Correlation to the

SOUTH CAROLINA ACADEMIC STANDARDS AND PERFORMANCE INDICATORS FOR SCIENCE

Kindergarten

Delta Education

KINDERGARTEN

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 K.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.

K.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
K.S.1A.1 Ask and answer questions about the natural world using explorations, observations, or structured investigations.	FOSS modules provide opportunities to develop this science and engineering practice. **FOSS Animals Two by Two Investigations Guide** Investigations 1, 2, 3, 4, All parts, pages 54 -193
K.S.1A.2 Develop and use models to (1) understand or represent phenomena, processes, and relationships, (2) test devices or solutions, or (3) communicate ideas to others.	**FOSS Trees and Weather Investigations Guide** Extension Activity – Investigation 3 "Create a Wind Catcher", pages 138 - 158
K.S.1A.3 With teacher guidance, conduct structured investigations to answer scientific questions, test predictions and develop explanations: (1) predict possible outcomes, (2) identify materials and follow procedures, (3) use appropriate tools or instruments to make qualitative observations and take nonstandard measurements, and (4) record and represent data in an appropriate form. Use appropriate safety procedures.	FOSS modules provide opportunities to develop this science and engineering practice. Example: **FOSS Materials in Our World Investigations Guide** Investigation 1, Part 5, pages 87 - 94
K.S.1A.4 Analyze and interpret data from observations, measurements, or investigations to understand patterns and meanings.	FOSS modules provide opportunities to develop this science and engineering practice. Example: **FOSS Trees and Weather Investigations Guide** Investigation 3, Parts 1-3, pages 138 - 158
K.S.1A.5 Use mathematical thinking to (1) recognize and express quantitative observations, (2) collect and analyze data, or (3) understand patterns and relationships.	FOSS modules provide opportunities to develop this science and engineering practice in the Math Extension activities at the end of each Investigation. **FOSS Trees and Weather Investigations Guide** Investigation 3, Part 2, pages 145 – 150 Investigation 3, Math Extension, Make a temperature bar graph, page 159
K.S.1A.6 Construct explanations of phenomena using (1) student-generated observations and measurements, (2) results of investigations, or (3) data communicated in graphs, tables, or diagrams.	FOSS modules provide opportunities to develop this science and engineering practice. Example: **FOSS Materials in our World Investigations Guide** Investigation 1, Parts 4,5, pages 80 - 94
K.S.1A.7 Construct scientific arguments to support explanations using evidence from observations or data collected.	FOSS modules provide opportunities to develop this science and engineering practice. Example: **FOSS Animals Two by Two Investigations Guide** Investigation 4, Part 4, pages 189 - 195
K.S.1A.8 Obtain and evaluate informational texts, observations, data collected, or discussions to (1) generate and answer questions about the natural world, (2) understand phenomena, (3) develop models, or (4) support explanations. Communicate observations and explanations using oral and written language.	FOSS modules provide opportunities to develop this science and engineering practice. Example: **FOSS Trees and Weather Investigations Guide** Investigations 1-4, All parts, pages 2 – 206 **FOSS Trees and Weather Science Resources Book** All stories

K.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
K.S.1B.1 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 (6) communicate the results.	**FOSS Materials in Our World Investigations Guide** Investigation 1, Parts 3-5, pages 72 - 94 Investigation 3, Part 4, pages 160 - 167

KINDERGARTEN

LIFE SCIENCE: EXPLORING ORGANISMS AND THE ENVIRONMENT

Standard K.L.2: The student will demonstrate an understanding of organisms found in the environment and how these organisms depend on the environment to meet those needs.

K.L.2A. Conceptual Understanding: The environment consists of many types of organisms including plants, animals, and fungi. Organisms depend on the land, water, and air to live and grow. Plants need water and light to make their own food. Fungi and animals cannot make their own food and get energy from other sources. Animals (including humans) use different body parts to obtain food and other resources needed to grow and survive. Organisms live in areas where their needs for air, water, nutrients, and shelter are met.

Students who demonstrate this understanding can:

PERFORMANCE INDICATOR	DELTA EDUCATION WHERE TAUGHT
K.L.2A.1 Obtain information to answer questions about different organisms found in the environment (such as plants, animals, or fungi).	**FOSS Animals Two by Two Investigations Guide** Investigation 1, Parts 1-5, pages 54 - 90 Investigation 2, Parts 1-3, pages 104 - 123 Investigation 3, Parts 1-3, pages 138 - 157 Investigation 4, Parts 1-4, pages 168 - 195 **FOSS Animals Two by Two – Science Resource Book** All stories **FOSS Trees and Weather Investigations Guide** Investigation 1, Parts 1-6, pages 50 - 89 Investigation 2, Parts 1-4, pages 100 - 123 Investigation 3, Parts 1-5, pages 138 - 158 Investigation 4, Parts 1-9, pages 170 - 206 **FOSS Trees and Weather - Science Resource Book** "Where Do Trees Grow?" pages 3 - 13, "Up in the Sky" pages 14 - 23, " My Apple Tree" pages 36 - 39, "Orange Trees" pages 40 - 43, "Maple Trees" pages 44 - 46
K.L.2A. 2 Conduct structured investigations to determine what plants need to live and grow (including water and light).	**FOSS Animals Two by Two Investigations Guide** Investigation 4, Part 4, pages 189 - 195 **FOSS Trees and Weather Investigations Guide** Investigation 1, Part 1, 5, 6, pages 50 – 61, and pages 75 - 89 Investigation 4, Parts 1-9, pages 170 - 206
K.L.2A.3 Develop and use models to exemplify how animals use their body parts to (1) obtain food and other resources, (2) protect themselves, and (3) move from place to place.	**FOSS Animals Two by Two Investigations Guide** Investigation 4, Part 4, pages 189 - 195
K.L.2A.4 Analyze and interpret data to describe how humans use their senses to learn about the world around them.	**FOSS Trees and Weather_**- Science Resource Book "Where Do Trees Grow" pages 3 - 13 "Up in the Sky" pages 14 – 23 "Weather" pages 24 - 35
K.L.2A.5 Construct explanation from observations of what animals need to survive and grow (including air, water, nutrients, and shelter).	**FOSS Animals Two by Two Investigations Guide** Investigation 1, Parts 1 – 3, 5, pages 67 – 71 and pages 80 - 90 Investigation 2, Parts 1,3, pages 104 – 110 and pages 115 - 123 Investigation 3, Parts 1,2, pages 138 - 151 Investigation 4, Parts 1,3,4, pages 168 – 173, and pages 180 – 195

PERFORMANCE INDICATOR	DELTA EDUCATION WHERE TAUGHT
K.L.2A. 6 Obtain and communicate information about the needs of organisms to explain why they live in particular areas.	**FOSS Animals Two by Two Investigations Guide** Investigation 1, Parts 1, 2,3,5, pages 54 – 71 and pages 80 - 90 Investigation 2, Parts 1,3, pages 104 – 110 and pages 115 - 123 Investigation 3, Parts 1,2, pages 138 - 151 Investigation 4, Parts 1,3,4, pages 168 – 173 and pages 180 - 195 **FOSS Animals Two by Two Science Resource Book** All stories **FOSS Trees and Weather Science Resource Book** "Orange Trees" pages 40 - 43

KINDERGARTEN

EARTH SCIENCE: EXPLORING WEATHER PATTERNS

Standard K.E.3: The student will demonstrate an understanding of daily and seasonal weather patterns.

K.E.3A. Conceptual Understanding: Weather is a combination of sunlight, wind, snow or rain, and temperature in a particular region at a particular time. Scientists measure weather conditions to describe and record the weather and to notice patterns over time. Plants and animals (including humans) respond to different weather conditions in different ways.

Students who demonstrate this understanding can:

PERFORMANCE INDICATOR	DELTA EDUCATION WHERE TAUGHT
K.E.3A.1 Analyze and interpret local weather condition data (including precipitation, wind, temperature, and cloud cover) to describe weather patterns that occur from day to day, using simple graphs and pictorial weather symbols.	**FOSS Trees and Weather Investigations Guide** Investigation 3, Parts 1-3, pages 138 - 158
K.E.3A.2 Develop and use models to predict seasonal weather patterns and changes.	**FOSS Trees and Weather Investigations Guide** Investigation 4, Parts 1-5, pages 169 – 204 **FOSS Trees and Weather**, Science Resource Book "My Apple Tree" pages 36 - 39, "Orange Trees" pages 40 - 43, "Maple Trees" pages 44 - 46
K.E.3A.3 Obtain and communicate information to support claims about how changes in seasons affect plants and animals.	**FOSS Trees and Weather Investigations Guide** Investigation 4, Parts 1-9, pages 170 -0206 **FOSS Trees and Weather**- Science Resource Book "My Apple Tree" pages 36 - 39, "Orange Tree" pages 40 - 43, "Maple Tree" pages 44 – 46
K.E.3A.4 Define problems caused by the effects of weather on human activities and design solutions or devices to solve the problem.	**FOSS Trees and Weather Investigations Guide** Investigation 3 , Extension "Create a Wind Sock" page 159

KINDERGARTEN

PHYSICAL SCIENCE: PROPERTIES OF OBJECTS AND MATERIALS

Standard K.P.4: The student will demonstrate an understanding of the observable properties of matter.

K.P.4A. Conceptual Understanding: Objects can be described and classified by their observable properties, by their uses, and by whether they occur naturally or are manufactured (human-made). Different properties of objects are suited for different purposes.

Students who demonstrate this understanding can:

PERFORMANCE INDICATOR	DELTA EDUCATION WHERE TAUGHT
K.P.4A.1 Analyze and interpret data to compare the qualitative properties of objects (such as size, shape, color, texture, weight, flexibility, attraction to magnets, or ability to sink or float) and classify objects based on similar properties.	**FOSS Materials in Our World Investigations Guide** Investigation 1, Parts 1-5, pages 46 - 94 Investigation 2, Parts 1,2, pages 96 - 114 Investigation 3, Parts 1-3, pages 138 - 160 Investigation 4, Parts 1,3, pages 188 - 210 Investigation 5, Parts 1-3, pages 228 - 243 **FOSS Materials in Our World Science Resource Book** "What is Fabric Made From" pages 19 - 31 , "How Fabric is Used" pages 32 - 40, "How are Rocks Different" pages 41 – 46
K.P.4A.2 Develop and use models to describe and compare the properties of different materials (including wood, plastic, metal, cloth, and paper) and classify materials by their observable properties, by their uses, and by whether they are natural or human-made.	**FOSS Materials In Our World Investigations Guide** Investigation 5, Part 5, Pages 249 - 256
K.P.4A.3 Conduct structured investigations to answer questions about which materials have the properties that are best suited to solve a problem or need.	**FOSS Materials in Our World investigations Guide** Investigation 1, Parts 4,5, pages 81 - 94 Investigation 2, Parts 3,4, pages 115 - 127 Investigation 3, Parts 4,5, pages 160 - 174 Investigation 4, Parts 3,4,5, pages 200 - 215

Delta Education

FOSS

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Correlation to the

SOUTH CAROLINA ACADEMIC STANDARDS AND PERFORMANCE INDICATORS FOR SCIENCE

Grade 1

Delta Education

GRADE ONE

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 1.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.

1.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
1.S.1A.1 Ask and answer questions about the natural world using explorations, observations, or structured investigations.	FOSS modules provide opportunities to develop this science and engineering practice. Example: **FOSS Next Generation, Plants and Animals** Investigations 1 - 4, All parts
1.S.1A.2 Develop and use models to (1) understand or represent phenomena, processes, and relationships, (2) test devices or solutions, or (3) communicate ideas to others.	FOSS modules provide opportunities to develop this science and engineering practice. Example: **FOSS Next Generation, Pebbles, Sand and Silt** Investigation 4, Part 4, Pages 248 - 253
1.S.1A.3 With teacher guidance, conduct structured investigations to answer scientific questions, test predictions and develop explanations: (1) predict possible outcomes, (2) identify materials and follow procedures, (3) use appropriate tools or instruments to make qualitative observations and take nonstandard measurements, and (4) record and represent data in an appropriate form. Use appropriate safety procedures.	FOSS modules provide opportunities to develop this science and engineering practice. Example: **FOSS Next Generation, Plants and Animais** Investigation 1, Part 1, Pages 76 - 91
1.S.1A.4 Analyze and interpret data from observations, measurements, or investigations to understand patterns and meanings.	FOSS modules provide opportunities to develop this science and engineering practice. Example: **FOSS Next Generation, Plants and Animals** Investigation 2, Part 2, Pages 142 - 150
1.S.1A.5 Use mathematical thinking to (1) recognize and express quantitative observations, (2) collect and analyze data, or (3) understand patterns and relationships.	FOSS modules provide opportunities to develop this science and engineering practice. Example: **FOSS Next Generation Pebbles, Sand and Silt** Investigation 2, Part 2, Pages 136 - 143 FOSS modules also provide opportunities to develop this science and engineering practice in the Math Extension activities at the end of each Investigation.
1.S.1A.6 Construct explanations of phenomena using (1) student-generated observations and measurements, (2) results of investigations, or (3) data communicated in graphs, tables, or diagrams.	FOSS modules provide opportunities to develop this science and engineering practice. Example: **FOSS Next Generation, Plants and Animais** Investigation 1, Part 3, Pages 99 - 109
1.S.1A.7 Construct scientific arguments to support explanations using evidence from observations or data collected.	FOSS modules provide opportunities to develop this science and engineering practice. Example: **FOSS Next Generation, Pebbles, Sand and Silt.** Investigation 4, Part 2, Pages 231 – 241
1.S.1A.8 Obtain and evaluate informational texts, observations, data collected, or discussions to (1) generate and answer questions about the natural world, (2) understand phenomena, (3) develop models, or (4) support explanations. Communicate observations and explanations using oral and written language.	FOSS modules provide opportunities to develop this science and engineering practice. Example: **FOSS Next Generation, Pebbles, Sand and Silt** Investigations 4, Part 3, Pages 242 - 247 **FOSS Next Generation, Pebbles, Sand and Silt –** Science Resource Book "Where is Water Found", Pages 50 - 60

1.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
1.S.1B.1 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 (6) communicate the results.	FOSS modules provide opportunities to develop this science and engineering practice. Example: **FOSS Next Generation, Plants and Animals** Investigation 3, Parts 1 - 2, Pages 172 - 188

GRADE ONE

PHYSICAL SCIENCE: EXPLORING LIGHT AND SHADOWS

Standard 1.P.2: The student will demonstrate an understanding of the properties of light and how shadows are formed.

1.P.2A. Conceptual Understanding: Objects can only be seen when light shines on them. Some materials allow light to pass through them; others allow only some light to pass through; and some do not allow any light to pass through and will create a shadow of the object. Technology such as mirrors can change the direction of a beam of light.

Students who demonstrate this understanding can:

PERFORMANCE INDICATOR	DELTA EDUCATION WHERE TAUGHT
1.P.2A.1 Obtain and communicate information to describe how light is required to make objects visible.	**FOSS Next Generation, Sound and Light** **FOSS Next Generation, Sound and Light –** Science Resource Book "Seeing the Light", Pages 56 – 68 **FOSS Next Generation, Sound and Light –** FOSSWEB , Streaming Video **FOSS Plants and Animals** Investigation 1, Light and Darkness **FOSS Plants and Animals** Investigation 1, Science Extensions "Grow plants in the dark", Page 93 "Try growing plants without water", Page 94 Part 3, Pages 223 - 232
1.P.2A.2 Analyze and interpret data from observations to compare how light behaves when it shines on different materials.	**FOSS Next Generation, Sound and Light** Investigation 3, Part 3, Pages 185 - 193 **FOSS Next Generation, Sound and Light** – FOSSWEB, Streaming Video Investigation 3, All About the Light
1.P.2A.3 Conduct structured investigations to answer questions about how shadows change when the position of the light source changes.	**FOSS Next Generation, Sound and Light** Investigation 3, Parts 1 - 2, Pages 178 - 189 **FOSS Next Generation, Sound and Light –** Science Resource Book "Playing in the Light", Pages 38 - 45 **FOSS Next Generation, Sound and Light** – FOSSWEB, Streaming Video Investigation 3 Light and Shadow My Shadow
1.P.2A.4 Develop and use models to describe what happens when light shines on mirrors based on observations and data collected.	**FOSS Next Generation, Sound and Light** Investigation 4, Parts 1 - 2, Pages 206 - 222 **FOSS Next Generation, Sound and Light –** Science Resource Book "Reflections", Pages 46 - 55

GRADE ONE

EARTH SCIENCE: EXPLORING THE SUN AND MOON

Standard 1.E.3: The student will demonstrate an understanding of the Sun and the Moon and the Sun's effect on Earth.

1.E.3A. Conceptual Understanding: Objects in the sky move in predictable patterns. Some objects are better seen in the day sky and some are better seen in the night sky. The Sun is a star that provides heat and light energy for Earth.

Students who demonstrate this understanding can:

PERFORMANCE INDICATOR	DELTA EDUCATION WHERE TAUGHT
1.E.3A.1 Use, analyze, and interpret data from observations to describe and predict seasonal patterns of sunrise and sunset.	**Delta Science Module, Finding the Moon** Activity 3, Pages 30 - 32, 37
1.E.3A.2 Use data from personal observations to describe, predict, and develop models to exemplify how the appearance of the moon changes over time in a predictable pattern.	**Delta Science Module, Finding the Moon** Activities 9 - 10, Pages 77 - 90 **Delta Science Module, Finding the Moon Delta** "What Are Moon Phases?", Pages 6 - 10
1.E.3A.3 Obtain and communicate information to describe how technology has enabled the study of the Sun, the Moon, planets, and stars.	**Delta Science Module Finding the Moon** Pages 58 - 59, 63 - 64, 72 - 73, 100 **Delta Science Reader, Finding the Moon** "What Are Moon Phases?" Pages 7 and 14
1.E.3A.4 Conduct structured investigations to answer questions about the effect of sunlight on Earth's surface.	**Delta Science Module, Finding the Moon** Activity 5, Pages 49 - 50
1.E.3A.5 Define problems related to the warming effect of sunlight and design possible solutions to reduce its impact on a particular area.	

GRADE ONE

EARTH SCIENCE: EARTH'S NATURAL RESOURCES

Standard 1.E.4: The student will demonstrate an understanding of the properties and uses of Earth's natural resources.

1.E.4A. Conceptual Understanding: Earth is made of different materials, including rocks, sand, soil, and water. An Earth material is a resource that comes from Earth. Earth materials can be classified by their observable properties.

Students who demonstrate this understanding can:

PERFORMANCE INDICATOR	DELTA EDUCATION WHERE TAUGHT
1.E.4A.1 Analyze and interpret data from observations and measurements to compare the properties of Earth materials (including rocks, soils, sand, and water).	**FOSS Next Generation, Pebbles, Sand and Silt** Investigation 1, Parts 1 - 5. Pages 78 - 113 Investigation 2, Parts 1 - 4, Pages 128 - 162 Investigation 4, Parts 1 - 2, Pages 224 - 241 **FOSS Next Generation, Pebbles, Sand and Silt** – Science Resource Book "Exploring Rocks", Pages 3 - 10 "Colorful Rocks", Pages 11 - 13 "The Story of Sand", Pages 14 - 21 "Landforms", Pages 24 - 30 "What is in Soil?", Pages 44 - 47 "Testing Soils", Pages 48 - 49
1.E.4A.2 Develop and use models (such as drawings or maps) to describe patterns in the distribution of land and water on Earth and classify bodies of water (including oceans, rivers and streams, lakes, and ponds).	**FOSS Next Generation, Pebbles, Sand and Silt** Investigation 4, Part 4, Pages 248 - 254 **FOSS Next Generation, Pebbles, Sand and Silt**– Science Resource Book "Ways to Represent Land and Water", Pages 79 - 91
1.E.4A.3 Conduct structured investigations to answer questions about how the movement of water can change the shape of the land.	**FOSS Next Generation, Pebbles, Sand and Silt** Investigation 4, Part 4, Pages 248 - 254 **FOSS Next Generation, Pebbles, Sand and Silt** – Science Resource Book "Erosion", Pages 68 - 78

1.E.4B. Conceptual Understanding: Natural resources are things that people use that come from Earth (such as land, water, air, and trees). Natural resources can be conserved.

Students who demonstrate this understanding can:

PERFORMANCE INDICATOR	DELTA EDUCATION WHERE TAUGHT
1.E.4B.1 Obtain and communicate information to summarize how natural resources are used in different ways (such as soil and water to grow plants; rocks to make roads, walls, or buildings; or sand to make glass).	**FOSS Next Generation, Pebbles, Sand and Silt** Investigation 3, Parts 1- 4, Pages 178 - 208 Home/School Extension, Pages 118, 166, 212, 258 **FOSS Next Generation, Pebbles, Sand and Silt** – Science Resource Book "Making Things with Rocks", Pages 31 - 37 "What are Natural Resources?", Pages 38 - 43 **FOSS Next Generation, Pebbles, Sand and Silt** – FOSSWEB Online Activity Investigation 3 , Find Earth Materials
1.E.4B.2 Obtain and communicate information to explain ways natural resources can be conserved (such as reducing trash through reuse, recycling, or replanting trees).	**FOSS Next Generation, Pebbles, Sand and Silt** Investigation 3, Part 1, Pages 178 - 184 Investigation 4, Part 3, Pages 242 - 247 **FOSS Next Generation, Pebbles, Sand and Silt** – Science Resource Book "Making Things with Rocks", Pages 31 - 37

GRADE ONE

LIFE SCIENCE: PLANTS AND THEIR ENVIRONMENTS

Standard 1.L.5: The student will demonstrate an understanding of how the structures of plants help them survive and grow in their environments.

1.L.5A. Conceptual Understanding: Plants have specific structures that help them survive, grow, and produce more plants. Plants have predictable characteristics at different stages of development.

Students who demonstrate this understanding can:

PERFORMANCE INDICATOR	DELTA EDUCATION WHERE TAUGHT
1.L.5A.1 Obtain and communicate information to construct explanations for how different plant structures (including roots, stems, leaves, flowers, fruits, and seeds) help plants survive, grow, and produce more plants.	**FOSS Next Generation, Plants and Animals.** Investigation 1, Parts 1,3 - 4, Pages 76 - 83, 79 - 128 Investigation 2, Parts 1 - 3, Pages 130 - 155 Investigation 3, Part 1, Pages 172 - 180 Investigation 4, Parts 1 - 3, Pages 222 - 250 **FOSS Next Generation, Plants and Animals** – Science Resource Book "What do Plants Need?", Pages 3 - 9 "The Story of Wheat", Pages 10 - 18 "Variations", Pages 19 - 26 "Plants and Animals Around the World", Pages 34 - 56 **FOSS Next Generation, Plants and Animals –** FOSSWEB**,** Streaming Video Investigation 1, How Plants Grow Online Activity Investigation 4, Watch it Grow!
1.L.5A.2 Construct explanations of the stages of development of a flowering plant as it grow from a seed using observations and measurements.	**FOSS Next Generation, Plants and Animals** Investigation 1, Parts 1 and 3, Pages 76 - 83, 99 - 109 Investigation 3, Part 1, Pages 172 - 180 **FOSS Next Generation, Plants and Animals** – Science Resource Book "The Story of Wheat", Pages 10 - 18 "Variations", Pages 19 - 26 **FOSS Next Generation, Plants and Animals** – FOSSWEB, Streaming Video Investigation 1, How Plants Grow

1.L.5B. Conceptual Understanding: Plants have basic needs that provide energy in order to grow and be healthy. Each plant has a specific environment where it can thrive. There are distinct environments in the world that support different types of plants. These environments can change slowly or quickly. Plants respond to these changes in different ways.

Students who demonstrate this understanding can:

PERFORMANCE INDICATOR	DELTA EDUCATION WHERE TAUGHT
1.L.5B.1 Conduct structured investigations to answer questions about what plants need to live and grow (including air, water, sunlight, minerals, and space).	**FOSS Next Generation, Plants and Animals** Investigation 1, Parts 1 and 3, Pages 76 - 83, 99 - 109 Investigation 2, Parts 1 - 3, Pages 130 - 155 Investigation 3, Part 1, Pages 172 - 180 Investigation 4, Parts 1 and 2, Pages 226 - 232
1.L.5B.2 Develop and use models to compare how the different characteristics of plants help them survive in distinct environments (including deserts, forests, and grasslands).	**FOSS Next Generation, Plants and Animals** Investigation 3, Parts 2 - 3, Pages 181 - 200 **FOSS Next Generation, Plants and Animals** Investigation 3, Part 3 "How Plants Live in Different Places", Video **FOSS Next Generation, Plants and Animals** – Science Resource Book "Plants and Animals Around the World", Pages 34 - 56
1.L.5B.3 Analyze and interpret data from observations to describe how changes in the environment cause plants to respond in different ways (such as turning leaves toward the Sun, leaves changing color, leaves wilting, or trees shedding leaves).	**FOSS Next Generation, Plants and Animals** Investigation 1, Science Extensions "Grow plants in the dark", Page 123 "Try growing plants without water", Page 124

Delta Education

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Correlation to the

SOUTH CAROLINA ACADEMIC STANDARDS AND PERFORMANCE INDICATORS FOR SCIENCE

Grade 2

Delta Education

GRADE TWO

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 2.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.

2.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
2.S.1A.1 Ask and answer questions about the natural world using explorations, observations, or structured investigations.	FOSS modules provide opportunities to develop this science and engineering practice. Example: **FOSS Next Generation, Insects and Plants** Investigation 1, Parts 1 - 3, Pages 78 - 109
2.S.1A.2 Develop and use models to (1) understand or represent phenomena, processes, and relationships, (2) test devices or solutions, or (3) communicate ideas to others.	FOSS modules provide opportunities to develop this science and engineering practice. Example: **FOSS Next Generation, Solids and Liquids** Investigation 1, Part 4, Pages 106 - 115
2.S.1A.3 With teacher guidance, conduct structured investigations to answer scientific questions, test predictions and develop explanations: (1) predict possible outcomes, (2) identify materials and follow procedures, (3) use appropriate tools or instruments to make qualitative observations and take nonstandard measurements, and (4) record and represent data in an appropriate form. Use appropriate safety procedures.	FOSS modules provide opportunities to develop this science and engineering practice. Example: **FOSS Next Generation, Solids and Liquids** Investigation 4, Part 3, Pages 251 - 256
2.S.1A.4 Analyze and interpret data from observations, measurements, or investigations to understand patterns and meanings.	FOSS modules provide opportunities to develop this science and engineering practice. Example: **FOSS Third Edition, Balance and Motion** Investigation 4, Parts 1 - 3, Pages 168 - 188
2.S.1A.5 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.	FOSS modules provide opportunities to develop this science and engineering practice. Example: **FOSS Next Edition, Insects and Plants** Investigation 2, Part 2, Pages 137 - 147 FOSS modules also provide opportunities to develop this science and engineering practice in the Math Extension activities at the end of each Investigation.
2.S.1A.6 Construct explanations of phenomena using (1) student-generated observations and measurements, (2) results of investigations, or (3) data communicated in graphs, tables, or diagrams.	FOSS modules provide opportunities to develop this science and engineering practice. Example: **FOSS Next Generation, Insects and Plants** Investigation 3, Part 3, Pages 195 - 201
2.S.1A.7 Construct scientific arguments to support claims using evidence from observations or data collected.	FOSS modules provide opportunities to develop this science and engineering practice. Example: **FOSS Next Generation, Solids and Liquids** Investigation 4, Part 3, Pages 251 - 256
2.S.1A.8 Obtain and evaluate informational texts, observations, data collected, or discussions to (1) generate and answer questions about the natural world, (2) understand phenomena, (3) develop models, or (4) support explanations. Communicate observations and explanations using oral and written language.	FOSS modules provide opportunities to develop this science and engineering practice. Example: **FOSS Third Edition, Insects and Plants** Investigation 3, Parts 1 - 4, Pages 180 - 212 **FOSS Next Generation, Insects and Plant** – Science Resource Book "So Many Kinds, So Many Places", Pages 35 - 40

2.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.

Performance Indicators:

Students who demonstrate this understanding can:

PERFORMANCE INDICATOR	DELTA EDUCATION WHERE TAUGHT
2.S.1B.1 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 (6) communicate the results.	FOSS modules provide opportunities to develop this science and engineering practice. Example: **FOSS Next Generation, Solids and Liquids** Investigation 1, Part 4, Pages 101 - 115 Extensions: Provide for ongoing construction, Build a paper bridge , page 125

GRADE TWO

EARTH SCIENCE: WEATHER

Standard 2.E.2: The student will demonstrate an understanding of the daily and seasonal weather patterns.

2.E.2A. Conceptual Understanding: Weather is the combination of sunlight, wind, precipitation (rain, sleet, snow, and hail), and temperature in a particular region at a particular time. Scientists measure and record these conditions to describe the weather and to identify patterns over time. Weather scientists (meteorologists) forecast severe weather so that communities can prepare for and respond to these events.

Students who demonstrate this understanding can:

PERFORMANCE INDICATOR	DELTA EDUCATION WHERE TAUGHT
2.E.2A.1 Analyze and interpret data from observations and measurements to describe local weather conditions (including temperature, wind, and forms of precipitation)	**FOSS Next Generation, Air and Weather** Investigation 2, Parts 1 - 4, Pages 140 - 178 Investigation 3, Parts 1 - 5, Pages 194 - 224 **FOSS Next Generation, Air and Weather** – Science Resource Book "What is the Weather Today", Pages 9 - 17 "Understanding the Weather", Pages 38 - 43
2.E.2A.2 Analyze local weather data to predict daily and seasonal patterns over time.	**FOSS Next Generation, Air and Weather** Investigation 4, Part 3, Pages 250 - 259
2.E.2A.3 Develop and use models to describe and compare the effects of wind (moving air) on objects.	**FOSS Next Generation, Air and Weather** Investigation 3, Parts 3 - 4, Pages 205 - 217 "Art and Science Extensions", Page 226
2.E.2A.4 Obtain and communicate information about severe weather conditions to explain why certain safety precautions are necessary.	**FOSS Next Generation, Air and Weather** – Science Resource Book "Understanding the Weather", Pages 38 - 43 This performance indicator is also addressed in the Weather on Earth module, Grades 4-6.

GRADE TWO

PHYSICAL SCIENCE: PROPERTIES OF SOLIDS AND LIQUIDS

Standard 2.P.3: The student will demonstrate an understanding of the observable properties of solids and liquids and the special properties of magnets.

2.P.3A. Conceptual Understanding: Solids and liquids are two forms of matter that have distinct observable properties. Some matter can be mixed together and then separated again. Solids and liquids can be changed from one form to another when heat is added or removed.

Students who demonstrate this understanding can:

PERFORMANCE INDICATOR	DELTA EDUCATION WHERE TAUGHT
2.P.3A.1 Analyze and interpret data from observations and measurements to describe the properties used to classify matter as a solid or a liquid.	**FOSS Next Generation, Solids and Liquids** Investigation 1, Parts 1 - 5, Pages 76 - 122 Investigation 2, Parts 1 - 4, Pages 140 - 169 Investigation 3, Parts 1, 3, 5, Pages 184 - 190, 197 - 203, 210 - 215 **FOSS Next Generation, Solids and Liquids** – Science Resource Book "Solid Objects and Materials", Pages 12 - 21 "Liquids", Pages 31 - 37 "Comparing Solids and Liquids", Pages 44 - 53
2.P.3A.2 Develop and use models to exemplify how matter can be mixed together and separated again based on the properties of the mixture.	**FOSS Next Generation, Solids and Liquids** Investigation 3, Parts 2 and 4, Pages 191 - 196, 204 - 209
2.P.3A.4 Construct scientific arguments using evidence from investigations to support claims that some changes in solids or liquids are reversible and some are not when heat is added or removed.	**FOSS Next Generation, Solids and Liquids** Investigation 4, Part 4, Pages 257 - 265 **FOSS Next Generation, Solids and Liquids** – Science Resource Book "Heating and Cooling", Pages 53 - 58 "Is Change Reversible?", Pages 68 - 76 **FOSS Next Generation, Solids and Liquids** – FOSSWEB, Streaming Video Investigation 4, Solids and Liquids

2.P.3B. Conceptual Understanding: Magnets are a specific type of solid that can attract and repel certain other kinds of materials, including other magnets. There are some materials that are neither attracted to nor repelled by magnets. Because of their special properties, magnets are used in various ways.

Students who demonstrate this understanding can:

PERFORMANCE INDICATOR	DELTA EDUCATION WHERE TAUGHT
2.P.3B.1 Conduct structured investigations to answer questions about how the poles of magnets attract and repel each other.	**FOSS Third Edition, Balance and Motion** Investigation 5, Part 1, Pages 199 - 208 This performance indicator is also addressed in the Energy and Electromagnetism module, Grades 4-6.
2.P.3B.2 Analyze and interpret data from observations to compare the effects of magnets on various materials.	**FOSS Third Edition, Balance and Motion** Investigation 5, Part 1, Pages 200 - 208 **FOSS Third Edition, Balance and Motion** – Science Resource Book "Move It, But Don't Touch It", Pages 36 - 40 This performance indicator is also addressed in the Energy and Electromagnetism module, Grade 3.
2**.P.3B.3** Obtain and communicate information to exemplify the uses of magnets in everyday life.	**FOSS Third Edition, Balance and Motion** – Science Resource Book "Move It, But Don't Touch It", Pages 36 - 40 This performance indicator is also addressed in the Energy and Electromagnetism module, Grades 4-6.

GRADE TWO

PHYSICAL SCIENCE: EXPLORING PUSHES AND PULLS

Standard 2.P.4: The student will demonstrate an understanding of the effects of pushes, pulls, and friction on the motion of objects.

2.P.4A. Conceptual Understanding: An object that is not moving will only move if it is pushed or pulled. Pushes and pulls can vary in strength and direction and can affect the motion of an object. Gravity is a pull that makes objects fall to the ground. Friction is produced when two objects come in contact with each other and can be reduced if needed.

Students who demonstrate this understanding can:

PERFORMANCE INDICATOR	DELTA EDUCATION WHERE TAUGHT
2.P.4A.1 Analyze and interpret data from observations and measurements to compare the effects of different strengths and directions of pushing and pulling on the motion of an object.	**FOSS Third Edition, Balance and Motion** Investigation 2, Parts 1 - 2, Pages 90 - 103 **FOSS Third Edition, Balance and Motion –** Science Resource Book "Push or Pull?", Pages 13 - 17 "Move It, or Don't Touch It", Pages 36 - 40 **FOSS Next Generation, Air and Weather** Investigation 1 , Parts 3 and 5, Pages 104 - 111, 121 - 126
2.P.4B.2 Develop and use models to exemplify the effects of pushing and pulling on an object.	**FOSS Third Edition, Balance and Motion** Investigation 2, Parts 1 - 2, Pages 90 - 104
2.P.4B.3 Construct explanations of the relationship between the motion of an object and the pull of gravity using observations and data collected.	**FOSS Next Generation, Air and Weather** Investigation 1, Part 2, Pages 91 - 99 **FOSS Third Edition, Balance and Motion** Investigation 2, Parts 1 and 3, Pages 90 - 97, 105 - 113 Investigation 3, Parts 1 - 4, Pages 125 - 153 **FOSS Third Edition, Balance and Motion** – Science Resource Book "Rolling, Rolling, Rolling", Pages 23 - 29 "Push or Pull", Pages 13 - 17
2.P.4B.4 Conduct structured investigations to answer questions about the relationship between friction and the motion of objects.	
2.P.4B.5 Define problems related to the effects of friction and design possible solutions to reduce the effects on the motion of an object.	

GRADE TWO

LIFE SCIENCE: ANIMALS AND THEIR ENVIRONMENTS

Standard 2.L.5: The student will demonstrate an understanding of how the structures of animals help them survive and grow in their environments.

2.L.5A. Conceptual Understanding: There are many different groups of animals. One way to group animals is by using their physical characteristics. Animals have basic needs that provide for energy, growth, reproduction, and protection. Animals have predictable characteristics at different stages of development.

Students who demonstrate this understanding can:

PERFORMANCE INDICATOR	DELTA EDUCATION WHERE TAUGHT
2.L.5A.1 Obtain and communicate information to classify animals (such as mammals, birds, amphibians, reptiles, fish, or insects) based on their physical characteristics.	**FOSS Next Generation, Insects and Plants** Investigation 1, Parts 1 - 2, Pages 78 - 103 Investigation 3, Parts 1, 3 - 4, Pages 180 - 184, 195 - 212 Investigation 4, Parts 1 - 3, Pages 228 - 252 Investigation 5, Parts 1 - 3, Pages 278 - 293 **FOSS Next Generation, Insects and Plants** – Science Resource Book "So Many Kinds, So Many Places", Pages 35 - 40 "Insect Shapes and Colors", Pages 41 - 45 "Insect Life Cycles", Pages 46 - 54 "Life Goes Around", Pages 55 - 68
2.L.5A.2 Construct explanations for how structures (including structures for seeing, hearing, grasping, protection, locomotion, and obtaining and using resources) of different animals help them survive.	**FOSS Next Generation, Insects and Plants** Investigation 1, Parts 1 - 2, Pages 78 - 103 Investigation 3, Parts 1 - 3, Pages 180 - 201 Investigation 4, Parts 1 - 3, Pages 228 - 252 Investigation 5, Parts 1 - 3, Pages 275 - 293 **FOSS Next Generation, Insects and Plants** – Science Resource Book "So Many Kinds, So Many Places", Pages 35 - 40 "Insect Shapes and Colors", Pages 41 - 45 "Insect Life Cycles", Pages 46 - 54 "Life Goes Around", Pages 55 - 68
2.L.5A.3 Construct explanations using observations and measurements of an animal as it grows and changes to describe the stages of development of the animal.	**FOSS Next Generation, Insects and Plants** Investigation 1, Parts 1 - 2, Pages 78 - 103 Investigation 3, Parts 1 - 3, Pages 180 - 201 Investigation 4, Parts 1 - 3, Pages 228 - 252 Investigation 5, Parts 1 - 3, Pages 275 - 293 **FOSS Next Generation, Insects and Plants** – Science Resource Book "So Many Kinds, So Many Places", Pages 35 - 40 "Insect Life Cycles", Pages 46 - 54 "Life Goes Around", Pages 55 - 68

2.L.5B. Conceptual Understanding: Animals (including humans) require air, water, food, and shelter to survive in environments where these needs can be met. There are distinct environments in the world that support different types of animals. Environments can change slowly or quickly. Animals respond to these changes in different ways.

Students who demonstrate this understanding can:

PERFORMANCE INDICATOR	DELTA EDUCATION WHERE TAUGHT
2.L.5B.1 Obtain and communicate information to describe and compare how animals interact with other animals and plants in the environment.	**FOSS Next Generation, Insects and Plants** Investigation 3, Parts 2 - 4, Pages 185 - 212 Investigation 4, Parts 3 - 4, Pages 235 - 245, 253 - 259 Investigation 5, Parts 1 - 2, 4, Pages 274 - 284, 284 - 301 **FOSS Next Generation, Insects and Plants** – Science Resource Book "Animals and Plants in Their Habitats", Pages 3 - 17 "Life Goes Around", Pages 55 - 68 **FOSS Next Generation, Insects and Plants** – FOSSWEB, streaming video Investigation 4, What Is Pollination?
2.L.5B.2 Develop and use models to exemplify characteristics of animals that help them survive in distinct environments (such as salt and freshwater, deserts, forests, wetlands, or polar lands).	**FOSS Next Generation, Insects and Plants** – Science Resource Book "Animals and Plants in Their Habitats", Pages 3 - 17
2.L.5B.3 Analyze and interpret data from observations to describe how animals respond to changes in their environment (such as changes in food availability, water, or air).	**FOSS Third Edition, Insects and Plants** Investigation 3, Part 4, Pages 202 - 212 **FOSS Third Edition, Insects and Plants** – Science Resource Book "Variations", Pages 32 - 38
2.L.5B.4 Construct scientific arguments to explain how animals can change their environments (such as the shape of the land or the flow of water).	

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Correlation to the

SOUTH CAROLINA ACADEMIC STANDARDS AND PERFORMANCE INDICATORS FOR SCIENCE

Grade 3

Delta Education

GRADE THREE

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 3.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.

3.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
3.S.1A.1 Ask questions that can be (1) answered using scientific investigations or (2) used to refine models, explanations, or designs.	FOSS modules provide opportunities to develop this science and engineering practice. Example: **FOSS Third Edition, Energy and Electromagnetism** Investigation 1, Part 1, Pages 72 – 78
3.S.1A.2 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 modules provide opportunities to develop this science and engineering practice. Example: **FOSS Next Generation, Structures of Life** Investigation 4, Part 3, Pages 278 – 284
3.S.1A.3 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 modules provide opportunities to develop this science and engineering practice. Example: **FOSS Third Edition, Energy and Electromagnetism** Investigation 2, Part 4, Pages 140 - 147
3.P.1A.4 Analyze and interpret data from observations, measurements, or investigations to understand patterns and meanings.	FOSS modules provide opportunities to develop this science and engineering practice. Example: **FOSS Next Generation, Structures of Life** Investigation 2, Part 1, Pages 144 – 150
3.S.1A.5 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.	FOSS modules provide opportunities to develop this science and engineering practice. Example: **FOSS Next Generation, Structures of Life** Investigation 4, Part 1, Pages 282 - 290 FOSS modules also provide opportunities to develop this science and engineering practice in the Math Extension activities at the end of each Investigation.
3.S.1A.6 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 modules provide opportunities to develop this science and engineering practice. Example: **FOSS Third Edition, Energy and Electromagnetism** Investigation 4, Part 4, Pages 140 – 147
3.S.1A.7 Construct scientific arguments to support claims, explanations, or designs using evidence from observations, data, or informational texts.	FOSS modules provide opportunities to develop this science and engineering practice. Example: **FOSS Next Generation, Structures of Life** Investigation 1, Part 3, Pages 112 - 119

PERFORMANCE INDICATOR	DELTA EDUCATION WHERE TAUGHT
3.S.1A.8 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.	FOSS modules provide opportunities to develop this science and engineering practice. Example: **FOSS Next Generation, Structures of Life** Investigation 4, Part 2, Pages 293 - 300 **FOSS Next Generation, Structures of Life** – Science Resource Book "Barn Owls", Pages 78 - 79

3.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
3.S.1B.1 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.	FOSS modules provide opportunities to develop this science and engineering practice. Example: **FOSS Third Edition, Energy and Electromagnetism** Investigation 2, Part 3, Pages 135 - 139

GRADE THREE

PHYSICAL SCIENCE: ENERGY TRANSFER – ELECTRICITY AND MAGNETISM

Standard 3.P.3: The student will demonstrate an understanding of how electricity transfers energy and how magnetism can result from electricity.

3.P.3A. Conceptual Understanding: Energy can be transferred from place to place by electric currents. Electric currents flowing through a simple circuit can be used to produce motion, sound, heat, or light. Some materials allow electricity to flow through a circuit and some do not.

Students who demonstrate this understanding can:

PERFORMANCE INDICATOR	DELTA EDUCATION WHERE TAUGHT
3.P.3A.1 Obtain and communicate information to develop models showing how electrical energy can be transformed into other forms of energy (including motion, sound, heat, or light).	**FOSS Third Edition, Energy and Electromagnetism** Investigation 1, Parts 1 and 4, Pages 63 - 79, 99 - 108 Investigation 2, Parts 1 - 4, Pages 121 - 147 Investigation 4, Parts 1 - 3, Pages 215 - 241 **FOSS Third Edition, Energy and Electromagnetism** – Science Resource Book "Edison Sees the Light", Pages 3 - 7 "Electricity", Pages 8 - 12 "Energy", Pages 13 - 21
3.P.3A.2 Develop and use models to describe the path of an electric current in a complete simple circuit as it accomplishes a task (such as lighting a bulb or making a sound).	**FOSS Third Edition, Energy and Electromagnetism** Investigation 1, Parts 1 and 4, Pages 63 - 79, 99 - 108 Investigation 2, Parts 1 - 4, Pages 121 - 147 Investigation 4, Parts 1 - 3, Pages 215 - 241 **FOSS Third Edition, Energy and Electromagnetism** – Science Resource Book "Edison Sees the Light", Pages 3 - 7 "Electricity", Pages 8 - 12 "Energy", Pages 13 - 21 "Series and Parallel Circuits", Pages 22 - 27 "Electromagnets Everywhere", Pages 53 - 63 "Morse Gets Clicking", Pages 64 - 70
3.P.3A.3 Analyze and interpret data from observations and investigations to classify different materials as either an insulator or conductor of electricity.	**FOSS Third Edition, Energy and Electromagnetism** Investigation 1, Part 3, Pages 91 - 98

3.P.3B. Conceptual Understanding: Magnets can exert forces on other magnets or magnetizable materials causing energy transfer between them, even when the objects are not touching. An electromagnet is produced when an electric current passes through a coil of wire wrapped around an iron core. Magnets and electromagnets have unique properties.

Students who demonstrate this understanding can:

PERFORMANCE INDICATOR	DELTA EDUCATION WHERE TAUGHT
3.P.3B.2 Develop and use models to describe and compare the properties of magnets and electromagnets (including polarity, attraction, repulsion, and strength).	**FOSS Third Edition, Energy and Electromagnetism** Investigation 3, Parts 1 - 5, Pages 162 - 168 Investigation 4, Parts 1 - 3, Pages 214 - 241 **FOSS Third Edition, Energy and Electromagnetism** – Science Resource Book "When Magnet Meet Magnet", Pages 36 - 42 "Magnificent Magnetic Models", Pages 43 - 45
3.P.3B.3 Plan and conduct scientific investigations to determine the factors that affect the strength of an electromagnet.	**FOSS Third Edition, Energy and Electromagnetism** Investigation 4, Parts 1 - 2, Pages 216 - 225

GRADE THREE

EARTH SCIENCE: EARTH'S MATERIALS AND PROCESSES

Standard 3.E.4: The student will demonstrate an understanding of the composition of Earth and the processes that shape features of Earth's surface.

3.E.4A. Conceptual Understanding: Earth is made of materials (including rocks, minerals, soil, and water) that have distinct properties. These materials provide resources for human activities.

Students who demonstrate this understanding can:

PERFORMANCE INDICATOR	DELTA EDUCATION WHERE TAUGHT
3.E.4A.1 Analyze and interpret data from observations and measurements to describe and compare different Earth materials (including rocks, minerals, and soil) and classify each type of material based on its distinct physical properties.	**FOSS Next Generation, Soils, Rocks and Landforms** Investigation 1, Parts 1 and 4, Pages 86 - 101, 126 - 133 Investigation 4, Part 1, Pages 260 - 266 **FOSS Next Generation, Soils, Rocks and Landforms** – Science Resource Book "What is Soil", Pages 3 - 5 "Where Do Rocks Come From?", Pages 67 - 73 "Monumental Rocks", Pages 50 - 54 **FOSS Next Generation, Soils, Rocks and Landforms** – FOSSWEB, Streaming Video
3.E.4A.2 Develop and use models to describe and classify the pattern distribution of land and water features on Earth.	**FOSS Next Generation, Soils, Rocks and Landforms** Investigation 2, Parts 1 - 3, Pages 150 - 181 Investigation 3, Parts 1 - 3, Pages 208 - 239 **FOSS Next Generation, Soils, Rocks and Landforms** – Science Resource Book "Erosion and Deposition", Pages 9 - 14 "Landforms Photo Album", Pages 15 - 22 "Topographic Maps", Pages 31 - 33 **FOSS Next Generation, Soils, Rocks and Landforms** – FOSSWEB, Streaming Video Investigation 2, Part 2 "Weathering and Erosion" Online Activities Investigation 2, Part 2 "Geology Lab: Stream Tables" "Tutorial – Steam Tables Slope and Flood" "Virtual Investigation: Stream Tables"
3.E.4A.3 Obtain and communicate information to exemplify how humans obtain, use, and protect renewable and nonrenewable Earth resources.	**FOSS Next Generation, Soils, Rocks and Landforms** Investigation 4, Parts 1 and 3, Pages 260 - 269, 278 - 287 **FOSS Next Generation, Soils, Rocks and Landforms** – Science Resource Book "Monumental Rocks" , Pages 50 - 54 "Geoscientists at Work", Pages 55 - 59 **FOSS Next Generation, Soils, Rocks and Landforms** – FOSSWEB, Streaming Video Investigation 4, Part 1, "Natural Resources" Online Activities Investigation 4, Part 1 "Resource ID"

3.E.4B. Conceptual Understanding: Earth's surface has changed over time by natural processes and by human activities. Humans can take steps to reduce the impact of these changes.

Students who demonstrate this understanding can:

PERFORMANCE INDICATOR	DELTA EDUCATION WHERE TAUGHT
3.E.4B.1 Develop and use models to describe the characteristics of Earth's continental landforms and classify landforms as volcanoes, mountains, valleys, canyons, plains, and islands.	**FOSS Next Generation, Soils, Rocks and Landforms** Investigation 3, Parts 1 - 3, Pages 208 - 239 **FOSS Next Generation, Soils, Rocks and Landforms** – Science Resource Book "Topographic Maps", Pages 31 - 33
3.E.4B.2 Plan and conduct scientific investigations to determine how natural processes (including weathering, erosion, and gravity) shape Earth's surface.	**FOSS Next Generation, Soils, Rocks and Landforms** Investigation 1, Parts 2 - 3, Pages 102 - 125 Investigation 2, Parts 1 - 3, Pages 150 - 181 **FOSS Next Generation, Soils, Rocks and Landforms** – Science Resource Book "Weathering", Pages 6 - 8 **FOSS Next Generation, Soils, Rocks and Landforms** – FOSSWEB, Streaming Video Investigation 1, Part 2 - 3 "Weathering and Erosion"
3.E.4B.3 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.	**FOSS Next Generation, Soils, Rocks and Landforms** Investigation 2, Parts 2 - 3, Pages 162 - 181 Investigation 3, Parts 3 - 4, Pages 231 - 248 **FOSS Next Generation, Soils, Rocks and Landforms** – Science Resources book "It Happened So Fast!", Pages 38 - 49 **FOSS Next Generation, Soils, Rocks and Landforms** – FOSSWEB, Streaming Video Investigation 3, Part 3 "Mount St. Helens Impact" "Volcanoes
3.E.4B.4 Define problems caused by a natural event or human activity and design devices or solutions to reduce the impact on the environment.	**FOSS Next Generation, Soils, Rocks and Landforms** Investigation 3, Parts 3 - 4, Pages 231 - 248 **FOSS Next Generation, Soils, Rocks and Landforms** – Science Resources book "It Happened So Fast!", Pages 38 - 49 **FOSS Next Generation, Soils, Rocks and Landforms** – FOSSWEB, Streaming Video Investigation 3, Part 3 "Mount St. Helens Impact" "Volcanoes"

GRADE THREE

LIFE SCIENCE: ENVIRONMENTS AND HABITATS

Standard 3.L.5: The student will demonstrate an understanding of how the characteristics and changes in environments and habitats affect the diversity of organisms.

3.L.5A. Conceptual Understanding: The characteristics of an environment (including physical characteristics, temperature, availability of resources, or the kinds and numbers of organisms present) influence the diversity of organisms that live there. Organisms can survive only in environments where their basic needs are met. All organisms need energy to live and grow. This energy is obtained from food. The role an organism serves in an ecosystem can be described by the way in which it gets its energy.

Students who demonstrate this understanding can:

PERFORMANCE INDICATOR	DELTA EDUCATION WHERE TAUGHT
3.L.5A.1 Analyze and interpret data about the characteristics of environments (including salt and fresh water, deserts, grasslands, forests, rain forests, and polar lands) to describe how the environment supports a variety of organisms.	**FOSS Next Generation, Structures of Life** Investigation 1, Part 4, Pages 120 - 130 Investigation 2, Parts 1 - 2, Pages 144 - 163 Investigation 3, Part 2, Pages 208 - 227 **FOSS Next Generation, Structures of Life** – Science Resource Book "Life on Earth", Pages 50 - 63 **FOSS Next Generation, Structures of Life** – FOSSWEB, Digital Resources "Where Does it Live?" "What Doesn't Belong"
3.L.5A.2 Develop and use a food chain model to classify organisms as producers, consumers, and decomposers and to describe how organisms obtain energy.	**FOSS Next Generation, Structures of Life** Investigation 3, Part 5, Pages 250 - 260 **FOSS Next Generation, Structures of Life** – Science Resource Book "Food Chains", Pages 70 - 73

3.L.5B. Conceptual Understanding: When the environment or habitat changes, some plants and animals survive and reproduce, some move to new locations, and some die. Fossils can be used to infer characteristics of environments from long ago.

Students who demonstrate this understanding can:

PERFORMANCE INDICATOR	DELTA EDUCATION WHERE TAUGHT
3.L.5B.1 Obtain and communicate information to explain how changes in habitats (such as those that occur naturally or those caused by organisms) can be beneficial or harmful to the organisms that live there.	**FOSS Next Generation, Structures of Life** Investigation 3, Parts 2 - 3, 5, Pages 208 - 238, 250 - 260 **FOSS Next Generation, Structures of Life** – Science Resource Book "A Change in the Environment", Pages 66 - 69
3.L.5B.2 Develop and use models to explain how changes in a habitat cause plants and animals to respond in different ways (such as hibernating, migrating, responding to light, death, or extinction).	**FOSS Next Generation, Structures of Life** Investigation 3, Parts 2 - 3, Pages 208 - 238 **FOSS Next Generation, Structures of Life** – Science Resource Book "A Change in the Environment", Pages 66 - 69 **FOSS Next Generation, Structures of Life** – FOSSWEB, Media Video "All About Animal Adaptations"
3.L.5B.3 Construct scientific arguments using evidence from fossils of plants and animals that lived long ago to infer the characteristics of early environments.	**FOSS Next Generation, Structures of Life** Investigation 4, Part 2, Pages 293 - 301 **FOSS Next Generation, Structures of Life** – Science Resource Book "Fossils", Pages 81 - 88 **FOSS Next Generation, Structures of Life** – FOSSWEB, Streaming Video "All About Fossils"

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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
4.S.1A.1 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: **FOSS Third Edition Weather on Earth** Investigation 2, Part 1, Pages 118 - 127
4.S.1A.2 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: **FOSS Third Edition Sun, Moon and Planets** Investigation 2, Part 2, Pages 112 - 117
4.S.1A.3 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: **FOSS Third Edition Weather on Earth** Investigation 1, Part 3, Pages 83 – 99 **DSM Color and Light** Activity 1, Page 13 – 17
4.S.1A.4 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: **FOSS Third Edition Weather on Earth** Investigation 2, Part 3, Pages 141 - 150 **FOSS Third Edition Weather on Earth** – Science Resource Book "Uneven Heating", Pages 17 - 20
4.S.1A.5 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: **FOSS Third Edition Weather on Earth** Investigation 1, Part 3, Pages 83 - 99
4.S.1A.6 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: **FOSS Third Edition Weather on Earth** Investigation 3, Part 2, Pages 186 - 191
4.S.1A.7 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: **FOSS Third Edition Sun, Moon and Planets** Investigation 4, Part 1, Pages 174 - 185 **FOSS Third Edition Sun, Moon and Planets** – 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
4.S.1A.8 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.	**FOSS Third Edition Sun, Moon and Planets** Investigation 2, Part 1, Pages 102 - 11 **FOSS Third Edition Sun, Moon and Planets** – Science Resource Book "The Night Sky", Pages 14 - 18

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
4**.S.1B.1** 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.	FOSS and DSM modules provide opportunities to develop this science and engineering practice. Example: **FOSS Third Edition Weather Earth** Investigation 2, Part 4, Pages 151 - 160

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
4.E.2A.1 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.	**FOSS Third Edition Weather on Earth** Investigation 1, Part 2, Pages 75 - 82 Investigation 1, Extension – Draw atmosphere posters, Page 103 **FOSS Third Edition Weather on Earth** – Science Resource Book "Earth's Atmosphere", Pages 7 - 13
4.E.2A.2 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).	**FOSS Third Edition Weather on Earth** Investigation 3, Parts 1 - 3, Pages 174 - 204 **FOSS Third Edition Weather on Earth** – Science Resource Book "The Water Cycle", Pages 48 - 52 **FOSS Third Edition Weather on Earth** – FOSSWEB, Streaming Videos "Water Cycle"

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
4.E.2B.1 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.	**FOSS Third Edition Weather on Earth** Investigation 1, Part 3, Pages 83 - 99 Investigation 4, Part 2, Pages 228 - 236 **FOSS Third Edition Weather on Earth** – Science Resource Book "Weather Instruments", Pages 14 - 16 "Wind and Convection", Pages 27 - 31 "Condensation", Pages 43 - 46 "Weather Maps", Pages 62 - 70
4.E.2B.2 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.	**FOSS Third Edition Weather on Earth** Investigation 4, Part 1, Pages 222 - 227 **FOSS Third Edition Weather on Earth** – Science Resource Book "Severe Weather", Pages 53 - 61
4.E.2B.3 Construct explanations about regional climate differences using data from the long term weather conditions of the region**.**	**FOSS Third Edition Weather on Earth** Investigation 4, Part 3, Pages 237- 245 **FOSS Third Edition Weather on Earth** – Science Resource Book "Earth's Climates", Pages 71 - 75 "Global Climate Change", Pages 76 - 83

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
4.E.3A.1 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.	**FOSS Third Edition Sun, Moon and Planets** Investigation 3, Part 1, Pages 142 - 150
4.E.3A.2 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.	**FOSS Third Edition Sun, Moon and Planets** Investigation 4, Part 1-2, Pages 174 - 197 **FOSS Third Edition Sun, Moon and Planets** – Science Resource Book "Stargazing", Pages 58 - 62 "Our Galaxy", Pages 73 - 76
4.E.3A.3 Construct scientific arguments to support claims about the importance of astronomy in navigation and exploration (including the use of telescopes, astrolabes, compasses, and sextants).	**FOSS Third Edition Sun, Moon and Planets** Investigation 4, Part 2, Pages 186 - 195 **FOSS Third Edition Sun, Moon and Planets** – 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
4.E.3B.1 Analyze and interpret data from observations to describe patterns in the (1) location, (2) movement, and (3) appearance of the Moon throughout the year.	**FOSS Third Edition Sun, Moon and Planets** Investigation 2, Parts 1 and 3, Pages 102 - 111 **FOSS Third Edition Sun, Moon and Planets** – Science Resource Book "Changing Moon", Pages 25 - 29 "Lunar Cycle", Pages 30 - 34
4.E.3B.2 Construct explanations of how day and night result from Earth's rotation on its axis.	**FOSS Third Edition Sun, Moon and Planets** Investigation 1, Part 3, Pages 75 - 88 **FOSS Third Edition Sun, Moon and Planets** – Science Resource Book "Sunrise and Sunset", Pages 8 - 13
4.E.3B.3 Construct explanations of how the Sun appears to move throughout the day using observations of shadows.	**FOSS Third Edition Sun, Moon and Planets** Investigation 1, Parts 1 - 2, Pages 52 - 74 **FOSS Third Edition Sun, Moon and Planets** – Science Resource Book "Sunrise and Sunset", Pages 8 - 13 "Changing Shadows", Pages 3 - 7 "Our Galaxy", Pages 73 - 76
4.E.3B.3 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.	**FOSS Third Edition Sun, Moon and Planets** Investigation 2, Parts 1 and 3, Pages 102 - 111, 119 - 130 **FOSS Third Edition Sun, Moon and Planets** – Science Resource Book "Changing Moon", Pages 25 - 29
4.E.3B.4 Develop and use models to describe the factors (including tilt, revolution, and angle of sunlight) that result in Earth's seasonal changes.	**FOSS Third Edition Sun, Moon and Planets** Investigation 4, Part 1, Pages 174 - 185

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
4.P.4A.1 Construct scientific arguments to support the claim that white light is made up of different colors.	**Delta Science Module Color and Light** Activity 1, The Spectrum of Visible Light, Pages 13 - 18
4.P.4A.2 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.	**Delta Science Module Color and Light** Activity 12, Sight and Afterimages, Connections: Science and Math, Page 107
4.P.4A.3 Obtain and communicate information to explain how the visibility of an object is related to light.	**Delta Science Module Color and Light** Activity 12, Sight and Afterimages, Connections: Science and Math, Page 107
4.P.4A.4 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.	**Delta Science Module Color and Light –** Delta Science Reader "Reflection of Light, Absorption of Light, Refraction of Light", Pages 4 - 6 "What Happens When Light Hits Different Materials" , Page 7
4.P.4A.5 Plan and conduct scientific investigations to explain how light behaves when it strikes transparent, translucent, and opaque materials.	**Delta Science Module Color and Light** 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
4.P.4B.1 Plan and conduct scientific investigations to test how different variables affect the properties of sound (including pitch and volume).	**FOSS Next Generation Sound and Light Module** 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 **FOSS Next Generation Sound and Light Module** – Science Resources Book "Vibrations and Sound," Pages 3 – 7 "Strings and Motion," Pages 24 – 32; **FOSS Next Generation Sound and Light Module** - Multimedia: "Sound Cards" **FOSS Next Generation Sound and Light Module** - Streaming Video "All About Sound, Chapter 2, What Is Sound?" **Delta Science Module Sound** 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
4.P.4B.2 Analyze and interpret data from observations and measurements to describe how changes in vibration affects the pitch and volume of sound.	**FOSS Next Generation Sound and Light Module** Investigation 2, Parts 1-4, Pages 126 – 159 Investigation 2, Interdisciplinary Extensions, Pages 160-162 **FOSS Next Generation Sound and Light Module** - Science Resources "More Musical Instruments," Pages 33 – 37 **Delta Science Module Sound** Activity 2, Good Vibrations, Pages 21 - 27 Activity 8, High or Low, Pages 67 - 71
4.P.4B.3 Define problems related to the communication of information over a distance and design devices or solutions that use sound to solve the problem.	**FOSS Next Generation Sound and Light Module** 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 **FOSS Next Generation Sound and Light Module** - Streaming Video "All About Sound, Chapter 6, Volume and Echo" **Delta Science Module Sound** Activity 3, How Sounds Travel, Pages 29 - 34 Activity 4, How We Hear Sounds, Pages 37 - 42 Activity 12, Rhythm Band, Pages 99 - 104

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
4.L.5A.1 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.	
4.L.5A.2 Analyze and interpret data from observations and measurements to compare the stages of development of different seed plants.	**Delta Science Module Food Chains and Food Webs** Activity 2, Plants and Soil, Pages 23 - 28
4.L.5A.3 Develop and use models to compare the stages of growth and development in various animals.	**Delta Science Module Food Chains and Food Webs** Activities 4 - 6, Pages 39 - 58
4.L.5A.4 Construct scientific arguments to support claims that some characteristics of organisms are inherited from parents and some are influenced by the environment.	**Delta Science Module Food Chains and Food Webs –** 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
4.L.5B.1 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.	
4.L.5B.2 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.	
4.L.5B.3 Construct explanations for how structural adaptations (such as methods for defense, locomotion, obtaining resources, or camouflage) allow animals to survive in the environment.	**Delta Science Module Food Chains and Food Webs** Activity 5, Observing Anoles, Pages 47 - 52 Activity 7, Animal Behavior, Pages 59 - 66 Activity 8, What Do Crickets Eat, Pages 67 - 72

Delta Education

FOSS

DSM
THIRD EDITION

Correlation to the

SOUTH CAROLINA ACADEMIC STANDARDS AND PERFORMANCE INDICATORS FOR SCIENCE

Grade 5

Delta Education

GRADE FIVE

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 5.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.

5.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
5.S.1A.1 Ask questions used to (1) generate hypotheses for scientific investigations or (2) refine models, explanations, or designs.	FOSS modules provide opportunities to develop this science and engineering practice. Example: **FOSS Next Generation Environments** Investigation 3, Part 3, Pages 236 - 240
5.S.1A.2 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 modules provide opportunities to develop this science and engineering practice. Example: **FOSS Third Edition Motion, Force and Models** Investigation 4, Parts 1 - 3, Pages 224 - 253
5.S.1A.3 Plan and conduct controlled scientific investigations to answer questions, test hypotheses and predictions, and develop explanations: (1) formulate scientific questions and testable hypotheses, (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 modules provide opportunities to develop this science and engineering practice. Example: **FOSS Next Generation Environments.** Investigation 4, Part 1, Pages 274 - 291
5.S.1A.4 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 hypotheses, explanations, claims, or designs.	FOSS modules provide opportunities to develop this science and engineering practice. Example: **FOSS Next Generation Environments** Investigation 3, Part 2, Pages 222 - 235 **FOSS Next Generation Environments –** Science Resources "What Happens When Ecosystems Change?", Pages 66 - 71
5.S.1A.5 Use mathematical and computational thinking to (1) express quantitative observations using appropriate metric units, (2) collect and analyze data, or (3) understand patterns, trends and relationships between variables.	FOSS modules provide opportunities to develop this science and engineering practice. Example: **FOSS Third Edition Mixtures and Solutions** Investigation 2, Part 2, Pages 114 - 119 FOSS modules also provide opportunities to develop this science and engineering practice in the Math Extension activities at the end of each Investigation.
5.S.1A.6 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 modules provide opportunities to develop this science and engineering practice. Example: **FOSS Next Generation Environments** Investigation 3, Part 2, Pages 222 – 235
5.S.1A.7 Construct scientific arguments to support claims, explanations, or designs using evidence from observations, data, or informational texts.	FOSS modules provide opportunities to develop this science and engineering practice. Example: **FOSS Third Edition Motion, Force and Models** Investigation 3, Part 3, Pages 120 - 129 **FOSS Third Edition Motion, Force and Models** – Science Resource Book "Force and Energy", Pages 15 - 18 "Potential and Kinetic Energy", Pages 19 - 20

5.S.1A.8 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 hypotheses, explanations, claims, or designs. Communicate observations and explanations using the conventions and expectations of oral and written language.	**FOSS Third Edition Mixtures and Solutions** Investigation 2, Part 3, Pages 116 - 121 **FOSS Third Edition Mixtures and Solutions** – Science Resource Book "Concentrated Solutions", Pages 16 - 19

5.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
5.S.1B.1 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.	**FOSS Third Edition Motion, Force and Models** Investigation 4, Part 3, Pages 206 - 215 **FOSS Third Edition Motion, Force and Models** – Science Resource Book "The Path to Invention", Pages 55 - 59 "Creative Solutions", Pages 60 - 68

GRADE FIVE

PHYSICAL SCIENCE: MATTERS AND MIXTURES

Standard 5.P.2: The student will demonstrate an understanding of the physical properties of matter and mixtures.

5.P.2A. Conceptual Understanding: Matter is made up of particles that are too small to be seen. Even though the particles are very small, the movement and spacing of these particles determines the basic properties of matter.

Students who demonstrate this understanding can:

PERFORMANCE INDICATOR	DELTA EDUCATION WHERE TAUGHT
5.P.2A.1 Analyze and interpret data from observations and measurements of the physical properties of matter (including volume, shape, movement, and spacing of particles) to explain why matter can be classified as a solid, liquid or gas.	**FOSS Third Edition Mixtures and Solutions** Investigation 1, Parts 1 - 2, Pages 55 - 75 **FOSS Third Edition Mixtures and Solutions** – Science Resource Book "Mixtures", Pages 3 - 7 "Solutions Up Close", Pages 14 - 15

5.P.2B. Conceptual Understanding: A mixture is formed when two or more kinds of matter are put together. Sometimes when two or more different substances are mixed together, a new substance with different properties may be formed but the total amount (mass) of the substances is conserved. Solutions are a special type of mixture in which one substance is dissolved evenly into another substance. When the physical properties of the components in a mixture are not changed, they can be separated in different physical ways.

Students who demonstrate this understanding can:

PERFORMANCE INDICATOR	DELTA EDUCATION WHERE TAUGHT
5.P.2B.1 Obtain and communicate information to describe what happens to the properties of substances when two or more substances are mixed together.	**FOSS Mixtures and Solutions, 3rd ed.** Investigation 1, Parts 1 and 4, Pages 56 -67, 82 - 90 Investigation 2, Parts 1 - 3, Pages 100 - 121 Investigation 3, Parts 1 - 3, Pages 146 - 168 Investigation 4, Parts 1 and 3, Pages 180 - 190, 197 - 204 **FOSS Third Edition Mixtures and Solutions –** Science Resource Book "Mixtures" "Solutions Up Close", Pages 14 - 15 "When Substances Change", Pages 42 - 46 **FOSS Third Edition Mixtures and Solutions** - FOSSWEB Digital Resources: "Fizz Quiz: Streaming Videos: Investigation 1, Part 1 – What are Mixtures? Investigation 1, Part 1 – Elements, Compounds and Mixtures Investigation 4, Part 1 – Chemical Reactions
5.P.2B.2 Analyze and interpret data to support claims that when two substances are mixed the total amount (mass) of the substances does not change.	**FOSS Third Edition Mixtures and Solutions** Investigation 1, Part 2, Pages 68 - 75
5.P.2B.3 Develop models using observations to describe mixtures, including solutions, based on their characteristics	**FOSS Third Edition Mixtures and Solutions** Investigation 1, Part 1, Pages 56 - 67 Investigation 2, Parts 1 - 3, Pages 100 - 121 Investigation 3, Parts 1 - 3, Pages 146 - 168 Investigation 4, Parts 1 - 3, Pages 180 - 190, 197 - 204
5.P.2B.4 Construct explanations for how the amount of solute and the solvent determine the concentration of a solution.	**FOSS Third Edition Mixtures and Solutions** Investigation 2, Parts 1 - 4, Pages 99 - 130 Investigation 3, Parts 1 - 3, Pages 144 - 168 **FOSS Third Edition Mixtures and Solution** – Science Resource Book "Concentrated Solutions", Pages 16 - 19
5.P.2B.5 Conduct controlled scientific investigations to test how different variables (including temperature change, particle size, and stirring) affect the rate of dissolving.	**FOSS Third Edition Mixtures and Solutions** Investigation 3, Parts 1 - 3, Pages 146 - 168
5.P.2B.6 Design and test the appropriate method(s) (such as filtration, sifting, attraction to magnets, evaporation, chromatography, or floatation) for separating various mixtures.	**FOSS Third Edition Mixtures and Solutions** Investigation 1, Parts 1 - 4, Pages 56 - 101 Investigation 4, Part 4, Pages 205 - 211

GRADE FIVE

EARTH SCIENCE: CHANGES IN LANDFORMS AND OCEANS

Standard 5.E.3: The student will demonstrate an understanding of how natural processes and human activities affect the features of Earth's landforms and oceans.

5.E.3A. Conceptual Understanding: Some of the land on Earth is located above water and some is located below the oceans. The downhill movement of water as it flows to the ocean shapes the appearance of the land. There are patterns in the location and structure of landforms found on the continents and those found on the ocean floor.

Students who demonstrate this understanding can:

PERFORMANCE INDICATOR	DELTA EDUCATION WHERE TAUGHT
5.E.3A.1 Construct explanations of how different landforms and surface features result from the location and movement of water on Earth's surface through watersheds (drainage basins) and rivers.	**Delta Science Module Earth Processes** Activity 4, Sediments Become Rocks, Pages 39 - 45 Activity 11, A Balancing Act, Pages 97 - 103 **Earth Processes** – Delta Science Readers "Water", Pages 11 - 13 **Weathering and Erosion** – Delta Science Content Readers "Water", Pages 14 - 17 "Erosion", Pages 10 - 11
5.E.3A.2 Develop and use models to describe and compare the characteristics and locations of the landforms on continents with those on the ocean floor (including the continental shelf and slope, the mid-ocean ridge, the rift zone, the trench, and the abyssal plain).	**Delta Science Module Earth Processes** Activity 3, Earth's Weathered Crust, Pages 29 - 37 Activity 7, Mountain Building, Pages 63 - 70 Activity 13, The Ocean Floor, Pages 111 - 120 **Earth Processes** – Delta Science Readers "Sea-Floor Spreading", Page 6 **Weathering and Erosion** – Delta Science Content Readers "Earth's Landforms", Pages 4 - 5

5.E.3B. Conceptual Understanding: Earth's oceans and landforms can be affected by natural processes in various ways. Humans cannot eliminate natural hazards caused by these processes but can take steps to reduce their impacts. Human activities can affect the land and oceans in positive and negative ways.

Students who demonstrate this understanding can:

PERFORMANCE INDICATOR	DELTA EDUCATION WHERE TAUGHT
5.E.3B.1 Analyze and interpret data to describe and predict how natural processes (such as weathering, erosion, deposition, earthquakes, tsunamis, hurricanes, or storms) affect Earth's surface.	**Delta Science Module Earth Processes** Activity 3, Earth's Weathered Crust, Pages 29 - 37 Activity 7, Mountain Building, Pages 63 - 70 Activity 8, Earthquake!, Pages 71 - 79 Activity 11, A Balancing Act, Pages 97 - 103 **Earth Processes** – Delta Science Readers "Plate Movements", Pages 7 - 10 "Weathering, Erosion, and Deposition", Pages 11 - 15 **Weathering and Erosion** – Delta Science Content Readers "What Are Weathering and Erosion?", Pages 7 -11 "What Causes Weathering and Erosion?", Pages 13 - 19
5.E.3B.2 Develop and use models to explain the effect of the movement of ocean water (including waves, currents, and tides) on the ocean shore zone (including beaches, barrier islands, estuaries, and inlets).	**Earth Processes** – Delta Science Readers "Waves", Page 12 **Weathering and Erosion** – Delta Science Content Readers "Waves", Page 16
5.E.3B.3 Construct scientific arguments to support claims that human activities (such as conservation efforts or pollution) affect the land and oceans of Earth.	**Weathering and Erosion** – Delta Science Content Readers "How Do People Change the Land?", Pages 21 - 23 **FOSS Next Generation Environments** Part 3, Reading in Science Resources, 21. Human Activities and Aquatic Ecosystems, Pages 181 - 182 **FOSS Next Generation Environments** – Science Resources "Human Activities and Aquatic Ecosystems", Pages 42 - 45 "The Mono Lake Story", Pages 59 - 65 "The Shrimp Club", Pages 71 - 78
5.E.3B.4 Define problems caused by natural processes or human activities and test possible solutions to reduce the impact on landforms and the ocean shore zone.	**Delta Science Module Earth Processes** Activity 4, Connections - Science, Technology and Society, Page 46 Activity 8, Connections - Science, Technology and Society, Page 78 **FOSS Next Generation Environments.** Investigation 4, Extension - Simulate acid rain, Page 311

GRADE FIVE

LIFE SCIENCE: INTERDEPENDENT RELATIONSHIPS IN ECOSYSTEMS

Standard 5.L.4: The student will demonstrate an understanding of relationships among biotic and abiotic factors within terrestrial and aquatic ecosystems.

5.L.4A. Conceptual Understanding: Ecosystems are complex, interactive systems that include both the living components (biotic factors) and physical components (abiotic factors) of the environment. Ecosystems can be classified as either terrestrial (such as forests, wetlands, and grasslands) or aquatic (such as oceans, estuaries, lakes, and ponds).

Students who demonstrate this understanding can:

PERFORMANCE INDICATOR	DELTA EDUCATION WHERE TAUGHT
5.L.4A.1 Analyze and interpret data to summarize the abiotic factors (including quantity of light and water, range of temperature, salinity, and soil composition) of different terrestrial ecosystems and aquatic ecosystems.	**FOSS Next Generation Environments** Investigation 1, Parts 1 and 2, Pages 88 - 121 Investigation 3, Parts 1 - 3, Pages 214 - 243 Investigation 4, Part 1, Pages 274 - 291 **FOSS Next Generation Environments –** Science Resources "Two Terrestrial Environments", Pages 3 - 12 "Range of Tolerance", Pages 91 - 92
5.L.4A.2 Obtain and communicate information to describe and compare the biotic factors (including individual organisms, populations, and communities) of different terrestrial and aquatic ecosystems	**FOSS Next Generation Environments** Investigation 1, Parts 1 and 2, Pages 88 - 117 Investigation 3, Parts 1 - 3, Pages 214 - 243 Investigation 4, Part 1, Pages 274 -287, 291 **FOSS Next Generation Environments –** Science Resources "Two Terrestrial Environments", Pages 3 - 12

5.L.4B. Conceptual Understanding: All organisms need energy to live and grow. Energy is obtained from food. The role an organism serves in an ecosystem can be described by the way in which it gets its energy. Energy is transferred within an ecosystem as organisms produce, consume, or decompose food. A healthy ecosystem is one in which a diversity of life forms are able to meet their needs in a relatively stable web of life.

Students who demonstrate this understanding can:

PERFORMANCE INDICATOR	DELTA EDUCATION WHERE TAUGHT
5.L.4B.1 Analyze and interpret data to explain how organisms obtain their energy and classify an organisms as producers, consumers (including herbivore, carnivore, and omnivore), or decomposers (such as fungi and bacteria).	**FOSS Next Generation Environments** Investigation 2, Part 2, Pages 161 - 171 **FOSS Next Generation Environments** – Science Resources "What is an Ecosystem", Pages 32 - 34 "Food Chains and Webs", Pages 35 - 41 "Comparing Aquatic and Terrestrial Ecosystems", Pages 46 - 47
5.L.4B.2 Develop and use models of food chains and food webs to describe the flow of energy in an ecosystem.	**FOSS Next Generation Environments** Investigation 2, Part 2, Pages 161 - 171 **FOSS Next Generation Environments** – Science Resources "What is an Ecosystem", Pages 32 - 34
5.L.4B.3 Construct explanations for how organisms interact with each other in an ecosystem (including predators and prey, and parasites and hosts).	**FOSS Next Generation Environments** Investigation 2, Parts 2 and 4 **FOSS Next Generation Environments** – Science Resources "Amazon Rain Forest Journal", Pages 18 - 26 "Freshwater Environments", Pages 27 - 31 "Food Chains and Webs", Pages 35 - 41 "What Happens When Ecosystems Change", Pages 66 - 70 "How Organisms Depend on One Another", Pages 93 - 96
5.L.4B.4 Construct scientific arguments to explain how limiting factors (including food, water, space, and shelter) or a newly introduced organism can affect an ecosystem.	**FOSS Next Generation Environments** Investigation 2, Part 3, Pages 172 - 183 **FOSS Next Generation Environments** – Science Resources "Human Activities and Aquatic Ecosystems", Pages 42 - 45 "The Mono Lake Story", Pages 59 - 65 "What Happens When Ecosystems Change?", Pages 66 - 70

GRADE FIVE

PHYSICAL SCIENCE: FORCES AND MOTION

Standard 5.P.5: The student will demonstrate an understanding of the factors that affect the motion of an object.

5.P.5A. Conceptual Understanding: The motion of an object can be described in terms of its position, direction, and speed. The rate and motion of an object is determined by multiple factors.

Students who demonstrate this understanding can:

PERFORMANCE INDICATOR	DELTA EDUCATION WHERE TAUGHT
5.P.5A.1 Use mathematical and computational thinking to describe and predict the motion of an object (including position, direction, and speed).	**FOSS Third Edition Motion, Force and Models** Investigation 1, Parts 1 - 3, Pages 58 - 90 Investigation 2, Parts 1 - 2, Pages 104 - 118
5.P.5A.2 Develop and use models to explain how the amount or type of force (contact and non-contact) affects the motion of an object.	**FOSS Third Edition Motion, Force and Models** Investigation 1, Parts 1 - 2, Pages 58 - 80 Investigation 2, Parts 1 - 4, Pages 104 - 141 Investigation 3, Parts 1 - 3, Pages 152 - 174
5.P.5A.3 Plan and conduct controlled scientific investigations to test the effects of balanced and unbalanced forces on the rate and direction of motion of objects.	**FOSS Third Edition Motion, Force and Models** Investigation 1, Parts 1 - 2, Pages 58 - 80 Investigation 2, Parts 1 - 4, Pages 104 - 141 Investigation 3, Parts 1 - 3, Pages 152 - 174
5.P.5A.4 Analyze and interpret data to describe how a change of force, a change in mass, or friction affects the motion of an object.	**FOSS Third Edition Motion, Force and Models** Investigation 1, Parts 2, Pages 72 - 80 Investigation 2, Parts 2 and 4, Pages 112 - 118, 130 - 142 Investigation 3, Parts 2 - 3, Pages 159 - 174 **FOSS Third Edition Motion, Force and Models** – Science Resource Book "What Causes Change of Motion", Pages 3 - 6 "Force and Energy", Pages 15 - 18 "Potential and Kinetic Energy at Work", Pages 19 - 20 "Springs in Action", Pages 34 - 37
5.P.5A.5 Design and test possible devices or solutions that reduce the effects of friction on the motion of an object.	**FOSS Third Edition Motion, Force and Models** Investigation 2, Part 1, Pages 104 - 111