

**ARKANSAS  
Science Curriculum Framework  
2005**

correlated to

**FULL OPTION SCIENCE SYSTEM  
(FOSS)**

AND

**DELTA SCIENCE MODULES III  
(DSM)**

**Grades K-8**

**This correlation shows representative examples of investigations and activities from the FOSS and DSM programs that address the Science Curriculum framework. A citation does not reflect all of the investigations or activities that might address a particular expectation.**

**Note: The FOSS Middle School Module Chemical Interactions is currently in development and is listed where its correlation is expected. Several DSM grades 6-9 modules are in development and activities are listed but not page numbers.**

## Kindergarten

### Strand 1 Nature of Science

#### Standard 1: Characteristics and Processes of Science

Students shall demonstrate and apply knowledge of the characteristics and processes of science using appropriate safety procedures, equipment, and technology.

Student Learning Expectation	FOSS	DSM
<p><b>Inquiry and Process Skills</b></p> <p>NS.1.K.1 Record observations pictorially, orally, and in writing</p> <p>NS.1.K.2 Ask questions based on observations</p> <p>NS.1.K.3 Conduct <i>scientific investigations</i> as a class and in teams:</p> <ul style="list-style-type: none"> <li>• <i>lab activities</i></li> <li>• <i>field studies</i></li> </ul> <p>NS.1.K.4 Estimate and measure length, <i>mass</i>, and capacity/volume of</p>	<p><b>Animals Two by Two</b> Investigation 1, Parts 1-4, pp. 10-29</p> <p><b>Trees</b> Investigation 2, Parts 1-4, pp. 6-23</p> <p><b>Wood and Paper</b> Investigation 1, Parts 1-4, pp. 8-27</p> <p><b>Fabric</b> Investigation 2, Parts 1-4, pp. 7-25</p> <p>FOSS investigations provide the opportunity to address this expectation. See examples below:</p> <p><b>Animals Two by Two</b> Investigation 3, Parts 1-3, pp. 8-20</p> <p><b>Trees</b> Investigation 3, Parts 1-9, pp. 10-38</p> <p><b>Wood and Paper</b> Investigation 3, Parts 1-4, pp. 8-25</p> <p><b>Fabric</b> Investigation 2, Parts 1-3, pp. 7-21</p> <p><b>Wood and Paper</b> Investigation 3, Part 4, pp. 22-25</p> <p><b>Animals Two by Two</b> Investigation 1, Parts 3-4, pp. 22-29</p> <p><b>Trees</b> Investigation 3, Parts 5-9, pp. 22-38</p> <p><b>Fabric</b> Investigation 2, Parts 1-3, pp. 7-21</p> <p><b>Trees</b> Investigation 1, Part 7, pp. 31-34; Investigation 3, Part 9. pp.</p>	<p><b>Observing an Aquarium</b> Activity 4-6, pp. 39-67</p> <p><b>Investigating Water</b> Activity 2-5, pp. 21-46</p> <p><b>Finding the Moon</b> Activity 3-5, pp. 29-54</p> <p><b>Sunshine and Shadows</b> Activity 7-10, pp. 57-76</p> <p>DSM activities provide the opportunity to address this expectation. See examples below:</p> <p><b>From Seed to Plant</b> Activity 6-9, pp. 53-78</p> <p><b>Investigating Water</b> Activity 5-10, pp. 41-88</p> <p><b>Properties</b> Activity 9-12, pp. 67-93</p> <p><b>Observing an Aquarium</b> Activity 8-11, pp. 79-116</p> <p><b>From Seed to Plant</b> Activity 6-8, 11, pp. 53-72, 85-90</p> <p><b>How do We Learn</b> Activity 2-3, pp. 23-35</p> <p><b>Investigating Water</b> Activity 7-8, pp. 55-69</p> <p><b>Properties</b> Activity 10-11, pp. 47-60, 75-86</p> <p><b>Properties</b> Activity 6, pp. 47-53 (mass)</p> <p><b>How do We Learn</b></p>

<p>familiar objects using non-standard units</p> <p>NS.1.K.5 Estimate relative <i>temperature of matter</i> (e.g., objects, <i>living</i> things, and earth materials)</p> <p>NS.1.K.6 Collect <i>empirical evidence</i> as a class</p>	<p>35-38 <b>Wood and Paper</b> Investigation 1, Parts 4-5, pp. 24-32</p> <p><b>Trees</b> Tools for Observing Weather 2, pp. 10-13</p> <p><b>Wood and Paper</b> Investigation 1, Parts 3-5, pp. 20-32 <b>Animals Two by Two</b> Investigation 1, Part 3, pp. 22-25 <b>Fabric</b> Investigation 2, Part 1, pp. 7-11 <b>Trees</b> Investigation 1, Part 7, pp. 31-34; Investigation 3, Part 9, pp. 35-38</p>	<p>Activity 6-12, pp. 51-101 (length)</p> <p><b>Investigating Water</b> Activity 9-11, pp. 71-94</p> <p><b>Investigating Water</b> Activity 7-12, pp. 55-100 <b>From Seed to Plant</b> Activity 7, 11, pp. 59-66, 85-90 <b>Observing an Aquarium</b> Activity 8-11, pp. 79-116 <b>Properties</b> Activity 6-7, 10-11, pp. 47-60, 75-86</p>
<p><b>Scientific Equipment and Technology</b></p> <p>NS.1.K.7 Use age-appropriate equipment and tools in <i>scientific investigations</i> (e.g., balances and hand lenses)</p>	<p><b>Trees</b> Tools for Observing Weather 2-6, pp. 10-24 <b>Fabric</b> Investigation 1, Part 4, pp 20-22</p>	<p><b>Properties</b> Activity 6-7, pp. 47-60 <b>From Seed to Plant</b> Activity 3-5, pp 33-52 <b>Observing an Aquarium</b> Activity 3-6, pp. 31-67 <b>How Do We Learn</b> Activity 5-12, pp. 43-101</p>
<p>NS.1.K.8 Apply appropriate rules of safety related to daily activities</p>	<p>FOSS encourages safety. See “Safety in the Classroom” in the program Overview Section in any teacher guide.</p>	<p>DSM encourages safety. See “Resources” section of teacher guide.</p>
<p>NS.1.K.9 Apply lab safety rules as they relate to specific science <i>lab activities</i> (see Arkansas Lab Safety Guide)</p>	<p><b>Trees</b> Investigation 1, p. 13 <b>Animals Two by Two</b> Investigation 3, p. 20 <b>Fabric</b> Investigation 1, p. 32 <b>Wood and Paper</b> Investigation 2, p. 13</p>	<p><b>Sunshine and Shadows</b> Activity 1, p. 15 <b>Observing an Aquarium</b> Activity 12, p. 120 <b>Finding the Moon</b> Activity 1, p. 17 <b>Investigation Water</b> Activity 8, p. 66</p>

**Strand 2: Life Science**

**Standard 2: Living Systems: Characteristics, Structure, and Function**

Students shall demonstrate and apply knowledge of living systems using appropriate safety procedures, equipment, and technology.

Student Learning Expectation	FOSS	DSM
<p><b>Characteristics</b></p> <p>LS.2.K.1 Classify <i>living</i> and non-<i>living</i> things</p> <p>LS.2.K.2 Differentiate between plants and animals</p> <p>LS.2.K.3 Match parents and offspring</p> <p>LS.2.K.4 Identify basic needs of plants and animals:</p> <ul style="list-style-type: none"> <li>• food</li> <li>• water</li> <li>• light</li> <li>• air</li> <li>• space</li> </ul>	<p><b>Animals Two by Two</b> Investigation 2, Parts 3-4, pp. 18-24; investigation 3, Part 3, pp. 17-20 Science Stories, pp. 3-24</p> <p><b>Trees</b> Investigation 2, Parts 2-4, pp. 10-22</p> <p><b>Wood and Paper</b> Investigation 3, Part 4, pp. 22-25</p> <p><b>Fabric</b> Investigation 2, Part 1, pp. 7-11</p> <p>FOSS provides the opportunity to address this expectation. See examples below: <b>Animals Two by Two</b> Investigation 1, Part 1, pp. 10-16; Investigation 3, Parts 1-3, pp. 8-20; Investigation 4, Parts 1-2, pp. 8-15 Science Stories, pp. 3-24</p> <p><b>Trees</b> Investigation 1, Parts 1-8, pp. 7-37 Science Stories, pp. 3-13 FOSS Web, Activity: Who Lives Here?</p> <p><b>Animals Two by Two</b> Investigation 5, Parts 1-2, pp. 10-19 Science Stories, pp. 20-23 FOSS Web, Activity: Find the Parent</p> <p><b>Animals Two by Two</b> Investigation 1, Part 2, pp. 17-21; Investigation 3, Part 1, pp. 8-12; Investigation 4, Part 4, pp. 20-23 Science Stories, pp. 4, 6, 10, 12, 18, 20</p> <p><b>Trees</b> Investigation 1, Parts 2, 8, pp. 15-19, 35-37; Investigation 3, Part 7, pp. 29-31</p>	<p><b>Observing an Aquarium</b> Activity 1-6, pp. 15-67</p> <p><b>Properties</b> Activity 2-13, pp. 19-100</p> <p><b>Investigation Water From Seed to Plant</b> Activity 5, 7, pp. 41-46, 55-61 Activity 1, 3, 10, pp. 15-20, 33-38, 79-84</p> <p>DSM provides the opportunity to address this expectation. See examples below: <b>Observing and Aquarium</b> Activity 3-6, pp. 31-67 Reader, pp. 2-9, 12</p> <p><b>From Seed to Plant</b> Activity 1-13, pp. 15-103 Reader, pp. 2-9</p> <p><b>Observing and Aquarium</b> Activity 10, pp. 97-107 Reader, pp. 10-11</p> <p><b>From Seed to Plant</b> Activity 13, pp. 97-103 Reader, pp. 10-11</p> <p><b>Observing and Aquarium</b> Activity 2, pp. 23-30 Reader, 8-9, 12</p> <p><b>From Seed to Plant</b> Activity 8, 11, 14, pp. 67-72, 85-90, 105-109 Reader, 6-8, 12</p>

<p><b>Structure and Function</b></p> <p>LS.2.K.5 Name and describe the five senses</p> <p>LS.2.K.6 Discuss the functions of the five senses</p> <p>LS.2.K.7 Identify the basic materials for oral hygiene</p> <p>LS.2.K.8 Demonstrate the proper technique for cleaning teeth</p>		<p><b>How Do We Learn</b> Activity 1, pp. 13-22 Reader, pp. 2-6</p> <p><b>How Do We Learn</b> Activity 1, pp. 13-22 Reader, pp. 2-6</p>
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**Strand 2: Life Science**

**Standard 3: Life Cycles, Reproduction, and Heredity**

Students shall demonstrate and apply knowledge of life cycles, reproduction, and heredity using appropriate safety procedures, equipment, and technology.

Student Learning Expectation	FOSS	DSM
<p><b><u>Life Cycles</u></b></p> <p>LS.3.K.1 Describe plant development and growth</p> <p>LS.3.K.2 Illustrate <i>complete metamorphosis</i> (e.g., butterfly, frog)</p>	<p><b>Trees</b> Science Stories, p. 24</p>	<p><b>From Seed to Plant</b> Activity 13, pp. 97-103 Reader, pp. 10-11</p>

**Strand 2: Life Science**

**Standard 4: Populations and Ecosystems**

Students shall demonstrate and apply knowledge of populations and ecosystems using appropriate safety procedures, equipment, and technology.

Student Learning Expectation	FOSS	DSM
<p>LS.4.K.1 Recognize what it means for a <i>species</i> to be <i>extinct</i></p>		

**Strand 3: Physical Science**

**Standard 5: Matter: Properties and Changes**

Students shall demonstrate and apply knowledge of *matter*, including properties and changes, using appropriate safety procedures, equipment, and technology.

Student Learning Expectation	FOSS	DSM
<p><b>Physical Properties</b></p> <p>PS.5.K.1 List and classify objects according to the single properties of</p> <ul style="list-style-type: none"> <li>• size</li> <li>• color</li> <li>• shape</li> </ul>	<p><b>Wood and Paper</b> Investigation 1, Part 1, pp. 8-14</p> <p><b>Fabric</b> Investigation 1, Part 1, pp. 6-11</p>	<p><b>Properties</b> Activity 3, pp. 26-32 (size) Activity 3, pp. 26-32 (color) Activity 4, pp. 33-39 (shape)</p> <p><b>How Do We Learn</b> Activity 2-3, pp. 23-35</p>

**Strand 3: Physical Science**

**Standard 6: Motion and Forces**

Students shall demonstrate and apply knowledge of motion and forces using appropriate safety procedures, equipment, and technology

Student Learning Expectation	FOSS	DSM
<p><b>Motion and Forces</b></p> <p>PS.6.K.1 Demonstrate spatial relationships, including but not limited to</p> <ul style="list-style-type: none"> <li>• over</li> <li>• under</li> <li>• left</li> <li>• right</li> </ul> <p>PS.6.K.2 Demonstrate various ways that objects can move, including but not limited to</p> <ul style="list-style-type: none"> <li>• straight</li> <li>• zig-zag</li> <li>• back and forth</li> <li>• round and round</li> <li>• fast and slow</li> </ul>	<p><b>Wood and Paper</b> Investigation 1, Parts 3-5, pp. 20-32; Investigation 3, Part 4, pp. 22-25</p> <p><b>Fabric</b> Investigation 1, Parts 4-5, pp. 20-28</p> <p><b>Animals Two by Two</b> Investigation 1, Part 1, pp. 10-16</p> <p><b>Trees</b> Investigation 1, Part 8, pp 35-37</p> <p><b>Fabric</b> Investigation 1, Parts 4-6, pp. 20-33</p> <p><b>Wood and Paper</b> Investigation 1, Parts 3-5, pp. 20-32; Investigation 2, Part 1, pp. 8-11; Investigation 3, Part 2, pp. 13-17</p> <p><b>Animals Two by Two</b> Investigation 1, Part 3, pp. 22-25; Investigation 2, Part 2, pp. 14-17; Investigation 3, Part 2, pp. 13-16; Investigation 4, Part 3, pp. 16-19</p> <p><b>Wood and Paper</b></p>	<p><b>Properties</b> Activity 6-7, pp. 47-60, 75-86</p> <p><b>Finding the Moon</b> Activity 1-5, 9-10, pp. 13-54, 77-91</p> <p><b>Sunshine and Shadows</b> Activity 1-12, pp. 13-95</p> <p><b>From Seed to Plant</b> Activity 3-6, pp. 33-58</p> <p><b>Observing and Aquarium</b> Activity 8-9, pp. 79-95</p> <p><b>Properties</b> Activity 10, pp. 75-80</p> <p><b>Investigating Water</b> Activity 2-3, 5-6, pp. 21-34, 41-54</p> <p><b>Sunshine and Shadows</b> Activity 4-7, pp. 33-63</p> <p><b>Investigating Water</b></p>

<p>PS.6.K.3</p> <ul style="list-style-type: none"> <li>Demonstrate the effects of the <i>force of gravity</i> on objects</li> </ul>	<p>Investigation 1, Parts 4-5, pp. 24-32; Investigation 2, Part 2, pp. 12-15</p> <p><b>Trees</b></p> <p>Investigation 3, Part 1, pp. 10-11</p>	<p>Activity 5, pp. 41-46 (sink or float)</p> <p><b>Properties</b></p> <p>Activity 6, pp. 47-52 (balance/mass)</p> <p><b>From Seed to Plant</b></p> <p>Activity 6, pp. 53-58 (geotropism)</p>
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**Strand 3: Physical Science**

**Standard 7: Energy and Transfer of Energy**

Students shall demonstrate and apply knowledge of energy and transfer of energy using appropriate safety procedures, equipment, and technology

<b>Student Learning Expectation</b>	<b>FOSS</b>	<b>DSM</b>
<p><b>Heat</b></p> <p>PS.7.K.1</p> <ul style="list-style-type: none"> <li>Classify objects in terms of their relative <i>temperature</i> (e.g., hotter and colder)</li> </ul> <p><b>Electricity</b></p> <p>PS.7.K.2</p> <p>Identify uses of <i>electricity</i></p> <p>PS.7.K.3</p> <p>Identify ways to conserve <i>electricity</i> in the classroom and at home</p> <p><b>Magnetism</b></p> <p>PS.7.K.4</p> <p>Demonstrate effects of magnets on each other and other objects</p> <p>PS.7.K.5</p> <p>List some uses of magnets in everyday objects</p> <p>PS.7.K.6</p> <p>Investigate magnets of various shapes</p>	<p><b>Trees</b></p> <p>Tools for Observing Weather 2, pp. 10-13</p>	<p><b>Investigating Water</b></p> <p>Activity 9, 11, pp. 71-80, 89-94</p> <p>Reader, pp. 4-11</p> <p><b>Sunshine and Shadows</b></p> <p>Activity 2-3, 8-12, pp. 19-37, 65-95 (lights and flashlights)</p> <p><b>Properties</b></p> <p>Activity 11, pp. 81-86</p> <p><b>Properties</b></p> <p>Activity 11, Science and Math, p. 86</p>

**Strand 4: Earth and Space Science**

**Standard 8: Earth Systems: Structure and Properties**

Students shall demonstrate and apply knowledge of Earth's structure and properties using appropriate safety procedures, equipment, and technology.

Student Learning Expectation	FOSS	DSM
<p><b>Properties of the Earth</b></p> <p>ESS.8.K.1 Identify various characteristics of Earth's surface</p>	<p><b>Animals Two by Two</b> Science Stories, pp. 4, 12</p> <p><b>Trees</b> Science Stories, pp. 5-11</p> <p><b>Wood and Paper</b> Science Stories, pp. 4-5</p>	<p><b>Observing and Aquarium</b> Activity 1, 12, pp. 15-21, 117-125</p>
<p><b>Natural Resources</b></p> <p>ESS.8.K.2 Identify the uses of land and water</p>	<p><b>Wood and Paper</b> Science Stories, p. 21</p> <p><b>Trees</b> Science Stories, pp. 18-21</p>	<p><b>From Seed to Plant</b> Activity 8, pp 67-72</p>
<p>ESS.8.K.3 Classify resources as natural or man-made</p>	<p><b>Trees</b> Science Stories, pp. 3-12</p> <p><b>Wood and Paper</b> Science Stories, pp. 4-8, 13-18</p> <p><b>Fabric</b> Science Stories, pp. 3-13</p>	
<p>ESS.8.K.4 Identify ways natural and man-made materials can be reused or recycled</p>	<p><b>Wood and Paper</b> Investigation 4, Part 1, pp. 8-13</p> <p>Science Stories, p. 19</p>	<p><b>Investigating Water</b> Activity 12, pp. 95-100</p>
<p><b>Weather</b></p> <p>ESS.8.K.5 Chart weather conditions every day</p>	<p><b>Trees</b> Tools for Observing Weather 1, pp. 6-9</p>	
<p>ESS.8.K.6 Describe the four seasons</p>	<p><b>Trees</b> Science Stories, pp. 14-23</p>	
<p>ESS.8.K.7 Demonstrate safety procedures related to severe weather</p>		

**Strand 4: Earth and Space Science**

**Standard 9: Earth's History: Changes in Earth and Sky**

Students shall demonstrate and apply knowledge of Earth's history using appropriate safety procedures, equipment, and technology.

<b>Student Learning Expectation</b>	<b>FOSS</b>	<b>DSM</b>
None		

**Strand 4: Earth and Space Science**

**Standard 10: Objects in the Universe**

Students shall demonstrate and apply knowledge of objects in the universe using appropriate safety procedures, equipment, and technology.

<b>Student Learning Expectation</b>	<b>FOSS</b>	<b>DSM</b>
<b>Solar System</b>  ESS.10.K.1 Distinguish between celestial bodies and other objects in the sky: <ul style="list-style-type: none"><li>• sun</li><li>• moon</li><li>• other stars</li><li>• clouds</li><li>• birds</li><li>• planes</li></ul>		<b>Finding the Moon</b> Activity 1, pp. 13-22 Reader, pp. 2-10 <b>Sunshine and Shadows</b> Activity 1, pp. 13-18 Reader, pp. 2, 10

## Grade One

### Strand 1: Nature of Science

#### Standard 1: Characteristics and Processes of Science

Students shall demonstrate and apply knowledge of the characteristics and processes of science using appropriate safety procedures, equipment, and technology.

Student Learning Expectation	FOSS	DSM
<p><b>Inquiry and Process Skills</b></p> <p>NS.1.1.1 Communicate observations orally, in writing, and in graphic organizers:</p> <ul style="list-style-type: none"> <li>• T-charts</li> <li>• pictographs</li> </ul> <p>NS.1.1.2 Ask questions based on observations</p> <p>NS.1.1.3 Conduct <i>scientific investigations</i> as a class and in teams:</p> <ul style="list-style-type: none"> <li>• <i>lab activities</i></li> <li>• <i>field studies</i></li> </ul>	<p><b>Air and Weather</b> Investigation 1, Parts 1-6, pp. 8-38; Investigation 4, Parts 1-2, pp. 8-18</p> <p><b>Pebbles, Sand and Silt</b> Investigation 4, Parts 1-3, pp. 8-25</p> <p><b>New Plants</b> Investigation 1, Part 3, pp. 23-30</p> <p><b>Balance and Motion</b> Investigation 1, Parts 2, 4, pp. 14-18, 24-28</p> <p>FOSS provides the opportunity to address this expectation. See for example:</p> <p><b>Pebbles, Sand, and Silt</b> Investigation 2, Parts 3-4, pp. 18-29</p> <p><b>New Plants</b> Investigation 3, Parts 1-3, pp. 8-25</p> <p><b>Air and Weather</b> Investigation 1, Parts 2-6, pp. 13-38</p> <p><b>Balance and Motion</b> Investigation 3, Parts 1-3, pp. 6-25</p> <p><b>Insects</b> Investigation 2, Parts 1-3, pp. 8-24</p> <p><b>Air and Weather</b> Investigation 1, Parts 1-4, pp. 21-38; Investigation 2, Parts 2-4, pp. 14-27</p> <p><b>Pebbles, Sand and Silt</b> Investigation 4, Parts 1-3, pp. 8-25</p> <p><b>New Plants</b> Investigation 2, Parts 1-2, pp. 8-19</p> <p><b>Balance and Motion</b> Investigation 2, Part 3, pp.</p>	<p><b>Observing an Aquarium</b> Activity 4-6, pp. 39-67</p> <p><b>Investigating Water</b> Activity 2-5, pp. 21-46</p> <p><b>Finding the Moon</b> Activity 3-5, pp. 29-54</p> <p><b>Sunshine and Shadows</b> Activity 7-10, pp. 57-76</p> <p>DSM provides the opportunity to address this expectation. See for example:</p> <p><b>From Seed to Plant</b> Activity 6-9, pp. 53-78</p> <p><b>Investigating Water</b> Activity 5-10, pp. 41-88</p> <p><b>Properties</b> Activity 9-12, pp. 67-93</p> <p><b>Observing an Aquarium</b> Activity 8-11, pp. 79-116</p> <p><b>Sunshine and Shadows</b> Activity 3-7, pp. 27-63</p> <p><b>From Seed to Plant</b> Activity 6-8, 11, pp. 53-72, 85-90</p> <p><b>How do We Learn</b> Activity 2-3, pp. 23-35</p> <p><b>Investigating Water</b> Activity 7-8, pp. 55-69</p> <p><b>Properties</b> Activity 6-7, 10-11, pp. 47-60, 75-86</p> <p><b>Sunshine and Shadows</b> Activity 6-7, pp. 49-63</p>

<p>NS.1.1.4 Estimate and measure length and <i>temperature</i> using International System of Units (SI) as a class</p> <p>NS.1.1.5 Collect measurable <i>empirical evidence as a class and in teams</i></p> <p>NS.1.1.6 Make predictions as a class and in teams based upon <i>empirical evidence</i> (e.g., predict which object is heavier)</p> <p><b>Scientific Equipment and Technology</b></p> <p>NS.1.1.7 Use age appropriate equipment and tools in <i>scientific investigations</i> (e.g., balances, hand lenses, rulers, and <i>thermometers</i>)</p> <p>NS.1.1.8 Apply appropriate rules of safety related to daily</p>	<p>20-25 <b>Solids and Liquids</b> Investigation 4, Parts 1-3, pp. 7-27</p> <p><b>Air and Weather</b> Investigation 2, Parts 2, 4, pp. 14-19, 24-27</p> <p><b>New Plants</b> Investigation 1, Part 3, pp. 23-30; Investigation 2, Part 3, pp. 20-28</p> <p><b>Air and Weather</b> Investigation 2, Parts 2, 4, pp. 14-19, 24-27</p> <p><b>New Plants</b> Investigation 1, Part 3, pp. 23-30; Investigation 2, Part 3, pp. 20-28</p> <p>FOSS provides the opportunity to address this expectation. See for example:</p> <p><b>New Plants</b> Investigation 2, Part 2, pp. 15-19</p> <p><b>Balance and Motion</b> Investigation 3, Parts 1-2, pp. 6-18</p> <p><b>Solids and Liquids</b> Investigation 4, Parts 1-2, pp. 7-22</p> <p><b>Air and Weather</b> Investigation 1, Parts 3-6, pp. 17-38</p> <p><b>Air and Weather</b> Investigation 2, Parts 2-4, pp. 14-27</p> <p><b>Insects</b> Investigation 1, Parts 1-3, pp. 8-25</p> <p><b>Pebbles, Sand and Silt</b> Investigation 2, Parts 1-4, pp. 8-19</p> <p><b>Solids and Liquids</b> Investigation 3, Part 4, pp. 24-27</p> <p>FOSS encourages safety. See “Safety in the</p>	<p><b>How Do We Learn</b> Activity 10-12, pp. 80-101</p> <p><b>Investigating Water</b> Activity 7-12, pp. 55-100</p> <p><b>From Seed to Plant</b> Activity 7, 11, pp. 59-66, 85-90</p> <p><b>Observing an Aquarium</b> Activity 8-11, pp. 79-116</p> <p><b>Properties</b> Activity 6-7, 10-11, pp. 47-60, 75-86</p> <p><b>Properties</b> Activity 6, 10-11, pp. 47-52, 75-86</p> <p><b>Investigating Water</b> Activity 5-7, 9-11, pp. 41-61, 71-94</p> <p><b>Finding the Moon</b> Activity 8, pp. 71-76</p> <p><b>Sunshine and Shadows</b> Activity 7, pp. 57-63</p> <p><b>Properties</b> Activity 6-7, pp. 47-60</p> <p><b>How Do We Learn</b> Activity 5-12, pp. 43-101</p> <p><b>Observing an Aquarium</b> Activity 3-6, pp. 31-67</p> <p><b>From Seed to Plant</b> Activity 3-5, pp. 33-52</p> <p>DSM encourages safety. See “Resources” section of</p>
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activities	Classroom” in the program Overview Section in any teacher guide.	teacher guide.
NS.1.1.9 Apply lab safety rules as they relate to specific science <i>lab activities</i> (see Arkansas Lab Safety Guide)	<b>Balance and Motion</b> Investigation 2, p. 24 <b>Insects</b> Investigation 6, p. 16 <b>Solids and Liquids</b> Investigation 4, p. 16 <b>Air and Weather</b> Investigation 1, p. 23	<b>Observing an Aquarium</b> Activity 12, p. 120 <b>Sunshine and Shadows</b> Activity 1, 2, pp. 15, 21 <b>Investigating Water</b> Activity 8, p. 66 <b>Finding the Moon</b> Activity 1, p. 17

**Strand 2: Life Science**

**Standard 2: Living Systems: Characteristics, Structure, and Function**

Students shall demonstrate and apply knowledge of living systems using appropriate safety procedures, equipment, and technology

Student Learning Expectation	FOSS	DSM
<p><b>Characteristics</b></p> <p>LS.2.1.1 Classify animals according to common characteristics (e.g., movement, body coverings, diet)</p> <p>LS.2.1.2 Differentiate between <i>herbivores</i> and <i>carnivores</i></p> <p><b>Structure and Function</b></p> <p>LS.2.1.3 Locate the following human body parts:</p> <ul style="list-style-type: none"> <li>• heart</li> <li>• lungs</li> <li>• brain</li> <li>• stomach</li> <li>• muscles</li> <li>• bones</li> </ul> <p>LS.2.1.4 Locate plant parts:</p> <ul style="list-style-type: none"> <li>• leaves</li> <li>• stems</li> <li>• flowers</li> <li>• roots</li> </ul>	<p><b>Insects</b> Investigation 3, Part 3, pp. 21-26; Investigation 4, Part 4, pp. 23-27 Science Stories, pp. 12-15</p> <p><b>New Plants</b> Science Stories, pp. 41-43</p> <p><b>New Plants</b> Investigation 1, Part 3, pp. 23-30; Investigation 2, Part 3, pp. 20-28; Investigation 3, Parts 1-3, pp. 8-25; Investigation 4, Parts 1-2, pp. 7-19 Science Stories, pp. 3-15 FOSS Web, Activity: Watch it Grow</p>	<p><b>Observing an Aquarium</b> Activity 4-6, pp 39-67 Reader, pp. 6-9</p> <p><b>Observing an Aquarium</b> Activity 7, pp. 69-78 Reader, p. 12</p> <p><b>From Seed to Plant</b> Activity 4-12, pp. 39-96 Reader, pp. 2-9 <b>Observing an Aquarium</b> Activity 3, pp. 31-38</p>

**Strand 2: Life Science**

**Standard 3: Life Cycles, Reproduction, and Heredity**

Students shall demonstrate and apply knowledge of life cycles, reproduction, and heredity using appropriate safety procedures, equipment, and technology.

Student Learning Expectation	FOSS	DSM
<p><b>Life Cycles</b></p> <p>LS.3.1.1 Illustrate <i>incomplete metamorphosis</i> (e.g., grasshopper)</p> <p>LS.3.1.2 Compare and contrast <i>complete metamorphosis</i> and <i>incomplete metamorphosis</i></p>	<p><b>Insects</b> Investigation 3, Parts 1-3, pp. 8-26; Investigation 6, Part 1, pp. 8-13 Science Stories, p. 21</p> <p><b>Insects</b> Investigation 1-5, all Parts Science Stories, pp. 16-25</p>	

**Strand 2: Life Science**

**Standard 4: Populations and Ecosystems**

Students shall demonstrate and apply knowledge of populations and ecosystems using appropriate safety procedures, equipment, and technology.

Student Learning Expectation	FOSS	DSM
<p>LS.4.1.1 Identify some endangered <i>species</i> in Arkansas</p>	Local Objective	Local Objective

**Strand 3: Physical Science**

**Standard 5: Matter: Properties and Changes**

Students shall demonstrate and apply knowledge of *matter*, including properties and changes, using appropriate safety procedures, equipment, and technology

Student Learning Expectation	FOSS	DSM
<p><b>Physical Properties</b></p> <p>PS.5.1.1 Compare and contrast objects according to the single properties of</p> <ul style="list-style-type: none"> <li>• size</li> <li>• color</li> <li>• shape</li> <li>• texture</li> <li>• magnetism</li> </ul> <p><b>States of Matter</b></p> <p>PS.5.1.2</p>	<p><b>Pebbles, Sand and Silt</b> Investigation 1, Parts 3-4, pp. 18-21; Investigation 2, Parts 1-4, pp. 8-29; Investigation 4, Part 3, pp. 19-25</p> <p><b>Solids and Liquids</b> Investigation 1, Part 2, pp. 17-20; Investigation 2, Parts 2-3, pp. 15-27; Investigation 3, Parts 2, 4, pp. 14-18, 24-27 Science Stories, pp. 8-13</p> <p><b>Solids and Liquids</b></p>	<p><b>Properties</b> Activity 3-5, 11, pp. 25-46, 81-86</p> <p><b>How Do We Learn</b> Activity 2-3, pp. 23-35</p> <p><b>Properties</b></p>

Identify characteristics of solids and liquids	Investigation 1, Parts 1-2, pp. 8-20; Investigation 2, Parts 1-3, pp. 10-27 Science Stories, pp. 3-13	Activity 7-8, pp 53-66 Reader, pp. 5-11 <b>Investigating Water</b> Activity 1, 9, pp. 13-20, 7-80 Reader, pp. 2-9
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**Strand 3: Physical Science**

**Standard 6: Motion and Forces**

Students shall demonstrate and apply knowledge of motion and forces using appropriate safety procedures, equipment, and technology

Student Learning Expectation	FOSS	DSM
<p><b>Motion and Forces</b></p> <p>PS.6.1.1 List orally the various ways that objects can move, including but not limited to</p> <ul style="list-style-type: none"> <li>• straight</li> <li>• zig-zag</li> <li>• back and forth</li> <li>• round and round</li> <li>• fast and slow</li> </ul> <p>PS.6.1.2 Investigate the relationship between <i>mass</i> and <i>weight</i> (e.g., identical filled and empty containers)</p>	<p><b>Balance and Motion</b> Investigation 2, Parts 1-3, pp. 8-25; Investigation 3, Parts 1-3, pp. 6-15 Science Stories, pp. 22-31</p> <p><b>Air and Weather</b> Investigation 1, Parts 3-6, pp. 17-34; Investigation 2, Part 3, pp. 20-23; Investigation 3, Parts 1-5, pp. 8-33</p>	<p><b>Observing an Aquarium Properties</b> Activity 8-9, pp. 79-95</p> <p><b>Investigating Water</b> Activity 10, pp. 75-80</p> <p>Activity 2-3, 5-6, pp 21-34, 41-54</p> <p><b>Sunshine and Shadows</b> Activity 4-7, pp. 33-63</p>

**Strand 3: Physical Science**

**Standard 7: Energy and Transfer of Energy**

Students shall demonstrate and apply knowledge of energy and transfer of energy using appropriate safety procedures, equipment, and technology

Student Learning Expectation	FOSS	DSM
<p><b>Light</b></p> <p>PS.7.1.1 Compare natural sources of light (e.g., sun, fireflies, deep sea creatures, fire, lightning) to artificial sources of light (e.g., light bulbs, matches, candles)</p>	<p>FOSS investigations provide the opportunity to address this expectation. See examples below:</p> <p><b>New Plants</b> Investigation 1, Part 2, pp. 13-22 Science Stories, p. 6</p> <p><b>Air and Weather</b> Investigation 2, Part 1, pp. 8-13</p> <p><b>Solids and Liquids</b> Science Stories, p.17</p>	<p>DSM activities provide the opportunity to address this expectation. See examples below:</p> <p><b>Observing an Aquarium</b> Activity 2, pp. 23-30</p> <p><b>Sunshine and Shadows</b> Activity 1, 4, pp. 13-18, 33-41 Reader, 2, 10</p> <p><b>From Seed to Plant</b> Activity 11, pp. 85-90</p>

<p>PS.7.1.2 Investigate the properties of <i>transparent</i> and <i>opaque</i> objects (e.g., plastic wrap and aluminum foil)</p> <p><b>Heat</b></p> <p>PS.7.1.3 Compare natural sources of <i>heat</i> (e.g., sun, fire, lightning) to artificial sources of <i>heat</i> (e.g., stove, toaster)</p> <p>PS.7.1.4 Chart <i>temperature</i> over time using the Celsius scale</p> <p><b>Electricity</b></p> <p>PS.7.1.5 Demonstrate methods of producing static <i>electricity</i> (e.g., balloons, shuffling across carpet)</p> <p><b>Magnetism</b></p> <p>PS.7.1.6 Classify materials as magnetic or nonmagnetic</p> <p>PS.7.1.7 Investigate the properties of magnets:</p> <ul style="list-style-type: none"> <li>• attraction</li> <li>• repulsion</li> </ul>	<p><b>Solids and Liquids</b> Investigation 1, Part 1, pp. 8-16 Science Stories, p. 12</p> <p>FOSS investigations provide the opportunity to address this expectation. See examples below: <b>Air and Weather</b> Investigation 2, Part 2, pp. 14-19 <b>Solids and Liquids</b> Science Stories, pp. 14- 17</p> <p><b>Air and Weather</b> Investigation 2, Part 2., pp. 14-19</p> <p><b>Balance and Motion</b> Science Stories, p. 19 <b>Solids and Liquids</b> Investigation 3, Science Extension, p. 31</p> <p><b>Balance and Motion</b> Science Stories, pp. 19-21 <b>Solids and Liquids</b> Investigation 3, Science Extension, p. 31</p>	<p><b>Sunshine and Shadows</b> Activity 3, pp. 27-37 Reader, 3-5</p> <p>DSM activities provide the opportunity to address this expectation. See examples below: Sunshine and Shadows Activity 1-3, pp 13-27 Reader, p. 2</p> <p><b>Properties</b> Activity 11, pp. 81-86</p> <p><b>Properties</b> Activity 11, pp. 81-86</p>
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**Strand 4: Earth and Space Science**

**Standard 8: Earth Systems: Structure and Properties**

Students shall demonstrate and apply knowledge of Earth's structure and properties using appropriate safety procedures, equipment, and technology.

<b>Student Learning Expectation</b>	<b>FOSS</b>	<b>DSM</b>
<p><b>Properties of the Earth</b></p> <p>ESS.8.1.1 Identify the features of major</p>	<p><b>Pebbles, Sand, and Silt</b> Science Stories, pp. 3-7, 10-</p>	<p><b>Observing an Aquarium</b> Activity 1, pp. 15-21</p>

landforms	12	
<b>Natural Resources</b>		
ESS.8.1.2 Identify common uses of Earth's resources	<b>Pebbles, Sand and Silt</b> Investigation 3, Parts 1-5, pp. 8-19 Science Stories, pp. 16-19 FOSS Web, Pictures <b>New Plants</b> Science Stories, pp. 16-21	<b>From Seed to Plant</b> Reader, pp. 12-13
<b>Weather</b>		
ESS.8.1.3 Chart weather conditions every day	<b>Air and Weather</b> Investigation 2, Part 1, pp. 8-13; Investigation 4, Part 1, pp. 8-11	
ESS.8.1.4 Identify the sequence of seasons	<b>Air and Weather</b> Investigation 4, Part 2, pp. 12-18 Science Stories, pp. 18-23	
ESS.8.1.5 Demonstrate safety procedures related to severe weather	FOSS provides the opportunity to address this expectation. See below: <b>Air and Weather</b> Science Stories, pp. 16-17	
ESS.8.1.6 Read a Celsius <i>thermometer</i> as a class	<b>Air and Weather</b> Investigation 2, Part 2, pp. 14-19	

**Strand 4: Earth and Space Science**

**Standard 9: Earth's History: Changes in Earth and Sky**

Students shall demonstrate and apply knowledge of Earth's history using appropriate safety procedures, equipment, and technology.

Student Learning Expectation	FOSS	DSM
None		

**Strand 4: Earth and Space Science**

**Standard 10: Objects in the Universe**

Students shall demonstrate and apply knowledge of objects in the universe using appropriate safety procedures, equipment, and technology.

Student Learning Expectation	FOSS	DSM
<b>Solar System</b>  ESS.10.1.1 Illustrate the sequence of planets in the <i>solar system</i>		

## Grade Two

### Strand 1: Nature of Science

#### Standard 1: Characteristics and Processes of Science

Students shall demonstrate and apply knowledge of the characteristics and processes of science using appropriate safety procedures, equipment, and technology.

Student Learning Expectation	FOSS	DSM
<p><b>Inquiry and Process Skills</b></p> <p>NS.1.2.1 Communicate observations orally, in writing, and in graphic organizers:</p> <ul style="list-style-type: none"> <li>• T-charts</li> <li>• pictographs</li> <li>• Venn diagrams</li> <li>• bar graphs</li> </ul> <p>NS.1.2.2 Develop questions that guide scientific inquiry</p> <p>NS.1.2.3 Conduct <i>scientific investigations</i> individually and in teams:</p> <ul style="list-style-type: none"> <li>• <i>lab activities</i></li> <li>• <i>field studies</i></li> </ul>	<p><b>Air and Weather</b> Investigation 1, Parts 1-6, pp. 8-38; Investigation 4, Parts 1-2, pp. 8-18</p> <p><b>Pebbles, Sand and Silt</b> Investigation 4, Parts 1-3, pp. 8-25</p> <p><b>New Plants</b> Investigation 1, Part 3, pp. 23-30</p> <p><b>Balance and Motion</b> Investigation 1, Parts 2, 4, pp. 14-18, 24-28</p> <p>FOSS provides the opportunity to address this expectation. See for example:</p> <p><b>Pebbles, Sand, and Silt</b> Investigation 2, Parts 3-4, pp. 18-29</p> <p><b>New Plants</b> Investigation 3, Parts 1-3, pp. 8-25</p> <p><b>Air and Weather</b> Investigation 1, Parts 2-6, pp. 13-38</p> <p><b>Balance and Motion</b> Investigation 3, Parts 1-3, pp. 6-25</p> <p><b>Insects</b> Investigation 2, Parts 1-3, pp. 8-24</p> <p><b>Air and Weather</b> Investigation 1, Parts 1-4, pp. 21-38; Investigation 2, Parts 2-4, pp. 14-27</p> <p><b>Pebbles, Sand and Silt</b> Investigation 4, Parts 1-3, pp. 8-25</p> <p><b>New Plants</b> Investigation 2, Parts 1-2, pp. 8-19</p> <p><b>Balance and Motion</b> Investigation 2, Part 3, pp. 20-25</p>	<p><b>Force and Motion</b> Activity 1-5, pp. 13-55</p> <p><b>Using Your Senses</b> Activity 2, pp. 23-30</p> <p><b>Sink or Float</b> Activity 7-12, pp. 61-107</p> <p><b>Plant and Animal Populations</b> Activity 8-11, pp. 77-110</p> <p><b>Weather Watching</b> Activity 1-3, pp. 13-36</p> <p>DSM provides the opportunity to address this expectation. See for example:</p> <p><b>Plant and Animal Populations</b> Activity 9-11, pp. 85-110</p> <p><b>Classroom Plants</b> Activity 3-5, pp. 29-53</p> <p><b>Soil Science</b> Activity 7-8, 10-12, pp. 59-79, 91-114</p> <p><b>States of Matter</b> Activity 7, 11, pp. 57-63, 89-96</p> <p><b>Force and Motion</b> Activity 4-5, pp. 41-55</p> <p><b>Using Your Senses</b> Activity 8-12, pp. 67-103</p> <p><b>Plant and Animal Populations</b> Activity 9-11, pp. 85-110</p> <p><b>Soil Science</b> Activity 10-12, pp. 91-114</p> <p><b>Sink or Float</b> Activity 7-12, pp. 61-107</p> <p><b>Force and Motion</b> Activity 4-5, pp. 41-55</p>

<p>NS.1.2.4 Estimate and measure length and <i>temperature</i> using International System of Units (SI)</p>	<p><b>Solids and Liquids</b> Investigation 4, Parts 1-3, pp. 7-27</p> <p><b>Air and Weather</b> Investigation 2, Parts 2, 4, pp. 14-19, 24-27</p> <p><b>New Plants</b> Investigation 1, Part 3, pp. 23-30; Investigation 2, Part 3, pp. 20-28</p>	<p><b>States of Matter</b> Activity 6-7, 11, pp. 51-63, 89-96</p> <p><b>Force and Motion</b> Activity 2, pp. 23-29</p> <p><b>Weather Watching</b> Activity 2-3, pp. 21-36</p>
<p>NS.1.2.5 Collect measurable <i>empirical evidence</i> in teams and as individuals</p>	<p><b>Air and Weather</b> Investigation 2, Parts 2, 4, pp. 14-19, 24-27</p> <p><b>New Plants</b> Investigation 1, Part 3, pp. 23-30; Investigation 2, Part 3, pp. 20-28</p>	<p><b>Using Your Senses</b> Activity 2, pp. 23-30</p> <p><b>Plant and Animal Populations</b> Activity 9-11, pp. 85-110</p> <p><b>Force and Motion</b> Activity 1-5, pp. 13-55</p> <p><b>States of Matter</b> Activity 7, 11, pp. 57-63, 89-96</p>
<p>NS.1.2.6 Make predictions in teams and as individuals based upon <i>empirical evidence</i></p>	<p>FOSS provides the opportunity to address this expectation. See for example:</p> <p><b>New Plants</b> Investigation 2, Part 2, pp. 15-19</p> <p><b>Balance and Motion</b> Investigation 3, Parts 1-2, pp. 6-18</p> <p><b>Solids and Liquids</b> Investigation 4, Parts 1-2, pp. 7-22</p> <p><b>Air and Weather</b> Investigation 1, Parts 3-6, pp. 17-38</p>	<p><b>States of Matter</b> Activity 4, pp. 35-40</p> <p><b>Sink or Float</b> Activity 5-10, pp. 43-88</p> <p><b>Force and Motion</b> Activity 5, pp. 49-55</p> <p><b>Using Your Senses</b> Activity 4, pp. 37-44</p> <p><b>Plant and Animal Populations</b> Activity 10-11, pp. 95-110</p>
<p><b>Scientific Equipment and Technology</b></p> <p>NS.1.2.7 Use age appropriate equipment and tools in <i>scientific investigations</i> (e.g., balances, hand lenses, rulers, and <i>thermometers</i>)</p>	<p><b>Air and Weather</b> Investigation 2, Parts 2-4, pp. 14-27</p> <p><b>Insects</b> Investigation 1, Parts 1-3, pp. 8-25</p> <p><b>Pebbles, Sand and Silt</b> Investigation 2, Parts 1-4, pp. 8-19</p> <p><b>Solids and Liquids</b> Investigation 3, Part 4, pp. 24-27</p>	<p><b>States of Matter</b> Activity 6-7, 11, pp. 51-63, 89-96</p> <p><b>Weather Watching</b> Activity 2-5, pp. 21-50</p> <p><b>Force and Motion</b> Activity 1-5, pp. 13-55</p> <p><b>Using Your Senses</b> Activity 2, pp. 23-30</p>
<p>NS.1.2.8 Apply lab safety rules as they relate to specific science <i>lab activities</i> (see Arkansas Lab</p>	<p><b>Balance and Motion</b> Investigation 2, p. 24</p> <p><b>Insects</b></p>	<p><b>States of Matter</b> Activity 10, p. 82</p> <p><b>Using Your Senses</b></p>

Safety Guide)	Investigation 6, p. 16 <b>Solids and Liquids</b> Investigation 4, p. 16 <b>Air and Weather</b> Investigation 1, p. 23	Activity 2, p. 25 <b>Weather Watching</b> Activity 4, p. 40 <b>Force and Motion</b> Activity 1, 11, pp. 17, 105
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**Strand 2: Life Science**

**Standard 2: Living Systems: Characteristics, Structure, and Function**

Students shall demonstrate and apply knowledge of living systems using appropriate safety procedures, equipment, and technology

<b>Student Learning Expectation</b>	<b>FOSS</b>	<b>DSM</b>
<p><b>Characteristics</b></p> <p>LS.2.2.1 Classify animals into major groups according to their structure:</p> <ul style="list-style-type: none"> <li>• mammals</li> <li>• birds</li> <li>• fish</li> </ul> <p>LS.2.2.2 Differentiate among <i>herbivores</i>, <i>carnivores</i>, and omnivores</p> <p>LS.2.2.3 Identify basic needs of most plants:</p> <ul style="list-style-type: none"> <li>• <i>nutrients</i></li> <li>• water</li> <li>• light</li> <li>• air</li> <li>• <i>temperature</i></li> <li>• space</li> </ul> <p>LS.2.2.4 Compare different types of flowering plants and <i>conifers</i></p> <p><b>Structure and Function</b></p> <p>LS.2.2.5 Identify the major parts and functions of the skeletal system</p> <p>LS.2.2.6 Describe the function of the following plant parts:</p> <ul style="list-style-type: none"> <li>• leaves</li> <li>• stems</li> <li>• flowers</li> <li>• roots</li> </ul>	<p><b>Insects</b> Investigation 3, Part 3, pp. 21-26; Investigation 4, Part 4, pp. 23-27 Science Stories, pp. 12-15</p> <p><b>New Plants</b> Science Stories, pp. 41-43</p> <p><b>New Plants</b> Investigation 1, Part 2, pp. 13-22; Investigation 2, Part 1, pp. 8-14; Investigation 3, Part 1, pp. 8-13 Science Stories, pp. 3-7</p> <p><b>New Plants</b> Investigation 1, Part 3, pp. 23-30; Investigation 2, Part 3, pp. 20-28; investigation 3, Parts 1-3, pp. 8-25 Science stories, pp. 3-7, 12-15</p>	<p><b>Butterflies and Moths</b> Reader, 4-5</p> <p><b>Plant and Animal Populations</b> Reader, p. 12</p> <p><b>Classroom Plants</b> Activity 3-5, pp. 29-53 Reader, pp. 7-9</p> <p><b>Classroom Plants</b> Activity 6-11, pp. 55-104 Reader, pp. 6-12</p>

**Strand 2: Life Science**

**Standard 3: Life Cycles, Reproduction, and Heredity**

Students shall demonstrate and apply knowledge of life cycles, reproduction, and heredity using appropriate safety procedures, equipment, and technology.

Student Learning Expectation	FOSS	DSM
<p><b>Life Cycles</b></p> <p>LS.3.2.1 Illustrate embryonic development (e.g., chicken)</p> <p>LS.3.2.2 Compare and contrast embryonic development and <i>incomplete metamorphosis</i></p>	<p><b>Insects</b> Investigation 3, Parts 1-3, pp. 8-26; Investigation 6, Part 1, pp. 8-13 Science Stories, p. 21</p>	<p><b>Butterflies and Moths</b> Reader, p. 13</p>

**Strand 2: Life Science**

**Standard 4: Populations and Ecosystems**

Students shall demonstrate and apply knowledge of populations and ecosystems using appropriate safety procedures, equipment, and technology.

Student Learning Expectation	FOSS	DSM
<p>LS.4.2.1 Compare and contrast living and <i>extinct species</i></p> <p>LS.4.2.2 Describe characteristics of various <i>habitats</i></p>	<p><b>Pebbles, Sand, and Silt</b> Science Stories, pp. 26-31</p> <p><b>New Plants</b> Science Stories, pp. 22-39</p>	<p><b>Plant and Animal Populations</b> Reader, p. 15</p> <p><b>Plant and Animal Populations</b> Activity 3, pp. 35-41 Reader, pp. 2-3, 5-7 <b>Butterflies and Moths</b> Activity 4, pp. 39-45</p>

**Strand 3: Physical Science**

**Standard 5: Matter: Properties and Changes**

Students shall demonstrate and apply knowledge of *matter*, including properties and changes, using appropriate safety procedures, equipment, and technology

Student Learning Expectation	FOSS	DSM
<p><b>Physical Properties</b></p> <p>PS.5.2.1 Classify objects based on two or more properties</p> <p>PS.5.2.2 Investigate the effect of</p>	<p><b>Pebbles, Sand and Silt</b> Investigation 1, Parts 3-4, pp.18-25 <b>Solids and Liquids</b> Investigation 1, Part 2, pp. 17.20</p> <p><b>Solids and Liquid</b> Investigation 4, Part 1-2, pp. 7-</p>	<p><b>States of Matter</b> Activity 1-3, pp. 13-34 Reader, pp. 4-6 <b>Sink or Float</b> Activity 2-3, pp. 21-34 <b>Soil Science</b> Activity 4, 7, pp. 37-44, 59-67</p> <p><b>States of Matter</b> Activity 7, 11, pp. 57-63, 89-96</p>

physical phenomena on various materials (e.g., heat absorption by different colored materials)	22	<b>Soil Science</b> Activity 8, pp. 69-79
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**Strand 3: Physical Science**

**Standard 6: Motion and Forces**

Students shall demonstrate and apply knowledge of motion and forces using appropriate safety procedures, equipment, and technology

<b>Student Learning Expectation</b>	<b>FOSS</b>	<b>DSM</b>
<p><b>Motion and Forces</b></p> <p>PS.6.2.1 Investigate the relationship between <i>force</i> and motion</p>	<p><b>Balance and Motion</b> Investigation 2, Parts 1-3, pp. 8-25</p> <p><b>Air and Weather</b> Investigation 1, Parts 4-6, pp. 21-38 Investigation 3, Part 3, pp. 17-21</p>	<p><b>Force and Motion</b> Activity 1-12, pp. 13-117 Reader, pp. 2-11</p>

**Strand 3: Physical Science**

**Standard 7: Energy and Transfer of Energy**

Students shall demonstrate and apply knowledge of energy and transfer of energy using appropriate safety procedures, equipment, and technology

<b>Student Learning Expectation</b>	<b>FOSS</b>	<b>DSM</b>
<p><b>Light</b></p> <p>PS.7.2.1 Classify materials as <i>transparent</i>, <i>translucent</i>, or <i>opaque</i> (e.g., plastic wrap, wax paper, and aluminum foil)</p> <p><b>Heat</b></p> <p>PS.7.2.2 Compare <i>temperatures</i> using the Celsius scale</p> <p><b>Electricity</b></p> <p>PS.7.2.3 Demonstrate methods of using <i>electricity</i> to produce light, <i>heat</i>, and sound</p> <p><b>Magnetism</b></p> <p>none</p>	<p><b>Solids and Liquids</b> Investigation 1, Part 1, pp. 8-16 Science Stories, p. 12</p> <p><b>Air and Weather</b> Investigation 2, Part 2, pp. 14-19</p> <p><b>New Plants</b> Investigation 1, Part 2, pp. 13-22</p>	<p><b>States of Matter</b> Activity 6-7, pp. 51-65, 89-96</p> <p><b>Weather Watching</b> Activity 2-3, pp. 21-36</p>

**Strand 4: Earth and Space Science**

**Standard 8: Earth Systems: Structure and Properties**

Students shall demonstrate and apply knowledge of Earth's structure and properties using appropriate safety procedures, equipment, and technology.

Student Learning Expectation	FOSS	DSM
<p><b>Properties of the Earth</b></p> <p>ESS.8.2.1 Conduct investigations to distinguish among the following components of soil:</p> <ul style="list-style-type: none"> <li>• <i>clay</i></li> <li>• <i>sand</i></li> <li>• <i>silt</i></li> <li>• <i>humus</i></li> </ul> <p>ESS.8.2.2 Recognize and discuss the different properties of soil:</p> <ul style="list-style-type: none"> <li>• color</li> <li>• texture</li> <li>• ability to retain water</li> <li>• ability to support plant growth</li> </ul> <p>ESS.8.2.3 Conduct investigations to determine which soil best supports bean plant growth</p>	<p><b>Pebbles, Sand, and Silt</b> Investigation 4, Parts 1, 3, pp. 8-14, 19-25</p> <p><b>Pebbles, Sand and Silt</b> Investigation 4, Part 1, pp. 8-14</p> <p><b>Pebbles, Sand and Silt</b> Science Stories, pp. 24-25</p>	<p><b>Soil Science</b> Activity 1-4, pp. 15-44 Reader, pp. 2-3, 7</p> <p><b>Soil Science</b> Activity 1, 7, pp. 15-20, 59-67 Reader, pp. 7-8</p> <p><b>Soil Science</b> Activity 7-8, pp. 59-79</p>
<p><b>Natural Resources</b></p> <p>ESS.8.2.4 Identify products derived from <i>natural resources</i></p>	<p><b>New Plants</b> Science Stories, pp. 16-21</p> <p><b>Pebbles, Sand and Silt</b> Investigation 3, Parts 1-5, pp. 8-29</p> <p>Science Stories, pp. 16-19</p>	<p><b>Soil Science</b> Reader, pp. 10-12</p> <p><b>Classroom Plants</b> Activity 1, pp. 15-21 Reader, pp. 14-15</p>
<p><b>Weather</b></p> <p>ESS.8.2.5 Chart weather conditions every day</p> <p>ESS.8.2.6 Demonstrate safety procedures related to severe weather</p> <p>ESS.8.2.7 Describe characteristics of <i>cumulus</i>, <i>stratus</i>, and <i>cirrus</i></p>	<p><b>Air and Weather</b> Investigation 2, Part 1, pp. 8-13; Investigation 4, Part 1, pp. 8-11</p> <p>FOSS provides the opportunity to address this expectation. See below: <b>Air and Weather</b> Science Stories, pp. 16-17</p> <p><b>Air and Weather</b> Investigation 2, Part 3, pp. 20-23</p>	<p><b>Weather Watching</b> Activity 1, 3-6, pp. 13-19, 29-59</p> <p><b>Weather Watching</b> Activity 9-10, pp. 77-100</p> <p><b>Weather Watching</b> Activity 6, pp. 51-59</p>

clouds		
ESS.8.2.8 Predict weather based on cloud type		<b>Weather Watching</b> Activity 6, pp. 51-59
ESS.8.2.9 Read a Celsius <i>thermometer</i>	<b>Air and Weather</b> Investigation 2, Part 2, pp. 14-19	<b>Weather Watching</b> Activity 2-3, pp. 21-36 <b>States of Matter</b> Activity 6-7, 11, pp. 51-63, 89-96

**Strand 4: Earth and Space Science**

**Standard 9: Earth's History: Changes in Earth and Sky**

Students shall demonstrate and apply knowledge of Earth's history using appropriate safety procedures, equipment, and technology.

<b>Student Learning Expectation</b>	<b>FOSS</b>	<b>DSM</b>
None		

**Strand 4: Earth and Space Science**

**Standard 10: Objects in the Universe**

Students shall demonstrate and apply knowledge of objects in the universe using appropriate safety procedures, equipment, and technology.

<b>Student Learning Expectation</b>	<b>FOSS</b>	<b>DSM</b>
<b>Solar System</b>		
ESS.10.2.1 Illustrate four <i>moon phases</i> : <ul style="list-style-type: none"> <li>• full</li> <li>• half</li> <li>• crescent</li> <li>• new</li> </ul>	<b>Air and Weather</b> Investigation 4, Part 3, pp. 19-24	
ESS.10.2.2 Model the movement of Earth and its moon		
ESS.10.2.3 Contrast the visibility of the sun and moon	<b>Air and Weather</b> Investigation 4, Part 3, pp. 19-24	

## Grade Three

### Strand 1: Nature of Science

#### Standard 1: Characteristics and Processes of Science

Students shall demonstrate and apply knowledge of the characteristics and processes of science using appropriate safety procedures, equipment, and technology.

Student Learning Expectation	FOSS	DSM
<p><b>Inquiry and Process Skills</b></p> <p>NS.1.3.1 Communicate observations orally, in writing, and in graphic organizers:</p> <ul style="list-style-type: none"> <li>• T-charts</li> <li>• pictographs</li> <li>• Venn diagrams</li> <li>• bar graphs</li> <li>• frequency tables</li> </ul> <p>NS.1.3.2 Develop questions that guide scientific inquiry</p> <p>NS.1.3.3</p>	<p><b>Human Body</b> Investigation 4, Parts 1-3, pp. 8-24</p> <p><b>Magnetism and Electricity</b> Investigation 1 Part 3, pp. 23-29; Investigation 4, Part 2, pp. 14-18</p> <p><b>Structures of Life</b> Investigation 2, Part 3, pp. 18-22</p> <p><b>Water</b> Investigation 1, Part 3, pp. 19-23; Investigation 3, Parts 1-4, pp 8-26</p> <p><b>Measurement</b> Investigation 4, Part 2, pp. 14-17</p> <p><b>Earth Materials</b> Investigation 2, Parts 1-2, pp. 8-21</p> <p><b>Ideas and Inventions</b> Investigation 2, Parts 1-2, pp. 8-19</p> <p>FOSS provides opportunities for students to develop questions. See below:</p> <p><b>Magnetism and Electricity</b> Investigation 4, Parts 2-3, pp.14-22</p> <p><b>Water</b> Investigation 3, Parts 1-4, pp 8-26</p> <p><b>Human Body</b> Investigation 4, Parts 1-4, pp. 8-29</p> <p><b>Structures of Life</b> Investigation 4, Part 3, pp. 20-24</p> <p><b>Physics of Sound</b> Investigation 2, Parts 1-3, pp. 8-24</p> <p><b>Measurement</b> Investigation 2, Part 3, pp. 18-23</p>	<p><b>Force and Motion</b> Activity 1-5, pp. 13-55</p> <p><b>Sink or Float</b> Activity 7-12, pp. 61-107</p> <p><b>Plant and Animal Populations</b> Activity 8-11, pp. 77-110</p> <p><b>Weather Watching</b> Activity 1-3, pp. 13-36</p> <p><b>Dinosaurs and Fossils</b> Activity 6-7, pp. 47-60</p> <p><b>Weather Instruments</b> Activity 1,3,5-6 pp. 13-21, 31-36, 43-57</p> <p><b>Electric Circuits</b> Activity 6-7, pp. 51-62</p> <p>DSM provides opportunities for students to develop questions. See below:</p> <p><b>Plant and Animal Populations</b> Activity 9-11, pp. 85-110</p> <p><b>Classroom Plants</b> Activity 3-5, pp. 29-53</p> <p><b>Soil Science</b> Activity 7-8, 10-12, pp. 59-79, 91-114</p> <p><b>Force and Motion</b> Activity 4-5, pp. 41-55</p> <p><b>Water Cycle</b> Activity 5, 7, pp. 45-51, 62-67</p> <p><b>Electric Circuits</b> Activity 9-11, pp. 71-88</p> <p><b>Sound</b> Activity 9-11, pp. 73-98</p>

<p>Conduct <i>scientific investigations</i> individually and in teams:</p> <ul style="list-style-type: none"> <li>• <i>lab activities</i></li> <li>• <i>field studies</i></li> </ul>	<p><b>Magnetism and Electricity</b> Investigation 1, Part 3, pp. 23-29; Investigation 4, Parts 2-3, pp. 14-22</p> <p><b>Ideas and Inventions</b> Investigation 3, Parts 2-3, pp. 14-21</p> <p><b>Human Body</b> Investigation 4, Parts 1-3, pp. 8-24</p> <p><b>Water</b> Investigation 3, Parts 1-4, pp. 8-26; Investigation 4, Parts 1-3, pp. 8-23</p> <p><b>Physics of Sound</b> Investigation 2, Parts 1-3, pp. 8-24</p> <p><b>Measurements</b> Investigation 2, Part 3, pp. 18-24; Investigation 3, Part 3, pp. 18-21</p>	<p><b>Using Your Senses</b> Activity 8-12, pp. 67-103</p> <p><b>Plant and Animal Populations</b> Activity 9-11, pp.85-110</p> <p><b>Soil Science</b> Activity 10-12, pp. 91-114</p> <p><b>Force and Motion</b> Activity 4-5, pp. 41-55</p> <p><b>Sound</b> Activity 9-11, pp. 73-98</p> <p><b>Electric Circuits</b> Activity 6-7, pp. 51-62</p> <p><b>Food Chains and Webs</b> Activity 2-3, pp. 23-37</p>
<p>NS.1.3.4 Communicate the results of <i>scientific investigations</i> (e.g., age-appropriate graphs, charts, and writings)</p>	<p><b>Human Body</b> Investigation 4, Parts 1-3, pp. 8-24</p> <p><b>Magnetism and Electricity</b> Investigation 1 Part 3, pp. 23-29; Investigation 4, Part 2, pp. 14-18</p> <p><b>Structures of Life</b> Investigation 2, Part 3, pp. 18-22</p> <p><b>Water</b> Investigation 1, Part 3, pp. 19-23; Investigation 3, Parts 1-4, pp 8-26</p> <p><b>Measurement</b> Investigation 4, Part 2, pp. 14-17</p> <p><b>Earth Materials</b> Investigation 2, Parts 1-2, pp. 8-21</p> <p><b>Ideas and Inventions</b> Investigation 2, Parts 1-2, pp. 8-19</p>	<p><b>Weather Watching</b> Activity 1, 3-5, pp. 13-19, 29-50</p> <p><b>Plant and Animal Populations</b> Activity 8-11, pp. 77-110</p> <p><b>Using Your Senses</b> Activity 2, pp. 23-30</p> <p><b>Force and Motion</b> Activity 1-5, pp. 13-55</p> <p><b>Dinosaurs and Fossils</b> Activity 6-7, pp. 47-60</p> <p><b>Weather Instruments</b> Activity 6, pp. 51-57</p> <p><b>Electric Circuits</b> Activity 6-7, pp. 51-62</p>
<p>NS.1.3.5 Estimate and measure length, <i>mass</i>, <i>temperature</i>, and elapsed time using International System of Units (SI)</p>	<p><b>Measurement</b> Investigation 1, Parts 2-3, pp. 16-24; Investigation 2, Parts 2-3, pp. 14-24; Investigation 4, Parts 1-2, pp. 8-17</p> <p><b>Human Body</b> Investigation 4, Part 1, pp. 8-16</p> <p><b>Structures of Life</b> Investigation 2, Part 3, pp. 18-22</p> <p><b>Water</b></p>	<p><b>States of Matter</b> Activity 6-7, 11, pp. 51-63, 89-96</p> <p><b>Force and Motion</b> Activity 2, pp. 23-29</p> <p><b>Weather Watching</b> Activity 2-3, pp. 21-36</p> <p><b>Weather Instruments</b> Activity 1, pp. 13-21</p> <p><b>Solar System</b> Activity 5-8, pp. 43-72</p>

<p>NS.1.3.6 Collect and analyze measurable <i>empirical evidence</i> as a team and/or as individuals</p>	<p>Investigation 3, Part 2, pp. 12-16</p> <p><b>Magnetism and Electricity</b> Investigation 1, Part 3, pp. 23-29; Investigation 4, Parts 2-3, pp. 14-22</p> <p><b>Human Body</b> Investigation 4, Parts 1-3, pp. 8-24</p> <p><b>Water</b> Investigation 3, Part 2, pp. 12-16; Investigation 4, Part 1, pp. 8-13</p> <p><b>Structures of Life</b> Investigation 2, Part 3, pp. 18-24</p> <p><b>Measurement</b> Investigation 2, Part 3, pp. 18-24; Investigation 3, Part 3, PP. 18-21; Investigation 4, Part 2, pp. 14-17</p>	<p><b>Dinosaurs and Fossils</b> Activity 4, 6-7, pp. 35-40, 47-60</p> <p><b>Plant and Animal Populations</b> Activity 9-11, pp. 85-110</p> <p><b>Force and Motion</b> Activity 1-5, pp. 13-55</p> <p><b>States of Matter</b> Activity 7, 11, pp. 57-63, 89-96</p> <p><b>Dinosaurs and Fossils</b> Activity 4, 6-7, pp. 35-40, 47-60</p> <p><b>Food Chains and Webs</b> Activity 2-3, pp. 23-37</p>
<p>NS.1.3.7 Make and explain predictions based on prior knowledge</p>	<p>FOSS provides opportunities for students to address this expectation. See below:</p> <p><b>Physics of Sound</b> Investigation 2, Parts 1-3, pp. 8-24</p> <p><b>Human Body</b> Investigation 4, Parts 2-3, pp. 17-24</p> <p><b>Ideas and Investigations</b> Investigation 4, Parts 2-3, pp. 14-21</p> <p><b>Water</b> Investigation 3, Parts 1-4, pp. 8-26</p> <p><b>Magnetism and Electricity</b> Investigation 1, Parts 3-4, pp. 23-34</p>	<p><b>States of Matter</b> Activity 4, pp. 35-40</p> <p><b>Sink or Float</b> Activity 5-10, pp. 43-88</p> <p><b>Plant and Animal Populations</b> Activity 10-11, pp. 95-110</p> <p><b>Dinosaurs and Fossils</b> Activity 3, pp. 29-34</p> <p><b>Water Cycles</b> Activity 5, pp. 45-51</p> <p><b>Magnets</b> Activity 2-4, pp. 9-34</p> <p><b>Plant and Animal Life Cycles</b> Activity 2, 12, pp. 23-32, 105-113</p>
<p><b>Scientific Equipment and Technology</b></p> <p>NS.1.3.8 Use simple equipment, age appropriate tools, technology, and mathematics in <i>scientific investigations</i> (e.g., balances, hand lenses, microscopes, rulers, <i>thermometers</i>, calculators, computers)</p>	<p><b>Measurement</b> Investigation 1, Parts 2-3, pp. 16-24; Investigation 2, Parts 2-3, pp. 14-24; Investigation 3, Parts 2-3, pp. 14-21; Investigation 4, Parts 1-3, pp. 8-21</p> <p><b>Water</b> Investigation 3, Parts 1-4, pp. 8-26; Investigation 4, Parts 1-2, pp. 8-18</p> <p><b>Structures of Life</b></p>	<p><b>States of Matter</b> Activity 6-7, 11, pp. 51-63, 89-96</p> <p><b>Weather Watching</b> Activity 2-5, pp. 21-50</p> <p><b>Using Your Senses</b> Activity 2, pp. 23-30</p> <p><b>Solar System</b> Activity 5-8, pp. 43-72</p> <p><b>Dinosaurs and Fossils</b> Activity 4, 6-7, pp. 35-40, 47-60</p>

<p>NS.1.3.9 Apply lab safety rules as they relate to specific science <i>lab activities</i> (see Arkansas Lab Safety Guide)</p>	<p>Investigation 2, Part 3, pp. 18-22 <b>Magnetism and Electricity</b> Investigation 1, Part 3, pp. 23-30; Investigation 2, Parts 1-2, pp. 8-19; Investigation 4, Parts 1-3, pp 8-22 <b>Earth Materials</b> Investigation 2, Part 2, pp. 14-21</p> <p>See for example: <b>Magnetism and Electricity</b> Investigation 2, pp. 9, 10; Investigation 4, p. 21 <b>Water</b> Investigation 4, p. 21 <b>Earth Materials</b> Investigation 1, pp. 18, 19 <b>Structures of Life</b> Investigation 2, p. 16</p>	<p><b>Food Chains and Webs</b> Activity 1-9, pp. 15-79 <b>Weather Instruments</b> Activity 1-5, pp. 13-50</p> <p><b>States of Matter</b> Activity 10, p. 10 <b>Force and Motion</b> Activity 1, 11, pp. 17, 105 <b>You and Yours Senses</b> Activity 2, p. 25 <b>Electric Circuits</b> Activity 1, 11, pp. 15, 87 <b>Solar System</b> Activity 6, p. 55 <b>Earth Movements</b> Activity 4, p. 43 <b>Magnets</b> Activity 9, p. 61</p>
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**Strand 2: Life Science**

**Standard 2: Living Systems: Characteristics, Structure, and Function**

Students shall demonstrate and apply knowledge of living systems using appropriate safety procedures, equipment, and technology

Student Learning Expectation	FOSS	DSM
<p><b>Characteristics</b></p> <p>LS.2.3.1 Classify animals as vertebrates and <i>invertebrates</i> according to their structure</p> <p><b>Structure and Function</b></p> <p>LS.2.3.2 Identify major parts and functions of the following systems:</p> <ul style="list-style-type: none"> <li>• respiratory</li> <li>• muscular</li> </ul>	<p><b>Human Body</b> Science Stories, pp. 1-4, 11 <b>Structures of Life</b> Science Stories 17, 41</p> <p><b>Human Body</b> Investigation 3, Parts 1-3, pp. 8-21 Science Stories, pp. 4-16</p>	

**Strand 2: Life Science**

**Standard 3: Life Cycles, Reproduction, and Heredity**

Students shall demonstrate and apply knowledge of life cycles, reproduction, and heredity using appropriate safety procedures, equipment, and technology.

Student Learning Expectation	FOSS	DSM
<p><b>Life Cycles</b></p> <p>LS.3.3.3 Differentiate among <i>complete metamorphosis</i>, <i>incomplete metamorphosis</i>, and <i>embryonic development</i></p>	<p><b>Structures of Life</b> Science Stories, pp. 20-21</p>	<p><b>Plant and Animal Life Cycles</b> Activity 2-3, 5, 9-10, pp. 23-41, 49-56, 83-96 Reader, pp. 2-3, 7-12</p>

**Strand 2: Life Science**

**Standard 4: Populations and Ecosystems**

Students shall demonstrate and apply knowledge of populations and ecosystems using appropriate safety procedures, equipment, and technology.

Student Learning Expectation	FOSS	DSM
None		

**Strand 3: Physical Science**

**Standard 5: Matter: Properties and Changes**

Students shall demonstrate and apply knowledge of *matter*, including properties and changes, using appropriate safety procedures, equipment, and technology

Student Learning Expectation	FOSS	DSM
<p><b>Physical Properties</b></p> <p>PS.5.3.1 Compare and contrast objects based on two or more properties</p> <p>PS.5.3.2 Demonstrate physical changes in <i>matter</i></p>	<p><b>Earth Materials</b> Investigation 1, Parts 1-2, pp. 8-21</p> <p><b>Ideas and Inventions</b> Investigation 2, Parts 1-2, pp. 8-19</p> <p><b>Water</b> Investigation 2, Part 3, pp. 19-24; Investigation 3, Parts 1-4, pp. 8-26</p> <p><b>Magnetism and Electricity</b> Investigation 2, Part 1, pp. 8-13</p> <p><b>Ideas and Inventions</b> Investigation 3, Parts 1-3, pp. 8-21</p>	<p><b>States of Matter</b> Activity 1-3, pp. 13-34 Reader, pp. 4-6</p> <p><b>Sink or Float</b> Activity 2-3, pp. 21-34</p> <p><b>Electric Circuits</b> Activity 6-7, pp. 51-62</p> <p><b>Magnets</b> Activity 11, pp. 71-76</p> <p><b>States of Matter</b> Activity 8-12, pp. 65-101 Reader, pp. 7-11</p> <p><b>Soil Science</b> Activity 5-6, pp.45-58 Reader, pp. 4-6</p> <p><b>Water Cycle</b> Activity 4-5, 8-9, 11-13, pp. 39-44, 69-83, 91-114 Reader, pp. 8-11</p> <p><b>Weather Instruments</b> Activity 9, pp. 75-80</p>

<p>PS.5.3.3 Determine the <i>mass</i> of solids</p> <p><b>States of Matter</b></p> <p>PS.5.3.4 Compare and contrast solids and liquids</p>	<p><b>Measurement</b> Investigation 2, Parts 2-3, pp. 14-24</p> <p><b>Water</b> Investigation 1, Part 1, pp. 8-13; Investigation 2, Part 3, pp. 19-24</p>	<p><b>States of Matter</b> Activity 1-2, p. 13-25 Reader, pp. 4-5</p> <p><b>Water Cycle</b> Reader, pp. 8-9</p>
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**Strand 3: Physical Science**

**Standard 6: Motion and Forces**

Students shall demonstrate and apply knowledge of motion and forces using appropriate safety procedures, equipment, and technology

Student Learning Expectation	FOSS	DSM
<p><b>Motion and Forces</b></p> <p>PS.6.3.1 Identify characteristics of wave motion:</p> <ul style="list-style-type: none"> <li>• <i>amplitude</i></li> <li>• <i>frequency</i></li> </ul> <p>PS.6.3.2 Investigate the relationship between sound and wave motion</p> <p>PS.6.3.3 Determine the impact of the following <i>variables</i> on pitch:</p> <ul style="list-style-type: none"> <li>• length</li> <li>• <i>mass</i></li> <li>• tension</li> <li>• state of <i>matter</i></li> </ul>	<p><b>Physics of Sound</b> Science Stories, pp. 17-18</p> <p><b>Physics of Sound</b> Science Stories, pp. 17-21</p> <p><b>Physics of Sound</b> Investigation 2, Parts 1-3, pp. 8-24 Science Stories, pp. 11-16</p>	<p><b>Sound</b> Reader, pp. 2-3, 6-7</p> <p><b>Sound</b> Reader, pp. 2-3, 6-7</p> <p><b>Sound</b> Activity 8-11, pp. 67-98 Reader, p. 7</p>

**Strand 3: Physical Science**

**Standard 7: Energy and Transfer of Energy**

Students shall demonstrate and apply knowledge of energy and transfer of energy using appropriate safety procedures, equipment, and technology

Student Learning Expectation	FOSS	DSM
<p><b>Light</b></p> <p>PS.7.3.1 Classify materials as those which can <i>reflect</i>, <i>refract</i>, or absorb light</p> <p><b>Heat</b></p>	<p><b>Ideas and Inventions</b> Investigation 4, Part 1, pp. 8-13 Science Stories, pp. 23-32</p>	



<p>ESS.8.3.2 Classify rocks by their properties, including but not limited to</p> <ul style="list-style-type: none"> <li>• size</li> <li>• shape</li> <li>• color</li> <li>• texture</li> <li>• patterns</li> </ul> <p>ESS.8.3.3 Identify the three categories of rocks:</p> <ul style="list-style-type: none"> <li>• <i>metamorphic</i></li> <li>• <i>igneous</i></li> <li>• <i>sedimentary</i></li> </ul> <p>ESS.8.3.4 Identify the <i>physical properties</i> of minerals:</p> <ul style="list-style-type: none"> <li>• hardness</li> <li>• color</li> <li>• luster</li> <li>• streak</li> </ul> <p>ESS.8.3.5 Identify areas in Arkansas that are the main sources of the following minerals:</p> <ul style="list-style-type: none"> <li>• bauxite</li> <li>• novaculite</li> <li>• quartz crystal</li> <li>• diamond</li> <li>• bromine</li> </ul> <p>ESS.8.3.6 Describe the layers of Earth:</p> <ul style="list-style-type: none"> <li>• crust</li> <li>• mantle</li> <li>• inner core</li> <li>• outer core</li> </ul> <p><b>Natural Resources</b></p> <p>ESS.8.3.7 Identify common uses of rocks and minerals</p> <p><b>Weather</b></p> <p>ESS.8.3.8</p>	<p>FOSS Web: Pictures</p> <p><b>Earth Materials</b> Investigation 3, Parts 1-2, pp. 8-19 FOSS Web, Activity: Rock Database</p> <p><b>Earth Materials</b> Science Stories, pp. 34-37 FOSS Web, Activity: Rock Database</p> <p><b>Earth Materials</b> Investigation 2, Parts 1-2, pp. 8-21; Investigation 4, Part 1, pp. 8-13 Science Stories, pp. 30-33 FOSS Web, Activity: Moh's Drill</p> <p>Local Objective</p> <p><b>Earth Materials</b> Investigation 3, Science Extension, p. 24 Science Stories, pp. 12-13, 24-29, 33</p>	<p>Reader, pp. 4-5</p> <p><b>Earth Movements</b> Activity 3, pp. 29-27 Activity 3, Science Challenge, p. 37</p> <p><b>Earth Movements</b> Reader, p. 15</p> <p>Local Objective</p> <p><b>Earth Movements</b> Activity 1-2, pp. 13-27 Reader, pp. 2-3</p> <p><b>Weather Instruments</b></p>
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<p>Chart <i>precipitation</i> levels over time</p> <p>ESS.8.3.9 Demonstrate safety procedures related to severe weather</p> <p>ESS.8.3.10 Construct and read a rain gauge</p>		<p>Activity 11, p. 89-96</p> <p><b>Weather Watching</b> Activity 9-10, pp. 77-100</p> <p><b>Weather Instruments</b> Activity 12, Science and Health, p. 101</p> <p><b>Weather Instruments</b> Activity 11, p. 89-96</p>
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**Strand 4: Earth and Space Science**

**Standard 9: Earth's History: Changes in Earth and Sky**

Students shall demonstrate and apply knowledge of Earth's history using appropriate safety procedures, equipment, and technology.

<b>Student Learning Expectation</b>	<b>FOSS</b>	<b>DSM</b>
<p>ESS.9.3.1 Analyze the effect of wind and water on Earth's surface</p>	<p><b>Earth Materials</b> Science Stories, pp. 5-7</p>	<p><b>Soil Science</b> Activity 6, 10, 12, pp. 51-58, 91-97, 107-114</p> <p><b>Earth Movements</b> Reader, pp. 4-5, 12-13</p>

**Strand 4: Earth and Space Science**

**Standard 10: Objects in the Universe**

Students shall demonstrate and apply knowledge of objects in the universe using appropriate safety procedures, equipment, and technology.

<b>Student Learning Expectation</b>	<b>FOSS</b>	<b>DSM</b>
<p><b>Solar System</b></p> <p>ESS.10.3.1 Demonstrate how the planets <i>orbit</i> the sun</p> <p>ESS.10.3.2 Demonstrate the <i>orbit</i> of Earth and its moon around the sun</p> <p>ESS.10.3.3 Relate Earth's rotation to the day/night cycle</p>	<p><b>Ideas and Inventions</b> Science Stories, p. 37</p>	<p><b>Solar System</b> Activity 1, 8, pp. 13-20, 65-72 Reader, p. 2</p> <p><b>Solar System</b> Activity 2, pp. 21-26 Reader, p. 3</p> <p><b>Solar System</b> Activity 9, pp. 73-71 Reader, p. 6</p>

## Grade Four

### Strand 1: Nature of Science

#### Standard 1: Characteristics and Processes of Science

Students shall demonstrate and apply knowledge of the characteristics and processes of science using appropriate safety procedures, equipment, and technology.

Student Learning Expectation	FOSS	DSM
<p><b>Inquiry and Process Skills</b></p> <p>NS.1.4.1 Communicate observations orally, in writing, and in graphic organizers:</p> <ul style="list-style-type: none"> <li>• T-charts</li> <li>• pictographs</li> <li>• Venn diagrams</li> <li>• bar graphs</li> <li>• frequency tables</li> <li>• line graphs</li> </ul> <p>NS.1.4.2 Refine questions that guide scientific inquiry</p> <p>NS.1.4.3</p>	<p><b>Human Body</b> Investigation 4, Parts 1-3, pp. 8-24</p> <p><b>Magnetism and Electricity</b> Investigation 1 Part 3, pp. 23-29; Investigation 4, Part 2, pp. 14-18</p> <p><b>Structures of Life</b> Investigation 2, Part 3, pp. 18-22</p> <p><b>Water</b> Investigation 1, Part 3, pp. 19-23; Investigation 3, Parts 1-4, pp 8-26</p> <p><b>Measurement</b> Investigation 4, Part 2, pp. 14-17</p> <p><b>Earth Materials</b> Investigation 2, Parts 1-2, pp. 8-21</p> <p><b>Ideas and Inventions</b> Investigation 2, Parts 1-2, pp. 8-19</p> <p>FOSS provides opportunities for students to develop questions. See below:</p> <p><b>Magnetism and Electricity</b> Investigation 4, Parts 2-3, pp.14-22</p> <p><b>Water</b> Investigation 3, Parts 1-4, pp 8-26</p> <p><b>Human Body</b> Investigation 4, Parts 1-4, pp. 8-29</p> <p><b>Structures of Life</b> Investigation 4, Part 3, pp. 20-24</p> <p><b>Physics of Sound</b> Investigation 2, Parts 1-3, pp. 8-24</p> <p><b>Measurement</b> Investigation 2, Part 3, pp. 18-23</p>	<p><b>Dinosaurs and Fossils</b> Activity 6-7, pp. 47-60</p> <p><b>Weather Instruments</b> Activity 1, 3, 5-6, pp. 13-21, 31-36, 43-57</p> <p><b>Electrical Circuits</b> Activity 6-7, pp. 51-62</p> <p><b>Magnets</b> Activity 1-3, 11, pp. 13-28, 71-76</p> <p><b>Water Cycle</b> Activity 2-4, pp. 23-44</p> <p><b>Food Chains and Webs</b> Activity 1-3, pp. 15-37</p> <p>DSM provides opportunities for students to develop questions. See below:</p> <p><b>Sound</b> Activity 9-11, pp. 73-98</p> <p><b>Electrical Circuits</b> Activity 9-11, pp. 71-88</p> <p><b>Water Cycle</b> Activity 5, 7, pp. 45-51, 61-67</p> <p><b>Food Chains and Webs</b> Activity 2-3, pp. 23-37</p> <p><b>Weather Instruments</b> Activity 7, pp. 59-66</p> <p><b>Plant and Animal Life Cycles</b> Activity 7-8, pp. 65-82</p>

<p>Conduct <i>scientific investigations</i> individually and in teams:</p> <ul style="list-style-type: none"> <li>• <i>lab activities</i></li> <li>• <i>field studies</i></li> </ul>	<p><b>Magnetism and Electricity</b> Investigation 1, Part 3, pp. 23-29; Investigation 4, Parts 2-3, pp. 14-22</p> <p><b>Ideas and Inventions</b> Investigation 3, Parts 2-3, pp. 14-21</p> <p><b>Human Body</b> Investigation 4, Parts 1-3, pp. 8-24</p> <p><b>Water</b> Investigation 3, Parts 1-4, pp. 8-26; Investigation 4, Parts 1-3, pp. 8-23</p> <p><b>Physics of Sound</b> Investigation 2, Parts 1-3, pp. 8-24</p> <p><b>Measurements</b> Investigation 2, Part 3, pp. 18-24; Investigation 3, Part 3, pp. 18-21</p>	<p><b>Food Chains and Webs</b> Activity 2-3, pp. 23-37</p> <p><b>Electrical Circuits</b> Activity 6-7, pp. 51-62</p> <p><b>Sound</b> Activity 9-11, pp. 73-98</p> <p><b>Water Cycle</b> Activity 5, pp. 45-51</p> <p><b>Magnets</b> Activity 3-4, pp. 25-34</p> <p><b>Plant and Animal Life Cycles</b> Activity 7-8, pp. 65-82</p>
<p>NS.1.4.5 Communicate the designs, procedures, and results of <i>scientific investigations</i> (e.g., age-appropriate graphs, charts, and writings)</p>	<p><b>Human Body</b> Investigation 4, Parts 1-3, pp. 8-24</p> <p><b>Magnetism and Electricity</b> Investigation 1 Part 3, pp. 23-29; Investigation 4, Part 2, pp. 14-18</p> <p><b>Structures of Life</b> Investigation 2, Part 3, pp. 18-22</p> <p><b>Water</b> Investigation 1, Part 3, pp. 19-23; Investigation 3, Parts 1-4, pp. 8-26</p> <p><b>Measurement</b> Investigation 4, Part 2, pp. 14-17</p> <p><b>Earth Materials</b> Investigation 2, Parts 1-2, pp. 8-21</p> <p><b>Ideas and Inventions</b> Investigation 2, Parts 1-2, pp. 8-19</p>	<p><b>Electrical Circuits</b> Activity 6-7, pp. 51-62</p> <p><b>Weather Instruments</b> Activity 6, pp. 51-57</p> <p><b>Dinosaurs and Fossils</b> Activity 6-7, pp. 47-60</p> <p><b>Water Cycle</b> Activity 2-4, pp. 23-44</p> <p><b>Food Chains and Webs</b> Activity 1-3, pp. 15-37</p> <p><b>Magnets</b> Activity 1-3, 11, pp. 13-28, 71-76</p>
<p>NS.1.4.6 Estimate and measure length, <i>mass</i>, <i>temperature</i>, capacity/volume, and elapsed time using International System of Units (SI)</p>	<p><b>Measurement</b> Investigation 1, Parts 2-3, pp. 16-24; Investigation 2, Parts 2-3, pp. 14-24; Investigation 3, Parts 2-3, pp. 14-21 Investigation 4, Parts 1-2, pp. 8-17</p> <p><b>Human Body</b> Investigation 4, Part 1, pp. 8-16</p> <p><b>Structures of Life</b> Investigation 2, Part 3, pp. 18-</p>	<p><b>Weather Instruments</b> Activity 1, pp. 13-21</p> <p><b>Solar System</b> Activity 5-8, pp. 43-72</p> <p><b>Dinosaurs and Fossils</b> Activity 4, 6-7, pp. 35-40, 47-60</p> <p><b>Food Chains and Webs</b> Activity 2-3, pp. 23-37</p> <p><b>Water Cycle</b> Activity 4, pp. 39-44</p> <p><b>Plant and Animal Life Cycles</b></p>

<p>NS.1.4.7 Collect and interpret measurable <i>empirical evidence</i> in teams and as individuals</p>	<p>22 <b>Water</b> Investigation 3, Part 2, pp. 12-16</p> <p><b>Magnetism and Electricity</b> Investigation 1, Part 3, pp. 23-29; Investigation 4, Parts 2-3, pp. 14-22</p> <p><b>Human Body</b> Investigation 4, Parts 1-3, pp. 8-24</p> <p><b>Water</b> Investigation 3, Part 2, pp. 12-16; Investigation 4, Part 1, pp. 8-13</p> <p><b>Structures of Life</b> Investigation 2, Part 3, pp. 18-24</p> <p><b>Measurement</b> Investigation 2, Part 3, pp. 18-24; Investigation 3, Part 3, PP. 18-21; Investigation 4, Part 2, pp. 14-17</p>	<p>Activity 6, pp. 57-63</p> <p><b>Food Chains and Webs</b> Activity 2-3, pp. 23-37</p> <p><b>Weather Instruments</b> Activity 1-6, pp. 13-57</p> <p><b>Dinosaurs and Fossils</b> Activity 4, 6-7, pp. 35-40, 47-60</p> <p><b>Magnets</b> Activity 4, 11, pp. 29-34, 71-76</p> <p><b>Electrical Circuits</b> Activity 6-7, pp. 51-62</p> <p><b>Water Cycle</b> Activity 5, pp. 45-51</p>
<p>NS.1.4.8 Develop a <i>hypothesis</i> based on prior knowledge and observations</p>	<p>FOSS provides the opportunity to address this expectation. See examples below:</p> <p><b>Physics of Sound</b> Investigation 2, Parts 1-3, pp. 8-24</p> <p><b>Human Body</b> Investigation 4, Parts 2-3, pp. 17-24</p> <p><b>Ideas and Investigations</b> Investigation 4, Parts 2-3, pp. 14-21</p> <p><b>Water</b> Investigation 3, Parts 1-4, pp. 8-26</p> <p><b>Magnetism and Electricity</b> Investigation 1, Parts 3-4, pp. 23-34</p>	<p>DSM provides opportunities for students to address this expectation. See below:</p> <p><b>Magnets</b> Activity 1-3, 11, pp. 13-28, 71-76</p> <p><b>Sound</b> Activity 9-11, pp. 73-98</p> <p><b>Electrical Circuits</b> Activity 6-7, pp. 51-62</p> <p><b>Food Chains and Webs</b> Activity 2-3, pp. 23-37</p> <p><b>Dinosaurs and Fossils</b> Activity 8, pp. 61-66</p>
<p>NS.1.4.9 Identify <i>variables</i> that affect investigations</p>	<p>FOSS provides the opportunity to address this expectation. See examples below:</p> <p><b>Magnetism and Electricity</b> Investigation 4, Parts 2-3, pp. 14-22</p> <p><b>Water</b> Investigation 3, Part 2, pp. 12-16</p> <p><b>Human Body</b> Investigation 4, Parts 2-3, pp. 17-24</p>	<p>DSM provides opportunities for students to address this expectation. See below:</p> <p><b>Food Chains and Webs</b> Activity 2-3, pp. 23-37</p> <p><b>Electrical Circuits</b> Activity 6-7, pp. 51-62</p> <p><b>Sound</b> Activity 9-11, pp. 73-98</p> <p><b>Magnets</b> Activity 11, pp. 71-76</p>
<p>NS.1.4.10 Identify patterns and trends in</p>	<p><b>Magnetism and Electricity</b></p>	<p><b>Dinosaurs and Fossils</b></p>

<p>data</p> <p>NS.1.4.11 Generate conclusions based on evidence</p>	<p>Investigation 1, Part 3, pp. 23-29; Investigation 4, Part 2, pp. 14-18</p> <p><b>Measurement</b> Investigation 4, Part 2, pp. 14-17</p> <p><b>Human Body</b> Investigation 4, Part 2, pp. 17-19</p> <p><b>Water</b> Investigation 3, Part 2, pp. 12-16</p> <p><b>Magnetism and Electricity</b> Investigation 1, Part 3, pp. 23-29; Investigation 4, Parts 2-3, pp. 14-22</p> <p><b>Ideas and Inventions</b> Investigation 3, Parts 2-3, pp. 14-21</p> <p><b>Human Body</b> Investigation 4, Parts 1-3, pp. 8-24</p> <p><b>Water</b> Investigation 3, Parts 1-4, pp. 8-26; Investigation 4, Parts 1-3, pp. 8-23</p> <p><b>Physics of Sound</b> Investigation 2, Parts 1-3, pp. 8-24</p> <p><b>Measurements</b> Investigation 2, Part 3, pp. 18-24; Investigation 3, Part 3, pp. 18-21</p>	<p>Activity 6-7, pp. 47-60</p> <p><b>Magnets</b> Activity 11, pp. 71-76</p> <p><b>Weather Instruments</b> Activity 3, 6, pp. 31-36, 51-57</p> <p><b>Solar System</b> Activity 6, 8, pp. 51-58, 65-72</p> <p><b>Earth Movements</b> Activity 12, pp. 105-110</p>
<p>NS.1.4.12 Evaluate the quality and feasibility of an idea or project</p> <p><b>Scientific Equipment and Technology</b></p>	<p>FOSS provides the opportunity to teach this expectation. See examples below:</p> <p><b>Physics of Sound</b> Investigation 4, Parts 1-2, pp. 6-20</p> <p><b>Ideas and Inventions</b> Investigation 4, Part 4, pp. 22-25</p> <p><b>Human Body</b> Investigation 4, Part 4, pp. 25-29</p> <p><b>Water</b> Investigation 4, Part 2, pp. 14-18</p> <p><b>Magnetism and Electricity</b> Investigation 4, Part 3, pp. 19-22</p> <p><b>Measurement</b> Investigation 2, Part 4, pp. 18-24</p>	<p>DSM provides opportunities for students to address this expectation. See below:</p> <p><b>Food Chains and Webs</b> Activity 2-3, pp. 23-37</p> <p><b>Electrical Circuits</b> Activity 6-7, pp. 51-62</p> <p><b>Sound</b> Activity 9-11, pp. 73-98</p> <p><b>Water Cycle</b> Activity 5, pp. 45-51</p> <p><b>Magnets</b> Activity 3-4, pp. 25-34</p> <p><b>Plant and Animal Life Cycles</b> Activity 7-8, pp. 65-82</p>

<p>NS.1.4.13 Use simple equipment, age appropriate tools, technology, and mathematics in <i>scientific investigations</i> (e.g., balances, hand lenses, microscopes, rulers, <i>thermometers</i>, calculators, computers)</p>	<p><b>Measurement</b> Investigation 1, Parts 2-3, pp. 16-24; Investigation 2, Parts 2-3, pp. 14-24; Investigation 3, Parts 2-3, pp. 14-21; Investigation 4, Parts 1-3, pp. 8-21</p> <p><b>Water</b> Investigation 3, Parts 1-4, pp. 8-26; Investigation 4, Parts 1-2, pp. 8-18</p> <p><b>Structures of Life</b> Investigation 2, Part 3, pp. 18-22</p> <p><b>Magnetism and Electricity</b> Investigation 1, Part 3, pp. 23-30; Investigation 2, Parts 1-2, pp. 8-19; Investigation 4, Parts 1-3, pp. 8-22</p> <p><b>Earth Materials</b> Investigation 2, Part 2, pp. 14-21</p>	<p><b>Weather Instruments</b> Activity 1-5, pp. 13-50</p> <p><b>Food Chains and Webs</b> Activity 1-9, pp. 15-79</p> <p><b>Dinosaurs and Fossils</b> Activity 4, 6-7, pp. 35-40, 47-60</p> <p><b>Solar System</b> Activity 5-8, pp. 43-72</p> <p><b>Water Cycle</b> Activity 4, pp. 39-44</p> <p><b>Plant and Animal Life Cycles</b> Activity 6, pp. 57-63</p>
<p>NS.1.4.14 Apply lab safety rules as they relate to specific science <i>lab activities</i> (see Arkansas Lab Safety Guide)</p>	<p><b>Magnetism and Electricity</b> Investigation 2, pp. 9, 10; Investigation 4, p. 21</p> <p><b>Water</b> Investigation 4, p. 21</p> <p><b>Earth Materials</b> Investigation 1, pp. 18, 19</p> <p><b>Structures of Life</b> Investigation 2, p. 16</p>	<p><b>Magnets</b> Activity 9, p. 61</p> <p><b>Earth Movements</b> Activity 4, p. 43</p> <p><b>Solar System</b> Activity 6, p. 55</p> <p><b>Electrical Circuits</b> Activity 1, p. 15 Activity 11, p. 87</p>

**Strand 2: Life Science**

**Standard 2: Living Systems: Characteristics, Structure, and Function**

Students shall demonstrate and apply knowledge of living systems using appropriate safety procedures, equipment, and technology

Student Learning Expectation	FOSS	DSM
<p><b>Characteristics</b></p> <p>LS.2.4.1 Classify <i>vertebrates</i> into major subgroups:</p> <ul style="list-style-type: none"> <li>• mammals</li> <li>• birds</li> <li>• fish</li> <li>• amphibians</li> <li>• reptiles</li> </ul> <p>LS.2.4.2 Classify some <i>invertebrates</i> according to their structure:</p>	<p><b>Structures of Life</b> Investigation 3, Part 1, pp. 8-15; Investigation 4, Parts 1-2,</p>	<p><b>Plant and Animal Life Cycles</b> Reader, pp. 7-12</p>

<ul style="list-style-type: none"> <li>• mollusks</li> <li>• segmented worms</li> <li>• arthropods</li> </ul> <p><b>Structure and Function</b></p> <p>LS.2.4.3 Identify major parts and functions of the following systems:</p> <ul style="list-style-type: none"> <li>• digestive</li> <li>• circulatory</li> <li>• nervous</li> </ul>	<p>pp. 8-19; Science Stories, pp. 17-18, 39, 41-42</p> <p><b>Human Body</b> Science Stories, p. 11</p> <p><b>Human Body</b> Science Stories, pp. 28-29</p>	
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**Strand 2: Life Science**

**Standard 3: Life Cycles, Reproduction, and Heredity**

Students shall demonstrate and apply knowledge of life cycles, reproduction, and heredity using appropriate safety procedures, equipment, and technology.

<b>Student Learning Expectation</b>	<b>FOSS</b>	<b>DSM</b>
<p><b>Life Cycles</b></p> <p>none</p>		

**Strand 2: Life Science**

**Standard 4: Populations and Ecosystems**

Students shall demonstrate and apply knowledge of populations and ecosystems using appropriate safety procedures, equipment, and technology.

<b>Student Learning Expectation</b>	<b>FOSS</b>	<b>DSM</b>
<p>LS.4.4.1 Recognize <i>environmental adaptations</i> of plants and animals</p>	<p><b>Structures of Life</b> Investigation 3, Part 1, pp. 8-15; Investigation 4, Parts 1-2, pp. 8-19; Science Stories, pp. 17-18, 22-34, 39</p>	<p><b>Food Chains and Webs</b> Activity 4-6, pp. 39-58 Reader, pp. 4-5</p> <p><b>Plant and Animal Life Cycles</b> Activity 4, pp. 43-48 Reader, pp. 5, 15</p> <p><b>Dinosaurs and Fossils</b> Activity 8, pp. 61-66 Reader, pp. 6-11</p>
<p>LS.4.4.2 Illustrate the interdependence of organisms in an <i>ecosystem</i></p>	<p><b>Structure of Life</b> Science Stories, pp. 22-34, 37, 43</p> <p><b>Water</b> Science Stories, pp. 5-7</p>	<p><b>Food Chains and Webs</b> Activity 7-12, pp. 59-101 Reader, pp. 2-9</p>

**Strand 3: Physical Science**

**Standard 5: Matter: Properties and Changes**

Students shall demonstrate and apply knowledge of *matter*, including properties and changes, using appropriate safety procedures, equipment, and technology

Student Learning Expectation	FOSS	DSM
<p><b>Physical Properties</b></p> <p>PS.5.4.1 Demonstrate multiple ways to classify objects</p> <p>PS.5.4.2 Demonstrate <i>chemical changes</i> in <i>matter</i></p> <p><b>States of Matter</b></p> <p>PS.5.4.3 Compare and contrast gases to solids and liquids</p>	<p><b>Earth Materials</b> Investigation 2, Parts 1-2, pp. 8-21</p> <p><b>Ideas and Inventions</b> Investigation 2, Part 1, pp. 8-15</p> <p><b>Earth Materials</b> Investigation 3, Part 1, pp. 8-14</p> <p><b>Water</b> Investigation 1, Part 1, pp. 8-23; Investigation 2, Part 3, pp. 19-24, Investigation 3, Part 1-4, pp. 8-26</p>	<p><b>Electrical Circuits</b> Activity 6-7, pp. 51-62</p> <p><b>Dinosaurs and Fossils</b> Activity 9, pp. 67-73</p> <p><b>Water Cycle</b> Reader, pp. 8-11</p> <p><b>Weather Instruments</b> Reader, pp. 6-9</p>

**Strand 3: Physical Science**

**Standard 6: Motion and Forces**

Students shall demonstrate and apply knowledge of motion and forces using appropriate safety procedures, equipment, and technology

Student Learning Expectation	FOSS	DSM
<p><b>Motion and Forces</b></p> <p>PS.6.4.1 Investigate the relationship between force and direction</p> <p>PS.6.4.2 Investigate the relationship between <i>force</i> and <i>mass</i></p>	<p><b>Water</b> Investigation 4, Part 2, pp. 14-18</p> <p><b>Magnetism and Electricity</b> Investigation 1, Part 1, pp. 8-17; Investigation 1, Part 3, pp. 23-29</p> <p><b>Measurement</b> Investigation 2, Parts 2-3, pp. 14-24</p> <p><b>Structures of Life</b> Investigation 4, Part 3, pp. 20-24</p> <p><b>Magnetism and Electricity</b> Investigation 1, Part 3, pp. 23-29</p> <p><b>Measurement</b> Investigation 2, Parts 2-3, pp.</p>	<p><b>Magnets</b> Activity 2-6, pp. 19-45</p>

**Strand 3: Physical Science**

**Standard 7: Energy and Transfer of Energy**

Students shall demonstrate and apply knowledge of energy and transfer of energy using appropriate safety procedures, equipment, and technology

Student Learning Expectation	FOSS	DSM
<p><b>Light</b></p> <p>none</p> <p><b>Heat</b></p> <p>PS.7.4.1 Interpret trends in <i>temperature</i> over time using the Celsius scale</p> <p><b>Electricity</b></p> <p>PS.7.4.2 Classify electrical <i>conductors</i> and electrical <i>insulators</i></p> <p>PS.7.4.3 Construct simple circuits from circuit diagrams</p> <p><b>Magnetism</b></p> <p>none</p>	<p><b>Measurement</b> Investigation 4, Part 2, pp. 14-17</p> <p><b>Water</b> Investigation 3, Part 2, pp. 12-16</p> <p><b>Magnetism and Electricity</b> Investigation 2, Part 3, pp. 20-26</p> <p><b>Magnetism and Electricity</b> Investigation 2, Part 2, pp. 14-19; Investigation 3, Part 1-3, pp. 10-26</p>	<p><b>Weather Instruments</b> Activity 6, pp. 51-57</p> <p><b>Electrical Circuits</b> Activity 6-7, pp. 51-62 Reader, p.3</p> <p><b>Electrical Circuits</b> Activity 2-4, pp. 19-43</p>

**Strand 4: Earth and Space Science**

**Standard 8: Earth Systems: Structure and Properties**

Students shall demonstrate and apply knowledge of Earth's structure and properties using appropriate safety procedures, equipment, and technology.

Student Learning Expectation	FOSS	DSM
<p><b>Properties of the Earth</b></p> <p>ESS.8.4.1 Locate natural divisions of Arkansas:</p> <ul style="list-style-type: none"> <li>• Ozark Plateau</li> <li>• Ouachita Mountains</li> <li>• Crowley's Ridge</li> <li>• Mississippi Alluvial Plain (Delta)</li> <li>• Coastal Plain</li> <li>• Arkansas River Valley</li> </ul>	<p>Local Objective</p>	<p>Local Objective</p>

<p><b>Natural Resources</b></p> <p>ESS.8.4.2 Analyze the impact of using <i>natural resources</i></p> <p>ESS.8.4.3 Differentiate between renewable and non-renewable resources</p> <p>ESS.8.4.4 Evaluate the impact of water pollution</p> <p>ESS.8.4.5 Evaluate the impact of Arkansas' <i>natural resources</i> on the economy, including but not limited to</p> <ul style="list-style-type: none"> <li>• farming</li> <li>• timber</li> <li>• tourism</li> <li>• hunting</li> <li>• fishing</li> </ul> <p>ESS.8.4.6 Evaluate human use of Arkansas' <i>natural resources</i> on the <i>environment</i>, including but not limited to</p> <ul style="list-style-type: none"> <li>• mining</li> <li>• clear cutting</li> <li>• dredging</li> </ul> <p><b>Weather</b></p> <p>ESS.8.4.7 Describe the processes of the <i>water cycle</i>:</p> <ul style="list-style-type: none"> <li>• <i>precipitation</i></li> <li>• <i>evaporation</i></li> <li>• <i>condensation</i></li> </ul> <p>ESS.8.4.8 Organize weather data into tables or charts to identify trends and patterns</p> <p>ESS.8.4.9 Demonstrate safety procedures related to severe</p>	<p><b>Measurement</b> Science Stories, pp. 10-17</p> <p><b>Water</b> Science Stories, pp. 17-21</p> <p><b>Water</b> Science Stories, pp. 17-21 FOSS Web, Activity: Match the Resource</p> <p>Local Objective</p> <p>Local Objective</p> <p><b>Water</b> Investigation 3, Parts 1-4, pp. 8-26; Science Stories, pp. 13-16; FOSS Web, Picture: Water Cycle</p>	<p><b>Water Cycle</b> Activity 11, Science and Math, p. 98 Activity 11, Science, Technology and Society, p. 98</p> <p>Local Objective</p> <p>Local Objective</p> <p><b>Water Cycle</b> Activity 4-6, 8-9, 11-13, pp. 39-60, 69-83, 91-114 Reader, pp. 10-11</p> <p><b>Weather Instruments</b> Activity 11, pp. 89-96 Reader, p. 6</p> <p><b>Weather Instruments</b> Activity 1, 3, pp. 6, 8, 10-11; Reader, pp. 13-21, 31-57, 67-74, 81-96</p> <p><b>Weather Instruments</b> Activity 12, Science and</p>
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<p>weather</p> <p>ESS.8.4.10 Describe weather-related natural disasters</p> <p>ESS.8.4.11 Construct and read instruments to collect weather data:</p> <ul style="list-style-type: none"> <li>• <i>barometer</i></li> <li>• <i>weather vane</i></li> <li>• <i>anemometer</i></li> </ul>		<p>Health, p. 101</p> <p><b>Weather Instruments</b> Activity 2-5, pp. 23-50</p>
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**Strand 4: Earth and Space Science**

**Standard 9: Earth's History: Changes in Earth and Sky**

Students shall demonstrate and apply knowledge of Earth's history using appropriate safety procedures, equipment, and technology.

<b>Student Learning Expectation</b>	<b>FOSS</b>	<b>DSM</b>
<p><b>Weather</b></p> <p>ESS.9.4.1 Analyze changes to Earth's surface:</p> <ul style="list-style-type: none"> <li>• <i>erosion</i></li> <li>• <i>glaciation</i></li> <li>• <i>weathering</i></li> <li>• <i>earthquakes</i></li> <li>• <i>volcanic activity</i></li> </ul>	<p><b>Earth Materials</b> Science Stories, pp. 5-7</p>	<p><b>Earth Movements</b> Activity 6-11, pp. 55-103; Reader, pp. 3-13</p>

**Strand 4: Earth and Space Science**

**Standard 10: Objects in the Universe**

Students shall demonstrate and apply knowledge of objects in the universe using appropriate safety procedures, equipment, and technology.

<b>Student Learning Expectation</b>	<b>FOSS</b>	<b>DSM</b>
<p><b>Solar System</b></p> <p><i>none</i></p>		



<p>NS.1.5.3 Calculate mean, median, mode, and range from scientific data using <i>SI units</i></p> <p>NS.1.5.4 Interpret scientific data using</p> <ul style="list-style-type: none"> <li>• data tables/charts</li> <li>• bar graphs</li> <li>• circle graphs</li> <li>• line graphs</li> <li>• <i>stem and leaf plots</i></li> <li>• Venn diagrams</li> </ul>	<p><b>Variables</b> Investigation 1, Part 2, pp. 16-22; Investigation 3, Part 4, pp. 24-37</p> <p><b>Solar Energy</b> Investigation 3, Parts 1-2, pp. 8-23</p> <p><b>Levers and Pulleys</b> Investigation 1, Parts 2-3, pp. 18-28</p> <p><b>Food and Nutrition</b> Investigation 3, Part 1, pp. 8-15</p> <p><b>Environments</b> Investigation 3, Parts 2-3, pp. 14-22</p> <p><b>Mixtures and Solutions</b> Investigation 3, Parts 1-2, pp. 8-20</p> <p><b>Landforms</b> Investigation 3, Parts 1-2, pp. 8-19</p>	<p><b>You and Your Body</b> Activity 3, 5, pp. 27-31, 41-48</p> <p><b>Pollution</b> Activity 7, pp. 53-58</p> <p><b>Erosion</b> Activity 3-5, 7, pp. 29-49, 59-66</p> <p><b>Oceans</b> Activity 3, pp. 31-41</p> <p><b>Color and Light</b> Activity 2, 4-7, pp. 19-27, 37-67</p> <p><b>Electromagnetism</b> Activity 6, pp. 43-48</p> <p><b>Simple Machines</b> Activity 1-3, pp. 13-31</p>
<p>NS.1.5.5 Communicate results and conclusions from scientific inquiry</p>	<p><b>Variables</b> Investigation 4, Parts 3-4, pp. 18-28</p> <p><b>Models and Designs</b> Investigation 4, Parts 1-2, pp. 6-15</p> <p><b>Levers and Pulleys</b> Investigation 4, Parts 1-3, pp. 8-25</p> <p><b>Environments</b> Investigation 2, Part 4, pp. 26-30</p> <p><b>Solar Energy</b> Investigation 2, Part 2, pp. 16-24</p> <p><b>Mixtures and Solutions</b> Investigation 4, Parts 1-4, pp. 8-28</p> <p><b>Landforms</b> Investigation 3, Part 3, pp. 20-24</p>	<p><b>Simple Machines</b> Activity 1-3, pp. 13-31</p> <p><b>Flight and Rocketry</b> Activity 8-9, pp. 81-97</p> <p><b>Electromagnetism</b> Activity 6, pp. 43-48</p> <p><b>Oceans</b> Activity 2-3, pp. 31-54</p> <p><b>Erosion</b> Activity 7-12, pp. 59-104</p> <p><b>You and Your Body</b> Activity 3, 5, 9-11, pp. 27-31, 41-48, 67-84</p>
<p>NS.1.5.6 Develop and implement strategies for long-term, accurate data collection</p>	<p><b>Environments</b> Investigation 1, Parts 1-2, pp. 8-19; Investigation 3, Parts 1-3, pp. 8-22; Investigation 6, Parts 1-2, pp. 8-17</p>	<p><b>Erosion</b> Activity 3, pp. 29-35</p> <p><b>Weather Forecasting</b> Activity 1-3, 5-7, pp. 13-32, 41-61</p> <p><b>Pollution</b> Activity 10, pp. 71-76</p>

<p><b>Characteristics of Science</b></p> <p>NS.1.5.7 Summarize the characteristics of science</p> <p>NS.1.5.8 Explain the role of observation in the development of a theory</p> <p>NS.1.5.9 Define and give examples of hypotheses</p>	<p>FOSS provides the opportunity to address these expectations through the investigations and the inquiry approach. See also: <b>Variables</b> Science Stories, pp. 1-3</p> <p><b>Variables</b> Science Stories, pp. 1-3</p> <p><b>Variables</b> Science Stories, pp. 1-3</p>	<p>DSM provides the opportunity to address these expectations through the activities and the inquiry approach.</p>
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**Strand 2: Life Science**

**Standard 2: Living Systems: Characteristics, Structure, and Function**

Students shall demonstrate and apply knowledge of living systems using appropriate safety procedures, equipment, and technology

Student Learning Expectation	FOSS	DSM
<p><b>Structure and Function</b></p> <p>LS.2.5.1 Compare the <i>cell theory</i> to the characteristics of a scientific <i>theory</i></p> <p>LS.2.5.2 Examine cells on a microscopic level</p> <p>LS.2.5.3 Describe the similarities of basic <i>cell</i> functions in all <i>organisms</i></p> <p>LS.2.5.4 Model and identify the parts of animal <i>cells</i> and plant <i>cells</i>:</p> <ul style="list-style-type: none"> <li>• <i>cell</i> wall</li> <li>• <i>cell</i> membrane</li> <li>• <i>nucleus</i></li> <li>• cytoplasm</li> <li>• chloroplast</li> </ul> <p>LS.2.5.5 Compare and contrast plant and animal <i>cells</i></p> <p>LS.2.5.6 Conduct investigations to separate plant pigments from</p>		<p><b>You and Your Body</b> Reader, pp. 2-3</p> <p><b>You and Your Body</b> Reader, p. 2</p> <p><b>You and Your Body</b> Reader, p. 2</p>

<p>the <i>cell</i></p> <p>LS.2.5.7 Identify the role of chlorophyll in the process of photosynthesis</p> <p>LS.2.5.8 Explain and illustrate photosynthesis</p> <p>LS.2.5.9 Explain <i>cellular respiration</i></p> <p>LS.2.5.10 Conduct investigations demonstrating the process of <i>cellular respiration</i></p> <p>LS.2.5.11 Investigate careers, scientists, and historical breakthroughs related to <i>cells</i></p>	<p><b>Food and Nutrition</b> Science Stories, p. 43</p> <p><b>Environments</b> Science Stories, p.39</p> <p><b>Environments</b> Science Stories, p.39</p>	<p><b>You and Your Body</b> Reader, p. 12</p>
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**Strand 2: Life Science**

**Standard 3: Life Cycles, Reproduction, and Heredity**

Students shall demonstrate and apply knowledge of life cycles, reproduction, and heredity using appropriate safety procedures, equipment, and technology.

<b>Student Learning Expectation</b>	<b>FOSS</b>	<b>DSM</b>
<p><b>Heredity and Reproduction</b></p> <p>None</p>		
<p><b>Regulation and Behavior</b></p> <p>None</p>		

**Strand 2: Life Science**

**Standard 4: Populations and Ecosystems**

Students shall demonstrate and apply knowledge of populations and ecosystems using appropriate safety procedures, equipment, and technology.

<b>Student Learning Expectation</b>	<b>FOSS</b>	<b>DSM</b>
<p><b>Populations and Ecosystems</b></p> <p>LS.4.5.1 Distinguish among and model</p> <ul style="list-style-type: none"> <li>• <i>organisms</i></li> <li>• <i>populations</i></li> <li>• <i>communities</i></li> </ul>	<p><b>Environments</b> Science Stories, pp. 38-41</p>	

<ul style="list-style-type: none"> <li>• <i>ecosystems</i></li> <li>• <i>biosphere</i></li> </ul> <p>LS.4.5.2 Identify the transfer of <i>energy</i> using <i>energy</i> pyramids:</p> <ul style="list-style-type: none"> <li>• terrestrial</li> <li>• aquatic</li> </ul> <p>LS.4.5.3 Design food webs in specific <i>habitats</i> to show the flow of <i>energy</i> within <i>communities</i>:</p> <ul style="list-style-type: none"> <li>• terrestrial</li> <li>• aquatic</li> </ul> <p>LS.4.5.4 Evaluate food webs under conditions of stress:</p> <ul style="list-style-type: none"> <li>• overgrazing</li> <li>• overpopulation</li> <li>• natural disaster</li> <li>• introduction of non-native <i>species</i></li> <li>• human impact/urban development</li> </ul> <p>LS.4.5.5 Examine the role of <i>limiting factors</i> on the <i>carrying capacity</i> of an <i>ecosystem</i>:</p> <ul style="list-style-type: none"> <li>• food</li> <li>• space</li> <li>• water</li> <li>• shelter</li> </ul> <p>LS.4.5.6 Describe and diagram the nitrogen cycle in <i>ecosystems</i></p> <p>LS.4.5.7 Describe and diagram the <i>carbon cycle</i> in <i>ecosystems</i></p> <p>LS.4.5.8 Describe and diagram the <i>carbon dioxide-oxygen cycle</i> in <i>ecosystems</i></p> <p>LS.4.5.9 Conduct investigations demonstrating the role of the <i>carbon dioxide-oxygen cycle</i> in <i>ecosystems</i></p> <p>LS.4.5.10 Analyze the concept of</p>	<p><b>Environments</b> Science Stories, pp. 40-41</p> <p><b>Environments</b> Science Stories, pp. 43-45</p> <p><b>Environments</b> Investigation 3, Parts 1-3, pp. 8-22; Investigation 5, Parts 1-3, pp. 8-22; Investigation 6, Parts 1-2, pp. 8-17</p> <p><b>Environments</b> FOSS Web, Pictures: Nitrogen Cycle</p> <p><b>Environments</b> FOSS Web, Pictures: Carbon Cycle</p> <p><b>Food and Nutrition</b> Science Stories, p. 43</p> <p><b>Environments</b></p>	
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<p>conservation of <i>mass</i> as related to the amount of <i>matter</i> in an <i>ecosystem</i></p> <p>LS.4.5.11 Create <i>ecosystems</i> in which plants can exist without animals</p> <p>LS.4.5.12 Conduct investigations in which plants are encouraged to thrive</p> <p>LS.4.5.13 Construct, compare, and contrast <i>environments</i> in <i>open</i> and <i>closed</i> aquaria</p> <p>LS.4.5.14 Categorize <i>organisms</i> by the function they serve in <i>ecosystems</i> and food webs:</p> <ul style="list-style-type: none"> <li>• <i>predator/prey</i></li> <li>• <i>parasitism</i></li> <li>• <i>producer/consumer/ decomposer</i></li> <li>• <i>scavenger</i></li> <li>• <i>herbivore/carnivore/ omnivore</i></li> </ul> <p>LS.4.5.15 Conduct <i>field studies</i> identifying and categorizing <i>organisms</i> in a given area of an <i>ecosystem</i></p> <p>LS.4.5.16 Evaluate positive and negative human effects on <i>ecosystems</i></p> <p>LS.4.5.17 Describe and illustrate various symbiotic relationships:</p> <ul style="list-style-type: none"> <li>• <i>parasitism</i></li> <li>• <i>mutualism</i></li> <li>• <i>commensalism</i></li> </ul> <p>LS.4.5.18 Investigate careers, scientists, and historical breakthroughs related to <i>populations</i> and <i>ecosystems</i></p>	<p>Science Stories, p. 40</p> <p><b>Environments</b> Investigation 1, Parts 1-2, pp. 8-19; Investigation 3, Parts 1-3, pp. 8-22; Investigation 6, Parts 1-2, pp. 8-17</p> <p><b>Environments</b> Investigation 1, Parts 1-2, pp. 8-19</p> <p><b>Environments</b> Investigation 4, Parts 1-3, pp. 8-22 FOSS Web, Activity: Virtual Aquarium</p> <p><b>Environments</b> Science Stories, pp. 38-41</p> <p><b>Environments</b> Science Stories, pp. 43-45 <b>Landforms</b> Science Stories, pp. 13-14</p>	<p><b>Pollution</b> Activity 10, pp. 71-76 <b>Erosion</b> Activity 3, pp. 29-35</p> <p><b>Pollution</b> Activity 1, 4-6, 10, pp. 13-17, 31-52, 71-76 Reader, pp. 2-13</p> <p><b>Pollution</b> Reader, p. 14</p>
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**Strand 3: Physical Science**

**Standard 5: Matter: Properties and Changes**

Students shall demonstrate and apply knowledge of *matter*, including properties and changes, using appropriate safety procedures, equipment, and technology

Student Learning Expectation	FOSS	DSM
<p><b>Properties of Matter</b></p> <p>PS.5.5.1 Identify the relationship of <i>atoms</i> to all <i>matter</i></p> <p>PS.5.5.2 Conduct <i>scientific investigations</i> on <i>physical properties</i> of objects</p> <p>PS.5.5.3 Identify common examples of <i>physical properties</i>:</p> <ul style="list-style-type: none"> <li>• length</li> <li>• <i>mass</i></li> <li>• area</li> <li>• perimeter</li> <li>• texture</li> <li>• taste</li> <li>• odor</li> <li>• color</li> <li>• elasticity</li> </ul> <p>PS.5.5.4 State characteristics of physical changes</p> <p>PS.5.5.5 Identify characteristics and common examples of physical changes</p> <p>PS.5.5.6 Explain how heat influences the states of matter of a substance:</p>	<p><b>Mixtures and Solutions</b> Science Stories, pp. 4, 25-28</p> <p><b>Mixtures and Solutions</b> Investigation 1, Parts 1-3, pp. 8-24; Investigation 2, Parts 1-2, pp. 8-20; Investigation 3, Part 1, pp. 8-14</p> <p><b>Food and Nutrition</b> Investigation 1, Parts 1-2, pp. 8-20</p> <p><b>Mixtures and Solutions</b> Investigation 1, Part 1, pp. 8-15; Investigation 2, Part 1, pp. 8-15</p> <p><b>Food and Nutrition</b> Investigation 1, Parts 1-2, pp. 8-20</p> <p><b>Mixtures and Solutions</b> Investigation 1, Part 1, pp. 8-15; Investigation 2, Part 1, pp. 8-15</p> <p><b>Food and Nutrition</b> Investigation 1, Parts 1-2, pp. 8-20</p> <p><b>Mixtures and Solutions</b> Investigation 1, Part 1, pp. 8-15; Investigation 2, Part 1, pp. 8-15</p> <p><b>Food and Nutrition</b> Investigation 1, Parts 1-2, pp. 8-20</p>	<p><b>Rocks and Minerals</b> Activity 1, 3-7, pp. 13-19, 29-59</p> <p><b>Oceans</b> Activity 3, pp. 31-41</p> <p><b>Rocks and Minerals</b> Activity 1, 3-7, pp. 13-19, 29-59</p> <p><b>Oceans</b> Activity 3, pp. 31-41 Reader, p. 3</p> <p><b>Flight and Rocketry</b> Activity 1, pp. 13-21</p> <p>DSM activities provide the opportunity to address this expectation. See below:</p> <p><b>Oceans</b> Activity 2, 5, pp. 23-30, 55-63</p> <p><b>Rocks and Minerals</b> Activity 9, pp. 69-76</p> <p><b>Erosion</b> Activity 1-2, pp. 13-27</p> <p><b>Oceans</b> Activity 2, 5, pp. 23-30, 55-63</p> <p><b>Rocks and Minerals</b> Activity 9, pp. 69-76</p> <p><b>Erosion</b> Activity 1-2, pp. 13-27</p> <p><b>Oceans</b> Activity 5, pp. 55-63</p> <p><b>Weather Forecasting</b> Activity 9, pp. 69-74</p>

<ul style="list-style-type: none"> <li>• solid</li> <li>• liquid</li> <li>• gas</li> <li>• plasma</li> </ul> <p>PS.5.5.7 Demonstrate the effect of changes in the <i>physical properties of matter</i></p> <p>PS.5.5.8 Model the motion and position of <i>molecules</i> in solids, liquids, and gases in terms of <i>kinetic energy</i></p> <p>PS.5.5.9 Conduct investigations demonstrating expansion and contraction</p> <p>PS.5.5.10 Investigate scientists, careers, and historical breakthroughs related to <i>physical properties</i>, physical changes, and states of <i>matter</i></p>	<p><b>Mixtures and Solutions</b> Investigation 1, Parts 1-2, pp. 8-20; Investigation 2, Part 1, pp. 8-15</p> <p><b>Food and Nutrition</b> Investigation 1, Part 1, pp. 8-15</p> <p><b>Mixtures and Solutions</b> Science Stories, pp. 10, 24, 33, 35</p>	<p><b>Weather Forecasting</b> Activity 9, pp. 69-74</p> <p><b>Oceans</b> Activity 2, 5, pp. 23-30, 55-63</p> <p><b>Erosion</b> Activity 1-2, pp. 13-27</p>
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**Strand 3: Physical Science**

**Standard 6: Motion and Forces**

Students shall demonstrate and apply knowledge of motion and forces using appropriate safety procedures, equipment, and technology

<b>Student Learning Expectation</b>	<b>FOSS</b>	<b>DSM</b>
<p><b>Motion and Forces</b></p> <p>PS.6.5.1 Classify <i>simple machines</i></p> <p>PS.6.5.2 Conduct investigations using</p> <ul style="list-style-type: none"> <li>• levers (e.g., toothbrush)</li> <li>• pulleys</li> <li>• inclined planes-ramps, wedges, and screws</li> <li>• wheels and axles</li> </ul>	<p><b>Levers and Pulleys</b> Investigation 1, Parts 2-3, pp. 18-28; Investigation 2, Parts 1-4, pp. 8-25; Investigation 3, Parts 1-2, pp. 8-20 Science Stories, pp. 1-17, 21-27</p> <p><b>Levers and Pulleys</b> 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. 8-20</p>	<p><b>Simple Machines</b> Activity 2, 5, 7-12, pp. 19-24, 39-47, 57-95 Reader, pp. 4-11</p> <p><b>Simple Machines</b> Activity 2, 5-6, 8-11, pp. 19-24, 39-55, 65-89</p>

<p>PS.6.5.3 Relate <i>simple machines</i> to inventions and discoveries</p>	<p><b>Levers and Pulleys</b> Science Stories, pp. 1-4, 8-9, 11, 13-14, 23-27 FOSS Web, Movie: Construction Pulley</p>	<p><b>Simple Machines</b> Activity 12, pp 91-95 Reader, pp. 4-12</p>
<p>PS.6.5.4 Compare and contrast <i>potential energy</i> and <i>kinetic energy</i> as applied to motion</p>	<p>FOSS provides the opportunity to teach this expectation. See below: <b>Variables</b> Investigation 1, Part 1, pp. 8-15; Investigation 3, Parts 1-2, pp. 8-12 <b>Models and Designs</b> Investigation 3, Part 1, pp. 8-12</p>	<p><b>Simple Machines</b> Reader, p. 3</p>
<p>PS.6.5.5 Classify real world examples as <i>potential energy</i> or <i>kinetic energy</i> as applied to motion</p>	<p>FOSS provides the opportunity to address this expectation. See below: <b>Variables</b> Investigation 1, Part 1, pp. 8-15; Investigation 3, Parts 1-2, pp. 8-12 <b>Models and Designs</b> Investigation 3, Part 1, pp. 8-12</p>	<p>DSM provides the opportunity to address this expectation. See below: <b>Flight and Rocketry</b> Activity 8-9, 12, pp. 81-97, 121-130</p>
<p>PS.6.5.6 Conduct investigations using <i>potential energy</i> and <i>kinetic energy</i></p>	<p>FOSS provides the opportunity to address this expectation. See below: <b>Variables</b> Investigation 1, Part 1, pp. 8-15; Investigation 3, Parts 1-2, pp. 8-12 <b>Models and Designs</b> Investigation 3, Part 1, pp. 8-12</p>	<p>DSM provides the opportunity to address this expectation. See below: <b>Flight and Rocketry</b> Activity 8-9, 12, pp. 81-97, 121-130</p>
<p>PS.6.5.7 Investigate careers, scientists, and historical breakthroughs related to <i>simple machines</i> and <i>potential</i> and <i>kinetic energy</i></p>	<p><b>Levers and Pulleys</b> Science Stories, pp. 1-4</p>	

**Strand 3: Physical Science**

**Standard 7: Energy and Transfer of Energy**

Students shall demonstrate and apply knowledge of energy and transfer of energy using appropriate safety procedures, equipment, and technology

<b>Student Learning Expectation</b>	<b>FOSS</b>	<b>DSM</b>
<p><b>Energy</b></p> <p>PS.7.5.1 Summarize how light can interact with <i>matter</i> through</p>		<p><b>Color and Light</b> Activity 1-2, pp. 13-27 Reader, pp. 4-5</p>

<p><i>absorption, refraction, and reflection</i></p> <p>PS.7.5.2 Investigate how light travels and interacts with an object or material</p> <p>PS.7.5.3 Conduct investigations demonstrating how an object can be seen</p> <p>PS.7.5.4 Design and conduct investigations of transparent, <i>translucent</i>, and <i>opaque</i> as applied to light</p> <p>PS.7.5.5 Investigate physical interactions of light and <i>matter</i> and the effect on color perception:</p> <ul style="list-style-type: none"> <li>• <i>refraction</i></li> <li>• <i>absorption</i></li> <li>• transmission</li> <li>• scattering</li> </ul> <p>PS.7.5.6 Investigate careers, scientists, and historical breakthroughs related to light <i>energy</i></p>		<p><b>Color and Light</b> Activity 1, pp. 13-18 Reader, pp. 3-7</p> <p><b>Color and Light</b> Reader, p. 10</p> <p><b>Color and Light</b> Reader, p. 7</p> <p><b>Color and Light</b> Activity 1, 4-6, 10, pp. 13-18, 37-59, 85-91</p> <p><b>Color and Light</b> Reader, p. 14</p>
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**Strand 4: Earth and Space Science**

**Standard 8: Earth Systems: Structure and Properties**

Students shall demonstrate and apply knowledge of Earth's structure and properties using appropriate safety procedures, equipment, and technology.

<b>Student Learning Expectation</b>	<b>FOSS</b>	<b>DSM</b>
<p><b>Structure and Properties</b></p> <p>ESS.8.5.1 Identify some basic <i>elements</i> composing minerals:</p> <ul style="list-style-type: none"> <li>• silicon</li> <li>• oxygen</li> <li>• iron</li> <li>• sodium</li> <li>• chlorine</li> <li>• calcium</li> <li>• carbon</li> <li>• hydrogen</li> <li>• aluminum</li> </ul>		

<p>ESS.8.5.2 Investigate the growth of crystals</p> <p>ESS.8.5.3 Identify characteristics of minerals</p> <p>ESS.8.5.4 Conduct investigations on mineral properties:</p> <ul style="list-style-type: none"> <li>• luster</li> <li>• hardness</li> <li>• streak</li> <li>• acid test for calcite</li> <li>• fluorescence</li> </ul> <p>ESS.8.5.5 Identify the following minerals:</p> <ul style="list-style-type: none"> <li>• halite (salt)</li> <li>• feldspar</li> <li>• sulfur</li> <li>• quartz</li> <li>• diamonds</li> <li>• gypsum</li> <li>• calcite</li> <li>• talc</li> <li>• hematite (iron)</li> <li>• precious <i>metals</i> (gold, silver)</li> </ul> <p>ESS.8.5.6 Identify minerals found in Arkansas:</p> <ul style="list-style-type: none"> <li>• bauxite</li> <li>• diamonds</li> <li>• quartz</li> <li>• galena</li> </ul> <p>ESS.8.5.7 Identify characteristics of <i>sedimentary, igneous, and metamorphic</i> rocks</p> <p>ESS.8.5.8 Compare and contrast by investigation characteristics of the three basic types of rocks:</p> <ul style="list-style-type: none"> <li>• <i>sedimentary</i></li> <li>• <i>igneous</i></li> <li>• <i>metamorphic</i></li> </ul> <p>ESS.8.5.9 Classify the three basic types of rocks</p>		<p><b>Rocks and Minerals</b> Activity 7-8, pp. 55-67 Reader, p. 3</p> <p><b>Rocks and Minerals</b> Activity 3-6, pp. 29-54 Reader, pp. 4-6</p> <p><b>Rocks and Minerals</b> Activity 3-6, pp. 29-54</p> <p><b>Rocks and Minerals</b> Activity 3-6, pp. 29-54 Reader, p. 5</p> <p>Local Objective</p> <p><b>Rocks and Minerals</b> Activity 1-2, 9-10, pp. 13-28, 69-84 Reader, pp. 9-12</p> <p><b>Rocks and Minerals</b> Activity 2, 9-10, pp. 21-28, 69-84</p> <p><b>Rocks and Minerals</b> Activity 9-10, pp. 69-84 Reader, pp. 9-13</p>
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<p>ESS.8.5.10 Investigate careers, scientists, and historical breakthroughs related to minerals and rocks</p> <p><b>Cycles</b></p> <p>ESS.8.5.11 Investigate the formation of soil</p> <p>ESS.8.5.12 Conduct investigations on sedimentation</p> <p>ESS.8.5.13 Describe and illustrate the rock cycle</p>		<p><b>Rocks and Minerals</b> Reader, p. 14</p> <p><b>Erosion</b> Reader p. 7</p> <p><b>Rocks and Minerals</b> Activity 9, pp. 69-76</p> <p><b>Rocks and Minerals</b> Activity 2, 10, pp. 21-28, 77-84 Reader, p. 13</p>
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**Strand 4: Earth and Space Science**

**Standard 9: Earth's History: Changes in Earth and Sky**

Students shall demonstrate and apply knowledge of Earth's history using appropriate safety procedures, equipment, and technology.

<b>Student Learning Expectation</b>	<b>FOSS</b>	<b>DSM</b>
<p><b>Earth's History</b></p> <p>ESS.9.5.1 Explain and give examples of how physical <i>evidence</i> from <i>fossils</i> supports the <i>theory</i> that Earth has changed over time</p> <p>ESS.9.5.2 Analyze <i>fossil record evidence</i> about plants and animals that lived long ago</p> <p>ESS.9.5.3 Infer the nature of ancient <i>environments</i> based on <i>fossil record evidence</i></p>		<p><b>Rocks and Minerals</b> Reader, p. 15</p> <p><b>Rocks and Minerals</b> Reader, p. 15</p>

**Strand 4: Earth and Space Science**

**Standard 10: Objects in the Universe**

Students shall demonstrate and apply knowledge of objects in the universe using appropriate safety procedures, equipment, and technology.

Student Learning Expectation	FOSS	DSM
<p><b>Solar System: Sun, Earth, Moons, Planets, Galaxies</b></p> <p>ESS.10.5.1 Compare the physical characteristics of the sun to other stars:</p> <ul style="list-style-type: none"> <li>• size</li> <li>• color</li> <li>• brightness</li> </ul> <p>ESS.10.5.2 Demonstrate the order of planets and other space objects in our <i>solar system</i></p> <p>ESS.10.5.3 Compare the properties of planets in our <i>solar system</i>:</p> <ul style="list-style-type: none"> <li>• size</li> <li>• shape</li> <li>• <i>density</i></li> <li>• <i>atmosphere</i></li> <li>• distance from the sun</li> <li>• orbital path</li> <li>• moons</li> <li>• surface</li> <li>• composition</li> </ul> <p>ESS 10.5.4 Distinguish between <i>mass</i> and <i>weight</i></p> <p>ESS.10.5.5 Compare the human body's <i>mass</i> to <i>weight</i> on Earth, the moon, and other planets in our <i>solar system</i></p> <p>ESS.10.5.6 Investigate careers, scientists, and historical breakthroughs related to planets</p>	<p><b>Solar Energy</b> Science Stories, p. 40</p> <p><b>Solar Energy</b> Science Stories, pp. 40-43 <b>Models and Designs</b> Science Stories, p. 7</p> <p><b>Solar Energy</b> Science Stories, pp. 40-43</p>	<p><b>Flight and Rocketry</b> Reader, p. 7</p>

## Grade Six

### Strand 1: Nature of Science

#### Standard 1: Characteristics and Processes of Science

Students shall demonstrate and apply knowledge of the characteristics and processes of science using appropriate safety procedures, equipment, and technology.

Student Learning Expectation	FOSS	DSM
<p><b>Processes of Science</b></p> <p>NS.1.6.1 Verify accuracy of observations</p>	<p><b>Models and Designs</b> Investigation 2, Part 1, pp. 8-16</p> <p><b>Environments</b> Investigation 2, Parts 2-4, pp. 16-30</p> <p><b>Solar Energy</b> Investigation 2, Parts 1-2, pp. 8-24</p> <p><b>Variables</b> Investigation 1, Parts 1-3, pp. 8-27</p> <p><b>Food and Nutrition</b> Investigation 1, Part 2, pp. 16-20</p> <p><b>Weather and Water</b> Investigation 5, Part 1, pp. 152-162</p> <p><b>Diversity of Life</b> Investigation 8, Part 3, pp. 253-259</p> <p><b>Earth History</b> Investigation 4, Part 3, pp. 138-146</p>	<p><b>You and Your Body</b> Activity 3, 5, pp. 27-31, 41-48</p> <p><b>Oceans</b> Activity 2-3, pp. 23-41</p> <p><b>Rocks and Minerals</b> Activity 3-10, pp. 29-84</p> <p><b>Pollution</b> Activity 4-7, pp. 31-58</p> <p><b>Erosion</b> Activity 3, 5, 8, pp. 29-35, 43-49, 67-73</p> <p><b>Newton’s Toy Box</b> Activity 7-9, pp. 49-65</p> <p><b>Earth Processes</b> Activity 3-4, pp. 29-46</p> <p><b>Plants in Our World</b> Activity 1-4</p> <p><b>Matter and Change</b> Activity 10-12, pp. 85-104</p>
<p>NS.1.6.2 Apply components of <i>experimental design</i> used to produce <i>empirical evidence</i>:</p> <ul style="list-style-type: none"> <li>• <i>hypothesis</i></li> <li>• <i>replication</i></li> <li>• <i>sample size</i></li> <li>• <i>appropriate use of control</i></li> <li>• <i>use of standardized variables</i></li> </ul>	<p>FOSS provides the opportunity to address this expectation. See examples below:</p> <p><b>Variables</b> Investigation 3, Parts 2-3, pp. 14-23; Investigation 3, Parts 2-3, pp. 12-23 Science Stories, pp. 1-3</p> <p><b>Solar Energy</b> Investigation 3, Parts 1-2, pp. 8-23</p> <p><b>Landforms</b> Investigation 3, Part 3, pp. 20-24</p> <p><b>Planetary Science</b> Investigation 5, Parts 2-3, pp. 158-167</p> <p><b>Diversity of Life</b> Investigation 9, Part 2, pp. 278-285</p>	<p>DSM provides the opportunity to address this expectation. See examples below:</p> <p><b>You and Your Body</b> Activity 3, 5, pp. 27-31, 41-48</p> <p><b>Pollution</b> Activity 10, pp. 71-76</p> <p><b>Erosion</b> Activity 3, 5, 8, pp. 29-35, 43-49, 67-73</p> <p><b>Newton’s Toy Box</b> Activity 4, 8, pp. 33-38, 55-59</p> <p><b>Earth Processes</b> Activity 3, pp. 29-37</p> <p><b>Plants in Our World</b> Activity 3</p> <p><b>Matter and Change</b> Activity 12, pp. 99-104</p>

<p>NS.1.6.3 Compare scientific data using mean, median, mode, and range using <i>SI units</i></p> <p>NS.1.6.4 Construct and interpret scientific data using</p> <ul style="list-style-type: none"> <li>• data tables/charts</li> <li>• bar and double bar graphs</li> <li>• line graphs</li> <li>• <i>stem and leaf plots</i></li> <li>• line graphs</li> </ul>	<p><b>Electronics</b> Investigation 2, Extending the Experience, p. 109</p> <p><b>Variables</b> Investigation 1, Part 2, pp. 16-22; Investigation 3, Part 4, pp. 24-37</p> <p><b>Solar Energy</b> Investigation 3, Parts 1-2, pp. 8-23</p> <p><b>Levers and Pulleys</b> Investigation 1, Parts 2-3, pp. 18-28</p> <p><b>Food and Nutrition</b> Investigation 3, Part 1, pp. 8-15</p> <p><b>Environments</b> Investigation 3, Parts 2-3, pp. 14-22</p> <p><b>Electronics</b> Investigation 6, Part 3, pp. 195-200</p> <p><b>Planetary Science</b> Investigation 8, Parts 3-4, pp. 260-270</p> <p><b>Weather and Water</b> Investigation 4, Part 1, pp. 121-130</p>	<p><b>You and Your Body</b> Activity 3, 5, pp. 27-31, 41-48</p> <p><b>Electromagnets</b> Activity 6, pp. 43-48</p> <p><b>Simple Machines</b> Activity 1-3, pp. 13-31</p> <p><b>Color and Light</b> Activity 2, 4-7, pp. 19-27, 37-67</p> <p><b>Pollution</b> Activity 7, pp. 53-58</p> <p><b>Erosion</b> Activity 3- 5, 7, pp. 29-49, 59-66</p> <p><b>Newton’s Toy Box</b> Activity 9, pp. 61-65</p> <p><b>Earth Processes</b> Activity 14, pp. 121-129</p> <p><b>Plants in Our World</b> Activity 3</p> <p><b>Matter and Change</b> Activity 1-2, 11-12, pp. 13-27, 93-104</p>
<p>NS.1.6.5 Communicate results and conclusions from scientific inquiry</p>	<p><b>Variables</b> Investigation 4, Parts 3-4, pp. 18-28</p> <p><b>Models and Designs</b> Investigation 4, Parts 1-2, pp. 6-15</p> <p><b>Levers and Pulleys</b> Investigation 4, Parts 1-3, pp. 8-25</p> <p><b>Environments</b> Investigation 2, Part 4, pp. 26-30</p> <p><b>Solar Energy</b> Investigation 2, Part 2, pp. 16-24</p> <p><b>Diversity of Life</b> Investigation 9, Part 2, pp. 278-285</p> <p><b>Populations and Ecosystems</b> Investigation 6, Part 2, pp. 187-190</p>	<p><b>You and Your Body</b> Activity 3, 5, 9-11pp. 27-31, 41-48, 67-84</p> <p><b>Oceans</b> Activity 2-3, pp. 23-41</p> <p><b>Simple Machines</b> Activity 1-3, pp. 13-31</p> <p><b>Erosion</b> Activity 7-12, pp. 59-104</p> <p><b>Electromagnetism</b> Activity 6, pp. 43-48</p> <p><b>Newton’s Toy Box</b> Activity 7-9, pp. 49-65</p> <p><b>Earth Processes</b> Activity 3-4, pp. 29-46</p> <p><b>Plants in Our World</b> Activity 3-6</p> <p><b>Matter and Change</b> Activity 10-13, pp. 85-109</p>
<p>NS.1.6.6 Develop and implement strategies for long-term, accurate data collection</p>	<p><b>Environments</b> Investigation 1, Parts 1-2, pp. 8-19; Investigation 3, Parts 1-</p>	<p><b>Erosion</b> Activity 3, pp. 29-35</p> <p><b>Weather Forecasting</b></p>

<p><b>Characteristics of Science</b></p> <p>NS.1.6.7 Distinguish between scientific fact and opinion</p> <p>NS.1.6.8 Explain the role of prediction in the development of a theory</p> <p>NS.1.6.9 Define and give examples of <i>laws</i> and <i>theories</i></p>	<p>3, pp. 8-22; Investigation 6, Parts 1-2, pp. 8-17</p> <p><b>Populations and Ecosystems</b> Investigation 1, Part 3, pp. 55-59; Investigation 3, Part 3, pp. 103-107</p> <p>FOSS provides the opportunity to teach these expectations through the investigations and the inquiry approach. See also:</p> <p><b>Variables</b> Science Stories, pp. 1-3</p> <p><b>Variables</b> Science Stories, pp. 1-3</p> <p><b>Variables</b> Science Stories, pp. 1-3</p>	<p>Activity 1-3, 5-7, pp. 13-32, 41-61</p> <p><b>Pollution</b> Activity 10, 71-76</p> <p><b>Plants in Our World</b> Activity 3</p> <p>DSM provides the opportunity to teach these expectations through the investigations and the inquiry approach.</p>
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**Strand 2: Life Science**

**Standard 2: Living Systems: Characteristics, Structure, and Function**

Students shall demonstrate and apply knowledge of living systems using appropriate safety procedures, equipment, and technology

<b>Student Learning Expectation</b>	<b>FOSS</b>	<b>DSM</b>
<p><b>Structure and Function</b></p> <p>LS.2.6.1 Observe, describe, and illustrate plant and animal <i>tissues</i>:</p> <ul style="list-style-type: none"> <li>• muscle</li> <li>• blood</li> <li>• skin</li> <li>• <i>xylem</i></li> <li>• <i>phloem</i></li> </ul> <p>LS.2.6.2 Illustrate the hierarchical relationships of <i>cells</i>, <i>tissues</i>, and <i>organs</i></p> <p>LS.2.6.3 Investigate the functions of <i>tissues</i></p> <p>LS.2.6.4</p>	<p><b>Diversity of Life</b> Investigation 6, Part 2, pp. 193-197 Resources, pp. 32-33, 35-39 CD, Database</p> <p><b>Diversity of Life</b> Investigation 4, Part 2, pp. 137-141 Resources, pp. 27-44 CD, Cells and the Ribbon of Life</p> <p><b>Diversity of Life</b> Investigation 6, Part 2, pp. 193-197 Resources, pp. 32-33, 35-39, 40-41</p> <p><b>Human Brain and Senses</b></p>	<p><b>You and Your Body</b> Activity 7, pp. 55-60 Reader, pp. 3-5, 8</p> <p><b>Plants in Our World</b> Activity 2, 4</p> <p><b>You and Your Body</b> Reader, pp. 2-3</p> <p><b>Plants in Our World</b> Activity 1-2, 4</p> <p><b>You and Your Body</b> Reader, p. 3</p> <p><b>Plants in Our World</b> Activity 2</p> <p><b>You and Your Body</b></p>

<p>Model and explain the functions of animal <i>organs</i>:</p> <ul style="list-style-type: none"> <li>• heart</li> <li>• lung</li> <li>• kidneys</li> <li>• eyes</li> <li>• ears</li> <li>• skin</li> <li>• teeth</li> </ul>	<p>Investigation 2, Parts 1-3, pp. 67-83; Investigation 3, Part 3, pp. 106-110 Resources, pp. 29-30, 65-70</p>	<p>Activity 4, 6-8, pp. 33-39, 49-66 Reader, pp. 6-9</p>
<p>LS.2.6.5 Model and explain the function of plant <i>organs</i>:</p> <ul style="list-style-type: none"> <li>• leaves</li> <li>• roots</li> <li>• stems</li> <li>• flowers</li> </ul>	<p><b>Diversity of Life</b> Investigation 5, Parts 1-3, pp. 151-170; Investigation 6, Part 2, pp. 193-197; Investigation 7, Parts 1-2, pp. 218-229 Resources, pp. 31-45 CD, Database</p>	<p><b>Plants in Our World</b> Activity 2</p>
<p>LS.2.6.6 Dissect <i>organs</i>, including but not limited to</p> <ul style="list-style-type: none"> <li>• heart</li> <li>• eye</li> <li>• lung</li> <li>• stem</li> <li>• root</li> </ul>	<p><b>Diversity of Life</b> Investigation 7, Part 1, pp. 218-223 <b>Human Brain and Senses</b> Investigation 2, Part 3, pp. 77-83</p>	<p><b>Plants in Our World</b> Activity 2</p>
<p>LS.2.6.7 Describe the relationship between organ function and the following needs of cells:</p> <ul style="list-style-type: none"> <li>• oxygen</li> <li>• food</li> <li>• water</li> <li>• waste removal</li> </ul>	<p><b>Diversity of Life</b> Investigation 6, Parts 2-3, pp. 193-202 Resources, pp. 32-33, 36-39</p>	<p><b>You and Your Body</b> Activity 4, 6, pp. 33-39, 49-54 Reader, pp. 6-9 <b>Plants in Our World</b> Activity 2, 4-6, 8, 10</p>
<p>LS.2.6.8 Investigate careers, scientists, and historical breakthroughs related to <i>tissues</i> and <i>organs</i></p>		<p><b>You and Your Body</b> Reader, p. 12</p>

**Strand 2: Life Science**

**Standard 3: Life Cycles, Reproduction, and Heredity**

Students shall demonstrate and apply knowledge of life cycles, reproduction, and heredity using appropriate safety procedures, equipment, and technology.

Student Learning Expectation	FOSS	DSM
<p><b>Heredity and Reproduction</b></p> <p>LS.3.6.1 Describe characteristics of plants and animals manipulated through <i>selective breeding</i></p>	<p><b>Populations and Ecosystems</b> Resources, pp. 58-59</p>	



<ul style="list-style-type: none"> <li>teeth</li> <li>thorns</li> <li>characteristics of seeds</li> </ul> <p>LS.3.6.8 Investigate careers, scientists, and historical breakthroughs related to learned and <i>innate behaviors</i></p>		
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**Strand 2: Life Science**

**Standard 4: Populations and Ecosystems**

Students shall demonstrate and apply knowledge of populations and ecosystems using appropriate safety procedures, equipment, and technology.

Student Learning Expectation	FOSS	DSM
<p><b>Populations and Ecosystems</b></p> <p>LS.4.6.1 Identify <i>environmental</i> conditions that can affect the survival of individual <i>organisms</i> and entire <i>species</i></p> <p>LS.4.6.2 Conduct simulations demonstrating competition for resources within an <i>ecosystem</i></p> <p>LS.4.6.3 Conduct simulations demonstrating <i>natural selection</i></p> <p>LS.4.6.4 Analyze <i>natural selection</i></p>	<p><b>Environments</b> Investigation 3, Parts 1-3, pp. 8-22; Investigation 5, Parts 1-3, pp. 8-22; Investigation 6, Parts 1-2, pp. 8-17 Science Stories, pp. 49-52</p> <p><b>Populations and Ecosystems</b> Investigation 6, Parts 2-3, pp. 187-197 Resources, pp. 22-29, 32-41</p> <p><b>Populations and Ecosystems</b> Investigation 3, Parts 1-3, pp. 90-107; Investigation 4, Part 2, pp. 122-129; Investigation 6, Part 3, pp. 191-197</p> <p><b>Populations and Ecosystems</b> Investigation 10, Parts 1-3, pp. 302-317</p> <p><b>Populations and Ecosystems</b> Investigation 10, Parts 1-3, pp. 302-317 Resources, pp. 58-61 Video: Voyage to the Galapagos</p>	

**Strand 3: Physical Science**

**Standard 5: Matter: Properties and Changes**

Students shall demonstrate and apply knowledge of *matter*, including properties and changes, using appropriate safety procedures, equipment, and technology

Student Learning Expectation	FOSS	DSM
<p><b>Properties of Matter</b></p> <p>PS.5.6.1 Identify common examples of <i>chemical properties</i>:</p> <ul style="list-style-type: none"> <li>• ability to burn</li> <li>• ability to produce light</li> <li>• ability to react with other substances</li> </ul> <p>PS.5.6.2 Compare and contrast characteristics of physical and <i>chemical properties</i></p> <p>PS.5.6.3 Conduct investigations using acid/base indicators</p> <p>PS.5.6.4 Apply skills of scientific investigation to determine <i>density</i> using <i>SI units</i></p> <p>PS.5.6.5 Construct a <i>density</i> column using a minimum of four different liquids (e.g., alcohol, colored water, syrup, oil)</p> <p>PS.5.6.6 Use a <i>density</i> column to test the <i>density</i> of various solid objects (e.g., piece of candy, cork, candle, paper clip, egg)</p> <p>PS.5.6.7 Identify characteristics of</p>	<p><b>Mixtures and Solutions</b> Investigation 4, Parts 1-3, pp. 8-24 Science Stories, p. 23</p> <p><b>Chemical Interactions</b></p> <p>FOSS provides the opportunity to address this expectation. See below:</p> <p><b>Mixtures and Solutions</b> Investigation 1, Parts 1-3, pp. 8-24; Investigation 2, Part 1, pp. 8-15; Investigation 4, Parts 1-3, pp. 8-24 Science Stories, pp. 34-40</p> <p><b>Chemical Interactions</b></p> <p><b>Environments</b> Investigation 4, Part 2, pp. 13-18</p> <p><b>Food and Nutrition</b> Investigation 3, Parts 1-2, pp. 8-20</p> <p><b>Chemical Interactions</b></p> <p><b>Weather and Water</b> Investigation 5, Part 1, pp. 152-162</p> <p><b>Planetary Science</b> Investigation 8, Part 3-4, pp. 260-270</p> <p><b>Weather and Water</b> Investigation 5, Part 1, pp. 152-162</p> <p><b>Mixtures and Solutions</b> Investigation 4, Parts 1-3, pp.</p>	<p><b>Matter and Change</b> Activity 10-13, pp. 85-109 Reader, pp. 16-20</p> <p><b>Erosion</b> Activity 1, pp. 13-19 Reader, pp. 5-6</p> <p><b>Matter and Change</b> Activity 1-3, 10-13, pp.13-35, 85-109 Reader, pp. 13-20</p> <p><b>Matter and Change</b> Activity 10-11, pp. 85-97</p> <p><b>Matter and Change</b> Activity 1, pp. 13-19</p> <p><b>Matter and Change</b> Activity 1, Science Extension, p. 19</p> <p><b>Matter and Change</b> Activity 1, Science Extension, p. 19</p> <p><b>Erosion</b> Activity 1, pp. 13-19</p>

<p><i>chemical changes:</i></p> <ul style="list-style-type: none"> <li>• burning</li> <li>• production of a new substance</li> <li>• production of light</li> <li>• color change</li> <li>• <i>endothermic</i> and <i>exothermic</i> reactions</li> <li>• <i>reactivity</i></li> </ul> <p>PS.5.6.8 Conduct investigations comparing and contrasting physical and <i>chemical changes</i></p> <p>PS.5.6.9 Demonstrate the <i>law of the conservation of matter</i></p> <p>PS.5.6.10 Investigate scientists, careers, and historical breakthroughs related to <i>chemical properties</i> and <i>chemical changes</i></p>	<p>8-24 <b>Chemical Interactions</b></p> <p>FOSS provides the opportunity to teach this expectation. See below: <b>Mixtures and Solutions</b> Investigation 1, Parts 1-3, pp. 8-24; Investigation 2, Part 1, pp. 8-15; Investigation 4, Parts 1-3, pp. 8-24 <b>Chemical Interactions</b></p> <p><b>Mixtures and Solutions</b> Investigation 1, Part 2, pp. 16-20 <b>Chemical Interactions</b></p> <p><b>Mixtures and Solutions</b> Science Stories, pp. 5, 10, 25-28, 43-45 <b>Chemical Interactions</b></p>	<p>Reader, p. 6 <b>Matter and Change</b> Activity 10-12, pp. 85-104 Reader, pp. 16-20</p> <p><b>Matter and Change</b> Activity 1-3, 10-12, pp. 13-35, 85-104</p> <p><b>Matter and Change</b> Activity 7, pp. 63-68 Reader, pp. 17-18</p> <p><b>Matter and Change</b> Reader, p. 21</p>
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**Strand 3: Physical Science**

**Standard 6: Motion and Forces**

Students shall demonstrate and apply knowledge of motion and forces using appropriate safety procedures, equipment, and technology

<b>Student Learning Expectation</b>	<b>FOSS</b>	<b>DSM</b>
<p><b>Motion and Forces</b></p> <p>PS.6.6.1 Compare and contrast <i>simple machines</i> and <i>compound machines</i></p> <p>PS.6.6.2 Identify and analyze the simple machines that make up a compound machine</p> <p>PS.6.6.3 Conduct investigations of various forces using SI units (newton)</p>	<p><b>Levers and Pulleys</b> Science Stories, pp. 9, 23-25</p> <p><b>Levers and Pulleys</b> Science Stories, pp. 9, 23-25</p> <p><b>Levers and Pulleys</b> Investigation 1, Parts 1-3, pp. 8-28; Investigation 3, Parts 1-2, pp. 8-20; Investigation 4, Part 1, pp. 8-13 <b>Force and Motion</b></p>	<p><b>Simple Machines</b> Activity 2, 5, 7-12, pp. 19-24, 39-47, 57-95 Reader, pp. 4-11</p> <p><b>Simple Machines</b> Activity 12, pp. 91-95 Reader, pp. 10-11</p> <p><b>Simple Machines</b> Activity 1-3, pp. 13-31 <b>Newton's Toy Box</b> Activity 2-3, 7-9, pp. 19-31, 49-65</p>

<p>PS.6.6.4 Recognize and give examples of different types of <i>forces</i>:</p> <ul style="list-style-type: none"> <li>• gravitational <i>forces</i></li> <li>• magnetic <i>forces</i></li> <li>• <i>friction</i></li> </ul>	<p>Investigation 6, Parts 1-2, pp. 218-235; Investigation 7, Part 1, pp. 256-261</p> <p><b>Force and Motion</b> Investigation 6, Parts 1-2, pp. 218-228; Investigation 7, Parts 1-3, pp. 256-272 Resources, pp. 50-52, 62-66, 68-69</p>	<p><b>Flight and Rocketry</b> Activity 6, pp. 65-72 Reader, pp. 3-4 <b>Simple Machines</b> Activity 3, pp. 25-31 Reader, p. 2 <b>Electromagnetism</b> Activity 1-2, 6, pp. 13-33, 43-48 Reader, pp. 3-7 <b>Newton's Toy Box</b> Activity 1-4, 8-9, pp. 13-38, 55-65 Reader, pp. 4-9</p>
<p>PS.6.6.5 Understand why objects have <i>weight</i></p>	<p>FOSS provides the opportunity to address this expectation. See below <b>Force and Motion</b> Investigation 7, Part 1, pp. 256-261 Resources, p. 62</p>	<p><b>Flight and Rocketry</b> Reader, p. 7 <b>Newton's Toy Box</b> Activity 3, pp. 25-31 Reader, p. 8</p>
<p>PS.6.6.6 Compare and contrast <i>weight</i> and <i>mass</i></p>	<p>FOSS provides the opportunity to address this expectation. See below: <b>Force and Motion</b> Investigation 7, Part 1, pp. 256-261 Resources, p. 62</p>	<p><b>Newton's Toy Box</b> Activity 3, pp. 25-31 Reader, p. 8</p>
<p>PS.6.6.7 Describe the effects of <i>force</i>:</p> <ul style="list-style-type: none"> <li>• move a stationary object</li> <li>• <i>speed</i> up, slow down or change the direction of motion</li> <li>• change the shape of objects</li> </ul>	<p><b>Force and Motion</b> Investigation 6, Parts 1-4, pp. 218-245; Investigation 7, Part 1, pp. 256-261; Investigation 8, Part 1, pp. 284-293 Resources, pp. 50-52, 62-69</p>	<p><b>Flight and Rocketry</b> Activity 6, 8-9, 12, pp. 65-72, 81-97, 121-130 Reader, pp. 3-4, 7, 10-13 <b>Simple Machines</b> Activity 1-12, pp. 13-95 Reader, pp. 4-9 <b>Newton's Toy Box</b> Activity 1-13, pp. 13-90 Reader, pp. 4-21</p>
<p>PS.6.6.8 Conduct investigations to demonstrate change in direction caused by <i>force</i></p>	<p><b>Force and Motion</b> Investigation 6, Part 1-2, pp. 236-245; Investigation 8, Part 1, pp. 284-293</p>	<p><b>Flight and Rocketry</b> Activity 6, 11, 12, pp. 65-72, 81-97, 111-119 <b>Simple Machines</b> Activity 1-2, 7-8, pp. 13-24, 57-69 <b>Newton's Toy Box</b> Activity 10-13, pp. 67-90</p>
<p>PS.6.6.9</p>	<p><b>Force and Motion</b> Investigation 6, Part 1-2, pp.</p>	<p><b>Newton's Toy Box</b> Activity 7-9, pp. 49-65</p>

<p>Conduct investigations to calculate the change in <i>speed</i> caused by applying <i>forces</i> to an object</p> <p>PS.6.6.10 Investigate careers, scientists, and historical breakthroughs related to <i>compound machines</i> and <i>forces</i></p>	<p>236-245; Investigation 7, Parts 1-3, pp. 256-272</p> <p><b>Force and Motion</b> Investigation 7, Part 3, pp. 267-272 Resources, pp. 50-52, 62-66 Video: Galileo: On the Shoulders of Giants</p>	<p><b>Flight and Rocketry</b> Reader, pp. 14-15 <b>Simple Machines</b> Reader, p. 13 <b>Newton's Toy Box</b> Reader, p. 22</p>
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### Strand 3: Physical Science

#### Standard 7: Energy and Transfer of Energy

Students shall demonstrate and apply knowledge of energy and transfer of energy using appropriate safety procedures, equipment, and technology

Student Learning Expectation	FOSS	DSM
<p><b>Energy</b></p> <p>PS.7.6.1 Classify examples of <i>energy</i> forms:</p> <ul style="list-style-type: none"> <li>• chemical</li> <li>• <i>electromagnetic</i></li> <li>• mechanical</li> <li>• thermal</li> <li>• <i>nuclear</i></li> </ul> <p>PS.7.6.2 Summarize the application of the law of conservation of energy in real world situations:</p> <ul style="list-style-type: none"> <li>• <i>electrical energy</i> into <i>mechanical energy</i></li> <li>• <i>electrical energy</i> into <i>heat</i></li> <li>• <i>chemical energy</i> into <i>mechanical energy</i></li> <li>• <i>chemical energy</i> into light</li> </ul> <p>PS.7.6.3 Conduct investigations demonstrating how <i>energy</i> can be converted from one form to another</p> <p>PS.7.6.4 Investigate the transfer of <i>energy</i> in real world</p>	<p><b>Solar Energy</b> Investigation 2, Part 1, pp. 8-15 Science Stories, pp. 1-5, 22, 38-39 <b>Electronics</b> Resources, pp. 12-13</p> <p>FOSS provides the opportunity to address this expectation. See below: <b>Solar Energy</b> Investigation 2, Parts 1-2, pp. 8-24 Science Stories, pp. 29-39 <b>Electronics</b> Investigation 1, Part 1, pp. 55-60 Resources, pp. 1-2, 12-13</p> <p><b>Solar Energy</b> Investigation 2, Parts 1-2, pp. 8-24; Investigation 3, Parts 1-2, pp. 8-23; Investigation 4, Parts 1-3, pp. 8-24 <b>Electronics</b> Investigation 1, Part 1, pp. 55-60</p> <p><b>Solar Energy</b> Investigation 4, Parts 1-3, pp. 8-28 Science Stories, pp. 22-23,</p>	<p><b>Electromagnetism</b> Activity 1-2, 6, pp. 13-23, 43-48 Reader, pp. 3-8 <b>Electrical Connections</b> Activity, 1-2</p> <p>DSM provides the opportunity to address this expectation. See below: <b>Electromagnetism</b> 6, 8-10, pp. 43-48, 57-76 Reader, pp. 4-5, 8-13 <b>Electrical Connections</b> Activity 2, 11</p> <p><b>Electromagnetism</b> 6-10, pp. 43-76 <b>Electrical Connections</b> Activity 2, 11</p> <p><b>Earth Processes</b> Activity 12, pp. 105-110 Activity 12, Science Challenge, p. 110</p>

<p>situations:</p> <ul style="list-style-type: none"> <li>• <i>conduction</i></li> <li>• <i>convection</i></li> <li>• <i>radiation</i></li> </ul> <p>PS.7.6.5 Investigate careers, scientists, and historical breakthroughs related to <i>energy</i> forms and conversions</p>	<p>29-39 <b>Weather and Water</b> Investigation 4, Part 2, pp. 131-139; Investigation 5, Parts 2-3, pp. 163-174 Resources, pp. 32-33 Video: Conduction through Metals</p> <p><b>Solar Energy</b> Science Stories, p. 34</p>	<p><b>Electromagnetism</b> Reader, pp. 14-15</p>
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**Strand 4: Earth and Space Science**

**Standard 8: Earth Systems: Structure and Properties**

Students shall demonstrate and apply knowledge of Earth's structure and properties using appropriate safety procedures, equipment, and technology.

<b>Student Learning Expectation</b>	<b>FOSS</b>	<b>DSM</b>
<p><b>Structures and Properties</b></p> <p>ESS.8.6.1 Identify and diagram the layers of the Earth:</p> <ul style="list-style-type: none"> <li>• crust</li> <li>• mantle</li> <li>• inner and outer core</li> </ul> <p>ESS.8.6.2 Model the layers of the Earth</p> <p>ESS.8.6.3 Model how <i>convection</i> currents in the mantle affect lithosphere movement</p> <p>ESS.8.6.4 Conduct investigations to identify the <i>variables</i> within volcanoes that cause different types of eruptions</p> <p>ESS.8.6.5 Diagram and explain how volcanoes work</p> <p>ESS.8.6.6 Explain how volcanic activity relates to mountain formation</p>	<p><b>Earth History</b> Resources, pp. 100-101</p> <p><b>Earth History</b> Resources, pp. 101-102</p>	<p><b>Erosion</b> Reader, p. 2</p> <p><b>Earth Processes</b> Activity 2, pp. 23-28 Reader, pp. 2-3</p> <p><b>Earth Processes</b> Activity 2, pp. 23-28 Reader, p. 3</p> <p><b>Earth Processes</b> Activity 12, pp. 105-110 Reader, p. 3</p> <p><b>Earth Processes</b> Activity 5, Science Extension, p. 54 Reader, p. 10</p> <p><b>Earth Processes</b> Activity 5, pp. 47-54; Activity 5, Science and the Arts, p. 54 Reader, p. 10</p> <p><b>Earth Processes</b> Activity 5, pp. 47-54 Reader, p. 10</p>

<p>ESS.8.6.7 Connect short-term changes in <i>climate</i> with volcanic activity</p> <p>ESS.8.6.8 Compare and contrast the different land forms caused by Earth's internal <i>forces</i>:</p> <ul style="list-style-type: none"> <li>• mountains</li> <li>• plateaus</li> <li>• trenches</li> <li>• islands</li> </ul> <p>ESS.8.6.9 Research local, regional, and state landforms created by internal <i>forces</i> in the earth:</p> <ul style="list-style-type: none"> <li>• Ozark Plateau</li> <li>• Crater of Diamonds</li> <li>• Ouachita Mountains</li> <li>• New Madrid Fault</li> </ul> <p>ESS.8.6.10 Identify the effects of <i>earthquakes</i> on Earth's surface:</p> <ul style="list-style-type: none"> <li>• tsunamis</li> <li>• floods</li> <li>• changes in natural and man-made structures</li> </ul> <p>ESS.8.6.11 Investigate and map patterns of <i>earthquake</i> and volcanic activity</p> <p>ESS.8.6.12 Locate <i>earthquake</i> belts on Earth:</p> <ul style="list-style-type: none"> <li>• Mediterranean-Trans-Asiatic</li> <li>• Circum-Pacific (Ring of Fire)</li> </ul> <p>ESS.8.6.13 Analyze how <i>earthquake</i> occurrences are recorded (<i>seismograph</i>) and measured (<i>Richter scale</i>)</p> <p>ESS.8.6.14 Model the effect of major geological events on land and ocean features:</p>	<p>Local Objective</p>	<p><b>Earth Processes</b> Activity 5, 7, 13-14 pp. 47-54; 63-69, 111-129 Reader, pp. 6-10</p> <p>Local Objective</p> <p><b>Earth Processes</b> Activity 8, Science Extension, p. 79; Activity 8, Science and Social Studies, p. 79 Reader, p. 9</p> <p><b>Earth Processes</b> Activity 10, pp. 89-95 Reader, p. 10</p> <p><b>Earth Processes</b> Activity 10, pp. 89-95 Reader, p. 10</p> <p><b>Earth Processes</b> Activity 9, pp. 81-87 Reader, p. 9</p> <p><b>Erosion</b> Reader, p. 3 <b>Oceans</b></p>
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<ul style="list-style-type: none"> <li>• mountain building</li> <li>• ocean trenches</li> <li>• island formation</li> <li>• mid-ocean ridges</li> </ul> <p>ESS.8.6.15 Investigate careers, scientists, and historical breakthroughs related to internal <i>forces</i> that change the Earth</p> <p><b>Cycles</b></p> <p>None</p>		<p>Reader, pp. 4-5 <b>Earth Processes</b> Activity 5, 7, 13-14, pp. 47-54, 63-69, 111-129</p> <p><b>Erosion</b> Reader, p. 14 <b>Earth Processes</b> Reader, p. 21</p>
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**Strand 4: Earth and Space Science**

**Standard 9: Earth’s History: Changes in Earth and Sky**

Students shall demonstrate and apply knowledge of Earth’s history using appropriate safety procedures, equipment, and technology.

<b>Student Learning Expectation</b>	<b>FOSS</b>	<b>DSM</b>
<p><b>Earth’s History</b></p> <p>ESS.9.6.1 Research methods of determining geologic time:</p> <ul style="list-style-type: none"> <li>• <i>fossil</i> records</li> <li>• mountain building</li> <li>• rock sequencing</li> </ul> <p>ESS.9.6.2 Model rock layer sequencing based on characteristics of <i>fossils</i></p> <p>ESS.9.6.3 Analyze evidence that supports the theory of plate tectonics:</p> <ul style="list-style-type: none"> <li>• matching coastlines</li> <li>• similar rock types</li> <li>• fossil record</li> </ul>	<p><b>Earth History</b> Investigation 7, Part 1, pp. 234-242 Resources, pp. 76-78, 81-88</p> <p><b>Earth History</b> Investigation 7, Parts 1-2, pp. 234-243</p>	<p><b>Earth Processes</b> Reader, p. 22</p> <p><b>Earth Processes</b> Reader, p. 22</p> <p><b>Earth Processes</b> Activity 1,10, 13-14, pp. 13-21, 89-95, 111-129 Reader, pp. 4-6</p>

**Strand 4: Earth and Space Science**

**Standard 10: Objects in the Universe**

Students shall demonstrate and apply knowledge of objects in the universe using appropriate safety procedures, equipment, and technology.

<b>Student Learning Expectation</b>	<b>FOSS</b>	<b>DSM</b>
<p><b>Solar System: Sun, Earth, Moons, Planets, Galaxies</b></p>		

<p>ESS.10.6.1 Explain how planets seem to wander against the background of the stars</p>	<p><b>Planetary Science</b> Investigation 10, pp. 312-317</p>	<p><b>Earth, Moon and Sun</b> Reader, p. 4</p>
<p>ESS.10.6.2 Compare the distance of the following:</p> <ul style="list-style-type: none"> <li>• from the sun to Earth (<i>light minutes</i>)</li> <li>• from the next nearest star to Earth (<i>light years</i>)</li> </ul>		
<p>ESS.10.6.3 Describe how astronomers measure distance to stars</p>	<p><b>Planetary Science</b> Resources, p. 97</p>	<p><b>Astronomy</b> Activity 8 <b>Earth, Moon and Sun</b> Reader, p. 4</p>
<p>ESS.10.6.4 Calculate the rate at which we would have to travel to other stars and planets in our <i>solar system</i> using current technology</p>		
<p>ESS.10.6.5 Explain the effect of the sun on <i>comets</i></p>	<p><b>Planetary Science</b> Resources, p. 89</p>	
<p>ESS.10.6.6 Compare and contrast <i>comets</i>, <i>meteors</i>, and asteroids by</p> <ul style="list-style-type: none"> <li>• size</li> <li>• <i>orbits</i></li> <li>• <i>nucleus</i></li> <li>• <i>mass</i></li> </ul>	<p><b>Planetary Science</b> Resources, pp. 87-88</p>	<p><b>Earth, Moon and Sun</b> Reader, p. 3</p>
<p>ESS.10.6.7 Model moon phases demonstrating the position of Earth, moon, and sun</p>	<p><b>Planetary Science</b> Investigation 9, Parts 1-4, pp. 283-301</p>	<p><b>Earth, Moon and Sun</b> Activity 10, pp. 93-101 Reader, pp. 14-15</p>
<p>ESS.10.6.8 Compare and contrast <i>solar eclipse</i> and <i>lunar eclipse</i></p>		<p><b>Earth, Moon and Sun</b> Activity 11, pp. 103-109 Reader, pp. 18-19</p>
<p>ESS.10.6.9 Investigate careers, scientists, and historical breakthroughs related to the sun and space travel</p>	<p><b>Planetary Science</b> Resources, pp. 171-173</p>	<p><b>Earth, Moon and Sun</b> Reader, p. 20 <b>Astronomy</b> Activity 9, Science and Careers</p>

## Grade Seven

### Strand 1: Nature of Science

#### Standard 1: Characteristics and Processes of Science

Students shall demonstrate and apply knowledge of the characteristics and processes of science using appropriate safety procedures, equipment, and technology.

Student Learning Expectation	FOSS	DSM
<p><b>Processes of Science</b></p> <p>NS.1.7.1 Interpret <i>evidence</i> based on observations</p>	<p><b>Weather and Water</b> Investigation 5, Part 1, pp. 152-162</p> <p><b>Diversity of Life</b> Investigation 8, Part 3, pp. 253-259</p> <p><b>Earth History</b> Investigation 4, Part 3, pp. 138-146</p> <p><b>Planetary Science</b> Investigation 5, Parts 3-4, pp. 158-167</p> <p><b>Force and Motion</b> Investigation 1, Part 2, pp. 57-62</p> <p><b>Human Brain and Senses</b> Investigation 7, Parts 1-3, pp. 210-230</p>	<p><b>Matter and Change</b> Activity 1-2, 11-13, pp. 13-27, 93-109</p> <p><b>Newton's Toy Box</b> Activity 7-10, pp. 49-72</p> <p><b>Earth Processes</b> Activity 3-5, pp. 29-47</p> <p><b>Plants in Our World</b> Activity 3-6</p> <p><b>Electrical Connections</b> Activity 4-9</p> <p><b>Earth, Moon and Sun</b> Activity 5-9, pp. 45-92</p>
<p>NS.1.7.2 Analyze components of <i>experimental design</i> used to produce <i>empirical evidence</i>:</p> <ul style="list-style-type: none"> <li>• <i>hypothesis</i></li> <li>• replication</li> <li>• sample size</li> <li>• appropriate use of <i>control</i></li> <li>• use of standardized <i>variables</i></li> </ul>	<p>FOSS investigations provide the opportunity to address this expectation. See below:</p> <p><b>Planetary Science</b> Investigation 5, Parts 2-3, pp. 158-167</p> <p><b>Diversity of Life</b> Investigation 6, Part 1, pp. 186-192; Investigation 8, Part 2, pp. 244-252; Investigation 9, Part 2, pp. 278-285</p> <p><b>Earth History</b> Investigation 4, Part 3, pp. 138-146</p> <p><b>Weather and Water</b> Investigation 4, Part 1, pp. 121-130</p>	<p>DSM investigations provide the opportunity to address this expectation. See below:</p> <p><b>Matter and Change</b> Activity 12, pp. 99-104</p> <p><b>Newton's Toy Box</b> Activity 4, 8, pp. 33-38, 55-59</p> <p><b>Earth Processes</b> Activity 3, pp. 29-37</p> <p><b>Plants in Our World</b> Activity 3</p> <p><b>Electrical Connections</b> Activity 9-10</p>
<p>NS.1.7.3 Interpret scientific data using mean, median, mode, and range using <i>SI units</i></p>	<p><b>Electronics</b> Investigation 2, Extending the Experience, p. 109</p>	
<p>NS.1.7.4 Construct and interpret scientific data using</p>	<p><b>Electronics</b> Investigation 6, Part 3, pp.</p>	<p><b>Earth Processes</b> Activity 10, pp. 89-95</p>

<ul style="list-style-type: none"> <li>• histograms</li> <li>• circle graphs</li> <li>• <i>scatter plots</i></li> <li>• double line graphs</li> <li>• line graphs by approximating line of best fit</li> </ul> <p>NS.1.7.5 Communicate results and conclusions from scientific inquiry</p> <p>NS.1.7.6 Develop and implement strategies for long-term, accurate data collection</p> <p><b>Characteristics of Science</b></p> <p>NS.1.7.7 Distinguish between questions that can and cannot be answered by science</p> <p>NS.1.7.8 Explain the role of testability and modification in the development of a theory</p> <p>NS.1.7.9 Compare and contrast hypotheses, <i>laws</i>, and <i>theories</i></p>	<p>195-200 <b>Planetary Science</b> Investigation 5, Parts 2, pp. 158-163; Investigation 8, Parts 2-3, pp. 260-270 <b>Weather and Water</b> Investigation 3, Part 1, pp. 93-96; Investigation 4, Part 1, pp. 121-130 <b>Force and Motion</b> Investigation 1, Part 2, pp. 57-62; Investigation 5, Part 1, pp. 169-172</p> <p><b>Diversity of Life</b> Investigation 9, Part 2, pp. 278-285 <b>Populations and Ecosystems</b> Investigation 6, Part 2, pp. 187-190 <b>Human Brain and Senses</b> Investigation 7, Part 2, pp. 219-225 <b>Weather and Water</b> Investigation 4, Part 1, pp. 121-130 <b>Electronics</b> Investigation 6, Part 3, pp. 195-200 <b>Planetary Science</b> Investigation 8, Parts 3-4, pp. 260-270</p> <p><b>Populations and Ecosystems</b> Investigation 1, Part 3, pp. 55-59; Investigation 3, Part 3, pp. 103-107</p> <p>FOSS provides the opportunity to address these expectations through the investigations and their inquiry approach.</p>	<p><b>Electrical Connections</b> Activity 8-9 <b>Matter and Change</b> Activity 2, pp. 21-27</p> <p><b>Matter and Change</b> Activity 10-13, pp. 85-109 <b>Newton's Toy Box</b> Activity 7-9, pp. 49-65 <b>Earth Processes</b> Activity 3-4, pp. 29-46 <b>Plants in Our World</b> Activity 3-6 <b>Electrical Connections</b> Activity 7-11 <b>Earth, Moon and Sun</b> Activity 3-5, pp. 29-51</p> <p><b>Plants in Our World</b> Activity 3</p> <p>DSM provides the opportunity to address these expectations through the investigations and their inquiry approach.</p>
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**Strand 2: Life Science**

**Standard 2: Living Systems: Characteristics, Structure, and Function**

Students shall demonstrate and apply knowledge of living systems using appropriate safety procedures, equipment, and technology

Student Learning Expectation	FOSS	DSM
<p><b>Structure and Function</b></p> <p>LS.2.7.1 Illustrate the hierarchical relationships of <i>cells, tissues, organs,</i> and <i>organ systems</i></p> <p>LS.2.7.2 Analyze how two or more <i>organs</i> work together to perform a function (e.g., mouth and stomach to digest food)</p> <p>LS.2.7.3 Identify <i>organ systems</i> in <i>vertebrates</i> and plants</p> <p>LS.2.7.4 Analyze the structure and function of <i>tissues, organs,</i> and <i>organ systems</i> of a <i>vertebrate</i> and an <i>angiosperm</i> using various models or methods of dissection</p> <p>LS.2.7.5 Compare and contrast <i>vertebrate</i> systems and plant <i>organ systems</i></p> <p>LS.2.7.6 Identify human body systems:           <ul style="list-style-type: none"> <li>• nervous</li> <li>• digestive</li> <li>• circulatory</li> </ul> </p>	<p><b>Diversity of Life</b> Investigation 4, Part 2, pp. 137-141 Resources, pp. 27-44 CD, Cells and the Ribbon of Life</p> <p><b>Diversity of Life</b> Investigation 6, Parts 1-3, pp. 186-202 Resources, pp. 31-39 <b>Human Brain and Senses</b> Investigation 7, Part 2, pp. 219-225; Investigation 8, Part 1, pp. 240-245 Resources, pp. 43-44, 37-58, 63-74</p> <p><b>Diversity of Life</b> Investigation 6, Parts 1-3, pp. 186-202 Resources, pp. 31-44 <b>Human Brain and Senses</b> Investigation 9, Parts 1-2, pp. 264-275 Resources, pp. 63-74</p> <p><b>Diversity of Life</b> Investigation 7, Part 1, pp. 218-223 Resources, pp. 31-44 CD, Database: Collection <b>Human Brain and Senses</b> Investigation 2, Parts 1-3, pp. 67-83; Investigation 9, Parts 1-2, pp. 264-275 Resources, pp. 29-30, 63-74</p> <p><b>Human Brain and Senses</b> Resources, pp. 59-78 CD, Head</p>	<p><b>Plants in Our World</b> Activity 1-2</p> <p><b>Plants in Our World</b> Activity 2</p> <p><b>Plants in Our World</b> Activity 2</p> <p><b>Plants in Our World</b> Activity 2, 4</p>

<ul style="list-style-type: none"> <li>• respiratory</li> <li>• excretory</li> <li>• integumentary</li> <li>• skeletal/muscular</li> <li>• endocrine</li> <li>• reproductive</li> </ul> <p>LS.2.7.7 Relate the structure of <i>vertebrate</i> and plant body systems to their functions</p> <p>LS.2.7.8 Investigate functions of human body systems</p> <p>LS.2.7.9 Describe interactions between major <i>organ systems</i></p> <p>LS.2.7.10 Investigate careers, scientists, and historical breakthroughs related to life systems</p>	<p><b>Diversity of Life</b> Investigation 6, Parts 1-3, pp. 186-202 Resources, pp. 31-50</p> <p><b>Human Brain and Senses</b> Investigation 9, Part 2, pp. 270-275 Resources, pp. 63-74</p> <p><b>Human Brain and Senses</b> Investigation 9, Parts 1-2, pp. 264-275 Resources, pp. 63-74</p> <p><b>Human Brain and Senses</b> Investigation 7, Part 2, pp. 219-225 CD, Touch: How the Skin Works</p> <p><b>Diversity of Life</b> Investigation 6, Parts 1-3, pp. 186-202 Resources, pp. 31-39</p>	<p><b>Plants in Our World</b> Activity 2</p>
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**Strand 2: Life Science**

**Standard 3: Life Cycles, Reproduction, and Heredity**

Students shall demonstrate and apply knowledge of life cycles, reproduction, and heredity using appropriate safety procedures, equipment, and technology.

Student Learning Expectation	FOSS	DSM
<p><b>Heredity and Reproduction</b></p> <p>LS.3.7.1 Explain that the fertilized <i>egg cell</i> carries <i>genetic</i> information from each parent and multiplies to form a complete <i>organism</i></p> <p>LS.3.7.2 Distinguish between <i>sperm cells</i> and <i>egg cells</i></p>	<p><b>Populations and Ecosystems</b> Resources, p. 53</p> <p><b>Populations and Ecosystems</b> Resources, p. 53</p> <p><b>Diversity of Life</b> Resources, p. 43</p>	<p><b>DNA-From Genes to Proteins</b> Activity 5, Science Extension</p>

<p>LS.3.7.3 Compare and contrast the structure and function of the <i>sperm cell</i> and the <i>egg cell</i> in <i>vertebrates</i> and plants and their role in <i>sexual reproduction</i></p> <p>LS.3.7.4 Investigate and analyze the development of <i>embryos</i></p> <p>LS.3.7.5 Dissect a poultry <i>egg</i> to analyze its structure (e.g., paper, plastic, or <i>clay</i> models, virtual dissection, or specimen dissection)</p> <p>LS.3.7.6 Dissect a flower to analyze the reproductive system of <i>angiosperms</i> (e.g., paper, plastic, or <i>clay</i> models; virtual dissection; or specimen dissection)</p> <p>LS.3.7.7 Differentiate between sexual and <i>asexual reproduction</i> in</p> <ul style="list-style-type: none"> <li>• <i>vertebrates</i></li> <li>• plants</li> </ul> <p>LS.3.7.8 Identify the number and source of chromosomes in human body <i>cells</i></p> <p>LS.3.7.9 Identify the number and source of chromosomes in human sex <i>cells</i></p> <p>LS.3.7.10 Explain the role of <i>cell</i> division</p> <p>LS.3.7.11 Investigate careers, scientists, and historical breakthroughs related to <i>reproduction</i></p>	<p><b>Diversity of Life</b> Investigation 5, Part 1, pp. 151-156 Resources, p. 43</p> <p><b>Diversity of Life</b> Investigation 7, Part 1, pp. 218-223</p> <p><b>Diversity of Life</b> Investigation 7, Part 1, pp. 218-223</p> <p><b>Diversity of Life</b> Resources, p. 43 <b>Populations and Ecosystems</b> Resources, p. 53</p>	<p><b>DNA-From Genes to Proteins</b> Activity 10</p> <p><b>DNA-From Genes to Proteins</b> Activity 5, Science Extension</p> <p><b>DNA-From Genes to Proteins</b> Activity 1, Science Challenge Activity 2, Science Challenge Activity 5, Science Challenge</p>
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<p><b>Regulation and Behavior</b></p> <p>LS.3.7.12 Summarize the interactions between <i>organ systems</i> in the maintenance of <i>homeostasis</i></p>	<p><b>Diversity of Life</b> Investigation 6, Parts 1-3, pp. 186-202 Resources, p. 31-39</p>	<p><b>Plants in Our World</b> Activity 4-6</p>
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**Strand 2: Life Science**

**Standard 4: Populations and Ecosystems**

Students shall demonstrate and apply knowledge of populations and ecosystems using appropriate safety procedures, equipment, and technology.

Student Learning Expectation	FOSS	DSM
<p><b>Populations and Ecosystems</b></p> <p>LS.4.7.1 Explain the role of <i>reproduction</i> in the continuation of a <i>species</i></p>	<p><b>Diversity of Life</b> Resources, p. 23</p>	

**Strand 3: Physical Science**

**Standard 5: Matter: Properties and Changes**

Students shall demonstrate and apply knowledge of *matter*, including properties and changes, using appropriate safety procedures, equipment, and technology

Student Learning Expectation	FOSS	DSM
<p><b>Physical Properties</b></p> <p>PS.5.7.1 Explain how a small number of naturally-occurring <i>elements</i> can result in the large variety of substances found in the world</p> <p>PS.5.7.2 Create models of common <i>compounds</i>:</p> <ul style="list-style-type: none"> <li>• water</li> <li>• carbon dioxide</li> <li>• salt</li> <li>• iron oxide</li> <li>• ammonia</li> </ul> <p>PS.5.7.3 Identify <i>compounds</i> as substances consisting of two or more <i>elements</i> chemically combined</p> <p>PS.5.7.4</p>	<p><b>Chemical Interactions</b></p> <p><b>Chemical Interactions</b></p> <p><b>Chemical Interactions</b></p> <p><b>Chemical Interactions</b></p>	<p><b>Matter and Change</b> Activity 5-6, pp. 45-61 Reader, pp. 6-8</p> <p><b>Matter and Change</b> Activity 5, pp. 45-51 Reader, pp. 6-8</p> <p><b>Matter and Change</b> Activity 5-6, pp. 45-61 Reader, pp. 6-8</p> <p><b>Matter and Change</b></p>

<p>Compare and contrast properties of <i>compounds</i> to those of the <i>elements</i> that compose them:</p> <ul style="list-style-type: none"> <li>• salt: sodium, chlorine</li> <li>• water: hydrogen, oxygen</li> <li>• carbon dioxide: carbon, oxygen</li> </ul> <p>PS.5.7.5 Demonstrate techniques for forming and separating <i>mixtures</i>:</p> <ul style="list-style-type: none"> <li>• mixing</li> <li>• magnetic attraction</li> <li>• evaporation</li> <li>• filtration</li> <li>• chromatography</li> <li>• settling</li> </ul> <p>PS.5.7.6 Classify substances as</p> <ul style="list-style-type: none"> <li>• <i>elements</i></li> <li>• <i>compounds</i></li> <li>• <i>mixtures</i></li> </ul> <p>PS.5.7.7 Distinguish among <i>solvent</i>, <i>solute</i>, and <i>solution</i></p> <p>PS.5.7.8 Investigate the effect of <i>variables</i> on <i>solubility rates</i></p> <p>PS.5.7.9 Interpret solubility graphs</p> <p>PS.5.7.10 Investigate scientists, careers, and historical breakthroughs related to <i>elements</i>, <i>mixtures</i>, and <i>compounds</i></p>	<p><b>Chemical Interactions</b></p> <p><b>Chemical Interactions</b></p> <p><b>Chemical Interactions</b></p> <p><b>Chemical Interactions</b></p> <p><b>Chemical Interactions</b></p> <p><b>Chemical Interactions</b></p>	<p>Activity 5, pp. 45-51 Reader, pp. 4-8</p> <p><b>Matter and Change</b> Activity 3, pp. 29-35 Reader, p. 15</p> <p><b>Matter and Change</b> Activity 4-7, pp. 37-68 Reader, pp. 4-8, 14-15</p> <p><b>Matter and Change</b> Activity 3, pp. 29-35 Reader, p. 15</p> <p><b>Matter and Change</b> Reader, p. 15</p> <p><b>Matter and Change</b> Reader, p. 15</p> <p><b>Matter and Change</b> Activity 4, Science Extension, p. 44 Activity 9 Science and Careers, p. 83 Reader, pp. 21-22</p>
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**Strand 3: Physical Science**

**Standard 6: Motion and Forces**

Students shall demonstrate and apply knowledge of motion and forces using appropriate safety procedures, equipment, and technology

<b>Student Learning Expectation</b>	<b>FOSS</b>	<b>DSM</b>
<p><b>Motion and Forces</b></p> <p>PS.6.7.1 Compare and contrast Newton's three laws of motion</p>	<p><b>Force and Motion</b> Resources, pp. 50-53</p>	<p><b>Newton's Toy Box</b> Reader, pp. 10-13</p>

PS.6.7.2 Conduct investigations demonstrating Newton's first law of motion	<b>Force and Motion</b> Investigation 6, Parts 1-3, pp. 218-241	<b>Newton's Toy Box</b> Activity 1, pp. 13-17
PS.6.7.3 Demonstrate Newton's second law of motion	<b>Force and Motion</b> Investigation 6, Parts 1-4, pp. 218-245	<b>Newton's Toy Box</b> Activity 3-4, 8, pp. 25-38, 55-59
PS.6.7.4 Conduct investigations of Newton's third law of motion	<b>Force and Motion</b> Investigation 8, Parts 1-2, pp. 284-301	<b>Newton's Toy Box</b> Activity 10-13, pp. 67-90
PS.6.7.5 Explain how Newton's three laws of motion apply to real world situations (e.g., sports, transportation)	<b>Force and Motion</b> Investigation 8, Part 1, pp. 284-293 Resources, pp. 70-74	<b>Newton's Toy Box</b> Reader, pp. 10-13
PS.6.7.6 Investigate careers, scientists, and historical breakthroughs related to laws of motion	<b>Force and Motion</b> Resources, p. 50-53, 62-66	<b>Newton's Toy Box</b> Activity 1, Science and Social Studies, p. 17 Reader, p. 22

### Strand 3: Physical Science

#### Standard 7: Energy and Transfer of Energy

Students shall demonstrate and apply knowledge of energy and transfer of energy using appropriate safety procedures, equipment, and technology

Student Learning Expectation	FOSS	DSM
<b>Energy</b>		
PS.7.7.1 Identify <i>natural resources</i> used to supply energy needs	<b>Electronics</b> Resources, pp. 12-13	<b>Earth Processes</b> Activity 4, Science, Technology and Society, p. 46
PS.7.7.2 Describe alternatives to the use of <i>fossil fuels</i> : <ul style="list-style-type: none"> <li>• <i>solar energy</i></li> <li>• <i>geothermal energy</i></li> <li>• <i>wind</i></li> <li>• <i>hydroelectric power</i></li> <li>• <i>nuclear energy</i></li> <li>• <i>biomass</i></li> </ul>	<b>Electronics</b> Resources, pp. 12-13	
PS.7.7.3 Conduct investigations to identify types of <i>potential energy</i> and <i>kinetic energy</i>	FOSS provides the opportunity to teach this expectation. See below: <b>Force and Motion</b> Investigation 1, Part 1, pp. 47-56; Investigation 2, Part 3, pp. 89-99	<b>Newton's Toy Box</b> Activity 8, 10, pp. 55-59, 67-72 <b>Electrical Connections</b> Activity 11

<p>PS.7.7.4 Investigate alternative <i>energy</i> sources</p> <p>PS.7.7.5 Investigate careers, scientists, and historical breakthroughs related to <i>natural resources</i>, alternative resources, <i>electricity</i>, and <i>magnetism</i></p>	<p><b>Electronics</b> Resources, pp. 12-13</p>	<p><b>Electrical Connections</b> Activity 1, Science and Social Studies Activity 3, Science and Careers Activity 12, Science and Social Studies</p>
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**Strand 4: Earth and Space Science**

**Standard 8: Earth Systems: Structure and Properties**

Students shall demonstrate and apply knowledge of Earth's structure and properties using appropriate safety procedures, equipment, and technology.

Student Learning Expectation	FOSS	DSM
<p><b>Structure and Properties</b></p> <p>ESS.8.7.1 Describe the composition and physical characteristics of the <i>atmosphere</i></p> <p>ESS.8.7.2 Investigate the influence of global patterns on local weather:</p> <ul style="list-style-type: none"> <li>• movement of air masses</li> <li>• <i>Coriolis effect</i></li> <li>• <i>jet stream</i></li> <li>• global wind belts</li> </ul> <p>ESS.8.7.3 Conduct investigations demonstrating the effects of <i>solar energy</i> on the <i>atmosphere</i></p> <p>ESS.8.7.4 Investigate the effect that oceans have on <i>climate</i></p> <p>ESS.8.7.5 Identify <i>elements</i> of weather:</p> <ul style="list-style-type: none"> <li>• <i>temperature</i></li> <li>• air pressure</li> <li>• <i>wind speed</i></li> <li>• wind direction</li> <li>• <i>humidity</i></li> </ul>	<p><b>Weather and Water</b> Investigation 2, Part 2, pp. 76-80 Resources, pp. 6-11 CD, Atmospheric Data: Elevator to Space</p> <p><b>Weather and Water</b> Investigation 9, Parts 1-2, pp. 296-314 Resources, pp. 53-55</p> <p><b>Weather and Water</b> Investigation 3, Parts 1-3, pp. 93-110</p> <p><b>Weather and Water</b> Investigation 1, Part 2, pp. 48-53 Resources, p. 5</p>	



<p>ESS.8.7.14 Describe causes and effects of <i>acid precipitation</i></p> <p>ESS.8.7.15 Investigate careers, scientists, and historical breakthroughs related to <i>atmosphere</i> and weather</p> <p><b>Cycles</b></p> <p>ESS.8.7.16 Conduct investigations demonstrating the <i>water cycle</i></p> <p>ESS.8.7.17 Explain the relationship between the <i>water cycle</i> and ground water</p> <p>ESS.8.7.18 Investigate cloud formation</p> <p>ESS.8.7.19 Conduct investigations demonstrating the <i>greenhouse effect</i></p> <p>ESS.8.7.20 Research how human activities may contribute to <i>global warming</i></p> <p>ESS.8.7.21 Explain examples of actual events that cause temporary <i>climate</i> changes:</p> <ul style="list-style-type: none"> <li>• volcanic dust</li> <li>• drought</li> <li>• <i>meteor</i> impact</li> </ul>	<p><b>Weather and Water</b> Resources, pp. 20, 38, 67</p> <p><b>Weather and Water</b> Investigation 7, Parts 1-2, pp. 232-243</p> <p><b>Weather and Water</b> Investigation 6, Part 4, pp. 206-213 Resources, pp. 33, 37-42</p> <p><b>Weather and Water</b> Investigation 9, Part 4, pp. 315-318 Resources, pp. 63-66</p> <p><b>Planetary Science</b> Resources, pp. 67-68</p>	
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**Strand 4: Earth and Space Science**

**Standard 9: Earth's History: Changes in Earth and Sky**

Students shall demonstrate and apply knowledge of Earth's history using appropriate safety procedures, equipment, and technology.

Student Learning Expectation	FOSS	DSM
<p><b>Earth's History</b></p> <p>ESS.9.7.1 Analyze charts to infer past</p>		<p><b>Earth Processes</b> Reader, p. 22</p>

<p>atmospheric conditions based on the <i>organisms</i> found in the <i>fossil</i> record</p> <p>ESS.9.7.2 Demonstrate that Earth has a magnetic field that is detectible at the surface with a compass</p> <p>ESS.9.7.3 Compare and contrast Earth's magnetic field to those of natural or human-made magnets with</p> <ul style="list-style-type: none"> <li>• North and South poles</li> <li>• lines of force</li> </ul> <p>ESS.9.7.4 Analyze evidence of sea floor spreading:</p> <ul style="list-style-type: none"> <li>• magnetic reversal</li> <li>• molten material</li> <li>• drilling samples</li> </ul> <p>ESS.9.7.5 Research ways in which people have used compasses</p>		<p><b>Earth Processes</b> Activity 13, pp. 111-120 Reader, p. 4</p>
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**Strand 4: Earth and Space Science**

**Standard 10: Objects in the Universe**

Students shall demonstrate and apply knowledge of objects in the universe using appropriate safety procedures, equipment, and technology.

<b>Student Learning Expectation</b>	<b>FOSS</b>	<b>DSM</b>
<p><b>Solar System: Sun, Earth, Moons, Planets, Galaxies</b></p> <p>ESS.10.7.1 Identify and model the causes of night and day</p> <p>ESS.10.7.2 Compare and contrast Earth's day to those of other planets in our <i>solar system</i></p> <p>ESS.10.7.3 Identify and model the cause of <i>planetary years</i></p> <p>ESS.10.7.4 Compare and contrast Earth's year to those of other planets in our <i>solar system</i></p>	<p><b>Planetary Science</b> Investigation 3, Parts 1-2, pp. 89-98</p> <p><b>Planetary Science</b> Resources, p. 35</p> <p><b>Planetary Science</b> Resources, p. 35</p>	<p><b>Earth, Moon and Sun</b> Activity 6, pp. 53-60 Reader, pp. 8-9</p> <p><b>Earth, Moon and Sun</b> Reader, pp. 8, 21-23</p> <p><b>Earth, Moon and Sun</b> Activity 8, pp. 71-79 Reader, p. 9</p> <p><b>Earth, Moon and Sun</b> Reader, pp. 10, 21-23</p>

<p>ESS.10.7.5 Identify and model the causes of seasons</p>	<p><b>Weather and Water</b> Investigation 3, Parts 1-3, pp. 93-110 Resources, 17-19 CD, Cycles: Seasons</p>	<p><b>Earth, Moon and Sun</b> Activity 9, pp. 81-92 Reader, pp. 11-12 <b>Astronomy</b> Activity 5</p>
<p>ESS.10.7.6 Investigate careers, scientists, and historical breakthroughs related to rotations and revolutions of bodies in space</p>		<p><b>Earth, Moon and Sun</b> Activity 3, Science Challenge, p. 35 Activity 10, Science and Careers, p. 101 Reader, p. 20 <b>Astronomy</b> Activity 9, Science Challenge Activity 9 Science and Careers</p>

## Grade Eight

### Strand 1: Nature of Science

#### Standard 1: Characteristics and Processes of Science

Students shall demonstrate and apply knowledge of the characteristics and processes of science using appropriate safety procedures, equipment, and technology.

Student Learning Expectation	FOSS	DSM
<p><b>Processes of Science</b></p> <p>NS.1.8.1 Justify conclusions based on appropriate and unbiased observations</p>	<p><b>Weather and Water</b> Investigation 5, Part 1, pp. 152-162</p> <p><b>Diversity of Life</b> Investigation 8, Part 3, pp. 253-259</p> <p><b>Earth History</b> Investigation 4, Part 3, pp. 138-146</p> <p><b>Planetary Science</b> Investigation 5, Parts 3-4, pp. 158-167</p> <p><b>Force and Motion</b> Investigation 1, Part 2, pp. 57-62</p> <p><b>Human Brain and Senses</b> Investigation 7, Parts 1-3, pp. 210-230</p>	<p><b>Matter and Change</b> Activity 1-2, 11-13, pp. 13-27, 93-109</p> <p><b>Newton's Toy Box</b> Activity 7-10, pp. 49-72</p> <p><b>Earth Processes</b> Activity 3-5, pp. 29-47</p> <p><b>Plants in Our World</b> Activity 3-6</p> <p><b>Electrical Connections</b> Activity 4-9</p> <p><b>Earth, Moon and Sun</b> Activity 5-9, pp. 45-92</p>
<p>NS.1.8.2 Evaluate the merits of <i>empirical evidence</i> based on <i>experimental design</i>:</p> <ul style="list-style-type: none"> <li>• <i>hypothesis</i></li> <li>• <i>replication</i></li> <li>• <i>sample size</i></li> <li>• <i>appropriate use of control</i></li> <li>• <i>use of standardized independent and dependent variables</i></li> </ul>	<p>FOSS investigations provide the opportunity to address this expectation. See below:</p> <p><b>Planetary Science</b> Investigation 5, Parts 2-3, pp. 158-167</p> <p><b>Diversity of Life</b> Investigation 6, Part 1, pp. 186-192; Investigation 8, Part 2, pp. 244-252; Investigation 9, Part 2, pp. 278-285</p> <p><b>Earth History</b> Investigation 4, Part 3, pp. 138-146</p> <p><b>Weather and Water</b> Investigation 4, Part 1, pp. 121-130</p>	<p>DSM investigations provide the opportunity to address this expectation. See below:</p> <p><b>Matter and Change</b> Activity 12, pp. 99-104</p> <p><b>Newton's Toy Box</b> Activity 4, 8, pp. 33-38, 55-59</p> <p><b>Earth Processes</b> Activity 3, pp. 29-37</p> <p><b>Plants in Our World</b> Activity 3</p> <p><b>Electrical Connections</b> Activity 9-10</p>
<p>NS.1.8.3 Formulate a testable problem using <i>experimental design</i></p>	<p><b>Planetary Science</b> Investigation 5, Parts 2-3, pp. 158-167</p> <p><b>Diversity of Life</b> Investigation 8, Part 2, pp. 244-252; Investigation 9, Part 2, pp. 278-285</p> <p><b>Earth History</b></p>	<p>DSM provides the opportunity to address this expectation. See below:</p> <p><b>Electrical Connections</b> Activity 9-10</p> <p><b>Plants in Our World</b> Activity 3</p> <p><b>Matter and Change</b></p>

<p>NS.1.8.4 Analyze a set of scientific data using mean, median, mode, and range using <i>SI units</i></p> <p>NS.1.8.5 Suggest <i>solutions</i> to real world problems by analyzing scientific data in</p> <ul style="list-style-type: none"> <li>• data tables/charts</li> <li>• histograms</li> <li>• circle graphs</li> <li>• <i>scatter plots</i></li> <li>• <i>stem and leaf plots</i></li> <li>• line and double line</li> <li>• graphs by approximating line of best fit</li> </ul> <p>NS.1.8.6 Formulate inferences based on scientific data</p> <p>NS.1.8.7 Communicate results and conclusions from scientific inquiry following peer review</p>	<p>Investigation 4, Part 3, pp. 138-146 <b>Force and Motion</b> Investigation 8, Part 2, pp. 294-301</p> <p><b>Electronics</b> Investigation 2, Extending the Experience, p. 109</p> <p><b>Electronics</b> Investigation 6, Part 3, pp. 195-200 <b>Planetary Science</b> Investigation 5, Parts 2, pp. 158-163; Investigation 8, Parts 2-3, pp. 260-270 <b>Weather and Water</b> Investigation 3, Part 1, pp. 93-96; Investigation 4, Part 1, pp. 121-130 <b>Force and Motion</b> Investigation 1, Part 2, pp. 57-62; Investigation 5, Part 1, pp. 169-172</p> <p><b>Planetary Science</b> Investigation 5, Parts 2-3, pp. 158-167 <b>Weather and Water</b> Investigation 4, Part 1, pp. 121-130 <b>Diversity of Life</b> Investigation 8, Part 2, pp. 244-252 <b>Force and Motion</b> Investigation 1, Part 2, pp. 57-62; Investigation 5, Part 4, pp. 194-201 <b>Human Brain and Senses</b> Investigation 7, Part 1, pp. 210-218</p> <p><b>Diversity of Life</b> Investigation 9, Part 2, pp. 278-285 <b>Populations and Ecosystems</b> Investigation 6, Part 2, pp. 187-190 <b>Human Brain and Senses</b> Investigation 7, Part 2, pp. 219-225 <b>Weather and Water</b> Investigation 4, Part 1, pp. 121-130</p>	<p>Activity 12, pp. 99-104 <b>Newton's Toy Box</b> Activity 4, 8, pp. 33-38, 55-59</p> <p><b>Matter and Change</b> Activity 1-2, 10-12, pp. 13-27, 85-104 <b>Newton's Toy Box</b> Activity 7-9, pp. 49-65 <b>Earth Processes</b> Activity 10, pp. 89-95 <b>Plants in Our World</b> Activity 3, 5, 10 <b>Electrical Connections</b> Activity 8-9</p> <p><b>Matter and Change</b> Activity 1-2, 12, pp. 13-27, 99-104 <b>Newton's Toy Box</b> Activity 4, 8, 10, pp. 33-38, 55-59, 67-72 <b>Earth Processes</b> Activity 3-4, 8, 11, pp. 29-37, 71-79, 97-103 <b>Plants in Our World</b> Activity 6, 9 <b>Electrical Connections</b> Activity 1, 5, 7, 9, 11 <b>Earth, Moon and Sun</b> Activity 7, 9, 12, pp. 61-69, 81-92, 111-119</p> <p><b>Matter and Change</b> Activity 10-13, pp. 85-109 <b>Newton's Toy Box</b> Activity 7-9, pp. 49-65 <b>Earth Processes</b> Activity 3-4, pp. 29-46 <b>Plants in Our World</b> Activity 3-6 <b>Electrical Connections</b> Activity 7-11 <b>Earth, Moon and Sun</b> Activity 3-5, pp. 29-51</p>
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<p>NS.1.8.8 Develop and implement strategies for long-term, accurate data collection</p> <p><b>Characteristics of Science</b></p> <p>NS.1.8.9 Generate questions that can and cannot be answered by science</p> <p>NS.1.8.10 Explain the role of peer review, evidence, and modification in the development of a theory</p> <p>NS.1.8.11 Evaluate the merit of hypotheses, <i>laws</i>, and <i>theories</i></p>	<p><b>Electronics</b> Investigation 6, Part 3, pp. 195-200</p> <p><b>Planetary Science</b> Investigation 8, Parts 3-4, pp. 260-270</p> <p><b>Populations and Ecosystems</b> Investigation 1, Part 3, pp. 55-59; Investigation 3, Part 3, pp. 103-107</p> <p>FOSS provides the opportunity to address these expectations through the investigations and their inquiry approach.</p>	<p><b>Plants in Our World</b> Activity 3</p> <p>DSM provides the opportunity to address these expectations through the investigations and their inquiry approach.</p>
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**Strand 2: Life Science**

**Standard 2: Living Systems: Characteristics, Structure, and Function**

Students shall demonstrate and apply knowledge of living systems using appropriate safety procedures, equipment, and technology

Student Learning Expectation	FOSS	DSM
<p><b>Structure and Function</b></p> <p>LS.2.8.1 Illustrate the hierarchical relationships of <i>cells</i>, <i>tissues</i>, <i>organs</i>, <i>organ systems</i>, and <i>organisms</i></p> <p>LS.2.8.2 Identify different types of single-celled <i>organisms</i>:</p> <ul style="list-style-type: none"> <li>• protists</li> <li>• bacteria</li> </ul> <p>LS.2.8.3 Relate the effect of bacteria on oral health</p>	<p><b>Diversity of Life</b> Investigation 4, Part 2, pp. 137-141 Resources, pp. 27-44 CD, Cells and the Ribbon of Life</p> <p><b>Diversity of Life</b> Investigation 3, Parts 2-3, pp. 108-122; Investigation 10, Parts 1-2, pp. 302-316 Resources, pp. 24-26, 65-70 CD, Collection - Protista Video: The Unknown World</p> <p><b>Diversity of Life</b> Resources, p. 66</p>	

<p>LS.2.8.4 Describe and illustrate single-celled <i>organisms</i> found in pond water</p>	<p><b>Diversity of Life</b> Investigation 3, Parts 2-3, pp. 108-122 Resources, pp. 4-7, 24-26 CD, Collection – Protista</p>	
<p>LS.2.8.5 Use a <i>dichotomous key</i> to classify <i>organisms</i> found in pond water</p>	<p><b>Diversity of Life</b> Investigation 3, Part 3, pp. 116-122</p>	
<p>LS.2.8.6 Compare and contrast characteristics of unicellular <i>organisms</i> and multi-cellular <i>organisms</i></p>	<p><b>Diversity of Life</b> Resources, 24-26</p>	
<p>LS.2.8.7 Classify <i>cells</i> as <i>eukaryotic</i> or <i>prokaryotic</i></p>	<p><b>Diversity of Life</b> Resources, 28-29, 65</p>	
<p>LS.2.8.8 Identify and describe similarities and differences among <i>organisms</i> of different, but closely related taxa (e.g., pine trees, big cats, rodents, ungulates)</p>	<p><b>Diversity of Life</b> Investigation 3, Part 3, pp. 116-122; Investigation 9, Part 1, pp. 273-277</p>	
<p>LS.2.8.9 Investigate careers, scientists, and historical breakthroughs related to <i>organisms</i></p>		

**Strand 2: Life Science**

**Standard 3: Life Cycles, Reproduction, and Heredity**

Students shall demonstrate and apply knowledge of life cycles, reproduction, and heredity using appropriate safety procedures, equipment, and technology.

Student Learning Expectation	FOSS	DSM
<p><b>Heredity and Reproduction</b></p> <p>LS.3.8.1 Identify and explain why inherited characteristics of <i>living</i> things depend on <i>genes</i></p> <p>LS.3.8.2 Differentiate between dominant and <i>recessive</i> traits</p>	<p><b>Populations and Ecosystems</b> Investigation 9, Parts 2-4, pp. 267-291 Resources, pp. 46-52</p> <p><b>Populations and Ecosystems</b> Investigation 9, Part 2, pp. 267-273 Resources, pp. 48-50</p>	<p><b>DNA-From Genes to Proteins</b> Activity 5, Science Extension</p> <p>DSM provides the opportunity to address this expectation. See below: <b>DNA-From Genes to Proteins</b> Activity 1 Activity 3, Science Extension Activity 3, Science Challenge</p>

<p>LS.3.8.3 Observe and classify traits as dominant or <i>recessive</i>:</p> <ul style="list-style-type: none"> <li>• tongue rolling</li> <li>• detached earlobes</li> <li>• widow’s peak</li> <li>• hitchhiker’s thumb</li> <li>• dimples</li> <li>• unibrow</li> </ul>	<p><b>Populations and Ecosystems</b> Investigation 9, Part 1, pp. 262-266</p>	<p>DSM provides the opportunity to address this expectation. See below: <b>DNA-From Genes to Proteins</b> Activity 1 Activity 3, Science Extension Activity 3, Science Challenge</p>
<p>LS.3.8.4 Differentiate among observed inherited traits and acquired traits of plants and animals</p>	<p>FOSS provides the opportunity to teach this expectation. See below: <b>Populations and Ecosystems</b> Investigation 9, Parts 1-4, pp. 262-291 Resources, pp. 46-55</p>	
<p>LS.3.8.5 Interpret simple <i>genetic</i> crosses using <i>Punnett Squares</i></p>	<p><b>Populations and Ecosystems</b> Investigation 9, Part 4, pp. 287-291 Resources, pp. 48-49</p>	<p><b>DNA-From Genes to Proteins</b> Activity 3, Science Extension</p>
<p>LS.3.8.6 Predict patterns that emerge from simple <i>genetic</i> crosses</p>	<p><b>Populations and Ecosystems</b> Investigation 9, Part 4, pp. 282-291 Resources, pp. 48-49</p>	<p><b>DNA-From Genes to Proteins</b> Activity 3, Science Extension</p>
<p>LS.3.8.7 Conduct investigations demonstrating that the phenotype of a <i>genetic</i> trait is the result of genotype</p>	<p><b>Populations and Ecosystems</b> Investigation 9, Parts 2-4, pp. 267-291</p>	
<p>LS.3.8.8 Explain how genetic variation within a <i>species</i> is a result of dominant traits and <i>recessive traits</i></p>	<p><b>Populations and Ecosystems</b> Investigation 9, Part 3, pp. 274-286 Resources, pp. 46-54</p>	
<p>LS.3.8.9 Compare and contrast patterns of <i>embryological</i> development for all <i>vertebrates</i>, including humans</p>		
<p>LS.3.8.10 Distinguish between characteristics of plants and animals through <i>selective breeding</i></p>	<p><b>Populations and Ecosystems</b> Resources, pp. 58-59</p>	
<p>LS.3.8.11</p>	<p><b>Populations and</b></p>	<p><b>DNA-From Genes to</b></p>

<p>Investigate careers, scientists, and historical breakthroughs related to <i>genetics</i></p> <p><b>Regulation and Behavior</b></p> <p>LS.3.8.12 Compare the theory of evolution to the characteristics of a scientific <i>theory</i></p> <p>LS.3.8.13 Identify basic ideas related to biological evolution:</p> <ul style="list-style-type: none"> <li>• diversity of <i>species</i></li> <li>• variations within <i>species</i></li> <li>• <i>adaptations</i></li> <li>• <i>natural selection</i></li> <li>• <i>extinction of a species</i></li> </ul> <p>LS.3.8.14 Explain that the <i>fossil</i> record provides <i>evidence</i> of life forms' appearance, diversification, and <i>extinction</i></p> <p>LS.3.8.15 Explain the process of <i>natural selection</i></p> <p>LS.3.8.16 Identify <i>genetic</i> traits that make <i>organisms</i> more likely to survive and reproduce in a particular environment</p> <p>LS.3.8.17 Investigate careers, scientists, and historical breakthroughs related to <i>natural selection</i> and the <i>fossil</i> record</p>	<p><b>Ecosystems</b> Resources, pp. 46-55</p> <p><b>Populations and Ecosystems</b> Investigation 10, Parts 1-3, pp. 302-317 Resources, pp. 59-61</p> <p><b>Earth History</b> Investigation 6, Part 3, pp. 215-219; Investigation 7, Parts 1-2, pp. 234-243 Resources, pp. 83-86</p> <p><b>Planetary Science</b> Resources, pp. 67-68</p> <p><b>Populations and Ecosystems</b> Investigation 10, Parts 2-3, pp. 311-317 Resources, pp. 59-61</p> <p><b>Populations and Ecosystems</b> Investigation 10, Parts 1-3, pp. 302-317 Resources, pp. 59-61</p> <p><b>Populations and Ecosystems</b> Resources, pp. 58-61</p> <p><b>Earth History</b> Resources, pp. 83-86</p>	<p><b>Proteins</b> Activity 1, Science Challenge Activity 2, Science Challenge Activity 3, Science Challenge</p> <p><b>Earth Processes</b> Activity 4, Science Challenge, p. 46 Reader, p. 22</p>
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**Strand 2: Life Science**

**Standard 4: Populations and Ecosystems**

Students shall demonstrate and apply knowledge of populations and ecosystems using appropriate safety procedures, equipment, and technology.

Student Learning Expectation	FOSS	DSM
Populations and Ecosystems		

LS.4.8.1 Analyze the effect of changes in environmental conditions on the survival of individual <i>organisms</i> and entire <i>species</i>	<b>Populations and Ecosystems</b> Investigation 10, Parts 1-3, pp. 302-317 Resources, pp. 59-61 <b>Planetary Science</b> Resources, pp. 67-68	
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**Strand 3: Physical Science**

**Standard 5: Matter: Properties and Changes**

Students shall demonstrate and apply knowledge of *matter*, including properties and changes, using appropriate safety procedures, equipment, and technology

Student Learning Expectation	FOSS	DSM
<b>Properties of Matter</b>  PS.5.8.1 Compare the atomic theory to the characteristics of a scientific <i>theory</i>  PS.5.8.2 Explain the structure of <i>atoms</i>  PS.5.8.3 Determine the number of <i>protons</i> , <i>neutrons</i> , and <i>electrons</i> in an <i>atom</i>  PS.5.8.4 Create <i>atomic</i> models of common <i>elements</i>  PS.5.8.5 Investigate scientists, careers, and historical breakthroughs related to the <i>atomic theory</i>	<b>Chemical Interactions</b>  <b>Chemical Interactions</b>  <b>Chemical Interactions</b>  <b>Chemical Interactions</b>  <b>Chemical Interactions</b>	DSM provides the opportunity to address this expectation. See below: <b>Matter and Change</b> Activity 4, Science Extension, p. 44  <b>Matter and Change</b> Activity 4, pp. 37-44 Reader, pp. 2-3  <b>Matter and Change</b> Activity 4, pp. 37-44 Reader, pp. 2-3  <b>Matter and Change</b> Activity 4, pp. 37-44  <b>Matter and Change</b> Activity 1, Science and Social Studies, p. 27 Activity 4, Science Extension, p. 44 Reader, pp. 21-22

**Strand 3: Physical Science**

**Standard 6: Motion and Forces**

Students shall demonstrate and apply knowledge of motion and forces using appropriate safety procedures, equipment, and technology

Student Learning Expectation	FOSS	DSM
<b>Motion and Forces</b>  PS.6.8.1 Model how motion and <i>forces</i>	<b>Earth History</b> Investigation 4, Parts 3-4, pp.	<b>Earth Processes</b> Activity 3, 5, 7-8, 10, pp. 29-

<p>change Earth's surface:</p> <ul style="list-style-type: none"> <li>• <i>compression</i></li> <li>• <i>tension</i></li> <li>• <i>weathering</i></li> <li>• <i>erosion</i></li> </ul> <p>PS.6.8.2 Conduct investigations demonstrating the field <i>force</i> (lines of <i>force</i>) in magnetic fields</p> <p>PS.6.8.3 Design and conduct investigations applying <i>variables</i> affecting the strength of an <i>electromagnet</i></p> <p>PS.6.8.4 Analyze and compare the relationship between <i>electricity</i> and <i>magnetism</i></p> <p>PS.6.8.5 Investigate careers, scientists, and historical breakthroughs related to motion and <i>forces</i> that change Earth's surface</p>	<p>138-149 Resources, pp. 100-105</p>	<p>37, 47-54, 63-79, 89-95</p>
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**Strand 3: Physical Science**

**Standard 7: Energy and Transfer of Energy**

Students shall demonstrate and apply knowledge of energy and transfer of energy using appropriate safety procedures, equipment, and technology

<b>Student Learning Expectation</b>	<b>FOSS</b>	<b>DSM</b>
<p><b>Energy</b></p> <p>PS.7.8.1 Construct <i>open</i> and <i>closed</i> electrical <i>circuits</i>:</p> <ul style="list-style-type: none"> <li>• <i>series circuits</i></li> <li>• <i>parallel circuits</i></li> </ul> <p>PS.7.8.2 Describe and diagram <i>open</i> and <i>closed</i> series and <i>parallel circuits</i></p> <p>PS.7.8.3 Compare and contrast <i>open</i> and <i>closed series circuits</i> and <i>parallel circuits</i></p>	<p><b>Electronics</b> Investigation 1, Parts 1-5, pp. 55-79 CD, Workbench</p> <p><b>Electronics</b> Investigation 1, Parts 1-5, pp. 55-79 Resources, pp. 1-2 CD, Tech Manual: Parallel and Series Circuits</p> <p><b>Electronics</b> Investigation 1, Parts 1-5, pp. 55-79 Resources, pp. 1-2 CD, Tech Manual: Parallel and Series Circuits</p>	<p><b>Electrical Connections</b> Activity 2-3, 5-6, 8-10</p> <p><b>Electrical Connections</b> Activity 2, 6, 8-10</p> <p><b>Electrical Connections</b> Activity 2-3, 5-6, 8-10</p>

<p>PS.7.8.4 Conduct investigations demonstrating the characteristics of a wave:</p> <ul style="list-style-type: none"> <li>• wavelength</li> <li>• <i>frequency</i></li> <li>• <i>speed</i></li> <li>• <i>amplitude</i></li> </ul> <p>PS.7.8.5 Conduct investigations of <i>longitudinal</i> and <i>transverse</i> waves to determine how they are different</p> <p>PS.7.8.6 Explain how <i>energy</i> is transferred through waves:</p> <ul style="list-style-type: none"> <li>• <i>seismic</i> waves</li> <li>• sound waves</li> <li>• water waves</li> <li>• <i>electromagnetic</i> waves</li> </ul> <p>PS.7.8.7 Describe how waves travel through different kinds of media</p> <p>PS.7.8.8 Differentiate among <i>reflection</i>, <i>refraction</i>, and <i>absorption</i> of various types of waves</p> <p>PS.7.8.9 Describe and diagram the <i>electromagnetic</i> spectrum</p> <p>PS.7.8.10 Analyze the <i>electromagnetic</i> spectrum</p> <p>PS.7.8.11 Investigate examples of real world uses of the <i>electromagnetic</i> spectrum</p> <p>PS.7.8.12 Conduct investigations demonstrating the separation of <i>white light</i> into its spectrum using <i>refraction</i></p> <p>PS.7.8.13 Compare ways to transfer</p>		<p><b>Earth Processes</b> Activity 8, pp. 71-79 Reader, p. 9</p> <p><b>Earth Processes</b> Reader, p. 9</p>
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<p>information:</p> <ul style="list-style-type: none"> <li>• sound</li> <li>• light</li> <li>• radio</li> <li>• <i>microwave energy</i></li> </ul> <p>PS.7.8.14 Investigate careers, scientists, and historical breakthroughs related to waves and the <i>electromagnetic spectrum</i></p>		
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**Strand 4: Earth and Space Science**

**Standard 8: Earth Systems: Structure and Properties**

Students shall demonstrate and apply knowledge of Earth's structure and properties using appropriate safety procedures, equipment, and technology.

<b>Student Learning Expectation</b>	<b>FOSS</b>	<b>DSM</b>
<p><b>Structures and Properties</b></p> <p>ESS.8.8.1 Analyze the causes and predict the consequences of <i>global warming</i> on the following:</p> <ul style="list-style-type: none"> <li>• weather</li> <li>• <i>temperature</i></li> <li>• ocean water levels</li> </ul> <p>ESS.8.8.2 Investigate how global patterns of water currents influence local weather:</p> <ul style="list-style-type: none"> <li>• Gulf Stream</li> <li>• Atlantic Currents</li> <li>• California Current</li> </ul> <p>ESS.8.8.3 Conduct investigations to compare and contrast different landforms found on Earth:</p> <ul style="list-style-type: none"> <li>• mountains</li> <li>• plateaus</li> <li>• plains</li> </ul> <p>ESS.8.8.4 Synthesize and model the result of both constructive and destructive <i>forces</i> on land forms:</p> <ul style="list-style-type: none"> <li>• <i>deposition</i></li> <li>• <i>erosion</i></li> <li>• <i>weathering</i></li> <li>• <i>crustal deformation</i></li> </ul>	<p><b>Weather and Water</b> Investigation 9, Part 4, pp. 315-318 Resources, pp. 63-6</p> <p><b>Earth History</b> Investigation 4, Parts 3-4, pp. 138-149 Resources, pp. 100-105</p>	<p><b>Earth Processes</b> Activity 7, pp. 63-69</p> <p><b>Earth Processes</b> Activity 3-8, 10, pp. 29-79, 89-95 Reader, pp. 6-15</p>

<p>ESS.8.8.5 Compare and contrast the different landforms caused by Earth's external <i>forces</i>:</p> <ul style="list-style-type: none"> <li>• plains</li> <li>• canyons</li> <li>• deltas</li> <li>• valleys</li> <li>• swamps</li> </ul> <p>ESS.8.8.6 Research local, regional, and state landforms created by external <i>forces</i> on Earth:</p> <ul style="list-style-type: none"> <li>• Gulf Coastal Plain</li> <li>• Arkansas River Valley</li> <li>• Mississippi Alluvial Plain, including the delta region</li> <li>• Crowley's Ridge</li> </ul> <p>ESS.8.8.7 Use topographic maps to identify surface features of Earth</p> <p>ESS.8.8.8 Demonstrate an understanding of the agents of <i>erosion</i>:</p> <ul style="list-style-type: none"> <li>• <i>gravity</i></li> <li>• <i>water</i></li> <li>• <i>ice</i></li> <li>• <i>wind</i></li> <li>• <i>animals, including humans</i></li> </ul> <p>ESS.8.8.9 Using models of rivers, predict changes when <i>variables</i>, such as load, slope, amount of water, or the composition of a stream bed, are changed through <i>erosion</i> or <i>deposition</i></p> <p>ESS.8.8.10 Explain how <i>weathering</i> and <i>erosion</i> affect the oceans' salinity</p> <p>ESS.8.8.11 Investigate careers, scientists, and historical breakthroughs related to external <i>forces</i> that change the Earth</p>	<p>Local Objective</p> <p><b>Earth History</b> Investigation 4, Parts 3-4, pp. 138-149</p> <p><b>Earth History</b> Investigation 4, Part 3, pp. 138-146 CD, Geology Lab: Earth Processes</p>	<p><b>Earth Processes</b> Reader, pp. 11-5</p> <p>Local Objective</p> <p><b>Earth Processes</b> Activity 4, pp. 39-46 Reader pp. 11-15</p> <p><b>Earth Processes</b> Activity 9, Science and Careers, p. 21 Reader p. 21</p>
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<p><b>Cycles</b></p> <p>ESS.8.8.12 Investigate the types of <i>weathering</i> involved in the breakdown of <i>organic</i> and <i>inorganic</i> components of Earth's surface</p> <p>ESS.8.8.13 Illustrate <i>soil profiles</i></p> <p>ESS.8.8.14 Apply knowledge of <i>soil profiles</i> to local soil samples</p> <p>ESS.8.8.15 Investigate the formation of soil types</p> <p>ESS.8.8.16 Identify components of soil as <i>inorganic</i> or <i>organic</i> through investigations</p> <p>ESS.8.8.17 Identify the basic <i>nutrients</i> needed by plants that are present in soils:</p> <ul style="list-style-type: none"> <li>• nitrogen</li> <li>• phosphorous</li> <li>• potassium</li> </ul> <p>ESS.8.8.18 Identify ways plants use <i>organic</i> and <i>inorganic</i> components in the soil</p> <p>ESS.8.8.19 Investigate and analyze the composition of a variety of soils</p> <p>ESS.8.8.20 Conduct investigations on soil permeability</p>		<p><b>Earth Processes</b> Activity 3, pp. 29-37 Reader, p. 19</p> <p><b>Earth Processes</b> Activity 3, Science Challenge, p. 37 Reader, p. 20</p> <p><b>Earth Processes</b> Activity 3, pp. 29-37 Reader, pp. 19-20</p> <p><b>Earth Processes</b> Activity 3, pp. 29-37</p> <p><b>Earth Processes</b> Activity 3, pp. 29-37</p>
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**Strand 4: Earth and Space Science**

**Standard 9: Earth's History: Changes in Earth and Sky**

Students shall demonstrate and apply knowledge of Earth's history using appropriate safety procedures, equipment, and technology.

Student Learning Expectation	FOSS	DSM
<p><b>Earth's History</b></p> <p>ESS.9.8.1 Explain processes that have changed Earth's surface that have resulted from sudden events (e.g., <i>earthquakes</i> and volcanoes) and gradual changes (e.g., uplift, <i>erosion</i>, and <i>weathering</i>)</p> <p>ESS.9.8.2 Analyze how rock sequences may be disturbed by the following:</p> <ul style="list-style-type: none"> <li>• <i>erosion</i></li> <li>• <i>deposition</i></li> <li>• <i>igneous intrusion</i></li> <li>• folding</li> <li>• faulting</li> <li>• uplifting</li> </ul> <p>ESS.9.8.3 Explain how scientists determine the relative ages of <i>fossils</i> found in layers of <i>sedimentary rock</i>:</p> <ul style="list-style-type: none"> <li>• <i>law</i> of superposition</li> <li>• <i>law</i> of cross-cutting</li> </ul> <p>ESS.9.8.4 Apply geologic <i>laws</i> of superposition and cross-cutting to determine the relative age of rock in a cross section</p>	<p><b>Earth History</b> Investigation 4, Parts 3-4, pp. 138-146 Resources, pp. 100-105 CD, Earth Processes</p> <p><b>Earth History</b> Investigation 3, Part 4, pp. 108-111 Resources, pp. 73-75, 100-105 CD, Earth Processes</p> <p><b>Earth History</b> Resources, pp. 76-79, 83-87</p> <p><b>Earth History</b> Investigation 7, Part 1, pp. 234-242</p>	<p><b>Earth Processes</b> Activity 3-8, 10, pp. 29-79, 89-95 Reader pp. 6-15</p> <p><b>Earth Processes</b> Reader p. 22</p>

**Strand 4: Earth and Space Science**

**Standard 10: Objects in the Universe**

Students shall demonstrate and apply knowledge of objects in the universe using appropriate safety procedures, equipment, and technology.

Student Learning Expectation	FOSS	DSM
<p><b>Solar System: Sun, Earth, Moons, Planets, Galaxies</b></p> <p>ESS.10.8.1 Summarize the effects of</p>	<p><b>Planetary Science</b> Resources, pp. 69-70, 84</p>	<p><b>Earth, Moon and Sun</b> Activity 5, pp. 45-51</p>

<p><i>gravity</i> on bodies in space</p> <p>ESS.10.8.2 Identify <i>variables</i> that affect the amount of gravitational <i>force</i> between two objects:</p> <ul style="list-style-type: none"> <li>• <i>mass</i> of the objects</li> <li>• distance between the objects</li> </ul> <p>ESS.10.8.3 Relate the effects of the moon's gravitational <i>force</i> on Earth's ocean tides</p> <p>ESS.10.8.4 Identify the causes of the following:</p> <ul style="list-style-type: none"> <li>• high tides</li> <li>• low tides</li> <li>• <i>spring tides</i></li> <li>• <i>neap tides</i></li> </ul> <p>ESS.10.8.5 Define the terms <i>galaxy</i> and universe</p> <p>ESS.10.8.6 Illustrate the appearance of galaxies as seen through a telescope:</p> <ul style="list-style-type: none"> <li>• clarity</li> <li>• shape</li> </ul> <p>ESS.10.8.7 Compare and contrast the Milky Way <i>Galaxy</i> to other galaxies</p> <p>ESS.10.8.8 Illustrate the position of our <i>solar system</i> within the Milky Way <i>Galaxy</i></p> <p>ESS.10.8.9 Investigate careers, scientists, and historical breakthroughs related to <i>gravity</i>, <i>galaxies</i>, and the universe</p>	<p><b>Force and Motion</b> Resources, pp. 67-69</p> <p><b>Planetary Science</b> Resources, pp. 70, 84 <b>Force and Motion</b> Investigation 7, Part 1, pp. 256-261 Resources, pp. 62-65</p> <p><b>Planetary Science</b> Resources, p. 100</p> <p><b>Planetary Science</b> Resources, p. 100</p> <p><b>Planetary Science</b> Resources, p. 100</p> <p><b>Force and Motion</b> Resources, pp. 50-52, 62-66</p>	<p>Activity 12, pp. 111-119 Reader, pp. 5, 16-17 <b>Newton's Toy Box</b> Activity 2, Science and Math, p. 23 Reader, p. 23</p> <p><b>Earth, Moon and Sun</b> Reader, p. 5 <b>Newton's Toy Box</b> Activity 2, pp. 19-23 Reader, p. 8</p> <p><b>Earth, Moon and Sun</b> Activity 12, pp. 111-119 Reader, pp. 16-17</p> <p><b>Earth, Moon and Sun</b> Activity 12, pp. 111-119 Reader, pp. 16-17</p> <p><b>Earth, Moon and Sun</b> Reader, p. 4 <b>Astronomy</b> Activity 11</p> <p><b>Earth, Moon and Sun</b> Reader, p. 4 <b>Astronomy</b> Activity 11</p> <p><b>Earth, Moon and Sun</b> Reader, p. 4 <b>Astronomy</b> Activity 11</p> <p><b>Earth, Moon and Sun</b> Reader, p. 4</p> <p><b>Earth, Moon and Sun</b> Activity 12, Science and Careers, p. 101 Reader, p. 20 <b>Newton's Toy Box</b> Reader, p. 22</p>
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