

Delta Education Science Programs

Grades K-8

Correlation With

Mississippi

Science Framework



Correlation of the Mississippi Science Framework with the

FULL OPTION SCIENCE SYSTEM (FOSS)

DELTA SCIENCE MODULES (DSM)

SEEDS OF SCIENCE (SOS)

(for grades 2-3)

The following correlation of the Mississippi Framework to the above Delta Education Science Programs is to show *representative* examples of investigations, activities and text selections that address listed standards and their concepts. A citation does *not* reflect all of the investigations or activities that might address a particular standard or concept.

KINDERGARTEN

INQUIRY: Ask questions and find answers by scientific investigation.

OBJECTIVE	FOSS	DSM	SEEDS OF SCIENCE
a. Demonstrate an understanding of a simple investigation by asking questions. (DOK 2)	FOSS is an inquiry base program and provides the opportunity to address this objective. See examples below: Trees Investigation 3, Parts 1-3, pp. 10-18 Animals Two by Two Investigation 4, Parts 1-4, pp. 8-23 Fabric Investigation 2, Parts 1-3, pp. 7-21 Wood and Paper Investigation 3, Part 4, pp. 22-25	DSM is an inquiry base program and provides the opportunity to address this objective. See examples below: From Seed to Plant Activity 6-9, pp. 53-78 Investigating Water Activity 4-5, pp. 35-46 Sunshine and Shadows Activity 3-4, pp. 27-41 Finding the Moon Activity 4-5, pp. 39-54	
b. Compare, sort, and group objects according to size, shape, color, and texture. (DOK 2)	Trees Investigation 2, Parts 2-3, pp. 10-19 Fabric Investigation 1, Parts 1-2, pp. 6-15 Wood and Paper Investigation 1, Parts 1-2, pp. 8-19	Properties Activity 1-4, pp. 13-39 Reader, pp. 5-11 How Do We Learn Activity 2-3, pp. 23-35 Reader, p. 11	
c. Identify simple tools (rulers, thermometers, scales, and hand lenses) used to gather information. (DOK 1)	Trees Investigation 1, Part 7, pp. 31-37 Investigation 3, Part 9, pp. 35-38 Tools for Observing Weather, pp. 10-13, 16-17 Animals Two by Two Investigation 4, Part 1, pp. 8-11 Fabric Investigation 1, Part 4, pp. 20-23	From Seed to Plant Activity 1-6, pp. 15-58 Observing an Aquarium Activity 3-10, pp. 31-107 Properties Activity 6-7, pp. 47-60 How Do We Learn Activity 5, 9-12, pp. 43-49, 73-101	
d. Recognize that people have always had questions about their world and identify science as one way of answering questions and explaining the natural world. (DOK 1)	FOSS is an inquiry base program and provides the opportunity to address this objective. See examples below: Trees Investigation 3, Part 7, pp. 29-31 Animals Two by Two Investigation 1, Part 3, pp. 22-25	DSM is an inquiry base program and provides the opportunity to address this objective. See examples below: From Seed to Plant Activity 6, pp. 53-58 Investigating Water Activity 7-8, pp. 55-69	

<p>e. Describe ideas using drawings and oral expression. (DOK 2)</p>	<p>Fabric Investigation 2, Part 1, pp. 7-11 Wood and Paper Investigation 1, Parts 3-4, pp. 20-27</p> <p>Trees Investigation 2, Parts 2,4, pp. 10-15, 20-22 Animals Two by Two Investigation 1, Part 1, pp. 10-16 Investigation 3, Part 1, pp. 8-12 Fabric Investigation 2, Part 4, pp. 22-25 Wood and Paper Investigation 1, Parts 3-5, pp. 20-32</p>	<p>Sunshine and Shadows Properties Activity 8-9, pp. 65-76 Activity 10-11, pp. 75-86</p> <p>From Seed to Plant Activity 1-4, pp. 15-44 Observing an Aquarium Activity 3-6, 31-67 Sunshine and Shadows Activity 2-6, pp. 19-56 Finding the Moon Activity 1-3, pp. 13-37</p>	
<p>f. Recognize that when a science investigation is done the way it was done before, very similar results are expected. (DOK 1)</p>	<p>FOSS is an inquiry base program and provides the opportunity to address this objective. See examples below: Trees Investigation 3, Part 7, pp. 29-31 Animals Two by Two Investigation 1, Part 3, pp. 22-25 Fabric Investigation 2, Part 1, pp. 7-11 Wood and Paper Investigation 1, Parts 3-4, pp. 20-27</p>	<p>DSM is an inquiry base program and provides the opportunity to address this objective. See examples below: From Seed to Plant Activity 6, pp. 53-58 Investigating Water Activity 7-8, pp. 55-69 Sunshine and Shadows Properties Activity 8-9, pp. 65-76 Activity 10-11, pp. 75-86</p>	

PHYSICAL SCIENCE: Identify properties of objects and materials, position and motion of objects, and properties of magnetism.

OBJECTIVE	FOSS	DSM	SEEDS OF SCIENCE
<p>a. Classify properties of objects and materials according to their observable characteristics. (DOK 2)</p> <ul style="list-style-type: none"> • Materials (e.g., wood, paper, plastic, metal) • Matter (solid or liquid) • Objects that sink or float in 	<p>Trees Investigation 2, Parts 2-3, pp. 10-19 Animals Two by Two Investigation 1, Part 2, pp. 17-21 Fabric Investigation 1, Parts 1-2, pp. 6-15 Investigation 2, Part 1, pp. 7-11</p>	<p>Properties Activity 1-4, 7-8, 10, pp. 13-39, 53-66, 75-80 Reader, pp. 5-11 Investigating Water Activity 1, 5, 9, pp. 13-20, 41-46, 71-80 Reader, pp. 4-7, 12</p>	

water	Wood and Paper Investigation 1, Parts 1-5, pp. 8-32 Investigation 2, Part 1, pp. 6-9 Investigation 3, Part 4, pp. 22-25	How Do We Learn Activity 2-3, pp. 23-35 Reader, p. 11	
b. Differentiate what happens to water left in an open container (disappears) and water left in a closed container (remains). (DOK 1)		Investigating Water Activity 10, pp. 81-88 Reader, pp. 10-11	
c. Compare types of forces and motion. (DOK 1) • External motion of objects (e.g., straight-line, circular, back-and-forth, rotational) • Internal motion of objects (e.g., bending, stretching)	FOSS provides the opportunity to address this objective. See below: Trees Tools for Observing Weather, pp. 14-15, 18-21 Animals Two by Two Investigation 1, Part 3, pp. 22-25 Investigation 4, Parts 1-3, pp. 8-19 Fabric Investigation 1, Parts 5-6, pp. 23-33 Wood and Paper Investigation 2, Part 1, pp. 8-11	DSM provides the opportunity to address this objective. See below: Observing an Aquarium Activity 4-5, pp. 39-55 Investigating Water Activity 3, 5-6, pp. 27-34, 41-54 Sunshine and Shadows Activity 4, 6, pp. 33-41, 49-56 Properties Activity 10-11, pp. 75-86	
d. Compare the interaction between two magnets and the interaction between magnets and other objects (e.g., iron, other metals, wood, water). (DOK 1)	Fabric Investigation 1, Science Extension, p. 36	Properties Activity 11, pp. 81-86 Reader, p. 8	

LIFE SCIENCE: Understand characteristics, structures, life cycles, and environments of organisms.

OBJECTIVE	FOSS	DSM	SEEDS OF SCIENCE
a. Group animals and plants by their physical features (e.g., size, appearance, color). (DOK 2)	Trees Investigation 2, Parts 3-6, pp. 16-28 Animals Two by Two Investigation 1, Part 4, pp. 26-29 Investigation 3, Part 3, pp. 17-20 Investigation 4, Part 2, pp. 12-15	Observing an Aquarium Activity 4-6, pp. 39-66	
b. Compare and contrast physical characteristics of humans. (DOK1) • The five senses (sight, smell, touch, taste, hearing) and		How Do We Learn Reader, p. 4	

<p>corresponding body parts</p> <ul style="list-style-type: none"> • The six major body organs (brain, skin, heart, lungs, stomach, intestines). 			
<p>c. Classify parts of the human body that help it seek, find, and take in food when it feels hunger. (DOK 1)</p> <ul style="list-style-type: none"> • Eyes and nose for detecting food • Legs to get it • Arms to carry it away • Mouth to eat it 			
<p>d. Identify offspring that resemble their parents. (DOK 1)</p>	<p>Animals Two by Two Investigation 5, Part 3, pp. 20-24 Investigation 5, Science Extension, p. 28 Science Stories, pp. 20-23 FOSS Web, Activity: Find the Parent</p>	<p>Observing an Aquarium Activity 10, pp. 97-107 From Seed to Plant Activity 13, pp. 97-103 Reader, pp. 10-11</p>	
<p>e. Recognize and compare the differences between living organisms and non-living materials. (DOK 2)</p>	<p>FOSS provides the opportunity to address this objective. See examples below: Trees Investigation 1-3, all parts Science Stories, pp. 3-12, 14-23 Animals Two by Two Investigation 1-5, all parts Science Stories, pp. 3-23 Fabric Investigation 1, Parts 1-2, pp. 6-15 Science Stories, pp. 4-13 Wood and Paper Investigation 1, Parts 1-2, pp. 8-19 Science Stories, pp. 3-8, 10-18</p>	<p>DSM provides the opportunity to address this objective. See below: Observing an Aquarium Activity 3-6, 12, pp. 31-67, 117-125 Reader, pp. 3-9 From Seed to Plant Activity 1-5, pp. 15-52 Reader, pp. 2-9 Investigating Water Properties Activity 1, 9, pp. 13-20, 71-80 Properties Activity 1-9, pp. 13-73 Reader, p. 2-14</p>	

EARTH AND SPACE SCIENCE: Understand properties of Earth materials, objects in the sky, and changes in Earth and sky.

OBJECTIVE	FOSS	DSM	SEEDS OF SCIENCE
a. Sort, separate, and classify Earth materials (e.g., clay, silt, sand, pebbles, gravel) using			

various strategies. (DOK 2)				
b. Identify and describe properties of Earth materials (soil, rocks, water, and air). (DOK 1)			Investigating Water Activity 1-2, pp. 13-26 Reader, pp. 2-11	
c. Collect and display local weather data. (DOK 2)	Trees Tools for Observing Weather, pp. 6-24		Sunshine and Shadows Reader, pp. 12-13	
d. Describe ways to conserve water. (DOK 2)	Wood and Paper Science Stories, p. 23		Investigating Water Activity 12, Science, Technology and Society, p. 100	
e. Describe the effects of the sun on living and non-living things. (DOK 1) • Warms the land, air, and water • Helps plants grow	Trees Investigation 1, Part 2, pp. 15-19 Science Stories, pp. 14-21		From Seed to Plant Activity 11, pp. 85-90 Sunshine and Shadows Reader, p. 1 Investigating Water Reader, pp. 8-11	
f. Identify the sun as Earth's source of light and heat and describe changes in shadows over time. (DOK 2)			Sunshine and Shadows Activity 4, 6-7, pp. 33-41, 49-63 Reader, pp. 2, 8-9 Finding the Moon Activity 5, pp. 47-54	

FIRST GRADE

INQUIRY: Understand how to plan and carry out a simple scientific investigation.

OBJECTIVE	FOSS	DSM	SEEDS OF SCIENCE
<p>a. Demonstrate an understanding of a simple investigation by asking appropriate questions about objects, organisms, and events. (DOK 2)</p>	<p>FOSS is an inquiry base program and provides the opportunity to address this objective. See examples below: Pebbles, Sand and Silt Investigation 2, Parts 1-4, pp. 8-29 Solids and Liquids Investigation 4, Parts 1-3, pp. 7-27 New Plants Investigation 2, Parts 1-3, pp. 8-28 Air and Weather Investigation 1, Parts 4-6, pp. 21-38</p>	<p>DSM is an inquiry base program and provides the opportunity to address this objective. See examples below: From Seed to Plant Activity 6-9, pp. 53-78 Investigating Water Activity 4-5, pp. 35-46 Sunshine and Shadows Activity 3-4, pp. 27-41 Finding the Moon Activity 4-5, pp. 39-54</p>	
<p>b. Compare, sort, and group objects according to their attributes. (DOK 2)</p>	<p>Pebbles, Sand and Silt Investigation 2, Parts 1-4, pp. 8-29 Solids and Liquids Investigation 1, Part 2, pp. 17-22 Investigation 3, Part 4, pp. 24-27</p>	<p>Properties Activity 1-4, pp. 13-39 Reader, pp. 5-11 How Do We Learn Activity 2-3, pp. 23-35 Reader, p. 11</p>	
<p>c. Use simple tools (e.g., rulers, scales, hand lenses, thermometers, microscopes) to gather information. (DOK 1)</p> <ul style="list-style-type: none"> • Length, using nonstandard units (e.g., paper clips, Unifix cubes, etc.) and standard units (inches, centimeters) • Weight, using a balance scale with and without nonstandard units • Capacity, using nonstandard units 	<p>Pebbles, Sand and Silt Investigation 2, Parts 1-4, pp. 8-29 Insects and Plants Investigation 1, Parts 1-3, pp. 52-75 Insects Investigation 1, Parts 1-3, pp. 8-25 Air and Weather Investigation 2, Parts 2, 4, pp. 14-19, 24-27</p>	<p>From Seed to Plant Activity 1-6, pp. 15-58 Observing an Aquarium Activity 3-10, pp. 31-107 Properties Activity 6-7, pp. 47-60 How Do We Learn Activity 5, 9-12, pp. 43-49, 73-101</p>	
<p>d. Match a simple problem to a technological solution related to the problem (e.g., dull pencil – sharpener, bright light – sunglasses, hot room – fan, cold</p>	<p>Pebbles, Sand and Silt Investigation 3, Parts 1, 5, pp. 8-11, 24-29 Solids and Liquids Investigation 1, Part 3, pp. 21-24</p>	<p>Investigating Water Activity 12, pp. 95-100 Sunshine and Shadows Activity 12, pp. 89-95 Properties</p>	

<p>head – hat, heavy baby – stroller). (DOK 1)</p>	<p>Balance and Motion Investigation 1, Parts 3-4, pp. 19-28 Investigation 3, Parts 1-3, pp. 6-25 Air and Weather Investigation 1, Parts 5-6, pp. 27-38</p>	<p>Activity 6-7, pp. 47-60</p>	
<p>e. Use diagrams and written and oral expression to describe ideas or data. (DOK 2)</p>	<p>Pebbles, Sand and Silt Investigation 2, Parts 1-4, pp. 8-29 Solids and Liquids Investigation 2, Parts 2-3, pp. 15-27 Insects Investigation 2, Parts 1-3, pp. 8-24 Plants and Animals Investigation 4, Parts 1-2, pp. 151-166 Air and Weather Investigation 1, Parts 2-6, pp. 13-38</p>	<p>From Seed to Plant Activity 1-4, pp. 15-44 Observing an Aquarium Activity 3-6, 31-67 Sunshine and Shadows Activity 2-6, pp. 19-56 Finding the Moon Activity 1-3, pp. 13-37</p>	
<p>f. Predict the results of an investigation if it is repeated. (DOK 2)</p>	<p>FOSS is an inquiry base program and provides the opportunity to address this objective. See examples below: New Plants Investigation 2, Parts 2-3, pp. 15-28 Solids and Liquids Investigation 4, Parts 1-2, pp. 7-22 Insects and Plants Investigation 5, Parts 1-3, pp. 206-225 Air and Weather Investigation 1, Parts 4-6, pp. 21-38</p>	<p>DSM is an inquiry base program and provides the opportunity to address this objective. See examples below: From Seed to Plant Activity 6, pp. 53-58 Investigating Water Activity 7-8, pp. 55-69 Sunshine and Shadows Activity 8-9, pp. 65-76 Properties Activity 10-11, pp. 75-86</p>	

PHYSICAL SCIENCE: Develop an understanding of properties of objects and materials, position and motion of objects, and properties of heat and magnetism.

OBJECTIVE	FOSS	DSM	SEEDS OF SCIENCE
<p>a. Recognize that most things are made of parts. (DOK 1)</p>	<p>Insects Investigation 1, Parts 1-3, pp. 8-25</p>	<p>From Seed to Plant Activity 3-5, pp. 33-52</p>	

	<p>Science Stories, pp. 12-15</p> <p>Balance and Motion Investigation 2, Parts 1-2, pp. 8-19</p> <p>New Plants Investigation 1, Part 3, pp. 23-30</p> <p>Science Stories, pp. 3-7</p> <p>Air and Weather Investigation 3, Parts 3, 5, pp. 17-26, 28-33</p>	<p>Reader, pp. 3-11</p> <p>Observing an Aquarium Activity 3-6, pp. 31-67</p> <p>Reader, pp. 4-9</p> <p>Finding the Moon Activity 8, pp. 71-76</p>	
<p>b. Describe properties and changes of objects and materials. (DOK 1)</p> <ul style="list-style-type: none"> • Processes of melting and freezing • How water evaporates and disappears into the atmosphere • How water condenses onto cold surfaces 	<p>Solids and Liquids Investigation 1, Parts 1-2, pp. 8-20</p> <p>Investigation 2, Parts 1-3, pp. 10-27</p> <p>Investigation 4, Parts 1-2, pp. 7-22</p> <p>Investigation 4, Science Extension, p. 31</p> <p>Science Stories, pp. 3-23</p> <p>FOSS Web, Activity: Change It</p> <p>Pebbles, Sand and Silt Investigation 2, Part 4, pp. 24-29</p> <p>Air and Weather Investigation 2, Science Extension, p. 32</p> <p>Science Stories, pp. 14-17</p>	<p>Investigating Water Activity 1-3, 9-11, pp. 13-34, 71-94</p> <p>Reader, 3-11</p> <p>Properties Activity 1-11, pp. 13-86</p> <p>Reader, pp. 2-13, 15</p>	
<p>c. Describe the effects of various forms of motion and of forces on objects. (DOK 2)</p> <ul style="list-style-type: none"> • Different forms of motion (sliding, rolling, straight line, circular, back-and-forth) • Effects that motion can produce (spilling, breaking, bending) 	<p>Balance and Motion Investigation 2, Parts 1-3, pp. 8-25</p> <p>Investigation 3, Parts 1-3, pp. 6-25</p> <p>Science Stories, pp. 10-29</p> <p>Air and Weather Investigation 1, Parts 3-6, pp. 17-38</p> <p>Investigation 3, Parts 2-5, pp. 12-33</p>	<p>DSM provides the opportunity to address this objective. See below:</p> <p>Observing an Aquarium Activity 4-5, pp. 39-55</p> <p>Investigating Water Activity 3, 5-6, pp. 27-34, 41-54</p> <p>Sunshine and Shadows Activity 4, 6, pp. 33-41, 49-56</p> <p>Properties Activity 10-11, pp. 75-86</p>	
<p>d. Differentiate between interactions of two magnets and the interaction of a magnet with objects made of iron, other metals, and nonmetals. (DOK 1)</p>	<p>Solids and Liquids Investigation 3, Science Extension, p. 31</p> <p>Balance and Motion Science Stories, pp. 18-21</p>	<p>Properties Activity 11, pp. 81-86</p> <p>Reader, p. 8</p>	
<p>e. Describe changes in shadows over time and predict how a shadow will look as the light</p>		<p>Sunshine and Shadows Activity 4-11, pp. 33-88</p> <p>Reader, pp. 8-9</p>	

source moves. (DOK 2)			
f. Compare and classify solids and liquids. (DOK 2)	Solids and Liquids Investigation 1, Parts 1-3, pp. 8-24 Investigation 2, Parts 1-3, pp. 10-27 Investigation 3, Parts 1-3, pp. 8-27 Science Stories, pp. 4-12	Properties Activity 7-8, pp. 53-66 Reader, pp. 5-11	
g. Identify vibrating objects that produce sound and classify sounds (e.g., high or low pitched, loud or soft). (DOK 1).	Balance and Motion Science Stories, pp. 32-35		

LIFE SCIENCE: Develop an understanding of the characteristics, structures, life cycles, interactions, and environments of organisms.

OBJECTIVE	FOSS	DSM	SEEDS OF SCIENCE
a. Classify animals and plants by observable features (e.g., size, appearance, color, motion, habitat). (DOK 2)	Insects Investigation 1, Part 2, pp. 12-15 Investigation 3, Part 3, pp.21-26 Investigation 4, Part 4, pp. 23-27 Science Stories, pp. 12-15 Plants and Animals Science Resources, pp. 47-50 Insects and Plants Investigation 3, Parts 1-3, pp.129-151 Investigation 5, Parts 1-3, pp.206-225 Science Resources, pp. 30-33	From Seed to Plant Reader, pp. 14-15 Observing an Aquarium Activity 4-5, pp. 39-55 Reader, pp. 4-8	
b. Describe the primary function of the major body organs (brain, skin, heart, lungs, stomach, intestines, bones, and muscles). (DOK 2)			
c. Communicate the importance of food and explain how the body utilizes food. (DOK 2)			
d. Chart and compare the growth and changes of animals from birth to adulthood. (DOK 2)	Insects Investigation 1-5, all parts Science Stories, pp. 16-33 Insects and Plants Investigation 1, 3-5, all parts	Observing an Aquarium Activity 10, pp. 97-107 Reader, pp. 10-11	

<p>e. Identify the basic needs of plants and animals and recognize that plants and animals both need to take in water, animals need food, and plants need light. (DOK 1)</p>	<p>Science Resources, pp. 37-55</p> <p>Insects Investigation 1, Part 1, pp. 8-15 Investigation 2, Part 2, pp. 14-19</p> <p>Plants and Animals Investigation 3, Parts 1-2, pp. 120-134 Science Resources, pp. 3-7, 21-24</p> <p>Insects and Plants Investigation 1, Part 1, pp. 52-66 Investigation 2, Part 2, pp. 95-104 Investigation 3, Part 2, pp. 134-144 Science Resources, pp. 30-33</p> <p>New Plants Investigation 1, Part 2, pp. 13-22 Science Stories, pp. 3-7</p>	<p>From Seed to Plant Activity 2, 11, 14, pp. 21-31, 85-90, 105-109 Reader, pp. 6-9, 12</p> <p>Observing an Aquarium Activity 2, pp. 23-30 Reader, pp. 6-9, 12</p>	
<p>f. Identify and label the parts of a plant. (DOK 2)</p>	<p>New Plants Investigation 1, Part 3, pp. 23-30 Science Stories, pp. 4, 6-7, 12-15</p> <p>Plants and Animals Science Resources, pp. 4, 6-7</p> <p>Insects and Plants Investigation 2, Part 3, pp. 105-115 Science Resources, pp. 15-19</p>	<p>From Seed to Plant Activity 3-5, 9-10, pp. 33-52, 73-84 Reader, pp. 3-11</p>	

EARTH AND SPACE SCIENCE: Understand Develop an understanding of the properties of Earth materials, objects in the sky, and changes in Earth and sky.

OBJECTIVE	FOSS	DSM	SEEDS OF SCIENCE
<p>a. Compare and classify Earth materials. (DOK 1)</p> <ul style="list-style-type: none"> Physical attributes of rocks (e.g., large/small, heavy/light, smooth/rough, hard/crumby, dark/light, etc.) Physical attributes of soil (e.g., smell, texture, color, etc.) merges into the next. (DOK 1) <p>b. Identify Earth landforms and</p>	<p>Pebbles, Sand and Silt Investigation 1, Parts 1-5, pp. 8-29 Investigation 2, Parts 1-4, pp. 8-29 Investigation 4, Parts 1-3, pp. 8-25 Science Stories, pp. 2-13, 20-23 FOSS Web, Find Earth Materials</p>		

bodies of water (e.g., continents, islands, peninsulas, oceans, rivers, lakes, ponds, creeks). (DOK 1)	Science Stories, pp. 4-5, 11-12, 14-15		
c. Observe, identify, record, and graph daily weather conditions. (DOK 3)	Air and Weather Investigation 2, Parts 1-4, pp.8-27 Investigation 4, Part 1, pp. 8-11	Sunshine and Shadows Reader, pp. 12-13	
d. Categorize types of actions that cause water, air, or land pollution. (DOK 2)		Investigating Water Activity 12, pp. 95-100 Observing an Aquarium Activity 11-12, pp. 104-125	
e. Collect, categorize, and display various ways energy from the sun is used. (DOK 2)	New Plants Investigation 1, Part 2, pp.13-22 Science Stories, p.6 Plants and Animals Science Resources, p. 6 Insects and Plants Investigation 2, Part 2, pp. 95-104 Air and Weather Investigation 4, Part 3, pp. 19-24	From Seed to Plant Investigation 11, pp. 85-90 Reader, p. 8	
f. Identify relationships between lights and shadows and illustrate how the shape of the moon changes over time. (DOK 1)		Sunshine and Shadows Investigation 1-12, pp. 13-95 Reader, pp. 4-11 Finding the Moon Activity 4, 9-10, pp. 39-46, 77-91 Reader, pp. 6-10	
g. Distinguish characteristics of each season and describe how each season shadows over time. (DOK 2)	Air and Weather Investigation 4, Part 2, pp. 12-18 Science Stories, pp. 18-23		

SECOND GRADE

INQUIRY: Develop abilities necessary to conduct scientific investigations.

OBJECTIVE	FOSS	DSM	SEEDS OF SCIENCE
a. Formulate questions about objects and organisms and predict outcomes in order to conduct a simple investigation. (DOK 2)	FOSS is an inquiry base program and provides the opportunity to address this objective. See examples below: Pebbles, Sand and Silt Investigation 2, Parts 1-4, pp. 8-29 Solids and Liquids Investigation 4, Parts 1-3, pp. 7-27 New Plants Investigation 2, Parts 1-3, pp. 8-28 Air and Weather Investigation 1, Parts 4-6, pp. 21-38	DSM is an inquiry base program and provides the opportunity to address this objective. See examples below: Soil Science Activity 10, pp. 91-97 States of Matter Activity 7, pp. 57-63 Force and Motion Activity 5, pp. 49-55 Classroom Plants Activity 5, pp. 47-53	SOS is an inquiry base program and provides the opportunity to address this objective. See examples below: Soil Habitats Investigation 4.1-4.6, pp. 346-399 Designing Mixtures Investigation 1.8, pp. 108-117 Shoreline Science Investigation 4.4, pp. 366-373 Gravity and Magnetism Investigation 2.3, pp. 222-237
b. Compare, sort, and group objects according to two or more attributes. (DOK 2)	Pebbles, Sand and Silt Investigation 2, Parts 1-4, pp. 8-29 Solids and Liquids Investigation 1, Part 2, pp. 17-22	Soil Science Activity 3, pp. 29-37 Reader, pp. 7-8 Sink or Float Activity 2-3, pp. 21-34 Butterflies and Moths Activity 12, pp. 105-110	Soil Habitats Investigation 1.2, pp. 32-39 Investigation 1.4, pp. 50-59 Investigation 3.6, pp. 286-297 Shoreline Science Investigation 2.1, pp. 138-149
c. Use simple tools (e.g., rulers, thermometers, scales, hand lenses, microscopes, balances, clocks) to gather information. (DOK 1) <ul style="list-style-type: none"> • Length, to the nearest inch, foot, yard, centimeter, and meter • Capacity, to the nearest ounce, cup, pint, quart, gallon, and liter • Weight, to the nearest ounce, pound, gram, and kilogram • Time, to the nearest hour, half-hour, quarter-hour, and five-minute intervals (using digital and analog clocks) 	Pebbles, Sand and Silt Investigation 2, Parts 1-4, pp. 8-29 Insects and Plants Investigation 1, Parts 1-3, pp. 52-75 Insects Investigation 1, Parts 1-3, pp. 8-25 Air and Weather Investigation 2, Parts 2, 4, pp. 14-19, 24-27	Soil Science Activity 1, pp. 15-20 States of Matter Activity 1, 6-7, pp. 13-18, 51-63 Weather Watching Activity 2-3, 7, pp. 21-36, 61-68 Plant and Animal Populations Activity 1-2, pp. 15-33	Soil Habitats Investigation 2.1, pp. 130-139 Investigation 3.6, pp. 286-297 Designing Mixtures Investigation 1.8, pp. 108-117 Investigation 2.6, pp. 202-2113 Shoreline Science Investigation 2.1, pp. 140-149 Investigation 4.3, pp. 356-365 Gravity and Magnetism Investigation 2.1, pp. 184-207 Investigation 2.3, pp. 222-237
d. Collect and display technological products (e.g.,	Pebbles, Sand and Silt Investigation 3, Part 2, pp. 12-15	States of Matter Activity 6, pp. 51-56	Gravity and Magnetism Student Book: <u>Forces</u> , pp. 5-6, 12-

<p>zipper, coat hook, ceiling fan pull chain, can opener, bridge, apple peeler, wheel barrow, nut cracker, etc.) to determine their function. (DOK 1)</p>	<p>Science Stories, pp. 16-19 Balance and Motion Science Stories, pp. 10-17 New Plants Science Stories, pp. 18-21 Air and Weather Investigation 2, Parts 2, 4, pp. 14-19, 24-27 Investigation 3, Part 2, pp. 12-16</p>	<p>Force and Motion Activity 5-8, pp. 49-82 Weather Watching Activity 2-5, 7, pp. 21-50, 61-68</p>	<p>13, 16</p>
<p>e. Create line graphs, bar graphs, and pictographs to communicate data. (DOK 2)</p>	<p>Plants and Animals Investigation 1, Part 3, pp. 63-74 Solids and Liquids Investigation 3, Math Extension, p. 28 New Plants Investigation 2, Part 3, pp. 20-28 Air and Weather Investigation 4, Parts 1-2, pp. 8-18</p>	<p>States of Matter Activity 4, Math Extension, p. 40 Weather Watching Activity 3, pp. 29-36 Plant and Animal Populations Activity 8, pp. 77-83</p>	<p>Gravity and Magnetism Investigation 2.1, pp. 184-207</p>
<p>f. Infer that science investigations generally work the same way in different places. (DOK 2)</p>	<p>FOSS is an inquiry base program and provides the opportunity to address this objective. See examples below: New Plants Investigation 2, Parts 2-3, pp. 15-28 Solids and Liquids Investigation 4, Parts 1-2, pp. 7-22 Insects and Plants Investigation 5, Parts 1-3, pp. 206-225 Air and Weather Investigation 1, Parts 4-6, pp. 21-38</p>	<p>DSM is an inquiry base program and provides the opportunity to address this objective. See examples below: Sink or Float Activity 5, pp. 43-51 Force and Motion Activity 5, pp. 49-55 Classroom Plants Activity 5, pp. 47-53 States of Matter Activity 10, pp. 91-97</p>	<p>SOS is an inquiry base program and provides the opportunity to address this objective. See examples below: Soil Habitats Investigation 4.6, pp. 394-399 Designing Mixtures Investigation 2.6, pp. 202-213 Shoreline Science Investigation 2.4, pp. 166-175 Gravity and Magnetism Investigation 1.3, pp. 54-71</p>

PHYSICAL SCIENCE: Apply an understanding of properties of objects and materials, position and motion of objects, and properties of magnetism.

OBJECTIVE	FOSS	DSM	SEEDS OF SCIENCE
<p>a. Investigate to conclude that when water changes to ice and then melts, the amount of water is the same as it was before</p>	<p>FOSS provides the opportunity to address this objective. See examples below: Solids and Liquids</p>	<p>DSM provides the opportunity to address this objective. See examples below: States of Matter</p>	

freezing. (DOK 2)	Investigation 4, Science Extension, p. 29	Activity 10, pp. 34-40	
<p>b. Investigate and describe properties and changes of matter. (DOK 2)</p> <ul style="list-style-type: none"> • Unique properties of states of matter (Gases are easily compressed while solids and liquids are not; the shape of a solid is independent of its container; liquids and gases take the shape of their containers.) • Physical changes (e.g., boiling liquids, freezing ice, tearing paper) • Chemical changes (e.g., burning wood, making ice cream, cooking an egg) 	<p>Pebbles, Sand and Silt Investigation 1, Part 2, pp. 13-17 Investigation 2, Part 4, pp. 24-35</p> <p>Solids and Liquids Investigation 1, Parts 1-2, pp. 8-20 Investigation 2, Parts 1-3, pp. 10-27</p> <p>Investigation 4, Parts 1-2, pp. 7-22 Science Stories, pp. 3-23 FOSS Web, Activity: Change It</p> <p>Air and Weather Investigation 1, Parts 1-6, pp. 8-38</p>	<p>Sink or Float Activity 1, pp. 13-79 Reader, pp. 2-8</p> <p>Soil Science Activity 1-4, pp. 15-44 Reader, pp. 7-8</p> <p>States of Matter Activity 1-12, pp. 13-101 Reader, pp. 2-12</p>	<p>Soil Habitats Investigation 1.2, pp. 32-39 Investigation 1.4, pp. 50-59</p> <p>Designing Mixtures Investigation 1.2, pp. 32-47 Investigation 1.4, pp. 60-73 Investigation 1.6, pp. 84-95 Investigation 2.1, pp. 162-175 Investigation 2.4, pp. 184-191</p> <p>Student Book: <u>Solving Dissolving</u>, pp. 5-12, 18-19 Student Book: <u>Jess Makes Hair Gel</u>, pp. 4-18 Student Book: <u>Jelly Bean Scientist</u>, pp. 7-19 Student Book: <u>Handbook of Interesting Ingredients</u>, pp. 6-31</p>
<p>c. Describe observable effects of forces, including buoyancy, gravity, and magnetism. (DOK1)</p>	<p>Balance and Motion Investigation 1, Parts 1-4, pp. 8-28 Investigation 2, Parts 1-3, pp. 8-25 Investigation 3, Parts 1-3, pp. 6-25 Science Stories, pp. 18-21</p> <p>Solids and Liquids Investigation 3, Science Extension, p. 31</p>	<p>Sink or Float Activity 1-4, pp. 13-42 Reader, pp. 7-11</p> <p>Weather Watching Activity 5, pp. 45-50</p> <p>Force and Motion Activity 1-12, pp. 13-47 Reader, pp. 2-11, 15</p>	<p>Gravity and Magnetism All investigations such as: Investigation 1.1, pp. 14-31 Investigation 2.1, pp. 184-207</p> <p>Student Book: <u>Forces</u>, pp. 4-19 Student Book: <u>Gravity is Everywhere</u>, pp. 5-23 Student Book: <u>What My Sister Taught Me About Magnets</u>, pp. 4-22</p>
<p>d. Classify materials that are or are not attracted to magnets and cite examples of useful magnetic tools in everyday living (e.g., can opener, compass, refrigerator door seal). (DOK 2)</p>	<p>Balance and Motion Science Stories, pp. 18-21</p> <p>Solids and Liquids Investigation 3, Science Extension, p. 31</p>	<p>This objective is addressed in the grade 3 module <u>Magnets</u>.</p>	<p>Gravity and Magnetism Investigation 1.3, pp. 54-71 Investigation 1.8, pp. 134-147 Investigation 1.10, pp. 160-169</p> <p>Student Book: <u>What My Sister Taught Me About Magnets</u>, pp. 4-18</p>
<p>e. Recognize that an object can be seen only if either light falls on it or it emits light, and that color is a property of light. (DOK 1)</p>	<p>This objective is addressed in the Grade 3 module <u>Matter and Energy</u>.</p>		
<p>f. Compare and classify solids, liquids, and gasses. (DOK 2)</p>	<p>Solids and Liquids Investigation 1, Parts 1-2, pp. 8-20</p>	<p>States of Matter Activity 1-3, pp. 13-34</p>	

	Investigation 2, Parts 1-3, pp. 10-27 Science Stories, pp. 4-13	Reader, pp. 4-6 Sink or Float Reader, pp. 5-6, 15	
g. Identify vibration as the source of sound and categorize different types of media (e.g., wood, plastic, water, air, metal, glass) according to how easily vibrations travel. (DOK 2)	Balance and Motion Science Stories, pp. 32-35	This objective is addressed in the grade 3 module <u>Sound</u> .	

LIFE SCIENCE: Develop an understanding of the characteristics, structures, life cycles, interactions, and environments of organisms.

OBJECTIVE	FOSS	DSM	SEEDS OF SCIENCE
a. Describe and categorize the characteristics of plants and animals. (DOK 2) <ul style="list-style-type: none"> Plant parts (leaves, stems, roots, and flowers) Animals (vertebrates or invertebrates, cold-blooded or warm-blooded) Predator-prey relationships 	Insects Investigation 1-5, all parts Science Stories, pp. 12-15 Plants and Animals Investigation 1-4, all parts Science Resources, pp. 4, 6-7, 47-51 Insects and Plants Investigation 1-5, all parts Science Resources, pp. 30-33 New Plants Investigation 1, Part 3, pp. 23-30 Investigation 2, Parts 1-3, pp. 8-28 Investigation 3, Parts 1-3, pp. 8-28 Investigation 4, Parts 1-2, pp. 7-19 Science Stories, pp. 4, 6-7, 40-43	Plant and Animal Populations Activity 4-7, pp. 43-76 Reader, pp. 10-13 Butterflies and Moths Activity 1-2, 6, 9, 12, pp. 15-30, 53-59, 79-87, 105-110 Reader, pp. 4-8 Classroom Plants Activity 1-2, 6-9, 11, pp. 15-28, 55-86, 97-104 Reader, pp. 2-3, 6-12	Soil Habitats Investigation 2.1, pp. 130-139 Investigation 3.1, pp. 232-243 Investigation 3.8, pp. 310-319 Student Book: <u>Handbook of Forest Floor Animals</u> , pp. 4-27 Student Book: <u>Earthworms Underground</u> , pp. 4-27 Student Book: <u>What Are Roots</u> , pp. 3-18 Shoreline Science Investigation 3.6, pp. 282-295 Investigation 3.9, pp. 308-315 Investigation 3.10, pp. 316-321 Student Book: <u>What Lives on a Sandy Beach</u> , pp. 5-26 Student Book: <u>Handbook of Sandy Beach Organisms</u> , pp. 4-40
b. Describe the human body systems with their basic functions and major organs (e.g., brain-nervous, bones-skeletal, muscles-muscular). (DOK 1)		Using Your Senses Activity 1, 5, 8, 10-11, pp. 12-21, 45-52, 67-73, 81-95 Reader, pp. 2-12	
c. Identify the cause/effect relationships when basic needs of plants and animals are met and when they are not met. (DOK 1)	Plants and Animals Investigation 1, Parts 1-2, pp. 47-62 Investigation 2, Science Extension, pp. 76-77	Classroom Plants Activity 3-5, pp. 29-53 Reader, pp. 2-3, 6-12 Plant and Animal Populations Reader, pp. 4-7	Soil Habitats Investigation 2.7, pp. 178-187 Investigation 2.8, pp. 188-197 Student Book: <u>Earthworms Underground</u> , p. 17

	Science Resources, pp. 24-25 New Plants Investigation 2, Parts 1-2, pp. 8-19 Investigation 2, Science Extension, p. 30		Shoreline Science Investigation 3.6, pp. 282-295 Investigation 3.9, pp. 308-315 Student Book: <u>Handbook of Sandy Beach Organisms</u> , pp. 4-40
d. Compare the life cycles of plants and animals. (DOK 2)	Insects Investigation 1-5, all parts Science Stories, pp. 16-33 Insects and Plants Investigation 1-5, all parts Science Resources, pp. 37-55 New Plants Investigation 1, Part 3, pp. 23-30	Butterflies and Moths Activity 1, 6, 9, 11, pp. 15-21, 53-59, 79-87, 97-104 Reader, pp. 3, 8-13 Classroom Plants Reader, p. 5	Soil Habitats Student Book: <u>Handbook of Forest Floor Animals</u> , pp. 9, 13, 15, 19, 23, 27
e. Investigate and explain the interdependence of plants and animals. (DOK 2) • Herbivore, carnivore, or omnivore	Insects Investigation 3, Part 2, pp. 12-20 Investigation 4, Part 2, pp. 14-18 Science Stories, pp. 6-9 Plants and Animals Investigation 3, Parts 1-2, pp. 120-134 Science Resources, pp. 18-19, 22-24, 28-51 Insects and Plants Investigation 3, Part 2, pp. 134-144 Investigation 4, Part 2, pp. 170-174 Science Resources, pp. 6-7, 26-27 New Plants Science Stories, pp. 10-11, 22-43	Plant and Animal Populations Activity 6-12, pp. 39-117 Reader, pp. 8-13 Butterflies and Moths Reader, pp. 9-11	Soil Habitats Investigation 1.10, pp. 110-117 Investigation 3.4, pp. 266-277 Investigation 3.8, pp. 310-319 Student Book: <u>Handbook of Forest Floor Animals</u> , pp. 4-27 Student Book: <u>Earthworms Underground</u> , pp. 12-13 Student Book: <u>Talking with a Habitat Scientist</u> , pp. 10-11 Student Book: <u>Without Soil</u> , pp. 7-11 Shoreline Science Investigation 3.6, pp. 282-295 Investigation 3.9, pp. 308-315 Investigation 3.10, pp. 316-321 Student Book: <u>What Lives on a Sandy Beach</u> , pp. 5-26 Student Book: <u>Handbook of Sandy Beach Organisms</u> , pp. 4-40

EARTH AND SPACE SCIENCE: Understand Develop an understanding of the properties of Earth materials, objects in the sky, and changes in Earth and sky.

OBJECTIVE	FOSS	DSM	SEEDS OF SCIENCE
a. Categorize different types of Earth materials, (e.g., rocks, minerals, soils, water, atmospheric gases).	Pebbles, Sand and Silt Investigation 1, Parts 1-5, pp. 8-29 Investigation 2, Parts 1-4, pp. 8-29 Investigation 4, Parts 1-3, pp. 8-25	Soil Science Activity 1-4, 7 pp. 15-44, 59-67 Reader, pp. 2-3, 7-8	Soil Habitats Investigation 1.2, pp. 32-39 Investigation 1.4, pp. 50-59 Student Book: <u>Into the Soil</u> , pp. 8-

<p>(DOK 2)</p>	<p>Science Stories, pp. 3-9, 20-23 FOSS Web, Find Earth Materials</p>	<p>9 Student Book: <u>Walk in the Woods</u>, pp. 4-7 Shoreline Science Investigation 1.6, pp. 76-89 Investigation 2.1, pp. 138-149 Investigation 2.2, pp. 150-157 Student Book: <u>What's Stronger</u>, pp. 10 Student Book: <u>Gary's Sand Journal</u>, pp. 4-13</p>
<p>b. Describe the three layers of the Earth. (DOK 1)</p>		
<p>c. Collect, organize, and graph weather data obtained by using simple weather instruments (wind vane, rain gauge, thermometer) and explain the components of the water cycle. (DOK 2)</p>	<p>Air and Weather Investigation 2, Parts 1-4, pp. 8-27 Investigation 4, Parts 1-2, pp. 8-18</p>	<p>Weather Watching Activity 2-7 pp. 21-68 Reader, pp. 4-5</p>
<p>d. Distinguish how actions or events related to the Earth's environment may be harmful or helpful. (DOK 2)</p>	<p>New Plants Investigation 1, Parts 3, pp. 29 Insects and Plants Investigation 2, Part 3, p. 113</p>	<p>Soil Science Activity 10-12 pp. 91-114 Reader, pp. 10-12</p>
<p>e. Model and explain the concept of Earth's rotation as it relates to day and night and infer why it is usually cooler at night than in the day. (DOK 2)</p>		<p>This objective is addressed in the grade 3 module <u>Solar System</u>.</p>
<p>f. Describe characteristics and effects of objects in the universe. (DOK 1)</p> <ul style="list-style-type: none"> • Position of the sun in relation to a fixed object on Earth at various 	<p>Air and Weather Investigation 4, Parts 3, pp. 9-21</p>	<p>This objective is addressed in the grade 3 module <u>Solar System</u>.</p>
		<p>Soil Habitats Student Book: <u>Without Soil</u>, pp. 15-18 Shoreline Science Investigation 4.1, pp. 336-343 Investigation 4.3, pp. 356-365 Investigation 4.6, pp. 378-387 Student Book: <u>Shoreline Scientist</u>, pp. 12-13 Student Book: <u>What Belongs on a Beach</u>, pp. 4-18 Student Book: <u>The Black Tide</u>, pp. 4-22</p>

times (day and night)
• The major characteristics of planets (revolution and rotation periods, size, number of moons)
• Changes in the appearance of the moon

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THIRD GRADE

INQUIRY: Apply concepts involved in a scientific investigation.

OBJECTIVE	FOSS	DSM	SEEDS OF SCIENCE
a. Identify questions and predict outcomes that can be examined through scientific investigations. (DOK 3)	<p>FOSS is an inquiry base program and provides the opportunity to address this objective. See examples below:</p> <p>Magnetism and Electricity Investigation 4, Parts 2-3, pp. 14-22</p> <p>Ideas and Inventions Investigation 4, Parts 2-3, pp. 14-21</p> <p>Water Investigation 4, Part 1, pp. 8-13</p> <p>Measurement Investigation 4, Part 2, pp. 14-17</p>	<p>DSM is an inquiry base program and provides the opportunity to address this objective. See examples below:</p> <p>States of Matter Activity 7, pp. 57-63</p> <p>Classroom Plants Activity 5, pp. 47-53</p> <p>Electrical Circuits Activity 6-7, pp. 51-62</p> <p>Magnets Activity 3-4, pp. 25-34</p>	<p>SOS is an inquiry base program and provides the opportunity to address this objective. See examples below:</p> <p>Soil Habitats Investigation 4.1-4.6, pp. 346-399</p> <p>Designing Mixtures Investigation 1.8, pp. 108-117</p> <p>Shoreline Science Investigation 4.4, pp. 366-373</p> <p>Gravity and Magnetism Investigation 2.3, pp. 222-237</p>
b. Describe familiar objects and events using the senses to collect qualitative (e.g., color, size, shape) information. (DOK 1)	<p>Physics of Sound Investigation 1, Parts 1-2, pp. 8-20</p> <p>Structures of Life Investigation 4, Parts 1-2, pp. 8-19</p> <p>Earth Materials Investigation 1, Parts 1-3, pp. 8-29</p> <p>Matter and Energy Investigation 2, Parts 1-2, pp. 93-114</p>	<p>Butterflies and Moths Activity 1-2, pp. 15-30</p> <p>Soil Science Activity 1-4, pp. 15-44</p> <p>Electrical Circuits Activity 3-4, pp. 27-43</p> <p>Water Cycle Activity 2-5, pp. 23-51</p>	<p>Soil Habitats Investigation 1.2, pp. 32-39</p> <p>Investigation 1.4, pp. 50-59</p> <p>Investigation 3.6, pp. 286-297</p> <p>Shoreline Science Investigation 2.1, pp. 138-149</p>
c. Select and use simple tools (e.g., rulers, thermometers, scales, hand lenses, microscopes, calculators, balances, clocks) to gather information. (DOK 1)	<p>Structures of Life Investigation 2, Part 3, pp. 18-22</p> <p>Matter and Energy Investigation 3, Parts 2-3, pp. 139-160</p> <p>Investigation 4, Part 1, pp. 174-180</p> <p>Water Investigation 4, Part 1, pp. 8-13</p> <p>Measurement Investigation 1, Parts 2-3, pp. 16-24</p> <p>Investigation 2, Parts 2-3, pp. 14-24</p>	<p>Plant and Animal Populations Activity 1-2, pp. 15-33</p> <p>States of Matter Activity 1, 6-7, pp. 13-18, 51-63</p> <p>Dinosaur Classification Activity 6-7, pp. 47-60</p> <p>Weather Instruments Activity 1-3, 11, pp. 13-36, 89-96</p> <p>Solar System Activity 4-8, pp. 35-72</p>	<p>Soil Habitats Investigation 2.1, pp. 130-139</p> <p>Investigation 3.6, pp. 286-297</p> <p>Designing Mixtures Investigation 1.8, pp. 108-117</p> <p>Investigation 2.6, pp. 202-2113</p> <p>Shoreline Science Investigation 2.1, pp. 140-149</p> <p>Investigation 4.3, pp. 356-365</p> <p>Gravity and Magnetism Investigation 2.1, pp. 184-207</p> <p>Investigation 2.3, pp. 222-237</p>
c. Select and use simple tools (e.g., rulers, thermometers, scales, hand lenses, microscopes, calculators, balances, clocks) to gather information. (DOK 1)	<ul style="list-style-type: none"> Length, to the nearest half of an inch, foot, yard, centimeter, and meter Capacity and weight/mass, in English and metric systems Time, to the nearest minute Temperature, to the nearest degree 		

	Investigation 3, Parts 2-3, pp. 14-21 Investigation 4, Parts 1-3, pp. 8-13	<p>Force and Motion Activity 5, pp. 49-55</p> <p>Soil Science Activity 10, pp. 91-97</p> <p>Classroom Plants Activity 5, pp. 47-53</p> <p>Earth Materials Activity 11, pp. 97-103</p> <p>Food Chains and Webs Activity 2-3, pp. 23-67</p>	<p>Soil Habitats Investigation 4.6, pp. 394-399</p> <p>Designing Mixtures Investigation 2.6, pp. 202-213</p> <p>Shoreline Science Investigation 2.4, pp. 166-175</p> <p>Gravity and Magnetism Investigation 1.3, pp. 54-71</p>
d. Draw conclusions and communicate the results of an investigation. (DOK 2)	<p>Sun, Moon and Stars Investigation 1, Part 2, pp. 56-64</p> <p>Ideas and Inventions Investigation 3, Part 2, pp. 14-17</p> <p>Magnetism and Electricity Investigation 4, Parts 2-3, pp. 14-22</p> <p>Water Investigation 4, Part 1, pp. 8-13</p> <p>Measurement Investigation 4, Part 2, pp. 14-17</p>	<p>Plant and Animal Populations Activity 8, pp. 77-83</p> <p>Weather Watching Activity 3, pp. 29-36</p> <p>Force and Motion Activity 3-4, pp. 31-47</p> <p>Dinosaur Classification Activity 6-7, pp. 47-60</p> <p>Magnets Activity 2-3, pp. 19-28</p>	<p>Soil Habitats Investigation 3.8, pp. 310-319</p> <p>Designing Mixtures Investigation 2.7, pp. 214-225</p> <p>Shoreline Science Investigation 2.1, pp. 140-149</p> <p>Gravity and Magnetism Investigation 2.1, pp. 184-207</p>
e. Communicate data by creating diagrams, charts, tables, and graphs. (DOK 2)	<p>Magnetism and Electricity Investigation 1, Part 3, pp. 23-29</p> <p>Human Body Investigation 4, Parts 1-3, pp. 8-24</p> <p>Sun, Moon and Stars Investigation 2, Part 2, pp. 89-100</p> <p>Measurement Investigation 4, Part 2, pp. 14-17</p> <p>Earth Materials Investigation 2, Parts 1-2, pp. 8-21</p>	<p>DSM is an inquiry base program and provides the opportunity to address this objective. See examples below:</p> <p>States of Matter Activity 7, pp. 57-63</p> <p>Classroom Plants Activity 5, pp. 47-53</p> <p>Electrical Circuits Activity 6-7, pp. 51-62</p> <p>Magnets Activity 3-4, pp. 25-34</p>	<p>SOS is an inquiry base program and provides the opportunity to address this objective. See examples below:</p> <p>Soil Habitats Investigation 4.6, pp. 394-399</p> <p>Designing Mixtures Investigation 2.6, pp. 202-213</p> <p>Shoreline Science Investigation 2.4, pp. 166-175</p> <p>Gravity and Magnetism Investigation 1.3, pp. 54-71</p>
f. Ask questions and seek answers to explain why different results sometimes occur in repeated investigations. (DOK 2)	<p>FOSS is an inquiry base program and provides the opportunity to address this objective. See examples below:</p> <p>Magnetism and Electricity Investigation 4, Parts 2-3, pp. 14-22</p> <p>Ideas and Inventions Investigation 4, Parts 2-3, pp. 14-21</p> <p>Water Investigation 4, Part 1, pp. 8-13</p> <p>Measurement Investigation 4, Part 2, pp. 14-17</p>		

PHYSICAL SCIENCE: Explain concepts related to objects and materials, position and motion of objects, and properties of magnetism.

OBJECTIVE	FOSS	DSM	SEEDS OF SCIENCE
<p>a. Investigate to conclude that the weight of an object is always the sum of its parts, regardless of how it is assembled, (e.g., Lego creation/separate blocks, bucket/cups of sand, roll/stacks of pennies, bag/individual potatoes, etc.) (DOK 2)</p>	<p>FOSS provides the opportunity to address this objective. See examples below: Water Investigation 2, Part 3, pp. 19-24 Matter and Energy Science Resources, p. 70</p>		<p>SOS provides the opportunity to address this objective. See below: Gravity and Magnetism Investigation 2.1, pp. 184-207</p>
<p>b. Explore and identify physical changes of matter, including melting, freezing, boiling, evaporation, and condensation, (DOK 2)</p>	<p>Matter and Energy Investigation 4, Part 2, pp. 181-192 Science Resources, pp. 54-56 Earth Materials Investigation 1, Parts 2-3, pp. 16-29 Water Investigation 3, Parts 1-4, pp. 8-26 Science Stories, pp. 13-15 FOSS Web, Activity: Evaporation Measurement Investigation 4, Part 2, pp. 14-17 Science Stories, pp. 32-33</p>	<p>States of Matter Activity 4-5, 7-12, pp. 35-50, 57-101 Reader, pp. 7-11 Water Cycle Activity 4-5, 8-13, pp. 39-51, 69-114 Reader, pp. 8-9 Weather Instruments Activity 7, pp. 59-66</p>	<p>Designing Mixtures Investigation 1.4, pp. 60-73 Investigation 1.8, pp. 108-117 Investigation 2.2, pp. 162-175 Investigation 2.4, pp. 184-191 Investigation 2.9, pp. 238-245 Student Book: <u>Solving Dissolving</u>, pp. 5-12, 18-19</p>
<p>c. Investigate and describe forces affecting motion in simple machines (lever, wheel and axle, block and tackle, inclined plane, screw.) (DOK 2)</p>		<p>Force and Motion Activity 3-12, pp. 31-117 Reader, pp. 5-11</p>	
<p>d. Differentiate between potential and kinetic energy and recognize their conversions. (DOK 2)</p> <ul style="list-style-type: none"> • Potential to kinetic (e.g., winding a clock/clock begins ticking) • Kinetic to potential (e.g., roller coaster moving downward/upward to the top of the hill.) 	<p>FOSS provides the opportunity to address this objective. See examples below: Magnetism and Electricity Investigation 2, Parts 1-2, pp. 8-19 Matter and Energy Investigation 1, Parts 1-3, pp. 50-82 Science Resources, pp. 2-13</p>	<p>DSM provides the opportunity to address this objective. See below: Force and Motion Reader, pp. 6, 8, 14</p>	<p>SOS provides the opportunity to address this objective. See below: Gravity and Magnetism Student Book: <u>Forces</u>, pp. 4-5, 9-16</p>
<p>e. Explain how light waves travel (e.g., in a straight line until they</p>	<p>Matter and Energy Investigation 2, Part 1, pp. 93-102</p>		

strike an object, through transparent and translucent objects, from reflecting and refracting surfaces, at the surface of opaque objects). (DOK 1)	Science Resources, pp. 24-27, 34-35 Ideas and Inventions Investigation 4, Parts 1-3, pp. 8-21 Science Stories, pp. 28-29		
f. Differentiate the movement of vibrations in waves (e.g., sound and seismic waves), and cite examples to explain that vibrations move through different materials at different speeds. (DOK 1)	Physics of Sound Investigation 1, Part 3, pp. 21-29 Investigation 3, Parts 1-2, pp. 8-19 Science Stories, pp. 6, 19-20 FOSS Web, How Far Away is It?	Sound Activity 2-3, pp. 21-35 Reader, pp. 2-5 Earth Movements Activity 11, pp. 97-103 Reader, p. 10	
g. Cite evidence to explain why heating or cooling may change the properties of materials (e.g., boiling an egg, evaporating water, chilling gelatin, making ice cream, etc.) (DOK 2)	Water Investigation 3, Parts 1-4, pp. 8-26 Science Stories, pp. 13-15 FOSS Web, Activity: Evaporation Matter and Energy Investigation 4, Part 2, pp. 181-192 Science Resources, pp. 54-59	States of Matter Activity 7-12, pp. 57-101 Reader, pp. 7-10 Water Cycle Activity 4-5, 8-13, pp. 39-51, 69-114 Reader, pp. 8-11 Weather Instruments Activity 7, 9, pp. 59-66, 75-80	Designing Mixtures Student Book: <u>Jelly Bean Scientist</u> , pp. 16-17

LIFE SCIENCE: Describe the characteristics, structures, life cycles, and environments of organisms.

OBJECTIVE	FOSS	DSM	SEEDS OF SCIENCE
a. Research and explain diverse life forms (including vertebrates and invertebrates) that live in different environments (e.g., deserts, tundras, forests, grasslands, taigas, wetlands) and the structures that serve different functions in their survival (e.g., methods of movement, defense, camouflage). (DOK 2)	Structures of Life Investigation 3, Part 1, pp. 8-15 Investigation 4, Part 1, pp. 8-13 Science Stories, pp. 4-5, 17-34 FOSS Web, Pictures Water Science Stories, pp. 5-7	Classroom Plants Activity 11, pp. 97-104 Reader, pp. 2-3 Plant and Animal Populations Activity 4-7, 10-11, pp. 43-76, 95-110 Reader, pp. 5-7, 10-12 Butterflies and Moths Reader, pp. 6-7, 15 Plant and Animal Life Cycles Reader, p. 15 Food Chains and Webs Activity 4-6, pp. 39-58 Reader, pp. 4-5, 14	Soil Habitats Investigation 3.1, pp. 232-243 Investigation 3.6, pp. 286-297 Student Book: <u>Handbook of Forest Floor Animals</u> , pp. 4-27 Student Book: <u>Earthworms Underground</u> , pp. 4-22 Student Book: <u>Walk in the Woods</u> , pp. 10-15 Shoreline Science Investigation 3.6, pp. 282-295 Investigation 3.9, pp. 308-315 Investigation 3.10, pp. 316-321 Student Book: <u>What Lives on a Sandy Beach</u> , pp. 6-26 Student Book: <u>Handbook of Sandy Beach Organisms</u> , pp. 5-40

<p>b. Identify and describe the purpose of the digestive, nervous, skeletal, and muscular systems of the body. (DOK 1)</p>	<p>Human Body Investigation 1, Parts 1-2, pp. 8-20 Investigation 2, Parts 1-4, pp. 8-25 Investigation 3, Parts 1-3, pp. 8-21 Science Stories, pp. 1-4, 10, 12-16 FOSS Web, Mr. Bones</p>	<p>Using Your Senses Activity 1-12, pp. 13-103 Reader, pp. 2-12</p>	
<p>c. Investigate the relationships between the basic needs of different organisms and discern how adaptations enable an organism to survive in a particular environment. (DOK 2)</p>	<p>Structures of Life Investigation 3, Part 1, pp. 8-15 Investigation 4, Part 1, pp. 8-13 Science Stories, pp. 17-34</p>	<p>Classroom Plants Activity 11, pp. 97-104 Reader, pp. 3, 7, 9-10, 13 Plant and Animal Populations Activity 4-6, 10-11, pp. 43-67, 95-110 Reader, pp. 5-7, 10-12 Butterflies and Moths Activity 3, 7-8, 10, pp. 31-38, 61-77, 89-96 Reader, pp. 15 Plant and Animal Life Cycles Reader, p. 15 Food Chains and Webs Activity 4-6, pp. 39-58 Reader, pp. 4-5</p>	<p>Soil Habitats Investigation 3.1, pp. 232-241 Investigation 3.6, pp. 286-297 Investigation 3.8, pp. 310-319 Student Book: <u>Earthworms Underground</u>, p. 6-22 Student Book: <u>Handbook of Forest Floor Animals</u>, pp. 4-27 Shoreline Science Investigation 3.6, pp. 282-295 Investigation 3.8, pp. 302-307 Student Book: <u>Handbook of Sandy Beach Organisms</u>, pp. 5-40 Student Book: <u>What Lives on a Sandy Beach</u>, pp. 4-26</p>
<p>d. Illustrate how the adult animal will look, when given pictures of young animals (e.g., birds, fish, cats, frogs, caterpillars, etc.) (DOK 2)</p>	<p>Structures of Life Science Stories, p. 20 FOSS Web, Activity: Life Cycles</p>	<p>Butterflies and Moths Activity 1-2, 5, pp. 15-30, 47-52 Reader, pp. 3, 8-11 Plant and Animal Life Cycles Activity 4-5, 10, pp. 43-56, 91-96 Reader, pp. 2, 7-10</p>	<p>Soil Habitats Student Book: <u>Handbook of Forest Floor Animals</u>, pp. 9, 19</p>
<p>e. Recall that organisms can survive only when in environments (deserts, tundras, forests, grasslands, taigas, wetlands) in which their needs are met and interpret the interdependency of plants and animals within a food chain, including producer, consumer, decomposer, herbivore, carnivore, omnivore, predator, and prey. (DOK 2)</p>	<p>Structures of Life Science Stories, pp. 17-34, 43</p>	<p>Plant and Animal Populations Activity 5-12, pp. 51-117 Reader, pp. 4-13 Food Chains and Webs Activity 1-12, pp. 15-101 Reader, pp. 1-10</p>	<p>Soil Habitats Student Book: <u>Handbook of Forest Floor Animals</u>, pp. 4-27 Student Book: <u>Earthworms Underground</u>, pp. 14-17 Student Book: <u>Walk in the Woods</u>, pp. 10-15 Shoreline Science Investigation 3.9, pp. 308-315 Investigation 3.10, pp. 316-321 Student Book: <u>What Lives on a Sandy Beach</u>, pp. 6-26 Student Book: <u>Handbook of Sandy</u></p>

<p>f. Recognize that cells vary greatly in size, structure, and function, and that some cells and tiny organisms can be seen only with a microscope. (DOK 1)</p>			<p><u>Beach Organisms</u>, pp. 5-40</p>
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EARTH AND SPACE SCIENCE: Develop an understanding of the properties of Earth materials, objects in the sky, and changes in Earth and sky.

OBJECTIVE	FOSS	DSM	SEEDS OF SCIENCE
<p>a. Recall that soil is made up of various materials (weathered rock, minerals, plant and animal remains, living organisms.) (DOK 1)</p>		<p>Soil Science Activity 1-4, pp. 15-44 Reader, pp. 2-8 Food Chains and Webs Activity 1, pp. 15-22</p>	<p>Soil Habitats Investigation 1.2, pp. 32-39 Student Book: <u>Walk in the Woods</u>, pp. 4-9</p>
<p>b. Compare and contrast changes in the Earth's surface that are due to slow processes (erosion, weathering, mountain building) and rapid processes (landslides, volcanic eruptions, earthquakes, floods, asteroid collisions). (DOK 2)</p>	<p>Earth Materials Science Stories, pp. 4-7</p>	<p>Soil Science Activity 5-6, 12, pp. 45-58, 107-114 Reader, pp. 4-5 Earth Movements Activity 9-12, pp. 79-110 Reader, pp. 6-12</p>	<p>Shoreline Science Investigation 1.6, pp. 76-89 Investigation 2.7, pp. 190-201 Investigation 4.8, pp. 394-402 Student Book: <u>What's Stronger</u>, pp. 5-26 Student Book: <u>Shoreline Scientist</u>, pp. 6-9, 11, 15</p>
<p>c. Gather and display local weather information such as temperature, precipitation, clouds, etc., on graphs and use graphs of weather patterns to predict weather conditions. (DOK 3)</p> <ul style="list-style-type: none"> • Instruments (wind vane, rain gauge, thermometers, anemometers, and barometers) • Cloud types (cirrus, stratus, cumulus) • Water cycle (evaporation, precipitation, condensation) 	<p>This objective is addressed in the grade 2 module <u>Air and Weather</u>.</p>	<p>Weather Watching Activity 2-7, pp. 21-68 Reader, pp. 4-7 Weather Instruments Activity 1-6, 8-12, pp. 13-57, 67-101 Reader, pp. 3-9 Water Cycle Activity 13, pp. 107-114 Reader, pp. 10-11</p>	
<p>d. Identify the causes and effects of various types of air, land, and water pollution and infer ways to protect the environment. (DOK 3)</p>		<p>Soil Science Activity 10-11, pp. 91-105 Reader, pp. 10-12 Food Chains and Webs</p>	<p>Shoreline Science Investigation 4.1, pp. 326-343 Investigation 4.3, pp. 356-365 Student Book: <u>The Black Tide</u>, pp.</p>

<p>e. Identify patterns in the phases of the moon, describe their sequence, and predict the next phase viewed in the night sky. (DOK 1)</p>	<p>Sun, Moon and Stars Investigation 2, Parts 1-2, pp. 79-100 Science Resources, pp. 19-22 FOSS Web, Pictures Ideas and Inventions Science Stories, pp. 34-36</p>	<p>Activity 12, Science, Technology and Society, p. 101 Reader, p. 12 Solar System Reader, p. 7</p>	<p>4-22 Student Book: <u>What Belongs on a Beach</u>, pp. 4-18</p>
<p>f. Describe the different components of the solar system (sun, planets, moon, asteroids, comets.) (DOK 1)</p> <ul style="list-style-type: none"> • Gravitational attraction of the sun • Phases of the moon • Constellations 	<p>Sun, Moon and Stars Investigation 1, Part 1, pp. 42-55 Investigation 2, Parts 1-2, pp. 79-100 Science Resources, pp. 1-13, 16-17, 19, 24-28, 30-32 Ideas and Inventions Science Stories, pp. 34-36</p>	<p>Solar System Activity 1-3, 6, 8-12, pp. 13-34, 51-58, 65-110 Reader, pp. 2-13</p>	
<p>g. Explain how fossil records are used to learn about the past, identify characteristics of selected fossils, and describe why they may be found in many places. (DOK 2)</p> <ul style="list-style-type: none"> • The Earth Science Museum at the Petrified Forest in Flora, MS • The Natural Science Museum in Jackson, MS 	<p>Earth Materials Science Stories, p. 4 Structures of Life Science Stories, pp. 45-48</p>	<p>Dinosaur Classification Activity 1-3, 8, pp. 13-34, 61-66 Reader, pp. 4-5, 13-15 Earth Movements Activity 3, pp. 29-37</p>	

FOURTH GRADE

INQUIRY: Explain and use skills necessary to conduct scientific inquiry.

OBJECTIVE	FOSS	DSM	SEEDS OF SCIENCE
a. Form hypotheses and predict outcomes of problems to be investigated. (DOK 3)	FOSS is an inquiry base program and provides the opportunity to address this objective. See examples below: Magnetism and Electricity Investigation 4, Parts 2-3, pp. 14-22 Ideas and Inventions Investigation 4, Parts 2-3, pp. 14-21 Water Investigation 4, Part 1, pp. 8-13 Measurement Investigation 4, Part 2, pp. 14-17	DSM is an inquiry base program and provides the opportunity to address this objective. See examples below: Magnets Activity 3-4, pp. 25-34 Electrical Circuits Activity 6-7, pp. 51-67 Food Chains and Webs Activity 2-3, pp. 23-37 Water Cycle Activity 5, pp. 45-51	
b. Use the senses and simple tools to gather qualitative information about objects or events (size, shape, color, texture, sound, position, change). (DOK 1)	Structures of Life Investigation 1, Parts 2-3, pp. 18-23 Water Investigation 1, Parts 1-3, pp. 8-23 Matter and Energy Investigation 2, Parts 1-2, pp. 93-114 Physics of Sound Investigation 4, Parts 1-2, pp. 8-19	Food Chains and Webs Activity 1-2, pp. 15-29 Earth Movements Activity 3-4, pp. 29-46 Sound Activity 1-3, 7-11, pp. 13-35, 59-98 Water Cycle Activity 2-5, pp. 23-51	
c. Demonstrate the accurate use of simple tools to gather and compare information (DOK 1) <ul style="list-style-type: none"> • Tools (English rulers [to the nearest eighth of an inch], metric rulers [to the nearest centimeter], thermometers, scales, hand lenses, microscopes, balances, clocks, calculators, anemometers, rain gauges) • Types of data (height, mass/weight, temperature, length, 	Structures of Life Investigation 2, Part 3, pp. 18-22 Matter and Energy Investigation 3, Parts 2-3, pp. 139-160 Investigation 4, Part 1, pp. 174-180 Water Investigation 4, Part 1, pp. 8-13 Measurement Investigation 1, Parts 2-3, pp. 16-24 Investigation 2, Parts 2-3, pp. 14-	Solar System Activity 4-8, pp. 35-72 Weather Instruments Activity 1, 11, pp. 8-21, 89-96 Dinosaur Classification Activity 4, 6-7, pp. 35-40, 47-60	

distance, volume, area, perimeter)	24 Investigation 3, Parts 2-3, pp. 14-21 Investigation 4, Parts 1-3, pp. 8-13		
d. Use simple sketches, diagrams, tables, charts, and writing to draw conclusions and communicate data results. (DOK 2)	Structures of Life Investigation 4, Parts 1-2, pp. 8-19 Physics of Sound Investigation 4, Parts 1-2, pp. 8-19 Magnetism and Electricity Investigation 2, Parts 1-2, pp. 8-19 Ideas and Inventions Investigation 1, Parts 2-3, pp. 14-21	Plant and Animal Life Cycles Activity 8-10, pp. 75-96 Earth Movements Activity 1-3, pp. 13-37 Food Chains and Webs Activity 2-3, pp. 23-37 Magnets Activity 2-3, pp. 19-28	
e. Interpret and describe patterns of data using drawings, diagrams, charts, tables, graphs, and maps. (DOK 2)	Magnetism and Electricity Investigation 1, Part 3, pp. 23-29 Human Body Investigation 4, Parts 1-3, pp. 8-24 Sun, Moon and Stars Investigation 2, Part 2, pp. 89-100 Measurement Investigation 4, Part 2, pp. 14-17 Earth Materials Investigation 2, Parts 1-2, pp. 8-21	Magnets Activity 2-3, pp. 19-28 Weather Instruments Activity 6, pp. 51-57 Dinosaur Classification Activity 6-7, pp. 47-60 Solar System Activity 6, 8, pp. 51-58, 65-78	
f. Explain why scientists and engineers often work in teams with different individuals doing different things that contribute to the results. (DOK 2)	FOSS provides the opportunity to address this objective. See below: Magnetism and Electricity Science Stories, pp. 16-20 Human Body Science Stores, pp. 22-24	Dinosaur Classification Reader, pp. 14-15	
g. Draw conclusions about important steps (e.g., making observations, asking questions	FOSS is an inquiry base program and provides the opportunity to address this objective. See examples below: Magnetism and Electricity Investigation 4, Parts 2-3, pp. 14-22 Structures of Life Investigation 1, Parts 2-3, pp. 12-33 Water Investigation 4, Part 1, pp. 8-13 Measurement	DSM is an inquiry base program and provides the opportunity to address this objective. See examples below: Magnets Activity 3-4, pp. 25-34 Electrical Circuits Activity 6-7, pp. 51-67 Food Chains and Webs Activity 2-3, pp. 23-37 Water Cycle Activity 5, pp. 45-51	

	Investigation 4, Part 2, pp. 14-17	
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PHYSICAL SCIENCE: Use the properties of objects and materials, position and motion of objects, and transfer of energy to develop an understanding of physical science concepts.

OBJECTIVE	FOSS	DSM	SEEDS OF SCIENCE
a. Recognize that materials may be composed of parts that are too small to be seen without magnification. (DOK 1)	<p>Matter and Energy Investigation 4, Part 2, pp. 181-192 Science Resources, pp. 57-59</p> <p>Earth Materials Investigation 3, Part 2, pp. 14-19 Measurement Science Stories, pp. 30-32</p>	<p>Water Cycle Reader, p. 6</p>	
b. Distinguish between physical and chemical changes and between objects composed of a single substance from those composed of more than one substance. (DOK 2)	<p>Matter and Energy Investigation 4, Part 2-3, pp. 181-203 Science Resources, pp. 54-64</p> <p>Water Investigation 3, Parts 1-4, pp. 8-26 Science Stories, pp. 13-15</p> <p>Measurement Science Stories, pp. 30-33</p>	<p>Weather Instruments Activity 7-9, pp. 59-80</p> <p>Water Cycle Activity 4-5, 8-9, 11-13, pp. 39-51, 69-83, 91-114 Reader, pp. 8-9</p> <p>Earth Movements Activity 10, 87-96</p>	
c. Determine the causes and effects of forces on motion. (DOK 2)	<p>Water Investigation 4, Part 2, pp. 14-18 Science Resources, pp. 57-59</p> <p>Human Body Investigation 3, Parts 1-3, pp. 8-21</p> <p>Structures of Life Investigation 4, Part 3, pp. 20-24</p>	<p>Weather Instruments Activity 4-5, pp. 37-50</p>	
d. Explain how energy flowing through an electrical circuit can be converted from electrical energy to light, sound, or heat energy. (DOK1)	<p>Magnetism and Electricity Investigation 2, Parts 1-4, pp. 8-29 Investigation 3, Parts 1-3, pp. 10-26 Investigation 4, Parts 1-3, pp. 8-22 Investigation 5, Parts 1-2, pp. 8-20 Science Stories, pp. 28-33</p> <p>Matter and Energy</p>	<p>Magnets Activity 11, pp. 71-76 Reader, pp. 10</p> <p>Electrical Circuits Activity 1-12, pp. 13-94 Reader, pp. 4-7, 10</p>	

<ul style="list-style-type: none"> • Construction and uses of electromagnets • Energy transferred through an electrical circuit to a bulb or bell to its surroundings as light, sound, and heat (thermal) energy 	<p>Investigation 1, Parts 1-3, pp. 50-82 Science Resources, pp. 6-7, 14</p>	
<p>e. Describe how light behaves (travels in a straight line, is absorbed, reflected, refracted, or appears transparent or translucent). (DOK 1)</p>	<p>Matter and Energy Investigation 2, Parts 1-2, pp. 93-114 Science Resources, pp. 24-36 Ideas and Inventions Investigation 4, Parts 1-3, p. 8-21 Science Stories, pp. 23-25, 28-31</p>	
<p>f. Investigate and draw conclusions about the relationship between the rate of vibrating objects and the pitch of the sound. (DOK 3)</p>	<p>Physics of Sound Investigation 2, Parts 1-3, pp. 8-24 Science Stories, pp. 11-13</p>	<p>Sound Activity 8-11, pp. 67-98 Reader, pp. 6-7</p>
<p>g. Describe how heat flows from a warm object to a cold one and categorize examples of materials that may or may not be used as insulators. (DOK 2)</p>	<p>Water Investigation 2, Part 2, pp. 14-18</p>	<p>Weather Instruments Activity 7, 9, pp. 59-66, 75-80 Reader, p. 6 Water Cycle Activity 8-9, 11-13, pp. 59-66, 75-80 Reader, pp. 8-11</p>

LIFE SCIENCE: Analyze the characteristics, structures, life cycles, and environments of organisms.

OBJECTIVE	FOSS	DSM	SEEDS OF SCIENCE
<p>a. Describe the cause and effect relationships that explain the diversity and evolution of organisms over time. (DOK 2)</p> <ul style="list-style-type: none"> • Observable traits due to inherited or environmental adaptations • Variations in environment (over time and from place to place) • Variations in species as exemplified by fossils • Extinction of a species due to insufficient adaptive capability in 	<p>Structures of Life Science Stories, pp. 45-48</p>	<p>Dinosaur Classification Activity 1, 8, pp. 13-19, 61-66 Reader, pp. 2-12</p>	

<p>the face of environmental changes</p> <p>b. Classify the organs and functions of the nervous, circulatory, and respiratory systems of the body. (DOK 1)</p>	<p>Human Body Science Stories, pp. 28-29</p>	<p>This objective is addressed in the grade5 module <u>You and Your Body</u>.</p>	
<p>c. Compare characteristics of organisms, including growth and development, reproduction, acquisition and use of energy, and response to the environment. (DOK 2)</p> <ul style="list-style-type: none"> • Life cycles of various animals to include complete and incomplete metamorphosis • Plant or animal structures that serve different functions in growth, adaptation, and survival •Photosynthesis 	<p>Structures of Life Investigation 1, Parts 1-3, pp. 8-33 Investigation 2, Parts 1-3, pp. 8-22 Investigation 3, Parts 1-4, pp. 8-30 Investigation 4, Parts 1-2, pp. 8-19 Science Stories, pp. 1-3, 17-36, 41-42 FOSS Web, Activity: Life Cycles Matter and Energy Science Resources, pp. 5, 19</p>	<p>Food Chains and Webs Activity 2-6, pp. 23-58 Reader, pp. 4-5 Plant and Animal Life Cycles Activity 2-11, pp. 23-103 Reader, pp. 2-13</p>	
<p>d. Distinguish the parts of plants as they relate to sexual reproduction and explain the effects of various actions on the pollination process (e.g., wind, water, insects, adaptations of flowering plants, negative impacts of pesticides). (DOK 2)</p>	<p>Structures of Life Investigation 2, Part 3, pp. 18-22</p>	<p>Plant and Animal Life Cycles Activity 8-9, pp. 75-89 Reader, pp. 3-6</p>	
<p>e. Analyze food webs to interpret how energy flows from the sun. (DOK 2)</p>	<p>Structures of Life Science Stories, p. 43 Matter and Energy Science Resources, pp. 5, 18-19</p>	<p>Food Chains and Webs Activity 3-12, pp. 31-101 Reader, pp. 6-9</p>	
<p>f. Describe the structural and functional relationships among the cells of an organism. (DOK 2)</p> <ul style="list-style-type: none"> • Benefit from cooperating • Vary greatly in appearance • Perform very different roles 			

EARTH AND SPACE SCIENCE: Develop an understanding of the properties of Earth materials, objects in the sky, and changes in Earth and sky.

OBJECTIVE	FOSS	DSM	SEEDS OF SCIENCE
<p>a. Classify sedimentary, metamorphic, and igneous rocks. (DOK 2)</p>	<p>Earth Materials Science Stories, pp. 34-37 FOSS Web, Activity Rock Data Base</p>	<p>Earth Movements Reader, p. 15</p>	
<p>b. Compare and contrast Earth's geological features and the changes caused by external forces. (DOK 2)</p> <ul style="list-style-type: none"> • Bodies of water, beaches, ocean ridges, continental shelves, plateaus, faults, canyons, sand dunes, and ice caps • External forces including heat, wind, and water • Movement of continental plates 	<p>Earth Materials Science Stories, pp. 5-7</p>	<p>Earth Movements Activity 1-3, 5-12, pp. 13-37, 47-110 Reader, pp.2-13 Water Cycle Reader, pp. 2-5</p>	
<p>c. Investigate, record, analyze and predict weather by observing, measuring with simple weather instruments (thermometer, anemometer, wind vane, rain gauge, barometer and hygrometer), recording weather data (temperature, precipitation, sky conditions, and weather events), and using past patterns to predict future patterns. (DOK 2)</p>		<p>Weather Instruments Activity 1-6, 10-12, pp. 13-57, 81-101 Reader, pp. 2-9</p>	
<p>d. Describe how human activities have decreased the capacity of the environment to support some life forms. (DOK 2)</p> <ul style="list-style-type: none"> • Reducing the amount of forest cover • Increasing the amount of chemicals released into the atmosphere • Farming intensively 		<p>Food Chains and Webs Activity 12, Science, Technology and Society, p. 101 Reader, p. 12</p>	
<p>e. Compare and contrast the seasons and explain why seasons</p>	<p>Sun, Moon and Stars Science Resources, pp. 7-8, 10-</p>	<p>Solar System Activity 9, Science Challenge, p.</p>	

<p>vary at different locations on Earth. (DOK 2)</p> <p>f. Describe objects in the universe including their movement. (DOK 2)</p> <ul style="list-style-type: none"> Physical features of the moon (craters, plains, mountains) Appearance and movement of Earth and its moon (e.g., waxing/waning of the moon and lunar/solar eclipses) Why a planet can be seen in different constellations (locations) at different times <p>g. Summarize the process that results in deposits of fossil fuels and conclude why fossil fuels are classified as nonrenewable resources.</p>	<p>11</p> <p>Sun, Moon and Stars Investigation 2, Parts 1-2, pp. 79-100 Investigation 3, Parts 1-2, pp. 114-130 Science Resources, pp. 1-8, 14-17, 19-32, 35-37</p> <p>Ideas and Inventions Science Stories, pp. 33-37</p> <p>Matter and Energy Science Resources, pp. 9-10</p> <p>Water FOSS Web, Match the Resource</p>	<p>81</p> <p>Solar System Activity 1-3, 6, 8-12, pp. 13-34, 51-58, 65-110 Reader, PP. 2-13</p>	
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FIFTH GRADE

INQUIRY: Develop and demonstrate an understanding of scientific inquiry using process skills.

OBJECTIVE	FOSS	DSM	SEEDS OF SCIENCE
a. Form a hypothesis, predict outcomes, and conduct a fair investigation that includes manipulating variables and using experimental controls. (DOK 3)	<p>FOSS is an inquiry base program and provides the opportunity to address this objective. See examples below:</p> <p>Variables Investigation 3, Parts 2-3, pp. 14-23</p> <p>Living Systems Investigation 3, Part 3, pp. 136-141</p> <p>Solar Energy Investigation 3, Parts 1-2, pp. 8-23</p> <p>Environments Investigation 6, Parts 1-2, pp. 8-17</p>	<p>DSM is an inquiry base program and provides the opportunity to address this objective. See examples below:</p> <p>Pollution Activity 10, pp. 71-76</p> <p>Electromagnetism Activity 6, pp. 43-48</p> <p>Erosion Activity 7, pp. 59-66</p>	
b. Distinguish between observations and inferences. (DOK 2)	<p>FOSS is an inquiry base program and provides the opportunity to address this objective. See examples below:</p> <p>Models and Designs Investigation 1, Parts 1-3, pp. 8-25</p> <p>Water Planet Investigation 2, Parts 1-4, pp. 80-110</p> <p>Mixtures and Solutions Investigation 3, Parts 1-3, pp. 8-24</p> <p>Environments Investigation 2, Parts 2-4, pp. 16-30</p>	<p>DSM is an inquiry base program and provides the opportunity to address this objective. See examples below:</p> <p>Color and Light Activity 2-5, pp. 19-52</p> <p>Oceans Activity 10-11, pp. 113-134</p> <p>You and Your Body Activity 1-3, pp. 13-31</p> <p>Rocks and Minerals Activity 3-5, 29-45</p>	
c. Use precise measurement in conjunction with simple tools and technology to perform tests and collect data. (DOK 1)	<p>Models and Designs Investigation 3, Parts 2-3, pp. 13-23</p> <p>Solar Energy Investigation 2, Parts 1-2, pp. 8-24</p> <p>Water Planet Investigation 3, Part 1, pp. 125-135</p>	<p>Weather Forecasting Activity 3, pp. 25-32</p> <p>You and Your Body Activity 5, pp. 41-48</p> <p>Simple Machines Activity 1, 8-9, pp. 13-18, 65-76</p>	

<p>hand lenses, microscopes, balances, clocks, calculators, anemometers, rain gauges, barometers, hygrometers)</p> <ul style="list-style-type: none"> Types of data (height, mass, volume, temperature, length, time, distance, volume, perimeter, area) <p>d. Organize and interpret data in tables and graphs to construct explanations and draw conclusions. (DOK 2)</p>	<p>Mixtures and Solutions Investigation 1, Part 2, pp. 16-20</p> <p>Levers and Pulleys Investigation 1, Parts 2-3, pp. 18-28</p> <p>Investigation 4, Parts 1-2, pp. 8-20</p> <p>Food and Nutrition Investigation 2, Parts 2-3, pp. 18-25</p> <p>Living Systems Investigation 2, Part 1, pp. 85-91</p> <p>Solar Energy Investigation 2, Parts 1-2, pp. 8-24</p> <p>Variables Investigation 1, Part 3, pp. 23-27</p> <p>Investigation 3, Part 4, pp. 24-27</p> <p>Levers and Pulleys Investigation 1, Parts 2-3, pp. 18-28</p>	<p>You and Your Body Activity 3, 5, pp. 27-31, 41-48</p> <p>Electromagnetism Activity 6, pp. 43-48</p> <p>Erosion Activity 7, pp. 59-66</p> <p>Pollution Activity 7, pp. 53-58</p>	
<p>e. Use drawings, tables, graphs, and written and oral language to describe objects and explain ideas and actions. (DOK 2)</p>	<p>Environments Investigation 3, Parts 1-3, pp. 8-22</p> <p>Landforms Investigation 3, Parts 1-2, pp. 8-19</p> <p>Water Planet Investigation 3, Part 1, pp. 125-135</p> <p>Living Systems Investigation 2, Part 1, pp. 85-98</p> <p>Levers and Pulleys Investigation 4, Parts 1-2, pp. 8-20</p> <p>FOSS provides the opportunity to address this objective. See examples below:</p> <p>Variables Investigation 4, Part 3, pp. 18-23</p> <p>Models and Designs Investigation 2, Parts 1-2, pp. 8-21</p> <p>Investigation 3, Parts 2-3, pp. 13-23</p> <p>Investigation 4, Parts 1-2, pp. 6-15</p> <p>Solar Energy</p>	<p>Pollution Activity 1-2, pp. 13-24</p> <p>Oceans Activity 2-3, pp. 23-41</p> <p>You and Your Body Activity 3, 5, pp. 27-31, 41-48</p> <p>Color and Light Activity 3-5, pp. 29-52</p>	
<p>f. Make and compare different proposals when designing a solution or product. (DOK 2)</p>	<p>FOSS provides the opportunity to address this objective. See examples below:</p> <p>Simple Machines Activity 12, pp. 91-95</p> <p>Activity 12, Science Challenge, p. 95</p> <p>Flight and Rocketry Activity 5, Science and Math, p. 64</p>	<p>DSM provides the opportunity to address this objective. See examples below:</p> <p>Simple Machines Activity 12, pp. 91-95</p> <p>Activity 12, Science Challenge, p. 95</p> <p>Flight and Rocketry Activity 5, Science and Math, p. 64</p>	

g. Evaluate results of different data (whether trivial or significant). (DOK 2)	Investigation 4, Part 3, pp. 24-28 FOSS provides the opportunity to address this objective. See examples below: Food and Nutrition Investigation 3, Parts 2-3, pp. 16-25 Living Systems Investigation 2, Part 1, pp. 85-98 Environments Investigation 5, Parts 1-3, pp. 8-22 Solar Energy Investigation 3, Parts 1-2, pp. 8-23	DSM provides the opportunity to address this objective. See examples below: Pollution Activity 10, pp. 71-76 Rocks and Minerals Activity 4-5, pp. 35-45 Erosion Activity 7, pp. 59-66 You and Your Body Activity 5, pp.41-48	
h. Infer and describe alternate explanations and predictions. (DOK 3)	FOSS provides the opportunity to address this objective. See examples below: Mixtures and Solutions Investigation 4, Parts 1-3, pp. 8-24 Water Planet Investigation 3, Part 2, pp. 136-144 Landforms Investigation 2, Parts 1-2, pp. 8-22 Environments Investigation 2, Parts 2-4, pp. 16-30	DSM provides the opportunity to address this objective. See examples below: Simple Machines Activity 3-4, pp. 25-37 Oceans Activity 3, pp. 31-41 Erosion Activity 5-6, pp. 43-57 Electromagnetism Activity 6, pp. 43-48	

PHYSICAL SCIENCE: Understand relationships of the properties of objects and materials, position and motion of objects, and transfer of energy to explain the physical world.

OBJECTIVE	FOSS	DSM	SEEDS OF SCIENCE
a. Determine how the properties of an object affect how it acts and interacts. (DOK 2)	Mixtures and Solutions Investigation 1, Parts 1-4, pp. 8-29 Investigation 2, Parts 1-2, pp. 8-20 Investigation 4, Parts 1-3, pp. 8-24 Science Stories, pp. 1-3, 23-24, 28, 37-42 Foods and Nutrition Investigation 2, Parts 1-3, pp. 8-25 Investigation 3, Parts 1-3, pp. 8-25 Solar Energy Investigation 2, Part 2, pp. 16-24	Rocks and Minerals Activity 3-6, pp. 29-54 Reader, pp. 4-6 Oceans Activity 2-3, pp. 23-41 Weather Forecasting Activity 5, pp.41-48 Electromagnetism Activity 5, pp. 32-42 Flight and Rocketry Activity 5, pp. 55-64	

<p>b. Differentiate between elements, compounds, and mixtures and between chemical and physical changes (e.g., gas evolves, color, and/or temperature changes). (DOK 2)</p>	<p>Models and Designs Investigation 2, Parts 1-2, pp. 8-21 Living Systems Investigation 3, Parts 1-3, pp. 118-141</p> <p>Mixtures and Solutions Investigation 1, Parts 1-4, pp. 8-29 Investigation 4, Parts 1-3, pp. 8-24 Science Stories, pp. 1-6, 23-28</p> <p>Foods and Nutrition Investigation 2, Parts 1-3, pp. 8-25 Investigation 3, Parts 1-3, pp. 8-25</p> <p>Water Planet Investigation 2, Parts 1, 4, pp. 80-85, 101-110</p> <p>Living Systems Investigation 3, Parts 1-3, pp. 118-141 Science Resources, pp. 31-36</p>		
<p>c. Investigate the motion of an object in terms of its position, direction of motion, and speed. (DOK 2)</p> <ul style="list-style-type: none"> The relative positions and movements of objects using points of reference (distance vs. time of moving objects) Force required to move an object using appropriate devices (e.g., spring scale) Variables that affect speed (e.g., ramp height/length/surface, mass of object) Effects of an unbalanced force on an object's motion in terms of speed and direction 	<p>Models and Designs Investigation 3, Parts 1-3, pp. 8-23 Investigation 4, Parts 1-2, pp. 6-15 Science Stories, pp. 37-43, 48-55</p> <p>Variables Investigation 1, Parts 1-3, pp. 8-23 Investigation 3, Parts 1-4, pp. 8-27 Investigation 4, Parts 1-3, pp. 8-23</p> <p>Levers and Pulleys Investigation 1, Parts 1-3, pp. 8-28 Investigation 2, Parts 1-3, pp. 8-25 Investigation 3, Parts 1-2, pp. 8-20 Investigation 4, Parts 1-2, pp. 8-20</p>	<p>Simple Machines Activity 1-12, pp. 13-95 Reader, pp. 2-9 Flight and Rocketry Activity 2-5, 8-9, 11-12, pp. 23-64, 81-97, 111-130</p>	
<p>d. Categorize examples of potential energy as gravitational (e.g., boulder on a hill, child on a slide), elastic (e.g., compressed spring, slingshot, rubber band), or chemical (e.g., unlit match, food).</p>	<p>FOSS provides the opportunity to address this objective. See examples below: Models and Designs Investigation 3, Parts 2-3, pp. 8-23 Investigation 4, Parts 1-2, pp. 6-15</p>	<p>DSM provides the opportunity to address this objective. See examples below: Erosion Activity 5, pp. 43-49 Flight and Rocketry</p>	

(DOK 2)	<p>Science Stories, pp. 37-42</p> <p>Variables</p> <p>Investigation 1, Parts 1-3, pp. 8-23</p> <p>Investigation 3, Parts 1-3, pp. 8-23</p> <p>Investigation 4, Parts 1-3, pp. 8-23</p> <p>Landforms</p> <p>Investigation 2, Part 1, pp. 8-15</p> <p>Investigation 3, Part 1, pp. 8-11</p>	<p>Activity 9, 12, pp. 91-97, 121-130</p> <p>Simple Machines</p> <p>Activity 5, pp. 39-47</p> <p>Reader, pp. 3, 15</p>	
<p>e. Differentiate between the properties of light as reflection, refraction, and absorption. (DOK 1)</p> <ul style="list-style-type: none"> Image reflected by a plane mirror and a curved-surfaced mirror Light passing through air or water Optical tools such as prisms, lenses, mirrors, and eyeglasses 		<p>Color and Light</p> <p>Activity 1, 4-7, pp. 13-18, 37-67</p> <p>Reader, pp. 1-7</p>	
<p>f. Describe physical properties of matter (e.g., mass, density, boiling point, freezing point) including mixtures and solutions. (DOK 1)</p> <ul style="list-style-type: none"> Filtration, sifting, magnetism, evaporation, and flotation Mass, density, boiling point, and freezing point of matter Effects of temperature changes on the solubility of substances 	<p>Mixtures and Solutions</p> <p>Investigation 1, Parts 1-4, pp. 8-29</p> <p>Investigation 2, Parts 1-4, pp. 6-28</p> <p>Science Stories, pp. 18-19, 42</p> <p>Variables</p> <p>Science Stories, pp. 10-11</p> <p>Foods and Nutrition</p> <p>Investigation 1, Parts 1-2, pp. 8-20</p>	<p>Color and Light</p> <p>Activity 2-3, pp. 19-35</p> <p>Rocks and Minerals</p> <p>Activity 1, 3-7, 9-10, pp. 13-19, 29-59, 69-84</p> <p>Reader, pp. 3-6, 9-12</p> <p>Oceans</p> <p>Activity 2-3, pp. 23-41</p> <p>Reader, p. 3</p> <p>Flight and Rocketry</p> <p>Activity 1, pp. 13-21</p>	
<p>g. Categorize materials as conductors or insulators and discuss their real life applications (e.g., building construction, clothing, animal covering). (DOK 2)</p>	<p>Solar Energy</p> <p>Investigation 4, Part 3, pp. 24-28</p>		

LIFE SCIENCE: Predict characteristics, structures, life cycles, environments, evolution, and diversity of organisms.

OBJECTIVE	FOSS	DSM	SEEDS OF SCIENCE
a. Compare and contrast the diversity of organisms due to	<p>Environments</p> <p>Investigation 5, Parts 1-3, pp. 8-22</p>	<p>Oceans</p> <p>Activity 10-12, pp. 113-142</p>	

<p>adaptations to show how organisms have evolved as a result of environmental changes. (DOK 2)</p> <ul style="list-style-type: none"> • Diversity based on kingdoms, phyla, and classes (e.g., internal/external structure, body temperature, size, shape) • Adaptations that increase an organism's chances to survive and reproduce in a particular habitat (e.g., cacti needles/leaves, fur/scales) • Evidence of fossils as indicators of how life and environmental conditions have changed 	<p>Science Stories, pp. 1-17, 22, 32 Living Systems Investigation 2, Part 2, pp. 99-106 Science Resources, pp.21-25 Models and Designs Science Stories, pp. 11-16</p>	<p>Reader, pp. 12-13</p>	
<p>b. Research and classify the organization of living things. (DOK 2)</p> <ul style="list-style-type: none"> • Differences between plant and animal cells • Function of the major parts of body systems (nervous, circulatory, respiratory, digestive, skeletal, muscular) and the ways they support one another • Examples of organisms as single-celled or multi-celled 	<p>Environments Science Stories, pp. 20-22, 42, 45 Living Systems Investigation 1, Parts 1-3, pp. 51-59 Investigation 2, Part 1-2, pp. 85-106 Science Resources, pp.1-3, 51-59 Food and Nutrition Science Stories, pp. 6-9, 41-42, 44-50</p>	<p>You and Your Body Activity 1-2, 4-8, pp. 13-25, 33-66 Reader, pp. 2-11 Oceans Activity 11, pp. 125-134</p>	
<p>c. Research and cite evidence of the work of scientists (e.g., Pasteur, Fleming, Salk) as it contributed to the discovery and prevention of disease. (DOK 3)</p>	<p>Food and Nutrition Science Stories, pp. 24-25, 34-36</p>	<p>You and Your Body Reader, p. 12</p>	
<p>d. Distinguish between asexual and sexual reproduction. (DOK 1)</p> <ul style="list-style-type: none"> • Asexual reproduction processes in plants and fungi (e.g., vegetative propagation in stems, roots, and leaves of plants, budding in yeasts, fruiting bodies in fungi) • Asexual cell division (mushroom) 			

spores produced/dispersed) • Sexual reproduction (e.g., eggs, seeds, fruit)			
e. Give examples of how consumers and producers (carnivores, herbivores, omnivores, and decomposers) are related in food chains and food webs. (DOK 1)	Environments Science Stories, pp. 38-41, 43-45		

EARTH AND SPACE SCIENCE: Develop an understanding of the properties of Earth materials, objects in the sky, and changes in Earth and sky.

OBJECTIVE	FOSS	DSM	SEEDS OF SCIENCE
a. Categorize Earth's materials (DOK 1) • Rocks, minerals, soils, water, and atmospheric gases • Layers of the atmosphere, hydrosphere, and lithosphere	Landforms Science Stories, pp. 15-19 Water Planet Investigation 4, Part 4, pp. 212-216 Science Resources, pp.63-66	Rocks and Minerals Activity 1, 3-7, 10, pp. 13-19, 29-59, 77-84 Reader, pp. 2-12 Weather Forecasting Reader, p. 2 Oceans Activity 1, pp. 13-21 Reader, p. 2	
b. Explain how surface features caused by constructive processes (e.g., depositions, volcanic eruptions, earthquakes) differ from destructive processes (e.g., erosion, weathering, impact of organisms). (DOK 2)	Landforms Investigation 2, Parts 1-2, pp. 8-22 Investigation 3, Parts 1-3, pp. 8-24 Science Stories, pp. 15-17, 22-29 FOSS Web, Jigsaw Puzzle	Erosion Activity 1-2, 9-12, pp. 13-27, 75-104 Reader, pp. 2-13 Oceans Reader, pp. 4-6	
c. Summarize how weather changes. (DOK 2) • Weather changes from day to day and over the seasons • Tools by which weather is observed, recorded, and predicted	Water Planet Investigation 4, Parts 1-3, pp. 184-211 Science Resources, pp.67-88 Solar Energy Science Stories, pp. 22-28	Weather Forecasting Activity 2-10, 12, pp. 19-80, 87-93 Reader, pp. 2-8	
d. Describe changes caused by humans on the environment and natural resources and cite evidence from research on ways to conserve natural resources in the United States, including (but not	Landforms Science Stories, pp. 13-14 Water Planet Science Resources, pp.64-66, 97 Mixtures and Solutions Science Stories, pp. 21-22	Pollution Activity 1-3, 6, 8-10, pp. 13-30, 47-52, 59-76 Reader, pp. 2-13 Erosion Reader, p. 14	

<p>limited to) Mississippi. Examples of Mississippi efforts include the following: (DOK 2)</p> <ul style="list-style-type: none"> • Associated Physics of America, a private company located in Greenwood Mississippi, develops ways to convert a variety of agricultural products into efficient, environment-friendly and cost-effective energy sources. • The Natural Resource Enterprises (NRE) Program of the Department of Wildlife and Fisheries and the Cooperative Extension Service at MSU educate landowners in the Southeast about sustainable natural resource enterprises and compatible habitat management practices. • The Engineer Research and Development Center of the Vicksburg District of the U.S. Army Corps of Engineers provides quality engineering and other professional products and services to develop and manage the Nation's water resources, reduce flood damage, and protect the environment. 	<p>Environments Science Stories, pp. 35, 43-45</p>		
<p>e. Predict the movement patterns of the sun, moon, and Earth over a specified time period. (DOK 1)</p> <p>f. Compare and contrast the physical characteristics of the planets (e.g., mass, surface gravity, distance from the sun, surface characteristics, moons). (DOK 2)</p>	<p>Solar Energy Science Stories, pp. 41-43</p> <p>Water Planet Investigation 1, Part 1, pp. 50-58 Science Resources, pp.1-13</p>	<p>This objective is addressed in the grade 6 module <u>Earth, Moon and Sun</u>.</p> <p>This objective is addressed in the grade 6 module <u>Earth, Moon and Sun</u>.</p>	
<p>g. Conclude that the supply of many Earth resources (e.g., fuels, metals, fresh water, farmland) is</p>	<p>Solar Energy Science Stories, pp. 29-33, 35-39</p> <p>Water Planet</p>	<p>Pollution Activity 3 pp. 25-30 Reader, pp. 3, 5, 8, 12, 15</p>	

<p>limited and critique a plan to extend the use of Earth's resources (e.g., recycling, reuse, renewal). (DOK 3)</p>	<p>I Science Resources, pp.63-66</p>	<p>Erosion Reader, p. 14</p>	
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SIXTH GRADE

INQUIRY: Conduct a scientific investigation utilizing appropriate process skills.

OBJECTIVE	FOSS	DSM	SEEDS OF SCIENCE
<p>a. Design and conduct an investigation that includes predicting outcomes, using experimental controls, and making inferences. (DOK 3)</p>	<p>FOSS is an inquiry base program and provides the opportunity to address this objective. See examples below: Variables Investigation 3, Parts 2-3, pp. 14-23 Living Systems Investigation 3, Part 3, pp. 136-141 Solar Energy Investigation 3, Parts 1-2, pp. 8-23 Environments Investigation 6, Parts 1-2, pp. 8-17 Planetary Science Investigation 5, Parts 2-3, pp. 158-167 Weather and Water Investigation 4, Part 1, pp. 121-130</p>	<p>DSM is an inquiry base program and provides the opportunity to address this objective. See examples below: Pollution Activity 10, pp. 71-76 Electromagnetism Activity 6, pp. 43-48 Erosion Activity 7, pp. 59-66 Plants in Our World Activity 3, pp. 35-40 Newton's Toy Box Activity 7, pp. 49-54</p>	
<p>b. Distinguish between qualitative and quantitative observations and make inferences based on observations. (DOK 3)</p>	<p>FOSS is an inquiry base program and provides the opportunity to address this objective. See examples below: Levers and Pullets Investigation 1, Parts 2-3, pp. 18-28 Water Planet Investigation 4, Parts 1-2, pp. 8-20 Investigation 2, Parts 1-4, pp. 80-110 Environments Investigation 2, Parts 2-4, pp. 16-30 Chemical Interactions Investigation 7, Parts 3-4, pp. 215-228</p>	<p>DSM is an inquiry base program and provides the opportunity to address this objective. See examples below: Rocks and Minerals Activity 3-5, pp. 29-45 You and Your Body Activity 2-5, pp. 19-48 Simple Machines Activity 1-3, pp. 13-31 Electrical Connections Activity 9-10, pp. 75-87 Earth, Moon and Sun Activity 1-2, pp. 13-27</p>	

<p>c. Use simple tools and resources to gather and compare information (using standard, metric, and non-standard units of measurement). (DOK 1)</p> <ul style="list-style-type: none"> • Tools (e.g., English rulers [to the nearest one-sixteenth of an inch], metric rulers [to the nearest millimeter], thermometers, scales, hand lenses, microscopes, balances, clocks, calculators, anemometers, rain gauges, barometers, hygrometers, telescopes, compasses, spring scales) • Types of data (e.g., linear measures, mass, volume, temperature, time, area, perimeter) • Resources (e.g., Internet, electronic encyclopedias, journals, community resources, etc.) 	<p>Earth History Investigation 4, Part 3, pp. 138-146</p> <p>Solar Energy Investigation 2, Parts 1-2, pp. 8-24</p> <p>Mixtures and Solutions Investigation 1, Part 2, pp. 16-20</p> <p>Levers and Pulleys Investigation 1, Parts 2-3, pp. 18-28</p> <p>Investigation 4, Parts 1-2, 8-20</p> <p>Weather and Water Investigation 4, Part 1, pp. 8126-130</p> <p>Force and Motion Investigation 6, Part 1, pp. 229-235</p> <p>Chemical Interactions Investigation 7, Part 4, pp. 22-228</p>	<p>Weather Forecasting Activity 3, pp. 25-32</p> <p>You and Your Body Activity 5, pp. 41-48</p> <p>Simple Machines Activity 1, 8-9, pp. 13-18, 65-76</p> <p>Earth, Moon and Sun Activity 3-4, pp. 29-44</p> <p>Newton's Toy Box Activity 7-9, pp. 49-65</p> <p>Matter and Change Activity 1-2, pp. 13-27</p>	
<p>d. Analyze data collected from a scientific investigation to construct explanations and draw conclusions. (DOK 3)</p>	<p>Living Systems Investigation 2, Part 1, pp. 85-98</p> <p>Landforms Investigation 3, Parts 1-2, pp. 8-19</p> <p>Environments Investigation 3, Parts 1-3, pp. 8-22</p> <p>Electronics Investigation 3, Part 2, pp. 124-127</p> <p>Weather and Water Investigation 8, Part 3, pp. 271-275</p>	<p>Color and Light Activity 3-5, pp. 29-52</p> <p>Oceans Activity 2-3, pp. 23-41</p> <p>You and Your Body Activity 3, pp. 27-31</p> <p>Plants in Our World Activity 3, pp. 35-40</p> <p>Electrical Connections Activity 9-10, pp. 75-87</p>	
<p>e. Communicate scientific procedures and conclusions using diagrams, charts, tables, graphs, maps, written explanations, and/or scientific models. (DOK 2)</p>	<p>Levers and Pulleys Investigation 1, Parts 2-3, pp. 18-28</p> <p>Water Planet Investigation 3, Part 1, pp. 125-</p>	<p>You and Your Body Activity 5, pp. 41-48</p> <p>Electromagnetism Activity 6, pp. 43-48</p> <p>Pollution</p>	

	<p>135 Weather and Water Investigation 4, Part 1, pp. 121-130 Planetary Science Investigation 5, Part 2, pp. 104-107 Populations and Ecosystems Investigation 5, Part 1, pp. 142-150</p>	<p>Activity 7, pp. 53-58 Earth Processes Activity 11-12, pp. 97-100 Newton's Toy Box Activity 7-9, pp. 49-65</p>	
<p>f. Evaluate the results or solutions to problems by considering how well a product or design met the challenge to solve a problem. (DOK 3)</p>	<p>Variables Investigation 4, Part 3, pp. 18-23 Models and Designs Investigation 2, Parts 1-2, pp. 8-21 Investigation 3, Parts 2-3, pp. 13-23 Solar Energy Investigation 4, Part 3, pp. 24-28 Electronics Investigation 9, Part 2, pp. 290-297 Force and Motion Investigation 8, Part 2, pp. 294-301</p>	<p>Simple Machines Activity 12, pp. 91-95 Activity 12, Science Challenge, p. 95 Flight and Rocketry Activity 5, Science and Math, p. 64</p>	
<p>g. Infer explanations for why scientists might draw different conclusions from a given set of data. (DOK 2)</p>	<p>FOSS is an inquiry base program and provides the opportunity to address this objective. See examples below: Food and Nutrition Investigation 3, Parts 2-3, pp. 16-25 Environments Investigation 5, Parts 1-3, pp. 8-22 Solar Energy Investigation 3, Parts 1-2, pp. 8-23 Diversity of Life Investigation 8, Part 2, pp. 244-252 Human Brain and Senses Investigation 7, Part 2, pp. 217-225</p>	<p>DSM is an inquiry base program and provides the opportunity to address this objective. See examples below: Simple Machines Activity 3-4, pp. 25-37 Oceans Activity 3, pp. 31-41 Erosion Activity 5-6, pp. 43-57 Electrical Connections Activity 9-10, pp. 75-87</p>	
<p>h. Recognize and analyze</p>	<p>FOSS is an inquiry base program</p>	<p>DSM is an inquiry base program</p>	

<p>alternative explanations and predictions. (DOK 2)</p>	<p>and provides the opportunity to address this objective. See examples below: Water Planet Investigation 3, Part 2, pp. 136-144 Landforms Investigation 2, Parts 1-2, pp. 8-22 Environments Investigation 2, Parts 2-4, pp. 16-30 Earth History Investigation 4, Part 3, pp. 138-146 Planetary Science Investigation 5, Parts 2-3, pp. 158-167</p>	<p>and provides the opportunity to address this objective. See examples below: You and Your Body Activity 5, pp. 41-48 Pollution Activity 10, pp. 71-76 Erosion Activity 7, pp. 59-66 Plants in Our World Activity 6, pp. 57-62 Matter and Change Activity 12-13, pp. 99-109</p>	
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PHYSICAL SCIENCE: Analyze chemical and physical changes and interactions involving energy and forces that affect motion of objects.

OBJECTIVE	FOSS	DSM	SEEDS OF SCIENCE
<p>a. Recognize that atoms of a given element are all alike but atoms of other elements have different atomic structures. (DOK 1)</p> <p>b. Distinguish physical properties of matter (e.g., melting points, boiling points, solubility) as it relates to changes in states. (DOK 2)</p> <ul style="list-style-type: none"> • Between solids, liquids, and gases through models that relate matter to particles in motion • Solubility in water of various solids to activities (e.g., heating, stirring, shaking, crushing) on the rate of solution • Use of solubility differences to identify components of a mixture (e.g., chromatography) 	<p>Mixtures and Solutions Science Stories, pp. 25-26 Chemical Interactions Resources, pp. 64-67</p> <p>Mixtures and Solutions Investigation 1, Parts 1-4, pp. 8-24 Investigation 2, Parts 1-4, pp. 8-28 Science Stories, pp. 18-19, 42 Chemical Interactions Investigation 7, Parts 1-5, pp. 204-234 Investigation 8, Parts 1-3, pp. 248-268 Resources, pp. 42-53 CD, Explore Dissolving</p>	<p>Matter and Change Activity 4, pp. 37-44 Reader, pp. 2-5</p> <p>Weather Forecasting Activity 9, pp. 69-74 Matter and Change Activity 1-3, 10, pp. 13-35, 85-92 Reader, pp. 9-14</p>	

<p>c. Investigate and describe the effects of forces acting on objects. (DOK 2)</p> <ul style="list-style-type: none"> • Gravity, friction, magnetism, drag, lift, and thrust • Forces affecting the motion of objects 	<p>Models and Designs Investigation 3, Parts 1-3, pp. 8-23 Investigation 4, Parts 1-2, pp. 6-15 Science Stories, pp. 37-43, 48-55</p> <p>Variables Investigation 1-4, all parts Science Stories, pp. 15-20, 32-33</p> <p>Levers and Pulleys Investigation 1, Parts 2-3, pp. 18-28 Investigation 2, Parts 1-4, pp. 8-25 Investigation 3, Parts 1-2, pp. 8-20 Investigation 4, Parts 1-2, pp. 8-25 Science Stories, pp. 4-17, 21-33</p>	<p>Simple Machines Activity 1-2, pp. 13-95 Reader, pp. 2-9</p> <p>Flight and Rocketry Activity 2-12, pp. 23-130 Reader, pp. 3-13</p> <p>Newton's Toy Box Activity 1-13, pp. 13-90 Reader, pp. 4-21</p>	
<p>d. Investigate the mechanical and chemical forms of energy and demonstrate the transformations from one form to another. (DOK 2)</p> <ul style="list-style-type: none"> • Energy transformations represented in the use of common household objects • Mechanical energy transformed to another form of energy (e.g., vibrations, heat through friction) • Chemical energy transformed to another form of energy (e.g., light wands, lightning bugs, batteries, bulbs) 	<p>Solar Energy Science Stories, pp. 29-33, 35-39</p> <p>Electronics Investigation 1, Parts 1-3, pp. 55-70 Investigation 4, Part 2, pp. 149-151 Resources, pp. 1-2, 12-13</p> <p>Force and Motion Investigation 1, Parts 1-2, pp. 47-62 Investigation 6, Parts 1-4, pp. 218-245 Investigation 7, Parts 1-3, pp. 256-272 Investigation 8, Parts 1-2, pp. 284-301 Resources, pp. 50-53, 62-74</p> <p>Human Brain and Senses Investigation 3, Parts 1-3, pp. 92-110 Resources, pp. 31-35 CD, Optics Bench</p>	<p>Electromagnetism Activity 1, 5-10, pp. 13-17, 37-76 Reader, pp. 4-5, 8-13</p> <p>Electrical Connections Activity 2-3, 9-11, pp. 21-33, 75-94 Reader, pp. 7-8, 13-16</p>	
<p>e. Apply the laws of reflection and refraction to explain everyday phenomena. (DOK 2)</p> <ul style="list-style-type: none"> • Properties of reflection, refraction, transmission, and absorption of light • Images formed by plane, convex, and concave lenses and mirrors, and reflecting and refracting 		<p>Color and Light Activity 1-3, pp. 13-35 Reader, pp. 4-7</p>	

<p>telescopes</p> <ul style="list-style-type: none"> • Objects that are opaque, transparent, or translucent <p>f. Develop a logical argument to explain how the forces which affect the motion of objects has real-world applications including (but not limited to) examples of Mississippi's contributions as follows: (DOK 3)</p> <ul style="list-style-type: none"> • Automotive industry (Nissan's new production plant is located in Canton, MS. Toyota's new facility is in Tupelo, MS.) • Aerospace industry (The Raspet Flight Research Laboratory, housed at Mississippi State University, is one of the premier university flight research facilities in the country.) • Shipbuilding industry (Ingall's Shipbuilding, of Pascagoula, MS, is a leading supplier of marine vessels to the United States Navy.) 	<p>Levers and Pulleys Science Stories, pp. 1-17, 21-25, 28-32</p> <p>Models and Designs Science Stories, pp. 25-30, 43-47</p> <p>Variables Science Stories, pp. 15-20, 32-33</p> <p>Force and Motion Investigation 8, Part 2, 294-301 Resources , pp. 3-5, 7-9, 73-74 Video: Understanding Car Crashes</p>	<p>Simple Machines Activity 12, pp. 91-95 Reader, pp. 2-11</p> <p>Flight and Rocketry Activity 2-5, 8-12, pp. 23-64, 81-130 Reader, pp. 3-13</p> <p>Newton's Toy Box Reader, pp. 6-9, 11, 13, 15-21</p>	
<p>g. Predict and explain factors that affect the flow of heat in solids, liquids, and gases. (DOK 3)</p> <ul style="list-style-type: none"> • Insulating factors in real life applications (e.g., building, construction, clothing, animal covering) • Conduction, convection, or radiation factors used to enhance the flow of heat • Temperature differences on the movement of water 	<p>Water Planet Investigation 3, Part 2, pp. 136-144 Science Resources, pp. 42-51</p> <p>Solar Energy Investigation 4, Part 3, pp. 24-28</p> <p>Weather and Water Investigation 4, Part 2, pp. 131-139 Investigation 5, Parts 2-3, pp. 163-174 Resources, pp. 22-26, 32-33 Video: Conduction Through Metals</p>		

LIFE SCIENCE: Explain the organization of living things, the flow of matter and energy through ecosystems, the diversity and interactions among populations, and the natural and human-made pressures that impact the environment.

OBJECTIVE	FOSS	DSM	SEEDS OF SCIENCE
<p>a. Describe and predict interactions (among and within populations) and the effects of these interactions on population growth to include the effects on available resources. (DOK 2)</p> <ul style="list-style-type: none"> • How cooperation, competition and predation affect population growth • Effects of overpopulation within an ecosystem on the amount of resources available • How natural selection acts on a population of organisms in a particular environment via enhanced reproductive success 	<p>Populations and Ecosystems Investigation 2, Part 2, pp. 76-79 Investigation 6, Parts 1-3, pp. 179-197 Investigation 10, Parts 1-3, pp. 302-317 Resources, pp. 22-24, 58-61 Video: Among the Wild Chimpanzees</p>		
<p>b. Compare and contrast structure and function in living things to include cells and whole organisms. (DOK 2)</p> <ul style="list-style-type: none"> • Hierarchy of cells, tissues, organs, and organ systems to their functions in an organism • Function of plant and animal cell parts (vacuoles, nucleus, cytoplasm, cell membrane, cell wall, chloroplast) • Vascular and nonvascular plants, flowering and non-flowering plants, deciduous and coniferous trees 	<p>Living Systems Investigation 1, Parts 1-3, pp. 51-70 Investigation 2, Part 1, pp. 85-98 Science Resources, pp.1-13, 16-20 Diversity of Life Investigation 3, Parts 1-3, pp. 102-122 Investigation 4, Parts 1-2, pp. 133-141 Investigation 5, Parts 1-3, pp. 151-170 Investigation 6, Parts 1-3, pp. 186-202 Resources, pp. 24-45</p>	<p>You and Your Body Activity 1-2, 4, 6-8, pp. 13-26, 33-39, 49-66 Reader, pp. 2-11 Plants in Our World Activity 1-6, 8-11, pp. 13-62, 73-102 Reader, pp. 2-20 DNA-From Genes to Proteins Reader, pp. 2-11</p>	
<p>c. Distinguish between the organization and development of humans to include the effects of disease. (DOK 2)</p> <ul style="list-style-type: none"> • How systems work together 	<p>Living Systems Investigation 1, Parts 1-3, pp. 51-70 Science Resources, pp.2-13</p>	<p>You and Your Body Activity 1-2, 4, 6, pp. 13-25, 33-39, 49-54 Reader, pp. 2-11 DNA-From Genes to Proteins</p>	

<p>(e.g., respiratory, circulatory)</p> <ul style="list-style-type: none"> • Fertilization, early cell division, implantation, embryonic and fetal development, infancy, childhood, adolescence, adulthood, and old age • Common diseases caused by microorganisms (e.g., bacteria, viruses, malarial parasites) 		Reader, pp. 18	
<p>d. Describe and summarize how an egg and sperm unite in the reproduction of angiosperms and gymnosperms. (DOK 1)</p> <ul style="list-style-type: none"> • The path of the sperm cells to the egg cell in the ovary of a flower • The structures and functions of parts of a seed in the formation of a plant and of fruits • How the combination of sex cells results in a new combination of genetic information different from either parent 	<p>Diversity of Life Investigation 5, Parts 5, pp. 151-156 Investigation 7, Part 1, pp. 218-223 Resources, pp. 40-44</p> <p>Populations and Ecosystems Investigation 9, Part 4, pp. 287-291 Resources, pp. 46-55</p>	<p>Plants in Our World Reader, pp. 6, 13, 17, 19-20</p> <p>DNA-From Genes to Proteins Reader, pp. 15-19</p>	
<p>e. Construct a diagram of the path of solar energy through food webs that include humans and explain how the organisms relate to each other. (DOK 2)</p> <ul style="list-style-type: none"> • Autotrophs and heterotrophs, producers, consumers and decomposers • Predator/prey relationships, competition, symbiosis, parasitism, commensalism, mutualism 	<p>Environments Science Stories, pp.38-41</p> <p>Populations and Ecosystems Investigation 5, Parts 2, 4, pp. 151-155, 161-169 Resources, pp. 17-21</p>		

EARTH AND SPACE SCIENCE: Establish connections among Earth’s layers including the lithosphere, hydrosphere, and atmosphere.

OBJECTIVE	FOSS	DSM	SEEDS OF SCIENCE
<p>a. Compare and contrast the relative positions and components</p>	<p>Landforms Science Stories, pp.22-23</p>	<p>Oceans Activity 4, pp. 43-54</p>	

<p>of the Earth's crust (e.g., mantle, liquid and solid core, continental crust, oceanic crust). (DOK 1)</p>	<p>Earth History Resources, pp. 100-101</p>	<p>Reader, pp. 4-5 Erosion Reader, pp. 2-3 Earth Processes Activity 2, pp. 23-28 Reader, pp. 2-3</p>	
<p>b. Draw conclusions about historical processes that contribute to the shaping of planet Earth. (DOK 3)</p> <ul style="list-style-type: none"> • Movements of the continents through time • Continental plates, subduction zones, trenches, etc. 	<p>Landforms Science Stories, pp.22-24 Earth History Resources, pp. 100-103</p>	<p>Erosion Reader, pp. 2-4 Earth Processes Activity 1, 12-14, pp. 13-21, 105-129 Reader, pp. 4-10</p>	
<p>c. Analyze climate data to draw conclusions and make predictions. (DOK 2)</p>	<p>Weather and Water Investigation 9, Part 3, pp. 311-314</p>		
<p>d. Summarize the causes and effects of pollution on people and the environment (e.g., air pollution, ground pollution, chemical pollution) and justify how and why pollution should be minimized. (DOK 1)</p>	<p>Mixtures and Solutions Science Stories, pp.20-22 Populations and Ecosystems Resources, pp. 34, 36-37</p>	<p>Pollution Activity 1-12, pp. 13-88 Reader, pp. 2-14</p>	
<p>e. Explain the daily and annual changes in the Earth's rotation and revolution. (DOK 2)</p> <ul style="list-style-type: none"> • How the positions of the moon and the sun affect tides • The phases of the moon (e.g., new, crescent, half, gibbous, full, waxing, waning) 	<p>Weather and Water Investigation 3, Part 2, pp. 97-102 Resources, pp. 17-19 CD, Cycles: Seasons Planetary Science Investigation 3, Parts 1-2, pp. 89-98 Investigation 9, Parts 1-4, pp. 283-301 CD, Phases of the Moon CD, Day/Night Simulation</p>	<p>Oceans Activity 9, pp. 99-111 Reader, p. 9 Earth, Moon and Sun Activity 8-12, pp. 71-119 Reader, pp. 8-19 Astronomy Activity 5, pp. 51-60 Reader, pp. 4-10</p>	
<p>f. Differentiate between objects in the universe (e.g., stars, moons, solar systems, asteroids, galaxies). (DOK 1)</p>	<p>Solar Energy Science Stories, pp.40-43 Planetary Science Resources, pp. 99-103</p>	<p>Earth, Moon and Sun Activity 1-5, pp. 13-51 Reader, pp. 2-7 Astronomy Activity 1-8, 10-11, pp. 13-83, 93-107 Reader, pp. 2-15</p>	

<p>g. Research and cite evidence of current resources in Earth's systems. (DOK 3)</p> <ul style="list-style-type: none"> • Resources such as fuels, metals, fresh water, wetlands, and farmlands • Methods being used to extend the use of Earth's resources through recycling, reuse, and renewal • Factors that contribute to and result from runoff (e.g., water cycle, groundwater, drainage basin (watershed)) 	<p>Mixtures and Solutions Science Stories, pp. 37-44</p> <p>Water Planet Science Resources, pp. 63-66</p> <p>Solar Energy FOSS Web, Resource ID</p> <p>Electronics Resources, pp. 13, 18-21</p>	<p>Erosion Reader, p. 14</p> <p>Pollution Reader, pp. 3-5, 8, 12-15</p> <p>Rocks and Minerals Reader, pp. 7-8</p> <p>Oceans Reader, p. 11</p> <p>Earth Processes Reader, p.20</p>	
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SEVENTH GRADE

INQUIRY: Design and conduct a scientific investigation utilizing appropriate process skills and technology.

OBJECTIVE	FOSS	DSM	SEEDS OF SCIENCE
a. Design, conduct, and draw conclusions from an investigation that includes using experimental controls. (DOK 3)	FOSS is an inquiry base program and provides the opportunity to address this objective. See examples below: Planetary Science Investigation 5, Parts 2-3, pp. 158-167 Weather and Water Investigation 4, Part 1, pp. 121-130 Diversity of Life Investigation 8, Part 2, pp. 244-252	DSM is an inquiry base program and provides the opportunity to address this objective. See examples below: Plants in Our World Activity 3, pp. 35-40 Newton's Toy Box Activity 8, pp. 55-59 Matter and Change Activity 12, pp. 99-104	
b. Discriminate among observations, inferences, and predictions. (DOK 1)	FOSS is an inquiry base program and provides the opportunity to address this objective. See examples below: Earth History Investigation 4, Part 3, pp. 138-146 Chemical Interactions Investigation 4, Parts 1-3, pp. 122-141 Human Brain and Senses Investigation 7, Parts 1-2, pp. 210-225	DSM is an inquiry base program and provides the opportunity to address this objective. See examples below: Earth, Moon and Sun Activity 1-2, pp. 13-27 DNA-From Genes to Proteins Activity 1-2, pp. 13-24 Earth Processes Activity 3-4, pp. 29-46 Astronomy Activity 8-9, pp. 77-91	
c. Collect and display data using simple tools and resources to compare information (using standard, metric, and non-standard measurement). (DOK 2) • Tools (e.g., English rulers [to the nearest one-sixteenth of an inch], metric rulers [to the nearest millimeter], thermometers, scales, hand lenses, microscopes,	Force and Motion Investigation 6, Part 1, pp. 229-235 Investigation 7, Part 1, pp. 256, 261 Chemical Interactions Investigation 7, Part 4, pp. 222-228 Electronics Investigation 3, Parts 1-3, pp. 119-	Earth, Moon and Sun Activity 3-4, pp. 29-44 Matter and Change Activity 1-2, pp. 13-27 Newton's Toy Box Activity 7-9, pp. 49-65	

<p>balances, clocks, calculators, anemometers, rain gauges, barometers, hygrometers, telescopes, compasses, spring scales, Ph indicators, stopwatches)</p> <ul style="list-style-type: none"> Types of data (e.g., linear measures, mass, volume, temperature, area, perimeter) Resources (e.g., Internet, electronic encyclopedias, journals, community resources, etc.) 	<p>132 Populations and Ecosystems Investigation 5, Part 1, pp. 142-150 Weather and Water Investigation 4, Part 1, pp. 121-130 Investigation 5, Part 1, pp. 152-162</p>		
<p>d. Organize data in tables and graphs and analyze data to construct explanations and draw conclusions. (DOK 3)</p>	<p>Populations and Ecosystems Investigation 5, Part 1, pp. 142-150 Electronics Investigation 6, Part 3, pp. 195-200 Chemical Interactions Investigation 7, Part 4, pp. 222-228 Planetary Science Investigation 5, Parts 2-3, pp. 158-167 Weather and Water Investigation 4, Part 1, pp. 121-130</p>	<p>Earth, Moon and Sun Activity 3-4, pp. 29-44 Newton's Toy Box Activity 7-9, pp. 49-65 Electrical Connections Activity 8-9, pp. 67-80 Matter and Change Activity 1-2, pp. 13-27</p>	
<p>e. Communicate results of scientific procedures and explanations through a variety of written and graphic methods. (DOK 2)</p>	<p>Diversity of Life Investigation 8, Part 2, pp. 244-252 Chemical Interactions Investigation 1, Parts 1-2, pp. 41-58 Human Brain and Senses Investigation 7, Parts 1-2, pp. 210-225 Weather and Water Investigation 5, Part 1, pp. 152-162</p>	<p>Plants in Our World Activity 3, pp. 35-40 DNA-From Genes to Proteins Activity 1, pp. 13-17 Matter and Change Activity 10, pp. 85-92 Earth Processes Activity 10, pp. 89-95</p>	
<p>f. Explain how science and technology are reciprocal. (DOK 1)</p>	<p>FOSS provides the opportunity to address this objective. See examples below:</p>	<p>DSM provides the opportunity to address this objective. See examples below:</p>	

	<p>Planetary Science Resources, pp. 74-82</p> <p>Electronics Resources, pp. 34-36</p>	<p>Electrical Connections Reader, p. 22</p> <p>Earth, Moon and Sun Reader, p. 13</p> <p>Astronomy Activity 9, Science, Technology and Society, p. 91 Reader, pp. 18-20</p>	
<p>g. Develop a logical argument to explain why scientists often review and ask questions about the results of other scientists' work. (DOK 3)</p>	<p>FOSS provides the opportunity to address this objective. See examples below:</p> <p>Earth History Resources, pp. 83-84</p> <p>Planetary Science Resources, pp. 59-62</p> <p>Force and Motion Resources, pp. 50-52</p>	<p>DSM is an inquiry base program and provides the opportunity to address this objective. See examples below:</p> <p>DNA-From Genes to Proteins Activity 4, Science Challenge, p. 39</p> <p>Earth Processes Activity 1, Science Challenge, p. 21</p>	
<p>h. Make relationships between evidence and explanations. (DOK 2)</p>	<p>FOSS provides the opportunity to address this objective. See examples below:</p> <p>Populations and Ecosystems Investigation 6, Part 2, pp. 187-190</p> <p>Force and Motion Investigation 2, Part 3, pp. 89-99</p> <p>Human Brain and Senses Investigation 7, Parts 1-2, pp. 210-225</p> <p>Weather and Water Investigation 5, Parts 2-3, pp. 169-174</p>	<p>DSM provides the opportunity to address this objective. See examples below:</p> <p>Plants in Our World Activity 3, pp. 35-40</p> <p>Electrical Connections Activity 8-9, pp. 67-80</p> <p>Matter and Change Activity 12, pp. 99-104</p> <p>Newton's Toy Box Activity 7-9, pp. 49-65</p>	

PHYSICAL SCIENCE: Develop an understanding of chemical and physical changes, interactions involving energy, and forces that affect motion of objects.

OBJECTIVE	FOSS	DSM	SEEDS OF SCIENCE
<p>a. Identify patterns (e.g., atomic mass, increasing atomic numbers) and common characteristics (metals, nonmetals, gasses) of elements found in the periodic</p>	<p>Chemical Interactions Investigation 2, Part 1, pp. 70-74 Resources, pp. 4-6, 90-91</p>	<p>Matter and Change Activity 4, pp. 37-44 Reader, pp. 2-5</p>	

<p>table of elements. (DOK 2)</p> <p>b. Categorize types of chemical changes, including synthesis and decomposition reactions, and classify acids and bases using the pH scale and indicators. (DOK 2)</p>	<p>FOSS provides the opportunity to address this objective. See below: Chemical Interactions Investigation 9, Parts 2-4, pp. 288-312 Investigation 10, Parts 1-2, pp. 323-336 Resources, pp. 63-67</p>	<p>DSM provides the opportunity to address this objective. See below: Matter and Change Activity 11-13, pp. 93-109 Reader, pp. 16-20</p>	
<p>c. Compare the force (effort) required to do the same amount of work with and without simple machines (e.g., levers, pulleys, wheel and axle, inclined planes). (DOK 2)</p>	<p>This objective is addressed in the grade 6 module <u>Levers and Pulleys</u>.</p>	<p>Newton's Toy Box Reader, pp. 15-21</p>	
<p>d. Describe cause and effect relationships of electrical energy. (DOK 2)</p> <ul style="list-style-type: none"> • Energy transfers through an electric circuit (using common pictures and symbols) • Electric motor energy transfers (e.g., chemical to electrical to mechanical motion) and generators 	<p>Electronics Investigation 1, Parts 1-5, pp. 55-79 Resources, pp. 1-2</p>	<p>Electrical Connections Activity 2-3, 11, pp. 21-33, 89-94 Reader, pp. 7-8, 13-16</p>	
<p>e. Distinguish how various types of longitudinal and transverse waves (e.g., water, light, sound, seismic) transfer energy. (DOK 2)</p> <ul style="list-style-type: none"> • Frequency • Wavelength • Speed • Amplitude 		<p>Earth Processes Activity 8, pp. 71-19 Reader, p. 9</p>	
<p>f. Describe the effects of unbalanced forces on the speed or direction of an object's motion. (DOK 2)</p> <ul style="list-style-type: none"> • Variables that describe position, distance, displacement, speed, and change in speed of an object • Gravity, friction, drag, lift, electric forces, and magnetic forces 	<p>Force and Motion Investigation 1, Parts 1-2, pp. 47-62 Investigation 2, Parts 1-3, pp. 78-99 Investigation 5, Parts 1-4, pp. 169-201 Investigation 6, Parts 1-4, pp. 218-245</p>	<p>Newton's Toy Box Activity 1-13, pp. 13-90 Reader, pp. 4-21</p>	

	Investigation 8, Parts 1-2, pp. 284-301 Resources, pp. 32-35, 62-69, 70-74	
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LIFE SCIENCE: Distinguish the characteristics of living things and explain the interdependency between form and function using the systems of the human organism to illustrate this relationship.

OBJECTIVE	FOSS	DSM	SEEDS OF SCIENCE
<p>a. Assess how an organism's chances for survival are influenced by adaptations to its environment. (DOK 2)</p> <ul style="list-style-type: none"> The importance of fungi as decomposers Major characteristics of land biomes (e.g., tropical rainforests, temperate rainforests, deserts, tundra, coniferous forests/taiga, and deciduous forests) Adaptations of various plants to survive and reproduce in different biomes 	<p>Populations and Ecosystems Investigation 8, Parts 1-2, pp. 228-243 Resources, pp. 42-45 Video: Hawaii-Strangers in Paradise Diversity of Life Resources, pp. 34-36, 46-52, 60-64, 67-68</p>		
<p>b. Classify the organization and development of living things to include prokaryotic (e.g., bacteria) and eukaryotic organisms (e.g., protozoa, certain fungi, multicellular animals and plants). (DOK 2)</p>	<p>Diversity of Life Investigation 3, Part 3, pp. 110-122 Investigation 10, Parts 1-2, pp. 302-321 Resources, pp. 4-7, 16-17, 65-70</p>	<p>DNA-From Genes to Proteins Reader, pp. 2-7</p>	
<p>c. Evaluate how health care technology has improved the quality of human life (e.g., computerized tomography [CT], artificial</p>	<p>Human Brain and Senses Resources, p. 49</p>	<p>DNA-From Genes to Proteins Activity 13, Science, Technology and Society, p. 115</p>	
<p>d. Compare and contrast reproduction in terms of the passing of genetic information (DNA) from parent to offspring. (DOK 2)</p> <ul style="list-style-type: none"> Sexual and asexual reproduction Reproduction that accounts for 	<p>Populations and Ecosystems Investigation 9, Parts 1-4, pp. 262-292 Resources, pp. 46-55 Diversity of Life Investigation 7, Part 1, pp. 218-223</p>	<p>DNA-From Genes to Proteins Activity 3, Science Challenge, p. 29 Activity 3, Science Extension, p. 29 Reader, pp. 12-19</p>	

<p>evolutional adaptability of species</p> <ul style="list-style-type: none"> • Mitosis and meiosis • Historical contributions and significance of discoveries of Gregor Mendel and Thomas Hunt Morgan as related to genetics 	<p>Resources, pp. 40-45, 26</p>		
<p>e. Compare and contrast how organisms obtain and utilize matter and energy. (DOK 1)</p> <ul style="list-style-type: none"> • How organisms use resources, grow, reproduce, maintain stable internal conditions (homeostasis) and recycle waste • How plants break down sugar to release stored chemical energy through respiration 	<p>Populations and Ecosystems Investigation 5, Parts 2, 4, pp. 151-155, 161-169 Diversity of Life Resources, pp. 14-21 Resources, pp. 36-37</p>	<p>Plants in Our World Activity 8-10, pp. 73-93 Reader, pp. 3-4 DNA-From Genes to Proteins Reader, pp. 10-11</p>	

EARTH AND SPACE SCIENCE: Describe the properties and structure of the sun and the moon with respect to the Earth.

OBJECTIVE	FOSS	DSM	SEEDS OF SCIENCE
<p>a. Justify the importance of Earth materials (e.g., rocks, minerals, atmospheric gases, water) to humans. (DOK 3)</p>	<p>FOSS provides the opportunity to address this objective. See below: Earth History Investigation 4, Parts 5-6, pp. 150-162 Investigation 5, Part 3, pp. 183-187 Investigation 8, Part 1, pp.254-258 Weather and Water Investigation 2, Parts 1-2, pp. 69-80 Resources, pp. 6-11</p>	<p>Earth Processes Reader, pp. 19-20</p>	
<p>b. Explain the causes and effects of historical processes shaping the planet Earth (e.g., movements of the continents, continental plates, subduction zones, trenches, etc.) (DOK 2)</p>	<p>Earth History Resources, pp. 100-105</p>	<p>Earth Processes Activity 1, 10-12, pp. 13-21, 89-129 Reader, pp. 4-10</p>	
<p>e. Describe the causes and effects of heat transfer as it relates to the circulation of</p>	<p>Weather and Water Investigation 5, Parts 2-3, pp. 163-174</p>		

<p>ocean currents, atmospheric movement, and global wind patterns (e.g., trade winds, the jet stream). Provide examples of how these global patterns can affect local weather. (DOK 2)</p> <ul style="list-style-type: none"> • Characteristics of the Gulf Stream and other large ocean currents • Effects on climate in Eastern North America and Western Europe • Effects of heat transfer to the movement of air masses, high and low pressure areas, and fronts in the atmosphere 	<p>Investigation 8, Part 2, pp. 265-270 Resources, pp. 32-33, 53-55</p>		
<p>e. Conclude why factors, such as lack of resources and climate can limit the growth of populations in specific niches in the ecosystem. (DOK 2)</p> <ul style="list-style-type: none"> • Abiotic factors that affect population, growth, and size (quantity of light, water, range of temperatures, soil compositions) • Cycles of water, carbon, oxygen, and nitrogen in the environment • Role of single-celled organisms (e.g., phytoplankton) in the carbon and oxygen cycles 	<p>Populations and Ecosystems Investigation 6, Parts 1-3, pp. 179-197 Resources, pp. 22-24</p>		
<p>e. Research and develop a logical argument to support the funding of NASA's Space Programs. (DOK 3)</p> <ul style="list-style-type: none"> • Space exploration (e.g., telescopes, radio telescopes, X-ray telescopes, cameras, spectrometers, etc.) • Spinoffs (e.g., laser, pacemaker, dehydrated food, flame retardant clothing, global positioning system 	<p>F OSS provides the opportunity to address this objective: See below: Planetary Science Resources, pp. 74-81, 90-96</p>	<p>DSM provides the opportunity to address this objective. See below: Astronomy Reader, pp. 18-20, 22-23</p>	

<p>[GPS], satellite imagery, global weather information, diagnostic imagery)</p> <ul style="list-style-type: none"> • Mississippi's contributions to the space industry 			
<p>f. Distinguish the structure and movements of objects in the solar system. (DOK 2)</p> <ul style="list-style-type: none"> • Sun's atmosphere (corona, chromosphere, photosphere and core) • How phenomena on the sun's surface (e.g., sunspots, prominences, solar wind, solar flares) affect Earth (e.g., auroras, interference in radio and television communication) • Eclipses relative to the position of the sun, moon, and Earth • Contributions of Copernicus, Galileo, and Kepler in describing the solar system 	<p>Planetary Science Investigation 4, Parts 1-2, pp. 120-131 Investigation 9, Parts 1-3, pp. 283-298 Investigation 10, Parts 1-3, pp. 312-324 Resources, pp. 83-89, 101-103 CD, Notebooks Weather and Water Investigation 3, Part 2, pp. 97-102 Resources, pp. 17-19</p>	<p>Astronomy Activity 9, pp. 81-92 Reader, pp. 2-7 Earth, Moon and Sun Activity 1-5, 8-12, pp. 13-51, 71-119 Reader, pp. 2-3, 6-23</p>	
<p>g. Research and evaluate the use of renewable and nonrenewable resources and critique efforts in the United States including (but not limited) to Mississippi to conserve natural resources and reduce global warming. (DOK 3)</p> <ul style="list-style-type: none"> • How materials are reused in a continuous cycle in ecosystems, (e.g., Mississippi Ethanol Gasification Project to develop and demonstrate technologies for the conversion of biomass to ethanol) • Benefits of solid waste management (reduce, reuse, recycle) • Conserving renewable and nonrenewable resources (e.g., The Recycling and Solid Waste 			

<p>Reduction Program in Jackson, MS)</p>			
<p>h. Predict weather events by analyzing clouds, weather maps, satellites, and various data. (DOK 3)</p>	<p>F OSS provides the opportunity to address this objective. See below: Weather and Water Investigation 1, Part 2, pp. 48-53 Investigation 6, Parts 4-5, pp. 206-220 Investigation 8, Parts 2-4, pp. 265-279 Investigation 9, Parts 1-2, pp. 279-310 Resources, pp. 37-42, 53-62</p>		

EIGHTH GRADE

INQUIRY: Draw conclusions from scientific investigations including controlled experiments.

OBJECTIVE	FOSS	DSM	SEEDS OF SCIENCE
a. Design, conduct, and analyze conclusions from an investigation that includes using experimental controls. (DOK 3)	FOSS is an inquiry base program and provides the opportunity to address this objective. See examples below: Planetary Science Investigation 5, Parts 2-3, pp. 158-167 Weather and Water Investigation 4, Part 1, pp. 121-130 Diversity of Life Investigation 8, Part 2, pp. 244-252	DSM is an inquiry base program and provides the opportunity to address this objective. See examples below: Plants in Our World Activity 3, pp. 35-40 Newton's Toy Box Activity 8, pp. 55-59 Matter and Change Activity 12, pp. 99-104	
b. Distinguish between qualitative and quantitative observations and make inferences based on observations. (DOK 3)	FOSS is an inquiry base program and provides the opportunity to address this objective. See examples below: Earth History Investigation 4, Part 3, pp. 138-146 Chemical Interactions Investigation 4, Parts 1-3, pp. 122-141 Human Brain and Senses Investigation 7, Parts 1-2, pp. 210-225	DSM is an inquiry base program and provides the opportunity to address this objective. See examples below: Earth, Moon and Sun Activity 1-2, pp. 13-27 DNA-From Genes to Proteins Activity 1-2, pp. 13-24 Earth Processes Activity 3-4, pp. 29-46 Astronomy Activity 8-9, pp. 77-91	
c. Summarize data to show the cause and effect relationship between qualitative and quantitative observations (using standard, metric, and non-standard units of measurement). (DOK 3) • Tools (e.g., English rulers [to the nearest one-sixteenth of an inch], metric rulers [to the nearest millimeter], thermometers, scales,	Force and Motion Investigation 6, Part 1, pp. 229-235 Investigation 7, Part 1, pp. 256, 261 Chemical Interactions Investigation 7, Part 4, pp. 222-228 Electronics Investigation 3, Parts 1-3, pp. 119-132	Earth, Moon and Sun Activity 3-4, pp. 29-44 Matter and Change Activity 1-2, pp. 13-27 Newton's Toy Box Activity 7-9, pp. 49-65	

<p>hand lenses, microscopes, balances, clocks, calculators, anemometers, rain gauges, barometers, hygrometers, telescopes, compasses, spring scales, pH indicators, stopwatches, graduated cylinders, medicine droppers)</p> <ul style="list-style-type: none"> • Types of data (e.g., linear measures, mass, volume, temperature, area, perimeter) • Resources (e.g., Internet, electronic encyclopedias, journals, community resources, etc.) 	<p>Populations and Ecosystems Investigation 5, Part 1, pp. 142-150</p> <p>Weather and Water Investigation 4, Part 1, pp. 121-130 Investigation 5, Part 1, pp. 152-162</p>		
<p>d. Analyze evidence that is used to form explanations and draw conclusions. (DOK 3)</p>	<p>FOSS provides the opportunity to address this objective. See examples below:</p> <p>Populations and Ecosystems Investigation 6, Part 2, pp. 187-190</p> <p>Force and Motion Investigation 2, Part 3, pp. 89-99</p> <p>Human Brain and Senses Investigation 7, Parts 1-2, pp. 210-225</p> <p>Weather and Water Investigation 5, Parts 2-3, pp. 169-174</p>	<p>Earth, Moon and Sun Activity 3-4, pp. 29-44</p> <p>Matter and Change Activity 1-2, pp. 13-27</p> <p>Newton's Toy Box Activity 7-9, pp. 49-65</p> <p>Newton's Toy Box Activity 7-9, pp. 49-65</p>	
<p>e. Develop a logical argument defending conclusions of an experimental method. (DOK 3)</p>	<p>FOSS provides the opportunity to address this objective. See examples below:</p> <p>Diversity of Life Investigation 8, Part 2, pp. 244-254</p> <p>Force and Motion Investigation 8, Part 2, pp. 299-301</p>	<p>DSM provides the opportunity to address this objective. See examples below:</p> <p>Earth Processes Activity 10, pp. 89-95</p> <p>Matter and Change Activity 10, pp. 85-92</p> <p>Plants in Our World Activity 3, pp. 35-40</p>	
<p>f. Develop a logical argument to explain why perfectly designed solutions do not exist. (DOK 3)</p>	<p>FOSS is an inquiry based program and provides the opportunity to address this objective.</p>	<p>DSM is an inquiry based program and provides the opportunity to address this objective.</p>	
<p>g. Justify a scientist's need to revise conclusions after</p>	<p>FOSS is an inquiry based program and provides the opportunity to</p>	<p>DSM is an inquiry based program and provides the opportunity to</p>	

encountering new experimental evidence that does not match existing explanations. (DOK 3)	address this objective.	address this objective.
h. Analyze different ideas and recognize the skepticism of others as part of the scientific process in considering alternative conclusions. (DOK 3)	FOSS is an inquiry based program and provides the opportunity to address this objective.	DSM is an inquiry based program and provides the opportunity to address this objective.

PHYSICAL SCIENCE: Apply concepts relating to an understanding of chemical and physical changes, interactions involving energy, and forces that affect motion of objects.

OBJECTIVE	FOSS	DSM	SEEDS OF SCIENCE
a. Identify patterns found in chemical symbols, formulas, reactions, and equations that apply to the law of conservation of mass. (DOK 1) <ul style="list-style-type: none"> Chemical symbols and chemical formulas of common substances such as NaCl (table salt), H₂O (water), C₆H₁₂O₆ (sugar), O₂ (oxygen gas), CO₂ (carbon dioxide), and N₂ (nitrogen gas) Mass of reactants before a change and products after a change Balanced chemical equations such as photosynthesis and respiration 	Chemical Interactions Investigation 9, Parts 1-2, pp. 280-297 Populations and Ecosystems Resources, pp. 63-68, 74 Reader, p. 15	Matter and Change Activity 5, 7, pp. 45-51, 63-68 Reader, pp. 6-8, 17-18	
b. Predict the properties and interactions of given elements using the periodic table of the elements. (DOK 2) <ul style="list-style-type: none"> Metals and nonmetals Acids and bases Chemical changes in matter (e.g., rusting [slow oxidation], combustion [fast oxidation], food spoilage) 	FOSS provides the opportunity to address this objective. See below: Chemical Interactions Investigation 2, Part 1, pp. 70-74 Investigation 9, Part 3, pp. 298-307 Investigation 10, Parts 1-2, pp. 323-336	DSM provides the opportunity to address this objective. See below: Matter and Change Activity 5, 10-13, pp. 45-51, 85-109 Reader, pp. 6-8, 17-18	
c. Distinguish the motion of an object by its position, direction of	Force and Motion Investigation 1, Parts 1-2, pp. 47-	Newton's Toy Box Activity 7-10, pp. 49-72	

<p>motion, speed, and acceleration and represent resulting data in graphic form in order to make a prediction. (DOK 2)</p>	<p>62 Investigation 2, Part 3, pp. 89-99 Investigation 3, Part 2, pp. 119-123 Investigation 4, Part 2, pp. 146-151</p>	<p>Reader, pp. 2-5</p>	
<p>d. Relate how electrical energy transfers through electric circuits, generators, and power grids, including the importance of contributions from Mississippi companies. (DOK 2)</p> <ul style="list-style-type: none"> • The Electrical Power Products Division of Howard Industries, a leading manufacturer of electrical distribution equipment in such locations as Laurel and Ellisville, MS • Kuhlman Electric Corporation, located 	<p>Electronics Investigation 1, Part 1-3, pp. 55-70 Resources, pp. 1-2</p>	<p>Electrical Connections Activity 2-3, 9-11, pp. 21-33, 75-94 Reader, pp. 7-10, 13-15</p>	
<p>e. Contrast various components of the electromagnetic spectrum (e.g., infrared, visible light, ultraviolet) and predict their impacts on living things. (DOK 2)</p>		<p>Astronomy Reader, pp. 8-9</p>	
<p>f. Recognize Newton's Three Laws of Motion and identify situations that illustrate each law (e.g., inertia, acceleration, action, reaction forces). (DOK 2)</p>	<p>Force and Motion Investigation 6, Part 1-4, pp. 218-245 Resources, pp. 50-52</p>	<p>Newton's Toy Box Activity 1-13, pp. 13-90 Reader, pp. 10-13</p>	

LIFE SCIENCE: Compare and contrast the structure and functions of the cell, levels of organization of living things, basis of heredity, and adaptations that explain variations in populations.

OBJECTIVE	FOSS	DSM	SEEDS OF SCIENCE
<p>a. Analyze how adaptations to a particular environment (e.g., desert, aquatic, high altitude) can increase an organism's survival and reproduction and relate organisms and their ecological niches to evolutionary change and</p>	<p>Populations and Ecosystems Investigation 8, Parts 1-2, pp. 228-243 Resources, pp. 42-47 Video: Hawaii: Strangers in Paradise</p>		

<p>extinction. (DOK 3)</p> <p>b. Compare and contrast the major components and functions of different types of cells. (DOK 2)</p> <ul style="list-style-type: none"> • Differences in plant and animal cells • Structures (nucleus, cytoplasm, cell membrane, cell wall, mitochondrion, and nuclear membrane) • Different types of cells and tissues (e.g., epithelial, nerve, bone, blood, muscle) 	<p>Diversity of Life</p> <p>Investigation 3, Parts 1-2, pp. 102-115</p> <p>Investigation 4, Parts 1-2, pp.133-141</p> <p>Investigation 5, Part 3, pp.165-170</p> <p>Investigation 10, Part 2, pp. 310-316</p> <p>Resources, pp. 24-30, 32, 37-38</p>	<p>Plants in Our World</p> <p>Activity 1-2, 4, pp. 13-33, 41-47</p> <p>Reader, pp. 1, 14-15</p> <p>DNA-From Genes to Proteins</p> <p>Activity 3-4, pp. 25-39</p> <p>Reader, pp. 2-9</p>	
<p>c. Describe how viruses, bacteria, fungi, and parasites may infect the human body and interfere with normal body functions. (DOK 1)</p>	<p>Diversity of Life</p> <p>Resources, pp. 66-68</p>		
<p>d. Describe heredity as the passage of instructions from one generation to another and recognize that hereditary information is contained in genes, located in the chromosomes of each cell. (DOK 2)</p> <ul style="list-style-type: none"> • How traits are passed from parents to offspring through pairs of genes • Phenotypes and genotypes • Hierarchy of DNA, genes, and chromosomes and their relationship to phenotype • Punnett square calculations 	<p>Populations and Ecosystems</p> <p>Investigation 9, Parts 1-4, pp. 262-292</p> <p>Resources, pp. 46-55</p>	<p>DNA-From Genes to Proteins</p> <p>Reader, pp. 15-19</p>	
<p>e. Explain energy flow in a specified ecosystem. (DOK 2)</p> <ul style="list-style-type: none"> • Populations, communities, and habitats • Niches, ecosystems and biomes • Producers, consumers and decomposers in an ecosystem 	<p>Populations and Ecosystems</p> <p>Investigation 4, Part 2, pp. 122-129</p> <p>Investigation 5, Part 4, pp. 161-169</p> <p>Resources, pp. 17-21</p> <p>CD, Mono Lake: Food Web</p>		
<p>f. Develop a logical argument for or against research conducted in selective breeding and genetic</p>		<p>DSM provides the opportunity to address this objective. See below:</p> <p>DNA-From Genes to Proteins</p>	

<p>engineering, including (but not limited to) research conducted in Mississippi. Examples from Mississippi include the following: (DOK 3)</p> <ul style="list-style-type: none"> • The Animal Functional Genomics Laboratory at Mississippi State University • The Stoneville Pedigreed Seed Company in Stoneville, MS • Catfish Genetics Research Unit at the Thad Cochran National Warm Water Aquaculture Center in Stoneville, MS 			Reader, pp. 20
<p>g. Research and draw conclusions about the use of single-celled organisms in industry, in the production of food, and impacts on life. (DOK 3)</p>	<p>Diversity of Life Investigation 10, Part3, pp. 317-321 Resources, pp. 68-69</p>		
<p>h. Describe how an organism gets energy from oxidizing its food and releasing some of its energy as heat. (DOK 1)</p>	<p>Populations and Ecosystems Resources, pp. 20-21</p>	<p>Plants in Our World Activity 8-10, pp. 73-93 Reader, pp. 3-4 DNA-From Genes to Proteins Reader, pp. 10-11</p>	

EARTH AND SPACE SCIENCE: Describe the Earth’s System in terms of its position to objects in the universe, structure and composition, climate, and renewable and nonrenewable resources.

OBJECTIVE	FOSS	DSM	SEEDS OF SCIENCE
<p>a. Compare and contrast the lithosphere and the asthenosphere. (DOK 1)</p> <ul style="list-style-type: none"> • Composition, density, and location of continental crust and oceanic crust • Physical nature of the lithosphere (brittle and rigid) with the asthenosphere (plastic and flowing) • How the lithosphere responds to tectonic forces (faulting and folding) 	<p>Earth History Resources, pp. 100-101</p>	<p>Earth Processes Activity 2, pp. 23-28 Reader, pp. 2-3, 5-6</p>	

<p>b. Describe the cause and effect relationship between the composition of and movement within the Earth's lithosphere. (DOK 1)</p> <ul style="list-style-type: none"> • Seismic wave velocities of earthquakes and volcanoes to lithospheric plate boundaries using seismic data • Volcanoes formed at mid-ocean ridges, within intra-plate regions, at island arcs, and along some continental edges • Modern distribution of continents to the movement of lithospheric plates since the formation of Pangaea 	<p>Earth History Resources, pp. 100-103</p>	<p>Earth Processes Activity 1, 8-14, pp. 13-21, 71-129 Reader, pp. 4-10</p>	
<p>c. Examine weather forecasting and describe how meteorologists use atmospheric features and technology to predict the weather. (DOK 2)</p> <ul style="list-style-type: none"> • Temperature, precipitation, wind (speed/direction), dew point, relative humidity, and barometric pressure • How the thermal energy transferred to the air results in vertical and horizontal movement of air masses, Coriolis effect • Global wind patterns (e.g., trade winds, westerlies, jet streams) • Satellites and computer modeling 	<p>Weather and Water Investigation 1, Part 2, pp. 48-53 Investigation 6, Parts 4-5, p. 206-220 Investigation 8, Parts 2-4, pp. 265-279 Investigation 9, Parts 1-2, pp. 296-310 Resources, pp. 5, 37-44, 53-56</p>		
<p>d. Research the importance of the conservation of renewable and nonrenewable resources, including (but not limited to) Mississippi, and justify methods that might be useful in decreasing the human impact on global warming. (DOK 3)</p>	<p>Weather and Water Investigation 9, Part 4, pp. 315-318 Resources, pp. 63-66</p>		

<ul style="list-style-type: none"> • Greenhouse gases • The effects of the human population • Relationships of the cycles of water, carbon, oxygen, and nitrogen <p>e. Explain how the tilt of Earth's axis and the position of the Earth in relation to the sun determine climatic zones, seasons, and length of the days. (DOK 2)</p>	<p>Weather and Water Investigation 3, Parts 1-3, pp. 93-110 Resources, pp. 17-19</p>	<p>Earth, Moon and Sun Activity 8-9, pp. 71-92 Reader, pp. 8-12 Astronomy Activity 5, pp. 51-60</p>	
<p>f. Describe the hierarchical structure (stars, clusters, galaxies, galactic clusters) of the universe and examine the expanding universe to include its age and history and the modern techniques (e.g., radio, infrared, ultraviolet and X-ray astronomy) used to measure objects and distances in the universe. (DOK 2)</p>		<p>Earth, Moon and Sun Reader, pp. 4 Astronomy Activity 10-11, pp. 93-107 Reader, pp. 8-15</p>	
<p>g. Justify the importance of continued research and use of new technology in the development and commercialization of potentially useful natural products, including, but not limited to research efforts in Mississippi. (DOK 3)</p> <ul style="list-style-type: none"> • The Thad Cochran National Center for Natural Products Research, housed at the University of Mississippi • The Jamie Whitten Delta States Research Center in Stoneville, MS, • The Mississippi Polymer Institute, housed at the University of Southern Mississippi 			
<p>h. Justify why an imaginary hurricane might or might not hit a particular area, using important</p>			

<p>technological resources including (but not limited to) the following: (DOK 2)</p> <ul style="list-style-type: none"> • John C. Stennis Space Center Applied Research and Technology Project Office in Hancock County • National Oceanic and Atmospheric Administration (NOAA) • The National Weather Service 			
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