Resource Book “Weather Instruments”, Pages 14 - 16 “Wind and Convection”, Pages 27 - 31 “Condensation”, Pages 43 - 46 “Weather Maps”, Pages 62 - 70</p>
<b>4.E.2B.2</b> Obtain and communicate information about severe weather phenomena (including thunderstorms, hurricanes, and tornadoes) to explain steps humans can take to reduce the impact of severe weather phenomena.	<p><b>FOSS Third Edition Weather on Earth</b> Investigation 4, Part 1, Pages 222 - 227</p> <p><b>FOSS Third Edition Weather on Earth</b> – Science Resource Book “Severe Weather”, Pages 53 - 61</p>
<b>4.E.2B.3</b> Construct explanations about regional climate differences using data from the long term weather conditions of the region.	<p><b>FOSS Third Edition Weather on Earth</b> Investigation 4, Part 3, Pages 237 - 245</p> <p><b>FOSS Third Edition Weather on Earth</b> – Science Resource Book “Earth’s Climates”, Pages 71 - 75 “Global Climate Change”, Pages 76 - 83</p>

# GRADE FOUR

## EARTH SCIENCE: STARS AND THE SOLAR SYSTEM

**Standard 4.E.3: The student will demonstrate an understanding of the locations, movements, and patterns of stars and objects in the solar system.**

**4.E.3A. Conceptual Understanding:** Astronomy is the study of objects in our solar system and beyond. A solar system includes a sun, (star), and all other objects that orbit that sun. Planets in our night sky change positions and are not always visible from Earth as they orbit our Sun. Stars that are beyond the solar system can be seen in the night sky in patterns called constellations. Constellations can be used for navigation and appear to move together across the sky because of Earth’s rotation.

*Students who demonstrate this understanding can:*

PERFORMANCE INDICATOR	DELTA EDUCATION WHERE TAUGHT
<b>4.E.3A.1</b> Develop and use models of Earth’s solar system to exemplify the location and order of the planets as they orbit the Sun and the main composition (rock or gas) of the planets.	<b>FOSS Third Edition Sun, Moon and Planets</b> Investigation 3, Part 1, Pages 142 - 150
<b>4.E.3A.2</b> Obtain and communicate information to describe how constellations (including Ursa Major, Ursa Minor, and Orion) appear to move from Earth’s perspective throughout the seasons.	<b>FOSS Third Edition Sun, Moon and Planets</b> Investigation 4, Part 1-2, Pages 174 - 197  <b>FOSS Third Edition Sun, Moon and Planets</b> – Science Resource Book “Stargazing”, Pages 58 - 62 “Our Galaxy”, Pages 73 - 76
<b>4.E.3A.3</b> Construct scientific arguments to support claims about the importance of astronomy in navigation and exploration (including the use of telescopes, astrolabes, compasses, and sextants).	<b>FOSS Third Edition Sun, Moon and Planets</b> Investigation 4, Part 2, Pages 186 - 195  <b>FOSS Third Edition Sun, Moon and Planets</b> – Science Resource Book “Looking Through Telescopes”, Pages 63 - 66 “Our Galaxy”, Pages 73 - 76 “Star Scientists”, Pages 67 - 72

**4.E.3B. Conceptual Understanding:** Earth orbits around the Sun and the Moon orbits around Earth. These movements together with the rotation of Earth on a tilted axis result in patterns that can be observed and predicted.

*Students who demonstrate this understanding can:*

PERFORMANCE INDICATOR	DELTA EDUCATION WHERE TAUGHT
<p><b>4.E.3B.1</b> Analyze and interpret data from observations to describe patterns in the (1) location, (2) movement, and (3) appearance of the Moon throughout the year.</p>	<p><b>FOSS Third Edition Sun, Moon and Planets</b> Investigation 2, Parts 1 and 3, Pages 102 - 111</p> <p><b>FOSS Third Edition Sun, Moon and Planets</b> – Science Resource Book “Changing Moon”, Pages 25 - 29 “Lunar Cycle”, Pages 30 - 34</p>
<p><b>4.E.3B.2</b> Construct explanations of how day and night result from Earth’s rotation on its axis.</p>	<p><b>FOSS Third Edition Sun, Moon and Planets</b> Investigation 1, Part 3, Pages 75 - 88</p> <p><b>FOSS Third Edition Sun, Moon and Planets</b> – Science Resource Book “Sunrise and Sunset”, Pages 8 - 13</p>
<p><b>4.E.3B.3</b> Construct explanations of how the Sun appears to move throughout the day using observations of shadows.</p>	<p><b>FOSS Third Edition Sun, Moon and Planets</b> Investigation 1, Parts 1 - 2, Pages 52 - 74</p> <p><b>FOSS Third Edition Sun, Moon and Planets</b> – Science Resource Book “Sunrise and Sunset”, Pages 8 - 13 “Changing Shadows”, Pages 3 - 7 “Our Galaxy”, Pages 73 - 76</p>
<p><b>4.E.3B.3</b> Obtain and communicate information to explain how natural events (such as fires, landslides, earthquakes, volcanic eruptions, or floods) and human activities (such as farming, mining, or building) impact the environment.</p>	<p><b>FOSS Third Edition Sun, Moon and Planets</b> Investigation 2, Parts 1 and 3, Pages 102 - 111, 119 - 130</p> <p><b>FOSS Third Edition Sun, Moon and Planets</b> – Science Resource Book “Changing Moon”, Pages 25 - 29</p>
<p><b>4.E.3B.4</b> Develop and use models to describe the factors (including tilt, revolution, and angle of sunlight) that result in Earth’s seasonal changes.</p>	<p><b>FOSS Third Edition Sun, Moon and Planets</b> Investigation 4, Part 1, Pages 174 - 185</p>

# GRADE FOUR

## PHYSICAL SCIENCE: FORMS OF ENERGY – LIGHT AND SOUND

**Standard 4.P.4: The student will demonstrate an understanding of the properties of light and sound as forms of energy.**

**4.P.4A. Conceptual Understanding:** Light, as a form of energy, has specific properties including color and brightness. Light travels in a straight line until it strikes an object. The way light reacts when it strikes an object depends on the object’s properties.

*Students who demonstrate this understanding can:*

PERFORMANCE INDICATOR	DELTA EDUCATION WHERE TAUGHT
<b>4.P.4A.1</b> Construct scientific arguments to support the claim that white light is made up of different colors.	<b>Delta Science Module Color and Light</b> Activity 1, The Spectrum of Visible Light, Pages 13 - 18
<b>4.P.4A.2</b> Analyze and interpret data from observations and measurements to describe how the apparent brightness of light can vary as a result of the distance and intensity of the light source.	<b>Delta Science Module Color and Light</b> Activity 12, Sight and Afterimages, Connections: Science and Math, Page 107
<b>4.P.4A.3</b> Obtain and communicate information to explain how the visibility of an object is related to light.	<b>Delta Science Module Color and Light</b> Activity 12, Sight and Afterimages, Connections: Science and Math, Page 107
<b>4.P.4A.4</b> Develop and use models to describe how light travels and interacts when it strikes an object (including reflection, refraction, and absorption) using evidence from observations.	<b>Delta Science Module Color and Light</b> – Delta Science Reader “Reflection of Light, Absorption of Light, Refraction of Light”, Pages 4 - 6 “What Happens When Light Hits Different Materials”, Page 7
<b>4.P.4A.5</b> Plan and conduct scientific investigations to explain how light behaves when it strikes transparent, translucent, and opaque materials.	<b>Delta Science Module Color and Light</b> Activity 4, Color Filters and Light, Connections – Science Challenge, Page 43

**4.P.4B. Conceptual Understanding:** Sound, as a form of energy, is produced by vibrating objects and has specific properties including pitch and volume. Sound travels through air and other materials and is used to communicate information in various forms of technology.

*Students who demonstrate this understanding can:*

PERFORMANCE INDICATOR	DELTA EDUCATION WHERE TAUGHT
<p><b>4.P.4B.1</b> Plan and conduct scientific investigations to test how different variables affect the properties of sound (including pitch and volume).</p>	<p><b>FOSS Next Generation Sound and Light Module</b>            Investigation 1, Parts 1 and 2, Pages 78 – 105            Investigation 1, Interdisciplinary Extensions, Page 113            Investigation 2, Parts 1-4, Pages 126 – 159            Investigation 2, Interdisciplinary Extensions, Pages 160-162</p> <p><b>FOSS Next Generation Sound and Light Module</b> – Science Resources Book            “Vibrations and Sound,” Pages 3 – 7            “Strings and Motion,” Pages 24 – 32;</p> <p><b>FOSS Next Generation Sound and Light Module</b> - Multimedia: “Sound Cards”</p> <p><b>FOSS Next Generation Sound and Light Module</b> - Streaming Video            “All About Sound, Chapter 2, What Is Sound?”</p> <p><b>Delta Science Module Sound</b>            Activity 6, Musical Vibrations, Pages 51 - 56            Activity 7, Loud or Soft?, Pages 59 - 64            Activity 9, Plink-Plunk, Toot-Toot, Pages 73 - 80            Activity 10, Think and Think, Pages 83 - 88</p>
<p><b>4.P.4B.2</b> Analyze and interpret data from observations and measurements to describe how changes in vibration affects the pitch and volume of sound.</p>	<p><b>FOSS Next Generation Sound and Light Module</b>            Investigation 2, Parts 1-4, Pages 126 – 159            Investigation 2, Interdisciplinary Extensions, Pages 160-162</p> <p><b>FOSS Next Generation Sound and Light Module</b> - Science Resources            “More Musical Instruments,” Pages 33 – 37</p> <p><b>Delta Science Module Sound</b>            Activity 2, Good Vibrations, Pages 21 - 27            Activity 8, High or Low, Pages 67 - 71</p>
<p><b>4.P.4B.3</b> Define problems related to the communication of information over a distance and design devices or solutions that use sound to solve the problem.</p>	<p><b>FOSS Next Generation Sound and Light Module</b>            Investigation 1, Parts 2-3, Pages 98-109            Investigation 1, Interdisciplinary Extensions, Page 113            Investigation 2, Parts 1, 3-4, Pages 129-132, 149-159            Investigation 2, Interdisciplinary Extensions, Pages 160-162</p> <p><b>FOSS Next Generation Sound and Light Module</b> - Streaming Video            “All About Sound, Chapter 6, Volume and Echo”</p> <p><b>Delta Science Module Sound</b>            Activity 3, How Sounds Travel, Pages 29 - 34            Activity 4, How We Hear Sounds, Pages 37 - 42            Activity 12, Rhythm Band, Pages 99 - 104</p>



# GRADE FOUR

## LIFE SCIENCE: CHARACTERISTICS AND GROWTH OF ORGANISMS

**Standard 4.L.5: The student will demonstrate an understanding of how the structural characteristics and traits of plants and animals allow them to survive, grow, and reproduce.**

**4.L.5A. Conceptual Understanding:** Scientists have identified and classified many types of plants and animals. Each plant or animal has a unique pattern of growth and development called a life cycle. Some characteristics (traits) that organisms have are inherited and some result from interactions with the environment.

*Students who demonstrate this understanding can:*

PERFORMANCE INDICATOR	DELTA EDUCATION WHERE TAUGHT
<b>4.L.5A.1</b> Obtain and communicate information about the characteristics of plants and animals to develop models which classify plants as flowering or non-flowering and animals as vertebrate or invertebrate.	
<b>4.L.5A.2</b> Analyze and interpret data from observations and measurements to compare the stages of development of different seed plants.	<b>Delta Science Module Food Chains and Food Webs</b> Activity 2, Plants and Soil, Pages 23 - 28
<b>4.L.5A.3</b> Develop and use models to compare the stages of growth and development in various animals.	<b>Delta Science Module Food Chains and Food Webs</b> Activities 4 - 6, Pages 39 - 58
<b>4.L.5A.4</b> Construct scientific arguments to support claims that some characteristics of organisms are inherited from parents and some are influenced by the environment.	<b>Delta Science Module Food Chains and Food Webs</b> – Delta Science Reader “How Do Ecosystems Change?”, Page 10 “Charles Darwin”, Page 11

**4.L.5B. Conceptual Understanding:** Plants and animals have physical characteristics that allow them to receive information from the environment. Structural adaptations within groups of plants and animals allow them to better survive and reproduce.

*Students who demonstrate this understanding can:*

PERFORMANCE INDICATOR	DELTA EDUCATION WHERE TAUGHT
<p><b>4.L.5B.1</b> Develop and use models to compare how humans and other animals use their senses and sensory organs to detect and respond to signals from the environment.</p>	
<p><b>4.L.5B.2</b> Construct explanations for how structural adaptations (such as the types of roots, stems, or leaves; color of flowers; or seed dispersal) allow plants to survive and reproduce.</p>	
<p><b>4.L.5B.3</b> Construct explanations for how structural adaptations (such as methods for defense, locomotion, obtaining resources, or camouflage) allow animals to survive in the environment.</p>	<p><b>Delta Science Module Food Chains and Food Webs</b>            Activity 5, Observing Anoles, Pages 47 - 52            Activity 7, Animal Behavior, Pages 59 - 66            Activity 8, What Do Crickets Eat, Pages 67 - 72</p>