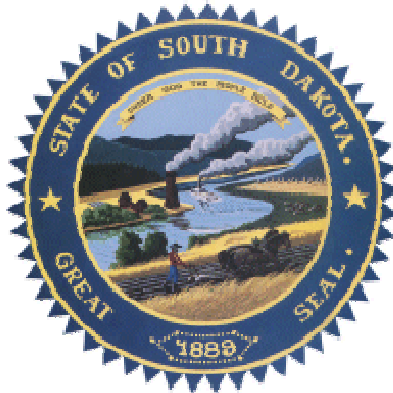




Full Option Science System
(FOSS™)
Grades K-8

Correlation with

**South Dakota
Science Standards**



Correlation of the South Dakota Science Standards to Full Option Science System

The following correlation of the South Dakota Science Standards for elementary science to the Full Option Science System (FOSS) is to show *representative* examples of investigations and activities that address those standards and their benchmarks. A citation does not include *all* of the investigations or activities from FOSS that might address a particular benchmark.

Grade Level Content Standards and Supporting Skills, identified by a bullet (●), are correlated to FOSS modules at the appropriate grade level. Supporting Skills identified by a check mark (√) may be correlated to the next higher grade-level modules.

The examples of FOSS investigations cited below for Grades 6-8 are from FOSS modules developed for grades 5-6 and from the FOSS Middle School modules, developed for Grades 6-8.

December 2007
Updated September 2008
Updated December 2008

KINDERGARTEN PHYSICAL SCIENCE STANDARDS

Indicator 1: Describe structures and properties of, and changes in, matter.

Grade Standards and Supporting Skills	FOSS Investigation/Activities	Page Number(s)	
<p>K.P.1.1. Students are able to use senses to describe solid objects in terms of physical attributes.</p> <ul style="list-style-type: none"> • Explain how larger objects are made of smaller pieces. • Identify similarities /differences of various objects. 	<p><u>Wood and Paper</u>, Investigation 1, Parts 1-2</p> <p><u>Fabric</u>, Investigation 1, Parts 1-2</p> <p><u>Trees</u>, Investigation 2, Parts 1-3</p> <p><u>Animals Two X Two</u> Investigation 2, Part 4</p>	<p>Pages 8-19</p> <p>Pages 6-15</p> <p>Pages 6-19</p> <p>Pages 22-24</p>	
	<p><u>Wood and Paper</u>, Investigation 2, Parts 3-4</p> <p><u>Fabric</u>, Investigation 1, Parts 4-6</p> <p><u>Trees</u>, Investigation 3, Part 2</p> <p><u>Animals Two by Two</u> Investigation 4, Part 1</p>	<p>Pages 15-23</p> <p>Pages 20-33</p> <p>Pages 12-14</p> <p>Pages 8-11</p>	
	<p><u>Animals Two by Two</u> Investigation 4, Part 2</p> <p><u>Wood and Paper</u>, Investigation 1, Part 1</p> <p><u>Fabric</u>, Investigation 1, Parts 1-2</p> <p><u>Trees</u>, Investigation 2, Parts 2-5</p>	<p>Pages 12-15</p> <p>Pages 8-14</p> <p>Pages 6-15</p> <p>Pages 10-25</p>	
	<p>K.P.1.2. Students are able to identify water in its solid and liquid forms.</p> <ul style="list-style-type: none"> • Observe ice in the environment. • Observe water in the environment. <p>✓ Students are able to observe physical changes in matter.</p>	<p><u>Wood and Paper</u>, Investigation 1, Parts 3-5</p> <p><u>Fabric</u>, Investigation 2, Parts 1-2</p> <p><u>Trees FOSS Science Stories</u></p>	<p>Pages 20-32</p> <p>Pages 6-17</p> <p>Pages 6, 13, 23</p>
		<p><u>Animals Two by Two</u> Investigation 3 Science Ext.</p> <p><u>Trees</u> Investigation 1, Part 8</p> <p><u>Fabric FOSS Science Stories</u></p> <p><u>Wood and Paper FOSS Science Stories</u></p>	<p>Page 23</p> <p>Pages 35-37</p> <p>Page 16</p> <p>Page 20</p>
		<p><u>Fabric</u> Investigation 2, Parts 1-3</p> <p><u>Wood and Paper</u>, Investigation 3, Part 4</p> <p><u>Trees</u> Investigation 3, Part 7</p> <p><u>Solids and Liquids</u> (Grade 1-2 module)</p> <p>Investigation 4, Part 1</p>	<p>Pages 7-21</p> <p>Pages 22-25</p> <p>Pages 29-31</p> <p>Pages 7-16</p>

KINDERGARTEN LIFE SCIENCE STANDARDS

Indicator 1: Understand the fundamental structures, functions, classifications, and mechanisms found in living things.

Grade Standards and Supporting Skills	FOSS Investigation/Activities	Page Number(s)
K.L.1.1. Students are able to sort living from non-living things.	<u>Animals Two by Two</u> Investigation 2, Part 4 <u>Wood and Paper</u> Investigation 1, Part 1	Pages 22-24 Pages 8-14
	<u>Trees</u> Investigation 1, Part 2 <u>Fabric FOSS Science Stories</u>	Pages 15-19 Pages 3-13
✓ Students are able to discuss the basic needs of plants and animals.	<u>Animals Two by Two</u> , Investigation 1, Part 2 <u>Trees</u> Investigation 1, Part 2	Pages 17-21 Pages 15-19
✓ Students are able to compare size and shape of living things	<u>Insects</u> (Grade 1-2 module) Investigation 3, Parts 2-3	Pages 12-26
	<u>New Plants</u> (Grade 1-2 module) Investigation 1, Parts 2-3	Pages 13-30
	<u>Animals Two by Two</u> Investigation 1, Part 4 <u>Trees</u> Investigation 1, Parts 3-4	Pages 26-29 Pages 20-24
	<u>Insects</u> (Grade 1-2 module) Investigation 3, Part 3	Pages 21-26

KINDERGARTEN EARTH/SPACE SCIENCE STANDARDS

Indicator 1: Analyze the various structures and processes of the Earth system.

Grade Standards and Supporting Skills	FOSS Investigation/Activities	Page Number(s)
K.E.1.1. Students are able to describe simple Earth patterns in daily life.	<u>Trees</u> Investigation 3, Parts 3-9	Pages 15-38
✓ Explore rocks, sand, water, and soil.	<u>Trees</u> Investigation 1, Part 8 <u>Animals Two by Two</u> Investigation 4, Part 4 <u>Pebbles, Sand, and Silt</u> (Grade 1-2 module) Investigation 2, Parts 1-4	Pages 35-37 Pages 20-23 Pages 8-29

FIRST GRADE PHYSICAL SCIENCE STANDARDS

Indicator 1: Describe structures and properties of, and changes in, matter.

Grade Standards and Supporting Skills	FOSS Investigation/Activities	Page Number(s)	
1.P.1.1. Students are able to categorize objects by physical attributes such as color, size, and shape.	<u>Solids and Liquids</u> Investigation 1, Parts 1-2	Pages 8-20	
	<u>Balance and Motion</u> Investigation 3, Parts 1-2	Pages 6-18	
	<u>Pebbles, Sand and Silt</u> Investigation 1, Parts 1-4	Pages 8-25 Pages 8-15	
	<u>Insects FOSS Science Stories</u> <u>New Plants FOSS Science Stories</u>	Pages 40-43	
1.P.1.2. Students are able to compare objects in terms of heavier or lighter.	<u>Balance and Motion</u> Investigation 2, Part 1 Investigation 3, Part 2 <u>Pebbles, Sand and Silt</u> Investigation 2, Part 2	Pages 8-13 Pages 27-28 Pages 14-17	
1.P.1.3. Students are able to predict how common materials interact with water.	<u>Solids and Liquids</u> Investigation 4, Parts 1-2	Pages 7-22	
	<u>Pebbles, Sand, and Silt</u> Investigation 2, Parts 2-3	Pages 14-23	
	<u>New Plants</u> Investigation 2, Part 1	Page 8-14	
	• Floating/sinking	<u>Pebbles, Sand, and Silt</u> Investigation 2, Parts 2-3	Pages 14-23
		<u>Solids and Liquids</u> Investigation 3, Part 1	Pages 8-13
	✓ Soluble/nonsoluble	<u>Pebbles, Sand, and Silt</u> Investigation 2, Parts 2-3 <u>Solids and Liquids</u> Investigation 4, Part 1	Pages 14-23 Pages 7-16

Indicator 2: Analyze forces, their forms, and their effects on motions.

Grade Standards and Supporting Skills	FOSS Investigation/Activities	Page Number(s)
1.P.2.1. Students are able to describe relative positions of objects.	<u>Air and Weather</u> Investigation 3, Part 1	Pages 8-11
	<u>Balance and Motion</u> Investigation 1, Part 1	Pages 8-13
	<u>Insects</u> Investigation 4, Part 4	Pages 23-27
	<u>Pebbles, Sand, and Silt</u> Investigation 2, Part 3	Pages 18-23
	✓ Show how magnets can be used to make some things move without being touched.	<u>Balance and Motion FOSS Science Stories</u>
✓ Demonstrate ways to make objects move faster or slower or in a different direction.	<u>Air and Weather</u> Investigation 1, Parts 4-6 <u>Balance and Motion</u> Investigation 3, Parts 1-2	Pages 21-38 Pages 6-18

FIRST GRADE LIFE SCIENCE STANDARDS

Indicator 1: Understand the fundamental structures, functions, classifications, and mechanisms found in living things.

Grade Standards and Supporting Skills	FOSS Investigation/Activities	Page Number(s)
<p>1.L.1.1. Students are able to discover life needs of green plants.</p> <ul style="list-style-type: none"> • Grow plants using variables such as sunlight/no sunlight, soil/no soil, sand or rock. 	<p><u>New Plants</u> Investigation 1, Part 2 <u>Pebbles, Sand, and Silt</u> Investigation 4, Science Ext. <u>New Plants FOSS Science Stories</u> <u>Insects and Plants</u> Investigation 2, Part 1 <u>Plants and Animals</u> Investigation 1, Part 1 Investigation 3, Part 1 <u>Plants and Animals Science</u> <u>Resources</u> Video: How Plants Get Food</p> <p><u>New Plants</u> Investigation 2, Part 2 Investigation 2, Science Ext. <u>Plants and Animals</u> Investigation 1, Part 2 Investigation 1, Science Ext.</p>	<p>Pages 13-22 Page 27 Pages 3-7 Pages 91-94 Pages 47-57 Pages 120-127 Pages 3-7 Pages 15-19 Page 30 Pages 96-103 Pages 76-77</p>
<p>1.L.1.2. Students are able to identify the parts of a plant.</p>	<p><u>New Plants</u> Investigation 3, Parts 1-3 <u>Plants and Animals</u> Investigation 2, Parts 1-3 Investigation 4, Parts 1-2 <u>Plants and Animals Science</u> <u>Resources</u> <u>Insects and Plants</u> Investigation 2, Part 3 <u>Insects and Plants Science</u> <u>Resources</u></p>	<p>Pages 8-26 Pages 87-108 Pages 151-163 Pages 4-7, 15-19 Pages 105-115 Pages 15-19</p>
<p>1.L.1.3. Students are able to list life needs of people and other animals.</p>	<p><u>Insects</u> ALL, Such as Investigation 1, Part 1 <u>Insects and Plants</u> Investigation 1, Part 1 Investigation 4, Part 2 <u>Plants and Animals Science</u> <u>Resources</u></p>	<p>Pages 8-15 Pages 52-61 Pages 151-163 Pages 21-23</p>

Indicator 2: Analyze various patterns and products of natural and induced biological change.

Grade Standards and Supporting Skills	FOSS Investigation/Activities	Page Number(s)
<p>1.L.2.1. Students are able to describe physical similarities and differences between parents and offspring.</p>	<p><u>Insects</u> Investigation 3, Part 3 <u>Insects FOSS Science Stories</u> <u>Insects and Plants</u> Investigation 3, Part 3 <u>Plants and Animals Science</u></p>	<p>Pages 21-26 Pages 36-41 Pages 145-151</p>

Indicator 3: Analyze how organisms are linked to one another and the environment.

Grade Standards and Supporting Skills	FOSS Investigation/Activities	Page Number(s)
<p>1.L.3.1. Students are able to relate characteristics of plants and animals that allow them to live in specific habitats.</p>	<p><u>Insects</u> Investigation 3, Part 3 <u><i>Insects FOSS Science Stories</i></u> <u><i>New Plants FOSS Science Stories</i></u> <u><i>Pebbles, Sand, and Silt FOSS Science Stories</i></u> Insects and Plants Investigation 3, Parts 1-3 <u><i>Plants and Animals Science Resources</i></u> <u>Plants and Animals</u> Investigation 3, Parts 1-3 <u><i>Plants and Animals Science Resources</i></u> Video: How Plants Live in Different Places</p>	<p>Pages 21-26 <i>Pages 36-41</i> <i>Pages 22-39</i> <i>Pages 20-25</i> Pages 129-151 <i>Pages 30-33</i> Pages 120-140 <i>Pages 28-45, 47-50</i></p>

FIRST GRADE EARTH/SPACE SCIENCE STANDARDS

Indicator 1: Analyze the various structures and processes of the Earth system.

Grade Standards and Supporting Skills	FOSS Investigation/Activities	Page Number(s)
<p>1.E.1.1. Students are able to recognize changes in weather over time.</p>	<p><u>Air and Weather</u> Investigation 2, Parts 1-4</p>	<p>Pages 8-27</p>
<ul style="list-style-type: none"> • Seasonal changes 	<p><u>Air and Weather</u> Investigation 4, Parts 1-2</p>	<p>Pages 8-18</p>
<p>1.E.1.2. Students are able to describe rocks in terms of properties.</p>	<p><u>Pebbles, Sand, and Silt</u> Investigation 1, Parts 1-4</p>	<p>Pages 8-25</p>

SECOND GRADE PHYSICAL SCIENCE STANDARDS

Indicator 1: Describe structures and properties of, and changes in, matter.

Grade Standards and Supporting Skills	FOSS Investigation/Activities	Page Number(s)
2.P.1.1. Students are able to classify solids in terms of the materials they are made of and their physical properties. <ul style="list-style-type: none"> • Define a solid. 	<u>Solids and Liquids</u> Investigation 1, Parts 1-3 <u>Air and Weather</u> Investigation 1, Part 1 <u>Pebbles, Sand, and Silt</u> Investigation 2, Parts 1-3	Pages 8-24 Pages 8-12 Pages 8-23
	<u>Solids and Liquids</u> Investigation 4, Parts 1-3	Pages 7-27
2.P.1.2. Students are able to describe visually observable properties of liquids and classify liquids by their physical properties. <ul style="list-style-type: none"> • Define a liquid. ✓ Explore properties of gases. 	<u>Solids and Liquids</u> Investigation 2, Parts 1-3 <u>Pebbles, Sand and Silt</u> Investigation 2, Part 3 <u>Air and Weather FOSS Science Stories</u>	Pages 10-27 Page 18-23 Pages 7-13
	<u>Solids and Liquids</u> Investigation 2, Parts 1-3	Pages 10-27
	<u>Air and Weather</u> Investigation 1, Parts 1-6 <u>Solids and Liquids</u> Investigation 4, Part 1 <u>Water</u> (Grade 3-4 Module) Investigation 3, Parts 1-4	Pages 8-38 Pages 7-16 Pages 8-26
	<u>Pebbles, Sand, and Silt</u> Investigation 2, Parts 1-3 <u>Solids and Liquids</u> Investigation 3, Part 2 Investigation 4, Part 1	Pages 8-23 Pages 14-18 Pages 7-16

Indicator 2: Analyze forces, their forms, and their effects on motions.

Grade Standards and Supporting Skills	FOSS Investigation/Activities	Page Number(s)
2.P.2.1. Students are able to demonstrate how moving objects exhibit different types of motion. <ul style="list-style-type: none"> • Describe motions of common objects in terms of change in position or direction (e.g., up-down, left- right, fast- slow). • Describe how pushes or pulls can change motion of an object. 	<u>Balance and Motion</u> Investigation 3, Parts 1-3 <u>Air and Weather</u> Investigation 3, Parts1, 4-5 <u>Solids and Liquids</u> Investigation 3, Part 3	Pages 6-25 Pages 8-11, 22-33 Pages 19-23
	<u>Balance and Motion</u> Investigation 2, Parts 1-3 <u>Air and Weather</u> Investigation 3, Parts 1, 3, 5 <u>Insects</u> Investigation 6, Part 2	Pages 8-25 Pages 8-11, 17-21, 28-33 Pages 14-17
	<u>Balance and Motion</u> Investigation 2, Parts 1-2 <u>Air and Weather</u>	Pages 8-19

	Investigation 3, Part 5	Pages 28-33
2.P.2.2. Students are able to predict the effects of magnets on other magnets and other objects.	<u>Balance and Motion FOSS Science Stories</u>	Pages 18-21
<ul style="list-style-type: none"> • Attracting and repelling 	<u>Balance and Motion</u> Investigation 3 “Magnetic force”	Teacher Sheet 11
✓ Explore magnetic poles.	<i>Note: this standard is addressed in the FOSS Grades 3-4 module <u>Magnetism and Electricity.</u></i>	

Indicator 3: Analyze interactions of energy and matter.

Grade Standards and Supporting Skills	FOSS Investigation/Activities	Page Number(s)
2.P.3.1. Students are able to compare sounds in terms of high pitch, low pitch, loud and soft (volume).	<i>Note: this standard is addressed thoroughly in the FOSS Grades 3-4 <u>Physics of Sound</u> module.</i>	
✓ Describe ways heat can be produced.	<u>Air and Weather</u> Investigation 4, Part 2	Pages 12-18
✓ Demonstrate how light can pass through some objects and not others.	<u>Solids and Liquids</u> Investigation 2, Parts 1-2 <u>Air and Weather</u> Investigation 1, Part 1	Pages 10-20 Pages 8-12
• Predict the casting of shadows.	<i>Note: this standard is addressed in the FOSS Grades 5-6 <u>Solar Energy</u> module.</i>	
✓ Explore sources of energy.	<u>Air and Weather</u> Investigation 3, Part 5 <u>New Plants</u> Investigation 1, Part 2 <u>Water</u> (Grade 3-4 Module) Investigation 4, Part 2 <u>Magnetism and Electricity</u> (Grade 3-4 Module) Investigation 2, Parts 1-2	Pages 28-33 Pages 13-22 Pages 14-18 Pages 8-19

SECOND GRADE LIFE SCIENCE STANDARDS

Indicator 1: Understand the fundamental structures, functions, classifications, and mechanisms found in living things.

Grade Standards and Supporting Skills	FOSS Investigation/Activities	Page Number(s)
2.L.1.1. Students are able to classify plants according to similarities and differences.	<u>New Plants</u> Investigation 2, Parts 1-2 <u>Insects and Plants</u> Investigation 1, Parts 1-2	Pages 8-19 Pages 47-62
2.L.1.2. Students are able to classify people and animals according to similarities and differences.	<u>Insects</u> Investigation 5, Parts 1-3 Investigation 5, Math/Sci. Ext. <u>Insects and Plants</u>	Pages 10-22 Pages 23-24

SECOND GRADE EARTH/SPACE SCIENCE STANDARDS

Indicator 1: Analyze the various structures and processes of the Earth system.

Grade Standards and Supporting Skills	FOSS Investigation/Activities	Page Number(s)
<p>2.E.1.1. Students are able to describe types and patterns of weather during different seasons.</p> <ul style="list-style-type: none"> • Measure and record weather data such as high and low temperature, wind, precipitation, clouds using tools such as a rain gauge, anemometer, wind sock, etc. ✓ Practice reading thermometers. 	<p><u>Air and Weather</u>, Investigation 2, Parts 2-4 Investigation 3, Part 2 Investigation 4, Parts 1-2</p> <p><u>Air and Weather</u>, Investigation 2, Parts 2-4 Investigation 3, Parts 2-4</p> <p><u>Air and Weather</u>, Investigation 2, Part 2 <u>Measurement</u> (Grades 3-4 Module) Investigation 4, Parts 1-2 <u>Water</u> Investigation 2, Parts 1-3</p>	<p>Pages 14-27 Pages 12-16 Pages 8-18</p> <p>Pages 12-27</p> <p>Pages 14-19</p> <p>Pages 8-17</p> <p>Pages 8-24</p>
<p>2.E.1.2. Students are able to identify and locate geological features using maps and globes.</p> <ul style="list-style-type: none"> • Recognize most of the Earth's surface is covered with water. 	<p><i>Note: this standard is addressed in the FOSS Grades 5-6 <u>Landforms</u> module.</i></p> <p><i>Note: this standard is addressed in the FOSS Grades 3-4 <u>Water</u> module also</i> <u>Water FOSS Science Stories</u></p>	<p>Page 17</p>
<p>2.E.1.3. Students are able to recognize and distinguish between forms of water in the Earth system.</p> <ul style="list-style-type: none"> ✓ Recognize ways fossils provide evidence about plants and animals that lived long ago. 	<p><u>Air and Weather</u> Investigation 2, Part 4 <i>Note: this standard is addressed thoroughly in the FOSS Grades 3-4 <u>Water</u> module.</i></p> <p><u>Pebbles, Sand, and Silt FOSS Science Stories</u></p>	<p>Pages 24-27</p> <p>Pages 8-9, 12-20</p> <p>Pages 26-31</p>

THIRD GRADE PHYSICAL SCIENCE STANDARDS

Indicator 1: Describe structures and properties of, and changes in, matter.

STANDARDS	FOSS INVESTIGATION(S)	PAGE NUMBERS
<p>3.P.1.1. Students are able to describe physical properties of matter using the senses (touch, smell, etc.).</p> <ul style="list-style-type: none"> • Define the five senses. • Define solid, liquid, and gas. 	<p><u>Ideas and Inventions</u> Investigation 1, Parts 1-3</p> <p><u>Magnetism and Electricity</u> Investigation 1, Parts 1-4</p> <p><u>Earth Materials</u> Investigation 4, Part 1</p> <p><u>Water</u> Investigation 4, Part 3</p> <p><u>Physics of Sound</u> Investigation 2, Parts 1-3</p> <p><u>Measurement</u> Investigation 2, Parts 1-3</p> <p><u>Structures of Life</u> Investigation 1. Part 1</p>	<p>Pages 8-24</p> <p>Pages 11-36</p> <p>Pages 8-13</p> <p>Pages 19-23</p> <p>Pages 8-28</p> <p>Pages 10- 24</p> <p>Pages 8-17</p>
	<p><u><i>Ideas and Inventions FOSS</i></u> <u><i>Science Stories</i></u></p> <p><u><i>Physics of Sound FOSS</i></u> <u><i>Science Stories</i></u></p>	<p>Pages 28-31</p> <p>Pages 9-10</p>
<p>3.P.1.2. Students are able to use tools to relate composition to physical properties.</p> <ul style="list-style-type: none"> • Describe the basic characteristics of matter in relation to space and mass. • Recognize changes in matter from one state to another using water. 	<p><u>Earth Materials</u> Investigation 1, Parts 1-3</p> <p><u>Magnetism and Electricity</u> Investigation 2, Parts 3-4</p> <p><u>Ideas and Inventions</u> Investigation 3, Parts 1-3</p> <p><u>Water</u> Investigation 1, Parts 1-2</p> <p><u>Structures of Life</u> Investigation 2, Part 1</p> <p><u><i>Physics of Sound FOSS</i></u> <u><i>Science Stories</i></u></p>	<p>Pages 11-30</p> <p>Pages 20-29</p> <p>Pages 8-24</p> <p>Pages 8-18</p> <p>Pages 8-13</p> <p>Pages 11-16</p>
	<p><u>Measurement</u> Investigation 2, Parts 1-3</p> <p><u>Matter and Energy</u> Investigation 3, Parts 2-3</p>	<p>Pages 8-21</p> <p>Pages 139-160</p>
	<p><u>Water</u> Investigation 1, Parts 1-2</p> <p>Investigation 2, Parts 2-3</p> <p>Investigation 3, Part 1</p>	<p>Pages 8-18</p> <p>Pages 14-27</p> <p>Pages 8-11</p>

	<u>Matter and Energy</u> Investigation 4, Part 2 <i>Matter and Energy FOSS Science Resources</i>	Pages 181-192 <i>Pages 54-56</i>
3.P.1.3. Students are able to demonstrate how a different substance can be made by combining two or more substances.	<u>Earth Materials</u> Investigation 1, Parts 1-3 <u>Magnetism and Electricity</u> Investigation 2, Part 1 <u>Water</u> Investigation 2, Science Ext. <u>Ideas and Inventions</u> Investigation 3, Parts 1-3	Pages 11-32 Pages 10-13 Pages 26-27 Pages 8-24
<ul style="list-style-type: none"> Identify a mixture. 	<u>Earth Materials</u> Investigation 1, Parts 1-3 <i>Ideas and Inventions FOSS Science Stories</i>	Pages 11-32 <i>Pages 19-20</i>

Indicator 2: Analyze forces, their forms, and their effects on motions.
(Mastery of this indicator does not emerge until fourth grade.)

Indicator 3: Analyze interactions of energy and matter.

Grade Standards and Supporting Skills	FOSS Investigation/Activities	Page Number(s)
3.P.3.1. Students are able to define energy and differentiate between sources of renewable and non-renewable energy.	<u>Water</u> Investigation 4, Part 2 <i>Water FOSS Science Stories</i> <i>Physics of Sound FOSS Science Stories</i> www.fossweb.com , <u>Water</u>	Pages 14-18 <i>Pages 17, 22-23</i> <i>Pages 22-28</i> "Resources ID" Activity
<ul style="list-style-type: none"> Describe renewable and non-renewable energy. 	<i>Physics of Sound FOSS Science Stories</i> www.fossweb.com , <u>Water</u>	<i>Pages 22-28</i> "Resources ID" Activity
3.P.3.2. Students are able to demonstrate how sound consists of vibrations and pitch.	<u>Physics of Sound</u> Investigation 2, Parts 1-3	Pages 8-24
<ul style="list-style-type: none"> Relate the rate of vibration to the pitch of sound. 	<u>Physics of Sound</u> Investigation 2, Part 1 <u>Matter and Energy</u> Investigation 1, Part 3	Pages 8-12 Pages 71-82
<ul style="list-style-type: none"> Low tones are caused by slow vibrations; high tones are caused by fast vibrations. 	<u>Physics of Sound</u> Investigation 2, Part 2	Pages 13-19
3.P.3.3. Students are able to identify how sound is used as a means of communication.	<u>Physics of Sound</u> Investigation 1, Parts 1-2 <u>Magnetism and Electricity</u> Investigation 5, Parts 1-2	Pages 8-20 Pages 8-20
<ul style="list-style-type: none"> Give examples of kinds of communication. 	<i>Physics of Sound FOSS Science Stories</i>	<i>Pages 1-8</i>

THIRD GRADE LIFE SCIENCE STANDARDS

Indicator 1: Understand the fundamental structures, functions, classifications, and mechanisms found in living things.

Grade Standards and Supporting Skills	FOSS Investigation/Activities	Page Number(s)
3.L.1.1. Students are able to identify the basic structures, functions, and needs of plants in relation to their environment. <ul style="list-style-type: none"> Differentiate between plants and animals. 	<u>Structures of Life</u> Investigation 2 Parts 1-3 <u>Structures of Life FOSS</u> <u>Science Stories</u>	Pages 8-22 <i>Pages 8-9, 16-19</i>
	<u>Structures of Life</u> Investigation 3, Parts 1-4	Pages 8-30
3.L.1.2. Students are able to identify characteristic features of animals and their related functions in relation to their environment. <ul style="list-style-type: none"> Differentiate between plants and animals. 	<u>Structures of Life</u> Investigation 3, Parts 1-4 Investigation 5, Parts 1-3 <u>Structures of Life FOSS</u> <u>Science Stories</u> <u>Human Body</u> Investigation 1, Part 3 Investigation 2, Parts 1-4 <u>Human Body FOSS Science</u> <u>Stories</u>	Pages 8-30 Pages 8-24 <i>Pages 20-35, 41-43</i> Pages 21-27 Pages 8-25 <i>Pages 1-4, 9-13</i>
	<u>Structures of Life</u> Investigation 3, Parts 1-4	Pages 8-30
3.L.1.3. Students are able to describe life cycles, including growth and metamorphosis, of familiar organisms. <ul style="list-style-type: none"> Differentiate between adult males and females. 	<u>Structures of Life</u> Investigation 2 Parts 1-3 <u>Structures of Life FOSS</u> <u>Science Stories</u> www.fossweb.com , <u>Structures of Life</u> <i>Note: this standard is also addressed in the FOSS Grades 1-2 <u>Insects</u> module.</i>	Pages 8-22 <i>Pages 14-15</i> “Life Cycles” Activity
	<u>Structures of Life</u> Investigation 3, Part 1 <i>Note: this standard is also addressed in the FOSS Grades 1-2 <u>Insects</u> module.</i>	Pages 8-15

Indicator 2: Analyze various patterns and products of natural and induced biological change.

Grade Standards and Supporting Skills	FOSS Investigation/Activities	Page Number(s)
3.L.2.1. Students are able to explain how animals instinctively meet basic needs in their environment. <ul style="list-style-type: none"> Give examples of basic needs. 	<u>Structures of Life</u> Investigation 3, Parts 3-4	Pages 20-30
	<u>Structures of Life</u> Investigation 3, Parts 2-4	Pages 16-30

Indicator 3: Analyze how organisms are linked to one another and the environment.

Grade Standards and Supporting Skills	FOSS Investigation/Activities	Page Number(s)
<p>3.L.3.1. Students are able to describe how species depend on one another and on the environment for survival.</p> <ul style="list-style-type: none"> Describe cause-and-effect relationships in living systems. 	<p><u>Structures of Life</u> Investigation 2 Parts 1-3 <u>Structures of Life FOSS</u> <u>Science Stories</u></p> <p><u>Structures of Life</u> Investigation 2 Science Ext. <u>Structures of Life FOSS</u> <u>Science Stories</u></p>	<p>Pages 8-22 Pages 22-34, 43</p> <p>Page 24 Pages 35-36</p>
<p>3.L.3.2. Students are able to explain how environments support a diversity of plants and animals.</p> <ul style="list-style-type: none"> Describe types of environments. 	<p><u>Structures of Life FOSS</u> <u>Science Stories</u> <u>Water FOSS Science Stories</u></p> <p><u>Structures of Life FOSS</u> <u>Science Stories</u></p>	<p>Pages 22-34 Pages 5-7</p> <p>Pages 22-34</p>
<p>3.L.3.3. Students are able to describe ways humans impact air, water, and habitat quality.</p> <ul style="list-style-type: none"> Define pollution. 	<p><u>Water</u> Investigation 4, Part 3 <u>Structures of Life FOSS</u> <u>Science Stories</u></p> <p><u>Structures of Life FOSS</u> <u>Science Stories</u> <u>Water FOSS Science Stories</u></p>	<p>Pages 19-23 Pages 22-36</p> <p>Pages 22-36 Pages 20, 24-26</p>
<p>3.L.3.4. Students are able to examine fossils and describe how they provide evidence of change in organisms.</p> <ul style="list-style-type: none"> Define a fossil. 	<p><u>Earth Materials FOSS Science</u> <u>Stories</u></p>	<p>Pages 1-4</p>

THIRD GRADE EARTH/SPACE SCIENCE STANDARDS

Indicator 1: Analyze the various structures and processes of the Earth system.

Grade Standards and Supporting Skills	FOSS Investigation/Activities	Page Number(s)
<p>3.E.1.1. Students are able to define the difference between a rock and a mineral.</p> <p>√ Examine fossils and describe how they are formed.</p>	<p><u>Earth Materials</u> Investigation 2, Parts 1-2 Investigation 4, Part 1 <u>Earth Materials FOSS Science</u> <u>Stories</u></p> <p><u>Earth Materials FOSS Science</u> <u>Stories</u></p>	<p>Pages 8-21 Pages 8-13 Pages 30-34</p> <p>Pages 1-4</p>
<p>3.E.1.2. Describe how humans use Earth's natural resources.</p>	<p><u>Water</u> Investigation 4, Parts 2-4 <u>Earth Materials FOSS Science</u> <u>Stories</u> <u>Magnetism and Electricity</u></p>	<p>Pages 14-23 Pages 8-13, 24-29</p>

<ul style="list-style-type: none"> Define natural resources. 	<u>FOSS Science Stories Structures of Life FOSS Science Stories</u> <u>Water FOSS Science Stories</u> www.fossweb.com , <u>Water</u>	Pages 7-9 Pages 4-5 Pages 10-11, 17-23 “Resource ID” Activity
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Indicator 2: Analyze essential principles and ideas about the composition and structure of the universe.

Grade Standards and Supporting Skills	FOSS Investigation/Activities	Page Number(s)
<p>3.E.2.1. Students are able to identify the Earth as one of the planets that orbits the Sun.</p> <ul style="list-style-type: none"> All planets orbit the Sun. 	<u>Ideas and Inventions FOSS Science Stories</u> <u>Sun, Moon and Stars Science Resources</u> <u>Sun, Moon and Stars Science Resources</u> <i>Note: This standard is also addressed in the FOSS Grades 5-6 Solar Energy module and the FOSS Middle School Planetary Science module.</i>	Pages 33-38 Pages 16-17 Pages 16-17
<p>3.E.2.2. Students are able to recognize changes in the appearance of the Moon over time.</p> <ul style="list-style-type: none"> Know that the Moon does not change shape, but at different times appears to change shape. <p>√ Explain the relationship between the rotation of the Earth on its axis and the day/night cycle.</p> <ul style="list-style-type: none"> Describe the causes for Earth’s seasons. 	<u>Ideas and Inventions FOSS Science Stories</u> <u>Sun, Moon and Stars Investigation 2, Parts 1-2</u> <u>Sun, Moon and Stars Science Resources</u> <u>Sun, Moon and Stars Science Resources</u> <i>Note: this standard is addressed in the FOSS Grades 1-2 Air and Weather module and the FOSS Middle School Planetary Science module.</i> <i>Note: this standard is addressed thoroughly in the FOSS Middle School Planetary Science module.</i> <i>Note: this standard is addressed in the FOSS Grades 5-6 Solar Energy module and also in the FOSS Middle School Weather and Water module.</i>	Pages 33-38 Pages 79-100 Pages 22-32 Pages 3, 9-10

THIRD GRADE SCIENCE, TECHNOLOGY, ENVIRONMENT AND SOCIETY STANDARDS

Indicator 1: Analyze various implications/effects of scientific advancement within the environment and society.

Grade Standards and Supporting Skills	FOSS Investigation/Activities	Page Number(s)
3.S.1.1. Students are able to recognize ways to recycle, reuse, and reduce consumption of natural resources.	<u>Water FOSS Science Stories</u>	<i>Pages 14-17, 21</i>
<ul style="list-style-type: none"> • Define recycle, reuse, and reduce. 	<u>Water FOSS Science Stories</u>	Pages 14-17, 21

FOURTH GRADE PHYSICAL SCIENCE STANDARDS

Indicator 1: Describe structures and properties of, and changes in, matter.

Grade Standards and Supporting Skills	FOSS Investigation/Activities	Page Number(s)
4.P.1.1. Students are able to describe observable physical changes and properties in matter.	<u>Magnetism and Electricity</u> Investigation 1, Parts 1-4 <u>Earth Materials</u> Investigation 1, Parts 1-3 <u>Ideas and Inventions</u> Investigation 3, Parts 1-3 <u>Water</u> Investigation 2, Parts 1-3 <u>Physics of Sound</u> Investigation 3, Parts 1-2 <u>Measurement</u>	Pages 11-34 Pages 8-29 Pages 8-21 Pages 8-24 Pages 8-19
<ul style="list-style-type: none"> • Define matter. 	Investigation 2, Parts 1-3 <u>Matter and Energy</u> Investigation 3, Part 1 <u>Matter and Energy FOSS Science Resources</u>	Pages 8-21 Pages 129-138 <i>Pages 39-42</i>
4.P.1.2. Students are able to explain how some physical properties remain the same as the mass is changed.	<u>Earth Materials</u> Investigation 4, Part 1 <u>Water</u> Investigation 1, Parts 1-2	Pages 8-13 Pages 8-18
<ul style="list-style-type: none"> • Define mass. 	<u>Measurement</u> Investigation 2, Parts 1-3 <u>Matter and Energy</u> Investigation 3, Part 2	Pages 8- 21 Pages 139-150
4.P.1.3. Students are able to differentiate between the states of matter caused by changes in temperature using water.	<u>Water</u> Investigation 2, Parts 1-3 Investigation 3, Parts 1-4 <u>Matter and Energy</u> Investigation 3, Part 1 <u>Matter and Energy FOSS Science Resources</u>	Pages 8-24 Pages 8-26 Pages 129-138 <i>Pages 39-42</i>
<ul style="list-style-type: none"> • Define states of matter. 		

Indicator 2: Analyze forces, their forms, and their effects on motions.

Grade Standards and Supporting Skills	FOSS Investigation/Activities	Page Number(s)
4.P.2.1. Students are able to demonstrate how forces act over a distance. <ul style="list-style-type: none"> Define force. 	<u>Magnetism and Electricity</u> Investigation 1, Parts 1-4	Pages 8-34
	<u>Magnetism and Electricity</u> Investigation 1, Part 1	Pages 8-17

Indicator 3: Analyze interactions of energy and matter.

Grade Standards and Supporting Skills	FOSS Investigation/Activities	Page Number(s)	
4.P.3.1. Students are able to identify materials as being conductors or insulators of electricity. <ul style="list-style-type: none"> Define a conductor and an insulator. 	<u>Magnetism and Electricity</u> Investigation 2, Parts 3-4	Pages 20-29	
	<u>Magnetism and Electricity</u> Investigation 2, Part 3	Pages 20-25	
4.P.3.2. Students are able to construct and define a simple circuit. <ul style="list-style-type: none"> Give examples of simple circuits. 	<u>Magnetism and Electricity</u> Investigation 2, Parts 1-4	Pages 8-29	
	<u>Magnetism and Electricity</u> Investigation 2, Parts 1-4 <u>Matter and Energy</u> Investigation 1, Parts 1, 3	Pages 8-29 Pages 50-62, 71-82	
	√ Define parallel and series circuits	<u>Magnetism and Electricity</u> Investigation 3, Parts 1-3	Pages 10-26
4.P.3.3. Students are able to use magnets, electromagnets, magnetic fields, and compasses to explore magnetic energy. <ul style="list-style-type: none"> Define magnets and their properties. 	<u>Magnetism and Electricity</u> Investigation 1, Parts 1-4 Investigation 4, Parts 1-3	Pages 8-34 Pages 8-22	
	√ Explain that electrical circuits can produce magnetic force.	<u>Magnetism and Electricity</u> Investigation 1, Parts 1-4	Pages 8-34
	√ Demonstrate polarity using magnets and dry cells.	<u>Magnetism and Electricity</u> Investigation 4, Part 1	Pages 8-13
		<u>Magnetism and Electricity</u> <i>FOSS Science Stories</i>	Pages 6-9

FOURTH GRADE LIFE SCIENCE STANDARDS

Indicator 1: Understand the fundamental structures, functions, classifications, and mechanisms found in living things.

Grade Standards and Supporting Skills	FOSS Investigation/Activities	Page Number(s)
4.L.1.1. Students are able to identify the basic systems (digestive, skeletal, muscular, nervous,	<u>Structures of Life</u> Investigation 2, Part 1 Investigation 3, Part 1 <u>Human Body</u>	Pages 8-13 Pages 8-15

<p>respiratory, and circulatory) and major organs.</p> <p>√ Primary function in the human body.</p>	<p>Investigation 1, Parts 2-3 Investigation 4, Parts 1-3</p> <p><u>Physics of Sound FOSS Science Stories</u> <u>Human Body FOSS Science Stories</u> www.fossweb.com, <u>Human Body</u></p>	<p>Pages 16-25 Pages 8-24</p> <p>Pages 9-10</p> <p>Pages 1-4, 8-16, 28-29</p> <p>“Mr. Bones” Activity</p>
<p>4.L.1.2. Students are able to differentiate between vertebrates and invertebrates, and classify the five groups of vertebrates (mammal, reptile, amphibian, bird, and fish) based on characteristics.</p> <ul style="list-style-type: none"> Define vertebrate and invertebrates. 	<p><u>Human Body FOSS Science Stories</u> <u>Structures of Life FOSS Science Stories</u></p>	<p>Page 11</p> <p>Pages 17-21, 26-27</p>

Indicator 2: Analyze various patterns and products of natural and induced biological change.

Grade Standards and Supporting Skills	FOSS Investigation/Activities	Page Number(s)
<p>4.L.2.1. Students are able to identify behavioral and structural adaptations that allow a plant or animal to survive in a particular environment.</p> <ul style="list-style-type: none"> Explain environments and adaptations. 	<p><u>Structures of Life Investigation 5, Part 2</u> <u>Structures of Life FOSS Science Stories</u></p> <p><i>Note: this standard is also addressed in the FOSS Grades 5-6 <u>Environments</u> module.</i></p>	<p>Pages 13-18</p> <p>Pages 1-3, 17-34, 41-42</p>
<p>4.L.2.2. Students are able to explain how a size of a population is dependent upon the available resources within its community.</p> <ul style="list-style-type: none"> Know community resources. Define population. 	<p><u>Structures of Life FOSS Science Stories</u></p> <p><i>Note: this standard is addressed thoroughly in the FOSS Middle School <u>Populations and Ecosystems</u> module.</i></p> <p><u>Water Investigation 4, Part 3</u> Investigation 4, Science Ext.</p> <p><i>Note: this standard is addressed in the FOSS Middle School <u>Populations and Ecosystems</u> module.</i></p>	<p>Pages 22-36, 43</p> <p>Pages 19-23 Page 31</p>

Indicator 3: Analyze how organisms are linked to one another and the environment.

Grade Standards and Supporting Skills	FOSS Investigation/Activities	Page Number(s)
4.L.3.1. Students are able to describe the flow of energy through food chains and webs. <ul style="list-style-type: none"> Understand food chains. 	<u>Physics of Sound FOSS Science Stories</u> <u>Structures of Life FOSS Science Stories</u>	Pages 22-28 Page 43 Pages 5-7
	<u>Structures of Life FOSS Science Stories</u>	Page 43

FOURTH GRADE EARTH/SPACE SCIENCE STANDARDS

Indicator 1: Analyze the various structures and processes of the Earth system.

Grade Standards and Supporting Skills	FOSS Investigation/Activities	Page Number(s)
4.E.1.1. Students are able to describe the basic stages of the water cycle. <ul style="list-style-type: none"> Define evaporation, condensation, and precipitation. 	<u>Water</u> Investigation 3, Part 4	Pages 21-26
	<u>Water</u> Investigation 3, Parts 1-4	Pages 8-26
4.E.1.2. Students are able to describe how weather conditions and phenomena occur and can be predicted. <ul style="list-style-type: none"> Identify the positive and negative impacts of weather on the environment. 	<u>Water FOSS Science Stories</u> <i>Note: This standard is also addressed in the FOSS Grades 5-6 <u>Solar Energy</u> Module.</i>	Pages 1-2, 8-16
	<u>Water FOSS Science Stories</u>	Pages 22-23
	<i>Note: This standard is addressed in the FOSS Grades 1-2 <u>Air and Weather</u> Module, FOSS Grades 5-6 <u>Solar Energy</u> Module and the FOSS Middle School <u>Weather and Water</u> Module.</i>	
<ul style="list-style-type: none"> √ Explain the use of weather instruments. 	<i>Note: This standard is addressed in the FOSS Middle School <u>Weather and Water</u> Module.</i>	
<ul style="list-style-type: none"> √ Identify the Earth's atmosphere, biosphere, lithosphere, and hydrosphere. 	<i>Note: This standard is addressed in the FOSS Middle School <u>Weather and Water</u> Module.</i>	

Indicator 2: Analyze essential principles and ideas about the composition and structure of the universe.

Grade Standards and Supporting Skills	FOSS Investigation/Activities	Page Number(s)
<p>4.E.2.1. Students are able to describe the motions of Earth, Sun, and Moon.</p>	<p><u>Sun, Moon and Stars</u> Investigation 1, Parts 1-2 Investigation 2, Parts 1-2 <u>Sun, Moon and Stars Science Resources</u> <u>Ideas and Inventions FOSS Science Stories</u> <i>Note: This standard is addressed in the FOSS Grades 1-2 Air and Weather Module, FOSS Grades 5-6 Solar Energy Module and the FOSS Middle School Weather and Water Module.</i></p>	<p>Pages 42-64 Pages 79-100 Pages 1-33 Pages 33-38</p>
<ul style="list-style-type: none"> • Revolution and rotation 	<p><u>Sun, Moon and Stars</u> Investigation 2, Part 2 Investigation 3, Part 1 <u>Sun, Moon and Stars Science Resources</u> <i>Note: this standard is addressed thoroughly in the FOSS Middle School Planetary Science module.</i></p>	<p>Pages 79-88 Pages 114-125 Page 3</p>
<p>√ Use terminology to describe the phases of the Moon.</p>	<p><u>Sun, Moon and Stars</u> Investigation 2, Parts 1-2 <u>Sun, Moon and Stars Science Resources</u> <i>Note: this standard is addressed In the FOSS Grades 1-2 Air and Weather Module and also in the FOSS Middle School Weather and Water Module.</i></p>	<p>Pages 79-100 Pages 22-33</p>
<p>√ Describe relative size and position of moons, planets, and stars.</p>	<p><u>Sun, Moon and Stars</u> Investigation 3, Parts 1-2 <u>Sun, Moon and Stars Science Resources</u> <i>Note: This standard is addressed in the FOSS Grades 5-6 Solar Energy Module.</i></p>	<p>Pages 114-130 Pages 35-39, 47-49</p>
<p>√ Identify the characteristics of the planets.</p>	<p><i>Note: This standard is addressed in the FOSS Grades 5-6 Solar Energy Module.</i></p>	

FOURTH GRADE SCIENCE, TECHNOLOGY, ENVIRONMENT AND SOCIETY STANDARDS

Indicator 1: Analyze various implications/effects of scientific advancement within the environment and society.

Grade Standards and Supporting Skills	FOSS Investigation/Activities	Page Number(s)
<p>4.S.1.1. Students are able to describe how people continue to invent new ways of doing things, solving problems, and getting work done.</p> <ul style="list-style-type: none"> • Ways progress makes our lives easier. • People and inventions can have tremendous impact on our daily lives. 	<p><u>Ideas and Inventions Investigation 3, Parts 1-3</u> <u>Magnetism and Electricity Investigation 5, Parts 1-3</u> <u>Earth Materials FOSS Science Stories</u> <u>Human Body FOSS Science Stories</u> <u>Measurement FOSS Science Stories</u> <u>Physics of Sound FOSS Science Stories</u> <u>Structures of Life FOSS Science Stories</u> <u>Water FOSS Science Stories</u></p>	<p>Pages 8-21 Pages 8-25 Pages 12-13, 24-29 Pages 17-20 Pages 1-13 Pages 29-32 Pages 10-11 Pages 22-23</p>
	<p><u>Ideas and Inventions FOSS Science Stories</u> <u>Magnetism and Electricity FOSS Science Stories</u> <u>Water FOSS Science Stories</u> <u>Matter and Energy FOSS Science Resources</u></p> <p><u>Physics of Sound FOSS Science Stories</u> <u>Ideas and Inventions FOSS Science Stories</u> <u>Magnetism and Electricity FOSS Science Stories</u> <u>Water FOSS Science Stories</u></p>	<p>Pages 39-40 Pages 14-20, 28-29 Pages 10-11 Pages 6-7, 10-11 Pages 29-32 Pages 9, 10, 17, 18, 39-40 Pages 14-20, 28-29 Pages 10-11, 22-26</p>
<p>4.S.1.2. Students are able to explain how new ideas and inventions often affect people.</p> <ul style="list-style-type: none"> • Explain the benefits of new ideas and inventions. 	<p><u>Physics of Sound FOSS Science Stories</u> <u>Ideas and Inventions FOSS Science Stories</u> <u>Magnetism and Electricity FOSS Science Stories</u> <u>Water FOSS Science Stories</u> <u>Sun, Moon and Stars Science Resources</u></p>	<p>Pages 29-32 Pages 9, 10, 17, 18, 39-40 Pages 14-20, 28-29 Pages 10-11, 22-26 Pages 40-43</p>

FIFTH GRADE PHYSICAL SCIENCE STANDARDS

Indicator 1: Describe structures and properties of, and changes in, matter.

Grade Standards and Supporting Skills	FOSS Investigation/Activities	Page Number(s)
<p>5.P.1.1. Students are able to define matter on the basis of observable physical properties.</p> <ul style="list-style-type: none"> • Explain the relationships among elements, molecules, and matter. √ Explain differences and similarities between a solution and other mixtures and changes that occur within. 	<p><u>Mixtures and Solutions</u> Investigation 1, Part 2</p>	Pages 16-20
	<p><u>Solar Energy</u> Investigation 2, Part 2</p>	Pages 16-24
	<p><u>Models and Designs</u> Investigation 2, Parts 1-3</p>	Pages 8-24
	<p><u>Variables</u> Investigation 4, Part 2</p>	Pages 12-17
	<p><u>Mixtures and Solutions FOSS</u> <u>Science Stories</u> <u>Solar Energy Science Stories</u></p>	Pages 25-28, 32-42 Pages 18-20
	<p><u>Mixtures and Solutions</u> Investigation 1, Parts 1-2</p>	Pages 8-20

Indicator 2: Analyze forces, their forms, and their effects on motions.

Grade Standards and Supporting Skills	FOSS Investigation/Activities	Page Number(s)
<p>5.P.2.1. Students are able to identify forces in specific situations that require objects to interact, change directions, or stop.</p> <ul style="list-style-type: none"> • Give examples of ways gravitational forces affect every object. 	<p><u>Levers and Pulleys</u> Investigation 1, Parts 1-3</p>	Pages 8-28
	<p><u>Models and Designs</u> Investigation 3, Parts 1-3</p>	Pages 8-23
	<p><u>Models and Designs FOSS</u> <u>Science Stories</u></p>	Pages 48-55
	<p><u>Variables FOSS Science</u> <u>Stories</u></p>	Pages 15-17
	<p><u>Landforms FOSS Science</u> <u>Stories</u></p>	Pages 15-27
	<p><u>Solar Energy FOSS Science</u> <u>Stories</u></p>	Pages 18-21
	<p><u>Landforms</u> Investigation 2, Parts 1-2</p>	Pages 8-22
	<p><u>Models and Designs FOSS</u> <u>Science Stories</u></p>	Pages 10, 37-43
	<p><u>Solar Energy FOSS Science</u> <u>Stories</u></p>	Pages 40-44
	<p><u>Variables FOSS Science</u> <u>Stories</u> <u>Water Planet</u> Investigation 1, Part 2</p>	Pages 15-17 Pages 59-66
	<p><u>Water Planet FOSS Science</u> <u>Resources</u></p>	Pages 16-17
<p>5.P.2.2. Students are able to analyze the structure and design of simple and compound machines to determine how the machines make work easier by trading force for</p>	<p><u>Levers and Pulleys</u> Investigation 4, Parts 1-3</p>	Pages 8-25
	<p><u>Models and Designs</u> Investigation 3, Parts 1-3</p>	Pages 8-23
	<p><u>Levers and Pulleys FOSS</u> <u>Science Stories</u></p>	Pages 1-32
	<p><u>Variables FOSS Science</u></p>	

distance.	<u>Stories</u>	Pages 32-33
<ul style="list-style-type: none"> Distinguish between simple and compound machines. 	<u>Levers and Pulleys FOSS Science Stories</u>	Pages 1-32

Indicator 3: Analyze interactions of energy and matter.

Grade Standards and Supporting Skills	FOSS Investigation/Activities	Page Number(s)
<p>5.P.3.1. Students are able to demonstrate and explain how to measure heat flow into an object.</p> <ul style="list-style-type: none"> Interpret a thermometer. 	<p><u>Solar Energy Investigation 2, Part 2</u> <u>Food and Nutrition Investigation 2, Part 1</u></p> <p><u>Solar Energy Investigation 2, Part 1</u> <u>Food and Nutrition Investigation 2, Part 1</u> <u>Water Planet Investigation 3, Part 1</u></p>	<p>Pages 16-24</p> <p>Pages 8-17</p> <p>Pages 8-15</p> <p>Pages 8-17</p> <p>Pages 125-135</p>
<p>5.P.3.2. Students are able to describe the Sun’s ability to produce energy in the forms of light and heat.</p> <ul style="list-style-type: none"> Understand that the Sun produces energy. <p>√ Describe significant characteristics of different forms of energy.</p> <p>√ Explain energy transfers and transformation of light.</p>	<p><u>Solar Energy Investigation 1, Parts 1-2</u> <u>Investigation 2, Parts 1-2</u></p> <p><u>Environments FOSS Science Stories</u> <u>Solar Energy FOSS Science Stories</u> <u>Food and Nutrition FOSS Science Stories</u> <u>Water Planet Investigation 3, Part 1</u> <u>Water Planet FOSS Science Resources</u></p> <p><u>Variables FOSS Science Stories</u> <u>Solar Energy FOSS Science Stories</u> <u>Mixtures and Solutions FOSS Science Stories</u> <u>Landforms FOSS Science Stories</u></p> <p><u>Solar Energy Investigation 4, Parts 1-4</u></p>	<p>Pages 8-21 Pages 8-24</p> <p>Pages 38-41</p> <p>Pages 1-5, 22-25</p> <p>Pages 21-22</p> <p>Pages 125-135</p> <p>Pages 42-45</p> <p>Pages 8-9</p> <p>Pages 35-39</p> <p>Pages 23-24</p> <p>Pages 22-27</p> <p>Pages 8-33</p>
<p>5.P.3.3. Students are able to describe basic properties of light.</p>	<p><u>Solar Energy Investigation 1, Part 1</u> <i>Note: This standard is also addressed in the FOSS Grades 3-4 Ideas and Inventions Module.</i></p>	<p>Pages 8-13</p>

FIFTH GRADE LIFE SCIENCE STANDARDS

Indicator 1: Understand the fundamental structures, functions, classifications, and mechanisms found in living things.

Grade Standards and Supporting Skills	FOSS Investigation/Activities	Page Number(s)
5.L.1.1. Students are able to describe the basic process of photosynthesis and the role of light as a source of energy in plants. <ul style="list-style-type: none"> • Use words to describe photosynthesis. 	<u>Food and Nutrition FOSS Science Stories</u> <u>Environments FOSS Science Stories</u>	<i>Pages 41-43</i> <i>Pages 28, 39, 46</i>
	<u>Food and Nutrition FOSS Science Stories</u> <u>Living Systems</u> Investigation 3, Part 1 <u>Living Systems FOSS Science Resources</u>	<i>Pages 41-43</i> <i>Pages 118-125</i> <i>Pages 31-34, 47-48</i>

Indicator 2: Analyze various patterns and products of natural and induced biological change.

Grade Standards and Supporting Skills	FOSS Investigation/Activities	Page Number(s)
5.L.2.1. Students are able to predict physical characteristics with family lineage. <ul style="list-style-type: none"> • Describe family trees. • Explain how physical traits pass from generation to generation. 	<u>Environments FOSS Science Stories</u>	<i>Pages 18-22, 47-48</i>
	<u>Environments FOSS Science Stories</u> <i>Note: This standard is addressed thoroughly in the FOSS Middle School Populations and Ecosystems Module.</i>	<i>Pages 18-22</i>
5.L.2.2. Students are able to describe structures and processes involved in plant reproduction. <ul style="list-style-type: none"> • Know parts of the plant. 	<i>Note: This standard is addressed in the FOSS Grades 3-4 Structures of Life Module and more thoroughly in the FOSS Middle School Diversity of Life Module.</i> <u>Living Systems</u> Investigation 2, Part 1 <u>Living Systems FOSS Science Resources</u>	<i>Pages 85-98</i> <i>Pages 16-25</i>

Indicator 3: Analyze how organisms are linked to one another and the environment.

Grade Standards and Supporting Skills	FOSS Investigation/Activities	Page Number(s)
5.L.3.1. Students are able to describe how natural events and/or human influences may help or harm ecosystems.	<u>Environments</u> Investigation 6, Parts 1-3	<i>Pages 8-22</i>
	<u>Landforms FOSS Science Stories</u>	<i>Pages 13-14, 22-27</i>
	<u>Solar Energy FOSS Science Stories</u>	<i>Pages 16-17</i>

<ul style="list-style-type: none"> Define ecosystem. 	<u>Environments FOSS Science Stories</u>	Pages 38-41
5.L.3.2. Students are able to analyze the roles of organisms to determine the transfer of energy using an energy pyramid model. <ul style="list-style-type: none"> Define an energy pyramid. Define an organism. 	<u>Environments FOSS Science Stories</u> <i>Note: This standard is addressed thoroughly in the FOSS Middle School Populations and Ecosystems Module.</i> <u>Environments FOSS Science Stories</u>	Pages 38-41 Page 57
5.L.3.3. Students are able to describe how interrelationships enable some organisms to survive. <ul style="list-style-type: none"> Define interrelationships. 	<u>Environments FOSS Science Stories</u> <i>Note: This standard is addressed thoroughly in the FOSS Middle School Populations and Ecosystems Module.</i> <u>Environments FOSS Science Stories</u>	Pages 38-41, 43-45, 53-55 Pages 9-17
√ Adaptation, parasitism, mutation	<u>Environments FOSS Science Stories</u>	

FIFTH GRADE EARTH/SPACE SCIENCE STANDARDS

Indicator 1: Analyze the various structures and processes of the Earth system.

Grade Standards and Supporting Skills	FOSS Investigation/Activities	Page Number(s)
5.E.1.1. Students are able to describe the basic structure of Earth's interior. <ul style="list-style-type: none"> Define crust, mantle, and core. 	<u>Landforms FOSS Science Stories</u>	Pages 22-32, 45-46
√ Explain the formation of geological features of the Earth through plate tectonics.	<u>Landforms FOSS Science Stories</u>	Pages 22-32
√ Describe how Earth's surface is constantly changing.	<u>Landforms FOSS Science Stories</u>	Pages 22-32
√ Examine topographical maps.	<u>Landforms</u> Investigation 2, Parts 1-2 <u>Landforms FOSS Science Stories</u>	Pages 8-22 Pages 22-32
	<u>Landforms</u> Investigation 4, Parts 1-3	Pages 8-24

Indicator 2: Analyze essential principles and ideas about the composition and structure of the universe.

Grade Standards and Supporting Skills	FOSS Investigation/Activities	Page Number(s)
<p>5.E.2.1. Students are able to describe the components (Sun, planets, and moons) of the solar system.</p> <ul style="list-style-type: none"> • Relative size • Order and relative distance from the Sun and each other <p>√ Describe the relative scale of the Earth to the Sun, planets, and the Moon.</p>	<p><u>Solar Energy FOSS Science Stories</u> <u>Water Planet Investigation 1, Part 1 Water Planet FOSS Science Resources</u> <i>Note: This standard is addressed thoroughly in the FOSS Middle School Planetary Science Module and will also be addressed in Sun, Moon and Stars, a new FOSS module in development for Grades 3-4.</i></p>	<p>Pages 40-44</p> <p>Pages 50-58</p> <p>Pages 1-13</p>
<p>5.E.2.2. Students are able to explain how the Earth's rotation affects the appearance of the sky.</p> <ul style="list-style-type: none"> • Constellations appear to move as a result of Earth's rotation. • Apparent brightness of a star depends in part upon its distance from the Earth. 	<p><u>Ideas and Inventions FOSS Science Stories</u></p> <p><i>Note: This standard is addressed in the FOSS Middle School Planetary Science Module. It will also be addressed in Sun, Moon and Stars, a new FOSS module in development for Grades 3-4.</i></p>	<p>Pages 37-38</p>

FIFTH GRADE SCIENCE, TECHNOLOGY, ENVIRONMENT AND SOCIETY STANDARDS

Indicator 1: Analyze various implications/effects of scientific advancement within the environment and society.

Grade Standards and Supporting Skills	FOSS Investigation/Activities	Page Number(s)
<p>5.S.1.1. Students are able to identify scientific changes that have affected transportation, health, sanitation, and communication.</p>	<p><u>Levers and Pulleys FOSS Science Stories</u> <u>Variables FOSS Science Stories</u> <u>Models and Designs FOSS Science Stories</u> <u>Mixtures and Solutions FOSS Science Stories</u> <u>Environments FOSS Science Stories</u> <u>Food and Nutrition FOSS Science Stories</u></p>	<p>Pages 1-32</p> <p>Pages 15-28</p> <p>Pages 25-36, 44-47, 52-55</p> <p>Pages 8, 43-45</p> <p>Pages 30-36, 43-45</p> <p>Pages 19, 34-36</p>

	<u>Solar Energy FOSS Science Stories</u> <u>Landforms FOSS Science Stories</u> <u>Water Planet FOSS Science Resources</u>	<i>Pages 29-39</i> <i>Pages 4-8, 26, 35-36</i> <i>Page 97</i>
5.S.1.2. Students are able to describe how designing a solution may have constraints. <ul style="list-style-type: none"> Explain why the benefits of science and technology are not available to all people. Describe the consumption of resources over time. 	<u>Solar Energy Investigation 4, Parts 1-4 Models and Designs</u> <u>Investigation 4, Science Ext. Landforms FOSS Science Stories</u> <u>Levers and Pulleys FOSS Science Stories</u> <u>Solar Energy FOSS Science Stories</u> <u>Water Planet FOSS Science Resources</u>	<i>Pages 8-33</i> <i>Page 23</i> <i>Pages 11-21</i> <i>Page 4</i> <i>Pages 32-33</i> <i>Pages 65-66</i>

Indicator 2: Analyze the relationships/interactions among science, technology, environment, and society.

Grade Standards and Supporting Skills	FOSS Investigation/Activities	Page Number(s)
5.S.2.1. Students are able to explain the interrelationship of populations, resources, and environments. <ul style="list-style-type: none"> Define interrelationships. 	<u>Environments FOSS Science Stories</u> <u>Landforms FOSS Science Stories</u> <u>Solar Energy FOSS Science Stories</u> <u>Food and Nutrition FOSS Science Stories</u>	<i>Pages 27-41, 43-55</i> <i>Pages 13-21</i> <i>Pages 16-17, 29-39</i> <i>Pages 24-25, 34-36</i>
✓ Describe conservation practices.	<u>Environments FOSS Science Stories</u> <u>Models and Designs FOSS Science Stories</u> <u>Water Planet FOSS Science Resources</u>	<i>Pages 27-41</i> <i>Pages 28, 44-47</i> <i>Pages 66, 97</i>

SIXTH GRADE

Note: Grade 6 has the option of using FOSS modules developed for Grades 5-6 in the original K-6 FOSS program and also FOSS Middle School modules, developed for Grades 6-8. This correlation document will show representative examples of investigations from BOTH programs that address those standards and their benchmarks. In general, citations from the Grades 5-6 modules will be listed first. A citation does *not* reflect *all* of the investigations from FOSS that might address a particular benchmark.

Please note that all content from the FOSS Middle School CD-ROMs is now also accessible to teachers and students using FOSS, at the FOSS Web Site: www.fossweb.com

SIXTH GRADE NATURE OF SCIENCE STANDARDS

Indicator 1: Understand the nature and origin of scientific knowledge.
(Mastery of this indicator does not emerge until eighth grade.)

Indicator 2: Apply the skills necessary to conduct scientific investigations.

Grade Standards and Supporting Skills	FOSS Investigation/Activities	Page Number(s)
<p>6.N.2.1. Students are able to pose questions that can be explored through scientific investigations.</p> <p>√ Conduct systematic scientific investigations.</p> <p>• Use appropriate supportive technologies.</p>	<p><i>This standard is met in ALL FOSS Grades 6-8 Modules as students propose and set up investigations. See for example:</i></p> <p><u>Environments</u> Investigation 6, Part 3</p> <p><u>Solar Energy</u> Investigation 4, Part 4</p> <p><u>Water Planet</u> Investigation 3, Part 1</p> <p><u>Living Systems</u> Investigation 2, Part 1</p> <p><u>Variables</u> Investigation 4, Parts 1-4</p> <p><u>Diversity of Life</u> Investigation 6, Part 1</p> <p><u>Planetary Science</u> Investigation 5, Parts 1-3</p> <p><u>Chemical Interactions</u> Investigation 1, Parts 1-2</p> <p><u>Diversity of Life CD-ROM/FOSS Web Site</u></p> <p><u>Earth History CD-ROM</u></p> <p><u>Electronics CD-ROM</u></p> <p><u>Weather and Water CD-ROM</u></p> <p><u>Planetary Science CD-ROM</u></p> <p><u>Populations and Ecosystems CD-ROM</u></p> <p><u>Force and Motion</u></p>	<p>Pages 18-22</p> <p>Pages 29-33</p> <p>Pages 125-135</p> <p>Pages 85-98</p> <p>Pages 8-28</p> <p>Pages 186-203</p> <p>Pages 154-183</p> <p>Pages 44-58</p> <p>“Database”</p> <p>“Grand Canyon”</p> <p>“Wonder Card”</p> <p>“Seasons”</p> <p>“Phases of the Moon”</p> <p>“Larkeys”, “Walking Sticks”</p>

<ul style="list-style-type: none"> Describe the limits of accuracy inherent in a particular measuring device or measurement procedure. 	<p>Investigation 5, Parts 1-4 <i>Force and Motion CD-Rom</i></p> <p><u>Variables</u> Investigation 4, Parts 1-4 <u>Solar Energy</u> Investigation 2, Part 1 <u>Levers and Pulleys</u> Investigation 1, Part 1 <u>Land forms</u> Investigation 1, Parts 1-3 <u>Mixtures and Solutions</u> Investigation 2, Parts 1-2 <u>Food and Nutrition</u> Investigation 1, Parts 1-2 <u>Environments</u> Investigation 4, Part 2 <u>Water Planet</u> Investigation 3, Part 1 <u>Living Systems</u> Investigation 2, Part 1 <u>Electronics</u> Investigation 2, Part 3 <u>Weather and Water</u> Investigation 1, Part 2 <u>Populations and Ecosystems</u> Investigation 5, Part 1 <u>Force and Motion</u> Investigation 2, Part 3 <u>Human Brain and Senses</u> Investigation 7, Parts 1-2 <u>Planetary Science</u> Investigation 6, Parts 2-3 <u>Diversity of Life</u> Investigation 2, Parts 1-2</p>	<p>Pages 169-201 <i>"Force Bench"</i></p> <p>Pages 8-28</p> <p>Pages 8-15</p> <p>Pages 8-17</p> <p>Pages 8-24</p> <p>Pages 8-25</p> <p>Pages 8-20</p> <p>Pages 13-18</p> <p>Pages 125-135</p> <p>Pages 85-98</p> <p>Pages 99-103</p> <p>Pages 48-53</p> <p>Pages 142-151</p> <p>Pages 89-99</p> <p>Pages 210-225</p> <p>Pages 198-205</p> <p>Pages 72-91</p>
<ul style="list-style-type: none"> Manipulate one variable over time with many repeated trials to test a hypothesis. 	<p><u>Environments</u> Investigation 5, Parts 1-3 <u>Variables</u> Investigation 1, Parts 1-3 <u>Solar Energy</u> Investigation 3, Part 2 <u>Levers and Pulleys</u> Investigation 1, Parts 2-3 <u>Food and Nutrition</u> Investigation 2, Part 2 <u>Electronics</u> Investigation 2, Part 1 <u>Planetary Science</u> Investigation 5, Parts 2-3 <u>Force and Motion</u> Investigation 7, Parts 1-3 <u>Populations and Ecosystems</u> Investigation 9, Parts 3-4 <u>Weather and Water</u> Investigation 4, Parts 1-2 <u>Chemical Interactions</u> Investigation 1, Parts 1-2</p>	<p>Pages 8-22</p> <p>Pages 8-27</p> <p>Pages 17-23</p> <p>Pages 18-28</p> <p>Pages 18-21</p> <p>Pages 89-93</p> <p>Pages 158-167</p> <p>Pages 256-272</p> <p>Pages 274-291</p> <p>Pages 121-139</p> <p>Pages 44-58</p>

<ul style="list-style-type: none"> • Construct and interpret graphs from data to make predictions. 	<p><u>Levers and Pulleys</u> Investigation 1, Parts 2-3 <u>Solar Energy</u> Investigation 3, Part 2 <u>Variables</u> Investigation 1, Parts 1-2 <u>Mixtures and Solutions</u> Investigation 3, Math Ext. <u>Food and Nutrition</u> Investigation 1, Math Ext. <u>Water Planet</u> Investigation 3, Part 1 <u>Force and Motion</u> Investigation 3, Parts 1-3 <u>Human Brain and Senses</u> Investigation 7, Parts 1-3 <u>Weather and Water</u> Investigation 3, Part 1 <u>Populations and Ecosystems</u> Investigation 6, Parts 2-3 <u>Electronics</u> Investigation 8, Parts 2-3 <u>Planetary Science</u> Investigation 5, Parts 2-4</p>	<p>Pages 18-28 Pages 17-23 Pages 8-27 Pages 25-26 Page 23 Pages 125-135 Pages 111-127 Pages 210-230 Pages 93-96 Pages 188-197 Pages 256-264 Pages 158-173</p>
<ul style="list-style-type: none"> • Use research methods to investigate practical and/or personal scientific problems and questions. 	<p><u>Food and Nutrition</u> Investigation 4, Part 1 <u>Mixtures and Solutions</u> Investigation 3, Math Ext. <u>Levers and Pulleys</u> Investigation 2, Part 3 <u>Environments</u> Investigation 3, Parts 1-3 <u>Living Systems</u> Investigation 3, Part 3 <u>Variables</u> Investigation 3, Parts 1-4 <u>Models and Designs</u> Investigation 4, Parts 1-3 www.fossweb.com, <u>Solar Energy</u> <u>Human Brain and Senses</u> Investigation 9, Parts 1-2 <u>Populations and Ecosystems</u> Investigation 7, extension <u>Weather and Water</u> Investigation 9, extensions <u>Force and Motion</u> Investigation 8, Parts 1-2</p>	<p>Pages 8-15 Pages 25-26 Pages 18-22 Pages 8-22 Pages 136-141 Pages 8-32 Pages 8-23 “Solar Road Race” Activity Pages 264-275 Page 218 Page 320 Pages 284-301</p>
<p>√ Describe and demonstrate various safety factors associated with different types of scientific activity.</p> <ul style="list-style-type: none"> • Use appropriate scientific equipment safely in all investigations. 	<p><i>Safe experimentation is stressed throughout all FOSS Grades 5-6 and FOSS Middle School investigations. See for example:</i> <u>Mixtures and Solutions</u> Investigation 1, Part 1 <u>Variables</u> Investigation 4, Part 2</p>	<p>Pages 8-15 Page 14</p>

<ul style="list-style-type: none"> Wear appropriate attire. 	<u>Populations and Ecosystems</u> Investigation 5, Part 1 <u>Chemical Interactions ALL,</u> such as Investigation 1, Parts 1-2	Page 146, 149 Pages 44-58
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SIXTH GRADE PHYSICAL SCIENCE STANDARDS

Indicator 1: Describe structures and properties of, and changes in, matter

Grade Standards and Supporting Skills	FOSS Investigation/Activities	Page Number(s)
6.P.1.1. Students are able to identify the subatomic particles that make up atoms. <ul style="list-style-type: none"> Electrons, protons, and neutrons 	<u>Mixtures and Solutions FOSS</u> <u>Science Stories</u> <u>Earth History Resources</u> <u>Electronics Resources</u> <u>Chemical Interactions Resources</u>	<i>Pages 3-6, 25-28</i> <i>Pages 88-89</i> <i>Page 26</i> <i>Pages 81,105</i>
6.P.1.2. Students are able to classify matter based on physical and chemical properties.	<u>Mixtures and Solutions</u> Investigation 1, Parts 1-4 <u>Food and Nutrition</u> Investigation 3, Parts 1-3 <u>Solar Energy</u> Investigation 2, Parts 1-3 <u>Planetary Science</u> Investigation 8, Parts 2-4 <u>Weather and Water</u> Investigation 5, Parts 1-3 <u>Earth History Resources</u> <u>Chemical Interactions - ALL,</u> such as Investigation 7, Parts 1-5 Investigation 10, Parts 1-2	Pages 8-29 Pages 8-25 Pages 8-24 Pages 255-270 Pages 152-175 Pages 93-97 Pages 206-234 Pages 325-336
√ Compare and contrast compounds and elements.	<u>Mixtures and Solutions FOSS</u> <u>Science Stories</u> <u>Chemical Interactions</u> Investigation 9, Parts 1-4 <u>Chemical Interactions Resources</u> <u>Chemical Interactions CD-ROM</u>	<i>Pages 11-12, 35-42</i> Pages 282-312 <i>Pages 3-15,72-73,90-96</i>
√ Use the Periodic Table as a tool to describe elements.	<u>Mixtures and Solutions FOSS</u> <u>Science Stories</u> <u>Chemical Interactions</u> Investigation 2, Parts 1-2 <u>Chemical Interactions Resources</u> <u>Chemical Interactions CD-ROM</u>	<i>Pages 32-37</i> Pages 72-81 <i>Pages 3-8,90-93</i>

<p>6.N.1.3. Students are able to describe phase changes in matter differentiating between the particle motion in solids, liquids, and gases.</p>	<p><u>Solar Energy FOSS Science Stories</u> <u>Earth History Resources</u> <u>Weather and Water CD-ROM</u> <u>Chemical Interactions</u> – throughout, such as Investigation 4, Parts 1-3 <u>Chemical Interactions Resources</u> <u>Chemical Interactions CD-ROM</u></p>	<p>Pages 22-24 Pages 89-97 “Matter and Energy” activities Pages 125-142 Pages 16-48</p>
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Indicator 2: Analyze forces, their forms, and their effects on motions.

Grade Standards and Supporting Skills	FOSS Investigation/Activities	Page Number(s)
<p>6.P.2.1. Students are able to describe how push/pull forces acting on an object produce motion.</p>	<p><u>Variables</u> Investigation 1, Parts 1-3 <u>Levers and Pulleys</u> Investigation 2, Parts 3-4 <u>Food and Nutrition</u> Investigation 2, Part 1 <u>Models and Designs</u> Investigation 2, Parts 1-3 <u>Force and Motion</u> Investigation 6, Parts 1-4 <u>Planetary Science</u> Investigation 5, Parts 2-3 <u>Weather and Water</u> Investigation 2, Part 1 <u>Landforms FOSS Science Stories</u> <u>Solar Energy FOSS Science Stories</u></p>	<p>Pages 8-27 Pages 18-25 Pages 8-17 Pages 8-24 Pages 218-245 Pages 158-167 Pages 69-75 Pages 22-27 Pages 43-44</p>
<p>√ Demonstrate how all forces have magnitude and direction.</p>	<p><u>Levers and Pulleys</u> Investigation 3, Parts 1-2 <u>Force and Motion</u></p>	<p>Pages 8-20</p>
<p>√ Newton’s Laws of Motion</p>	<p>Investigation 6, Parts 1-4 <u>Force and Motion Resources</u></p>	<p>Pages 218-245 Pages 50-52</p>

Indicator 3: Analyze interactions of energy and matter.

Grade Standards and Supporting Skills	FOSS Investigation/Activities	Page Number(s)
<p>6.P.3.1. Students are able to identify types of energy transformations.</p>	<p><u>Electronics</u> Investigation 1, Parts 1-3 <u>Weather and Water</u> Investigation 4, Parts 1-2 <u>Solar Energy FOSS Science Stories</u> <u>Environments FOSS Science Stories</u> <u>Populations and Ecosystems Resources</u></p>	<p>Pages 55-79 Pages 121-139 Pages 29-31, 35-39 Pages 39-41 Pages 14-21</p>
<p>√ Explain basic principles of electricity and magnetism including static, current,</p>	<p><u>Electronics</u> Investigation 1, Parts 1-5 <u>Electronics CD-ROM/FOSS</u></p>	<p>Pages 55-80</p>

circuits, and magnetic fields.	<u>Web Site</u>	
√ Investigate the properties of light (electromagnetic spectrum).	<u>Food and Nutrition FOSS Science Stories</u>	Pages 41-43
	<u>Environments FOSS Science Stories</u>	Pages 39-41
√ Illustrate sunlight to chemical (photosynthesis).	<u>Populations and Ecosystems Investigation 5, Parts 1-2</u>	Pages 142-155
	<u>Populations and Ecosystems Resources</u>	Pages 14-21
	<u>Diversity of Life Resources</u>	Pages 36-37
	<u>Living Systems Investigation 3, Part 1</u>	Pages 118-125
	<u>Living Systems FOSS Science Resources</u>	Pages 31-34, 47-48

SIXTH GRADE LIFE SCIENCE STANDARDS

Indicator 1: Understand the fundamental structures, functions, classifications, and mechanisms found in living things.

Grade Standards and Supporting Skills	FOSS Investigation/Activities	Page Number(s)
<p>6.L.1.1. Students are able to illustrate the difference between plant and animal cells.</p> <ul style="list-style-type: none"> Plant cells have chloroplasts and cell walls. <p>√ Identify basic cell organelles and their functions.</p> <p>√ Recognize cells as the building blocks of living things.</p> <ul style="list-style-type: none"> Observe cells with a compound microscope. 	<p><u>Diversity of Life CD-ROM / FOSS Web Site</u></p>	<p>“Cells and the Ribbon of Life”</p>
	<p><u>Diversity of Life CD-ROM</u></p>	<p>“Cells and the Ribbon of Life”</p>
	<p><u>Diversity of Life Resources</u></p>	<p>Pages 27-30</p>
	<p><u>Living Systems Investigation 1, Part 1</u> <u>Living Systems FOSS Science Resources</u> <u>Diversity of Life Resources</u></p>	<p>Pages 51-59</p> <p>Pages 1-2</p> <p>Pages 27-30</p>
<p>6.L.1.2. Students are able to explain the importance and scientific use of a classification system.</p> <ul style="list-style-type: none"> Management of diversity for organization and categorization Uniform scientific communication 	<p><u>Living Systems Investigation 2, Part 2</u> <u>Living Systems FOSS Science Resources</u> <u>Diversity of Life Resources</u></p>	<p>Pages 99-106</p> <p>Pages 21-22</p> <p>Pages 65-67</p>
	<p><u>Living Systems Investigation 2, Part 2</u> <u>Living Systems FOSS Science</u></p>	<p>Pages 99-106</p> <p>Pages 21-22</p>

	<i>Resources</i> <i>Diversity of Life Resources</i>	<i>Pages 65-67</i>
√ Kingdom, phylum, class, order, family, genus, species	<i>Populations and Ecosystems Resources</i> <i>Populations and Ecosystems Investigation 3, Parts 1-2</i>	<i>Page 5</i> <i>Pages 90-102</i>
√ Kingdom classification system (monera, protista, plantae, fungi, animalia)	<i>Investigation 4, Part 2</i> <i>Diversity of Life Resources</i>	<i>Pages 122-129</i> <i>Pages 65-67</i>

Indicator 2: Analyze various patterns and products of natural and induced biological change.

Grade Standards and Supporting Skills	FOSS Investigation/Activities	Page Number(s)
√ Investigate the lineage of organisms to predict traits and features.	<i>Populations and Ecosystems Investigation 9, Parts 1-4</i>	<i>Pages 262-291</i>
√ Describe the difference between a hybrid and a purebred trait.	<i>Populations and Ecosystems Investigation 9, Parts 1-4</i> <i>Environments FOSS Science Stories</i>	<i>Pages 262-291</i> <i>Pages 47-48</i>

Indicator 3: Analyze how organisms are linked to one another and the environment.

Grade Standards and Supporting Skills	FOSS Investigation/Activities	Page Number(s)
√ Model cycles in ecosystems.	<i>Weather and Water Investigation 7, Parts 1-2</i> <i>Environments FOSS Science Stories</i> <i>Solar Energy FOSS Science Stories</i>	<i>Pages 232-243</i> <i>Pages 38-41</i> <i>Pages 22-24</i>
√ Describe the relationship between characteristics of biomes and the organisms that live there.	<i>Populations and Ecosystems Investigation 3, Parts 1-3</i> <i>Investigation 7, Part 1</i>	<i>Pages 90-107</i> <i>Pages 210-217</i>
√ Describe how organisms adapt to biotic and abiotic factors in a biome.	<i>Populations and Ecosystems Investigation 3, Parts 1-3</i> <i>Investigation 8, Parts 1-2</i>	<i>Pages 90-107</i> <i>Pages 228-243</i>

SIXTH GRADE EARTH/SPACE SCIENCE STANDARDS

Indicator 1: Analyze the various structures and processes of the Earth system.

Grade Standards and Supporting Skills	FOSS Investigation/Activities	Page Number(s)
<p>6.E.1.1. Students are able to describe how the spheres (lithosphere, hydrosphere, atmosphere, and biosphere) of the Earth interact.</p> <p>√ Impact of humans and natural events</p> <ul style="list-style-type: none"> • Composition of spheres 	<p><u>Weather and Water</u> Investigation 2, Parts 1-2 <u>Weather and Water Resources</u></p> <p><u>Populations and Ecosystems Resources</u></p> <p><u>Water Plant</u> Investigation 4, Parts 1, 4 <u>Water Planet FOSS Science Resources</u> <u>Weather and Water CD-ROM</u></p>	<p>Pages 57-82</p> <p>Pages 6-11</p> <p>Pages 8-13</p> <p>Pages 184-197, 212-216</p> <p>Pages 52, 63-70 "Elevator to Space"</p>
<p>6.E.1.2. Students are able to examine the role of water on the Earth.</p> <ul style="list-style-type: none"> • Surface • Underground • Atmosphere 	<p><u>Weather and Water</u> Investigation 7, Parts 1-2 <u>Environments FOSS Science Stories</u></p> <p><u>Landforms</u> Investigation 2, Parts 1-2 Investigation 3, Parts 1-3 <u>Landforms FOSS Science Stories</u></p> <p><u>Landforms FOSS Science Stories</u></p> <p><u>Weather and Water</u> Investigation 7, Parts 1-2</p> <p><u>Water Plant</u> Investigation 4, Part 1 <u>Water Planet FOSS Science Resources</u> <u>Weather and Water</u> Investigation 6, Parts 3-5 <u>Solar Energy FOSS Science Stories</u></p>	<p>Pages 232-243</p> <p>Pages 27-35</p> <p>Pages 8-22 Pages 8-24 Pages 25-27, 37-42</p> <p>Pages 28-29, 37-42</p> <p>Pages 232-243</p> <p>Pages 200-220</p> <p>Pages 184-197</p> <p>Pages 67-70</p> <p>Pages 22-24</p>
<p>6.E.1.3. Students are able to explain processes involved in the formation of the Earth's structure.</p> <p>√ Interpret topographic and digital maps to identify surface features.</p> <p>√ Explain the formation of different rock types and</p>	<p><u>Planetary Science</u> Investigation 5, Part 6 <u>Landforms FOSS Science Stories</u> <u>Earth History CD-Rom</u> <u>Landforms</u> throughout, such as Investigation 4, Parts 1-3 Investigation 5, Parts 1-3 <u>Earth History Resources</u> <u>Planetary Science CD-ROM</u> www.fossweb.com, <u>Landforms</u></p> <p><u>Earth History</u> Investigation 5, Parts 4-6</p>	<p>Pages 176-182</p> <p>Pages 22-29 "Earth Processes" Activities</p> <p>Pages 8-24 Pages 8-26 Pages 3, 4, 25, 60-62 Binders, "the Earth", "Craters" Aerial Photography, Jigsaw Puzzle</p> <p>Pages 147-162</p>

their characteristics.	Investigation 8, Parts 1-4 <u>Planetary Science CD-ROM</u> <u>Earth History CD-Rom</u>	Pages 254-274 Binders, "Geology"
√ Use geospatial technologies to investigate natural phenomena.	<u>Earth History Resources</u> <u>Planetary Science CD-ROM</u>	Pages 60-63 Binders, "the Earth"

Indicator 2: Analyze essential principles and ideas about the composition and structure of the universe.

Grade Standards and Supporting Skills	FOSS Investigation/Activities	Page Number(s)
6.E.2.1. Students are able to identify the organization and relative scale of the solar system.	<u>Planetary Science Investigation 10, Parts 1-3</u> <u>Solar Energy FOSS Science Stories</u>	Pages 312-324 Pages 40-44
<ul style="list-style-type: none"> Sun, Moon, Earth, other planets and their moons, meteors, asteroids, and comets 	<u>Water Plant Investigation 1, Part 1</u> <u>Water Planet FOSS Science Resources</u> <u>Solar Energy FOSS Science Stories</u> <u>Planetary Science Resources</u>	Pages 50-58 Pages 1-13 Pages 40-44 Pages 69-70, 80-89
√ Origins and age of the Universe	<u>Planetary Science Resources</u>	Pages 97-100
√ Explain the association of time measurement with celestial motions.	<u>Planetary Science Investigation 3, Parts 1-4</u> <u>Investigation 9, Parts 1-4</u>	Pages 89-109 Pages 283-301

SIXTH GRADE SCIENCE, TECHNOLOGY, ENVIRONMENT AND SOCIETY STANDARDS

Indicator 1: Analyze various implications/effects of scientific advancement within the environment and society.

Grade Standards and Supporting Skills	FOSS Investigation/Activities	Page Number(s)
6.S.1.1. Students are able to describe how science and technology have helped society to solve problems.	<u>Environments FOSS Science Stories</u> <u>Mixtures and Solutions FOSS Science Stories</u> <u>Variables FOSS Science Stories</u> <u>Levers and Pulleys FOSS Science Stories</u> <u>Food and Nutrition FOSS Science Stories</u> <u>Solar Energy FOSS Science Stories</u> <u>Models and Designs FOSS Science Stories</u> <u>Weather and Water Resources</u> <u>Force and Motion Resources</u> <u>Chemical Interactions</u>	Pages 36, 43-45 Pages 43-45 Pages 18-20 Pages 23-25 Pages 19, 21-26, 34-36 Pages 4-5, 16-17, 26-39 Pages 17-20, 25-28, 33-36, 44-47 Pages 63-68 Pages 70-74

	<u>Resources</u>	<i>Pages 7-8,60,69-72,78-85</i>
	<u>Populations and Ecosystems</u>	
	Investigation 4, Parts 1-2	Pages 119-129
	<u>Populations and Ecosystems</u>	
	<u>Resources</u>	<i>Pages 25-29</i>

Indicator 2: Analyze the relationships/interactions among science, technology, environment, and society.

Grade Standards and Supporting Skills	FOSS Investigation/Activities	Page Number(s)
6.S.2.1. Students are able, given a scenario, to identify the problem(s) of human activity on the local, regional, or global environment.	<u>Landforms FOSS Science</u>	
	<u>Stories</u>	<i>Pages 37-44</i>
	<u>Solar Energy FOSS Science</u>	
	<u>Stories</u>	<i>Pages 38-39</i>
	<u>Water Plant</u>	
	Investigation 4, Part 4	Pages 212-216
	<u>Water Planet FOSS Science</u>	
	<u>Resources</u>	<i>Pages 83-66</i>
	<u>Populations and Ecosystems</u>	
	Investigation 4, Parts 1-2	Pages 119-129
<u>Weather and Water</u>		
<u>Resources</u>	<i>Pages 63-68</i>	
<u>Environments FOSS Science</u>		
<u>Stories</u>	<i>Pages 36-37, 43-46, 49-52</i>	
<u>Chemical Interactions</u>		
<u>Resources</u>	<i>Pages 60,78-85</i>	

Seventh Grade

This correlation document shows *representative* examples of investigations from the FOSS Middle School program that address the South Dakota standards and their benchmarks for science. A citation does *not* reflect *all* of the investigations from FOSS that might address a particular benchmark.

Please note that all content from the FOSS Middle School CD-ROMs is now also accessible to teachers and students using FOSS, at the FOSS Web Site: www.fossweb.com

SEVENTH GRADE NATURE OF SCIENCE STANDARDS

Indicator 1: Understand the nature and origin of scientific knowledge.
(Mastery of this indicator does not emerge until eighth grade.)

Indicator 2: Apply the skills necessary to conduct scientific investigations.

Grade Standards and Supporting Skills	FOSS Investigation/Activities	Page Number(s)
<p>7.N.2.1. Students are able to conduct scientific investigations using given procedures</p> <ul style="list-style-type: none"> • Use appropriate supportive technologies. • Determine the limits of accuracy inherent in a particular measuring device or procedure. • Control variables to test hypotheses by repeated trials. • Identify sources of experimental error. • Interpret to make 	<p><i>This standard is met in EACH FOSS Middle School Module as students propose and set up investigations</i></p>	
	<p><u>Diversity of Life CD-ROM Populations and Ecosystems CD-ROM Human Brain and Senses CD-ROM</u></p>	<p>“Database” “Larkeys”, “Walking Sticks” “Optical Illusions”</p>
	<p><u>Populations and Ecosystems Investigation 5, Part 1</u></p>	<p>Pages 142-151</p>
	<p><u>Human Brain and Senses Investigation 7, Parts 1-2</u></p>	<p>Pages 210-225</p>
	<p><u>Diversity of Life Investigation 2, Parts 1-3</u></p>	<p>Pages 72-91</p>
	<p><u>Populations and Ecosystems Investigation 9, Parts 3-4</u></p>	<p>Pages 274-291</p>
	<p><u>Diversity of Life Investigation 6, Parts 1-3</u></p>	<p>Pages 186-203</p>
	<p><u>Human Brain and Senses Investigation 9, Parts 1-2</u></p>	<p>Pages 240-252</p>
	<p><u>Populations and Ecosystems Investigation 5, Part 1</u></p>	<p>Pages 142-150</p>
	<p><u>Human Brain and Senses Investigation 4, Parts 1-3</u></p>	<p>Pages 120-143</p>
<p><u>Investigation 7, Part 2</u></p>	<p>Pages 219-225</p>	
<p><u>Diversity of Life Investigation 6, Parts 1-3</u></p>	<p>Pages 186-203</p>	
<p><u>Populations and Ecosystems Investigation 6, Parts 1-3</u></p>	<p>Pages 179-197</p>	

<p>predictions and/or justify conclusions.</p> <ul style="list-style-type: none"> Use research methods to investigate practical and/or personal scientific problems and questions. 	<p><u>Diversity of Life</u> Investigation 6, Parts 1-3 <u>Human Brain and Senses</u> Investigation 7, Parts 1-3</p>	<p>Pages 186-203 Pages 210-230</p>
	<p><u>Human Brain and Senses</u> Investigation 9, Parts 1-2 <u>Populations and Ecosystems</u> Investigation 7, extension</p>	<p>Pages 264-275 Page 218</p>
	<p><i>Safe experimentation is stressed throughout all FOSS Middle School investigations. See for example:</i> <u>Populations and Ecosystems</u> Overview Investigation 5, Part 1 <u>Human Brain and Senses</u> Investigation 2, Part 3 <u>Human Brain and Senses CD-ROM</u></p>	<p>Page 146, 149 Pages 77-83</p>
	<p><u>Populations and Ecosystems</u> Investigation 6, Parts 1-3 <u>Populations and Ecosystems Resources</u> <u>Human Brain and Senses Resources</u></p>	<p>Pages 179-197 Pages 8-13 Pages 23-24</p>
<p>√ Describe and demonstrate various safety factors associated with different types of scientific activity.</p> <ul style="list-style-type: none"> Demonstrate appropriate use of apparatus and technologies for investigations. Use proper safety procedures in all investigations. Wear appropriate attire. <p>√ Analyze the benefits and potential of scientific investigations.</p>		

SEVENTH GRADE PHYSICAL SCIENCE STANDARDS

*After careful consideration of current research and input from educators throughout the state, the Committee revised former standards to facilitate effective instruction and student mastery. Grade seven standards emphasize Life Science.

SEVENTH GRADE LIFE SCIENCE STANDARDS

Indicator 1: Understand the fundamental structures, functions, classifications, and mechanisms found in living things.

Grade Standards and Supporting Skills	FOSS Investigation/Activities	Page Number(s)
<p>7.L.1.1. Students are able to identify basic cell organelles and their functions.</p> <ul style="list-style-type: none"> Observe cells with a compound microscope. Describe the function of the cell membrane to include active transport and passive transport 	<p><u>Diversity of Life Resources</u> <u>Diversity of Life CD-ROM</u></p> <p><u>Diversity of Life</u>, Investigation 3, Parts 1-3 Investigation 4, Parts 1-2</p> <p><u>Diversity of Life Resources</u> <u>Diversity of Life CD-ROM</u></p>	<p>Pages 27-30 "Cells and the Ribbon of Life"</p> <p>Pages 102-124 Pages 133-141</p> <p>Pages 24-30 "Cells and the Ribbon of Life"</p>

<p>(diffusion, osmosis).</p> <ul style="list-style-type: none"> • Describe cell walls as providing support and shape. • Describe cytoplasm. • Describe vacuoles. • Describe the function of the nucleus. <p>√ DNA replication</p> <p>✓ Protein synthesis (ribosomes)</p> <p>✓ Transcription/translation</p> <p>✓ Endoplasmic reticulum</p> <p>✓ Lysosomes</p> <p>✓ Chloroplasts role in photosynthesis</p> <p>✓ Mitochondria role in respiration</p>	<p><u>Diversity of Life Resources</u> <u>Diversity of Life CD-ROM</u></p> <p><u>Diversity of Life CD-ROM</u></p> <p><u>Diversity of Life CD-ROM</u></p> <p><u>Diversity of Life Resources</u> <u>Diversity of Life CD-ROM</u></p> <p><u>Populations and Ecosystems Resources</u></p> <p><u>Diversity of Life CD-ROM</u></p> <p><u>Diversity of Life CD-ROM</u></p> <p><u>Diversity of Life CD-ROM</u></p> <p><u>Diversity of Life CD-ROM</u></p> <p><u>Diversity of Life CD-ROM</u></p> <p><u>Diversity of Life CD-ROM</u></p>	<p>Pages 31-36 "Cells and the Ribbon of Life"</p> <p>"Cells and the Ribbon of Life"</p> <p>"Cells and the Ribbon of Life"</p> <p>Page 28 "Cells and the Ribbon of Life"</p> <p>Pages 49-52</p> <p>"Cells and the Ribbon of Life"</p> <p>"Cells and the Ribbon of Life"</p> <p>"Cells and the Ribbon of Life"</p> <p>"Cells and the Ribbon of Life"</p> <p>"Cells and the Ribbon of Life"</p> <p>"Cells and the Ribbon of Life"</p>
<p>7.L.1.2. Students are able to identify and explain the function of the human systems and the organs within each system.</p> <ul style="list-style-type: none"> • Skeletal/support • Muscular • Digestive • Respiratory • Circulatory • Reproductive <p>√ Endocrine</p> <p>√ Immune</p> <p>√ Nervous</p> <p>√ Excretory</p> <p>√ Integumentary</p>	<p><u>Human Brain and Senses</u> Investigation 9, Parts 1-2 <u>Diversity of Life CD-ROM</u></p> <p><u>Diversity of Life CD-ROM</u></p> <p><u>Diversity of Life CD-ROM</u></p> <p><u>Human Brain and Senses</u> Investigation 8, Parts 1-2</p>	<p>Pages 264-275 "Cells and the Ribbon of Life"</p> <p>"Cells and the Ribbon of Life"</p> <p>"Cells and the Ribbon of Life"</p> <p>Pages 240-252</p>
<p>7.L.1.3. Students are able to classify organisms by using the currently recognized kingdoms.</p> <p>√ Identify and compare the basic structure and function of major taxa.</p>	<p><u>Diversity of Life Resources</u> <u>Diversity of Life CD-ROM/</u> <u>FOSS Web Site</u></p> <p><u>Diversity of Life Resources</u> <u>Diversity of Life CD-ROM/</u> <u>FOSS Web Site</u></p>	<p>Pages 17, 65-70 "Cells and the Ribbon of Life"</p> <p>Pages 17, 65-70 "Cells and the Ribbon of Life"</p>

√ Describe the levels of organization within organisms.	<u>Diversity of Life CD-ROM/ FOSS Web Site</u>	"Cells and the Ribbon of Life"
7.L.1.4. Students are able to describe and identify the structure of vascular and non-vascular plants.	<u>Diversity of Life</u> Investigation 5, Parts 1-3 Investigation 6, Parts 1-3 Investigation 7, Parts 1-2 <u>Diversity of Life Resources</u> <u>Diversity of Life CD-ROM/ FOSS Web Site</u>	Pages 151-171 Pages 186-203 Pages 218-229 Pages 32-39 "Cells and the Ribbon of Life"

Indicator 2: Analyze various patterns and products of natural and induced biological change.

Grade Standards and Supporting Skills	FOSS Investigation/Activities	Page Number(s)
7.L.2.1. Students are able to distinguish between processes involved in sexual and asexual reproduction.	<u>Diversity of Life Resources</u> <u>Populations and Ecosystems Resources</u>	Pages 26, 40-41 Page 50
<ul style="list-style-type: none"> Model the process of cell division. 	<u>Diversity of Life CD-ROM/ FOSS Web Site</u>	"Cells and the Ribbon of Life"
√ Identify the role of genetics in the transmission of traits and characteristics in organisms.	<u>Population and Ecosystems</u> Investigation 9, Parts 1-4 <u>Populations and Ecosystems Resources</u> <u>Populations and Ecosystems CD-ROM/FOSS Web Site</u>	Pages 262-291 Pages 46-61

Indicator 3: Analyze how organisms are linked to one another and the environment.

Grade Standards and Supporting Skills	FOSS Investigation/Activities	Page Number(s)
7.L.3.1. Students are able to predict the effects of biotic and abiotic factors on a species' survival.	<u>Populations and Ecosystems</u> Investigation 3, Parts 1-3 Investigation 7	Pages 90-107 Pages 210-217
√ Describe processes by which matter and energy flow through an ecosystem.	<u>Populations and Ecosystems</u> Investigation 5, Parts 1-4	Pages 142-169
√ Use geospatial technologies to investigate natural phenomena.	<u>Populations and Ecosystems CD-ROM/FOSS Web Site</u> <u>Planetary Science CD-ROM/FOSS Web Site</u>	"Ecoregions" and "Ecoscenarios" Binders, "the Earth"

SEVENTH GRADE EARTH/SPACE SCIENCE STANDARDS

*After careful consideration of current research and input from educators throughout the state, the Committee revised former standards to facilitate effective instruction and student mastery. Grade seven standards emphasize Life Science.

SEVENTH GRADE SCIENCE, TECHNOLOGY, ENVIRONMENT AND SOCIETY STANDARDS

Indicator 1: Analyze various implications/effects of scientific advancement within the environment and society.

Grade Standards and Supporting Skills	FOSS Investigation/Activities	Page Number(s)
7.S.1.1. Students are able to describe how science and technology are used to solve problems in different professions and businesses.	<u>Populations and Ecosystems</u> Investigation 4, Parts 1-2 <u>Populations and Ecosystems Resources</u>	Pages 119-129 Pages 8-16
	<u>Populations and Ecosystems CD-ROM/FOSS Web Site</u> <u>Human Brain and Senses Resources</u> <u>Diversity of Life Resources</u>	Pages 47-48, 80-82 Pages 65-70

Indicator 2: Analyze the relationships/interactions among science, technology, environment, and society.

Grade Standards and Supporting Skills	FOSS Investigation/Activities	Page Number(s)
7.S.2.1. Students are able, given a scenario, to predict the consequence(s) of human activity on the local, regional, or global environment.	<u>Populations and Ecosystems</u> Investigation 4, Parts 1-2 <u>Populations and Ecosystems Resources</u>	Pages 119-129 Pages 8-13, 30-41
	<u>Populations and Ecosystems CD-ROM/FOSS Web Site</u>	

Eighth Grade

This correlation document will show representative examples of investigations from the FOSS Middle School program that address the South Dakota standards and their benchmarks for science. A citation does *not* reflect *all* of the investigations from FOSS that might address a particular benchmark.

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EIGHTH GRADE NATURE OF SCIENCE STANDARDS

Indicator 1: Understand the nature and origin of scientific knowledge.

Grade Standards and Supporting Skills	FOSS Investigation/Activities	Page Number(s)
<p>8.N.1.1. Students are able to differentiate among facts, predictions, theory, and law/principles in scientific investigations.</p> <ul style="list-style-type: none"> • Define fact, predictions, theory, and law/principle. • Discuss how theory becomes law. √ Evaluate important contributions to the advancement of science from people of differing cultures, genders, and ethnicity. 	<p><u><i>Force and Motion Resources</i></u> <u><i>Electronics Resources</i></u> <u><i>Weather and Water Resources</i></u> <u><i>Planetary Science Resources</i></u> <u><i>Earth History Resource</i></u></p>	<p><i>Pages 50-52, 62-66</i> <i>Pages 10-11</i> <i>Pages 63-66</i> <i>Pages 52-53, 67-70</i> <i>Pages 60-62, 81-88</i></p>
	<p><u><i>Force and Motion Resources</i></u></p>	<p><i>Pages 50-52, 62-66</i></p>
	<p><u><i>Earth History Resources</i></u> <u><i>Planetary Science Resources</i></u> <u><i>Weather and Water Resources</i></u></p>	<p><i>Pages 83-84, 87</i> <i>Pages 47-53, 67, 71-73</i></p>
	<p><u><i>Force and Motion Resources</i></u> <u><i>Chemical Interactions Resources</i></u></p>	<p><i>Pages 20-21</i> <i>Pages 50-52</i></p>
	<p><u><i>Electronics Resources</i></u></p>	<p><i>Pages 7-8, 60, 69-72, 78-85</i> <i>Pages 10-11</i></p>

Indicator 2: Apply the skills necessary to conduct scientific investigations.

Grade Standards and Supporting Skills	FOSS Investigation/Activities	Page Number(s)
<p>8.N.2.1. Students are able to design a replicable scientific investigation.</p> <ul style="list-style-type: none"> • Use appropriate supportive technologies. 	<p><i>Please note that all content from the FOSS Middle School CD-ROMs is now also accessible at the FOSS Web Site: www.fossweb.com</i></p>	
	<p><u><i>Earth History CD-ROM</i></u> <u><i>Electronics CD-ROM</i></u> <u><i>Weather and Water CD-ROM</i></u> <u><i>Planetary Science CD-ROM</i></u> <u><i>Chemical Interactions CD-ROM</i></u></p>	<p>“Grand Canyon” “Wonder Card” “Seasons” “Phases of the Moon”</p>

<ul style="list-style-type: none"> Assess the limits of accuracy inherent in a particular measuring device or procedure. 	<p><u>Electronics</u> Investigation 2, Part 3 <u>Weather and Water</u> Investigation 1, Part 2 <u>Earth History</u> Investigation 6, Parts 2-4 <u>Force and Motion</u> Investigation 2, Part 3 <u>Planetary Science</u> Investigation 6, Parts 2-3</p>	<p>Pages 99-103 Pages 48-53 Pages 209-224 Pages 89-99 Pages 198-205</p>
<ul style="list-style-type: none"> Control variables to test hypotheses by repeated trials and by identifying sources of experimental error. 	<p><u>Electronics</u> Investigation 2, Part 1 <u>Planetary Science</u> Investigation 5, Parts 1-4 <u>Force and Motion</u> Investigation 7, Parts 1-3 <u>Weather and Water</u> Investigation 4, Parts 1-2</p>	<p>Pages 89-93 Pages 154-173 Pages 256-272 Pages 121-139</p>
<ul style="list-style-type: none"> Interpret data to justify predictions or conclusions. 	<p><u>Weather and Water</u> Investigation 9, Part 4 <u>Electronics</u> Investigation 6, Part 4 <u>Populations and Ecosystems</u> Investigation 6, Parts 1-3 <u>Forces and Motion</u> Investigation 7, Parts 1-3 <u>Planetary Science</u> Investigation 8, Part 4 <u>Earth History</u> Investigation 3, Parts 2-3 <u>Human Brain and Senses</u> Investigation 7, Parts 1-3</p>	<p>Pages 315-318 Pages 201-209 Pages 179-197 Pages 256-272 Pages 265-270 Pages 96-107 Pages 210-230</p>
<ul style="list-style-type: none"> Use research methods to investigate practical and/or personal scientific problems and questions. 	<p><u>Electronics</u> Investigation 7, Part 2 <u>Human Brain and Senses</u> Investigation 9, Parts 1-2 <u>Populations and Ecosystems</u> Investigation 7, extension <u>Weather and Water</u> Investigation 9, extensions <u>Force and Motion</u> Investigation 8, Parts 1-2</p>	<p>Pages 226-230 Pages 264-275 Page 218 Page 320 Pages 284-301</p>
<ul style="list-style-type: none"> Select appropriate scientific equipment and technologies for investigations and experiments. Use proper safety procedures in all investigations. Wear appropriate attire. 	<p><i>Safe experimentation is stressed throughout all FOSS Middle School investigations. See for example: See for example: <u>Earth History</u> Investigation 3, Part 2 <u>Electronics Resources</u> <u>Chemical Interactions</u> Overview and Investigation 1, Part 1</i></p>	<p>Pages 179-182 Pages 12-14 Pages 44-45</p>

√ Evaluate the benefits and potential of scientific investigations.	<u>Force and Motion Resources</u> <u>Planetary Science Resources</u> <u>Electronics Resources</u> <u>Weather and Water Resources</u>	Pages 70-74 Pages 74-82 Pages 34-36 Pages 63-68
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EIGHTH GRADE PHYSICAL SCIENCE STANDARDS

Indicator 1: Describe structures and properties of, and changes in, matter.

Grade Standards and Supporting Skills	FOSS Investigation/Activities	Page Number(s)
<p>8.P.1.1. Students are able to classify matter as elements, compounds, or mixtures.</p> <p>√ Formulas</p>	<p><u>Weather and Water Resources</u> <u>Chemical Interactions</u> Investigation 9, Parts 1-4 <u>Chemical Interactions Resources</u> <u>Chemical Interactions CD-ROM / FOSS Web Site</u></p>	<p>Pages 6-7</p> <p>Pages 282-312</p> <p>Pages 3-15, 72-73, 90-96</p>
<p>8.P.1.2. Students are able to use the Periodic Table to compare and contrast families of elements and to classify elements as metals, metalloids, or non-metals.</p> <ul style="list-style-type: none"> • Describe the relationship between the organization and the predictive nature of the Periodic Table. • Use the Bohr model to show the arrangement of the subatomic particles of atomic numbers 1 through 18. <p>√ Compare and contrast other atomic models.</p>	<p><u>Chemical Interactions</u> Investigation 2, Parts 1-2 <u>Chemical Interactions Resources</u> <u>Chemical Interactions CD-ROM / FOSS Web Site</u></p> <p><u>Chemical Interactions</u> Investigation 2, Parts 1-2 <u>Chemical Interactions Resources</u> <u>Chemical Interactions CD-ROM / FOSS Web Site</u></p>	<p>Pages 72-81</p> <p>Pages 3-8, 90-93</p> <p>Pages 72-81</p> <p>Pages 3-8, 90-93</p>
<p>8.P.1.3. Students are able to compare properties of matter resulting from physical and chemical changes</p> <p>√ Ionic/covalent bonding</p>	<p><u>Weather and Water</u> Investigation 8, Parts 1-3 <u>Earth History</u> Investigation 4, Part 5 <u>Planetary Science Resources</u> <u>Chemical Interactions</u> Investigation 9, Parts 1-4 <u>Chemical Interactions Resources</u> <u>Chemical Interactions CD-ROM / FOSS Web Site</u></p>	<p>Pages 258-275</p> <p>Pages 150-155 Pages 63-68</p> <p>Pages 282-312</p> <p>Pages 14-27, 96</p>

EIGHTH GRADE LIFE SCIENCE STANDARDS

*After careful consideration of current research and input from educators throughout the state, the Committee revised former standards to facilitate effective instruction and student mastery. Grade eight standards emphasize Earth/Space Science.

EIGHTH GRADE EARTH/SPACE SCIENCE STANDARDS

Indicator 1: Analyze the various structures and processes of the Earth system.

Grade Standards and Supporting Skills	FOSS Investigation/Activities	Page Number(s)
8.E.1.1. Students are able to identify and classify minerals and rocks. <ul style="list-style-type: none"> • Rocks as sedimentary, igneous, or metamorphic. • Rock Cycle-relates to Law of Conservation of Matter • Minerals as carbonates (CO₃) or Silicates (SiO₂) √ Minerals as oxides, sulfides, halides, sulfates 	<u>Earth History</u> Investigation 3, Part	Pages 89-95
	<u>Earth History</u> Investigation 8, Parts 3-4	Pages 266-275
	<u>Earth History</u> Investigation 8, Part 1	Pages 254-258
	<u>Earth History</u> Investigation 4, Part 5 Investigation 5, Parts 1-3	Pages 150-155 Pages 175-187
8.E.1.2. Students are able to explain the role of plate tectonics in shaping Earth. <ul style="list-style-type: none"> • Plates boundaries • Volcanoes • Earthquakes • Seismic waves • Mountains • Convection currents in the mantle • Changes over time 	<u>Earth History Resources</u> <u>Earth History CD-ROM</u>	Pages 100-105 "Earth Processes"
	<u>Earth History Resources</u> <u>Earth History CD-ROM</u>	Pages 100-105 "Earth Processes"
	<u>Earth History CD-ROM</u>	"Earth Processes"
	<u>Earth History CD-ROM</u>	"Earth Processes"
	<u>Earth History CD-ROM</u>	"Earth Processes"
	<u>Earth History CD-ROM</u>	"Earth Processes"
	<u>Earth History Resources</u>	Pages 100-105
	<u>Weather and Water Resources</u> <u>Populations and Ecosystems Resources</u> <u>Earth History Resources</u> <u>Planetary Science Resources</u>	Pages 63-65 Pages 42-45, 58-61 Pages 64-82 Pages 67-68
8.E.1.3. Students are able to explain the factors that create weather and the instruments and technologies that assess it.	<u>Weather and Water</u> Investigation 4, Parts 1-2 Investigation 8, Part 2 <u>Weather And Water Resources</u>	Pages 121-140 Pages 265-270 Pages 5, 8-11, 22-26, 32-33, 43-44

<ul style="list-style-type: none"> Differentiate between climate and climate zones. 	<u>Weather and Water</u> Investigation 9, Parts 1-4 <i>Weather and Water CD-ROM</i>	Pages 296-320 <i>"Climate Factors"</i>
<ul style="list-style-type: none"> √ Effects of the ocean on weather 	<u>Weather and Water</u> Investigation 9, Parts 1-2	Pages 296-310
<ul style="list-style-type: none"> √ Condensation 	<u>Weather and Water</u> Investigation 6, Part 1	Pages 190-193
<ul style="list-style-type: none"> √ Evaporation 	<u>Weather and Water</u> Investigation 6, Part 2	Pages 194-199
<ul style="list-style-type: none"> √ Cloud Formation 	<u>Weather And Water Resources</u>	<i>Pages 34-42</i>
<p>8.E.1.4. Students are able to examine the chemical and physical properties of the ocean to determine causes and effects of currents and waves.</p> <ul style="list-style-type: none"> √ El Niño √ Ocean zones √ Ocean floor features 	<u>Populations and Ecosystems</u> Investigation 7, Part 1 <u>Populations and Ecosystems CD-ROM</u> <u>Weather and Water</u> Investigation 9, Parts 1-4 <u>Weather and Water Resources</u>	Pages 210-218 <i>"Ecoscenarios"</i> Pages 281-320 <i>Pages 45-47, 63-66</i>
<p>8.E.1.5. Students are able to explain the impact of weathering and erosion on the Earth.</p> <ul style="list-style-type: none"> • Soil formation • Deposition (deltas) • Land transformations (Grand Canyon) • Glaciation √ Use geospatial technologies to investigate natural phenomena. 	<u>Earth History</u> Investigation 4, Parts 1-6 <u>Earth History</u> Investigation 4, Parts 1-2 <u>Earth History</u> Investigation 4, Parts 3-4 <u>Earth History</u> Investigation 3, Parts 1-4 <u>Earth History CD-ROM</u> <u>Weather and Water</u> Investigation 9, extension <u>Planetary Science Resources</u> <u>Populations and Ecosystems CD-ROM</u> <u>Planetary Science CD-ROM</u> <u>Earth History CD-ROM</u>	Pages 127-162 Pages 127-137 Pages 138-149 Pages 88-112 <i>"Modern Environments"</i> Page 319 <i>Pages 3-15, 67-68</i> <i>"Ecoregions" and "Ecoscenarios" Binders, "the Earth" "Modern Environments"</i>

Indicator 2: Analyze essential principles and ideas about the composition and structure of the universe.

Grade Standards and Supporting Skills	FOSS Investigation/Activities	Page Number(s)
<p>8.E.2.1. Students are able to compare celestial bodies within the solar system using composition, size, and orbital motion.</p> <ul style="list-style-type: none"> • Describe the composition of the Sun, the planets, asteroids, and comets. √ Use of spectroscopic analysis of celestial bodies √ Measurement in space √ Constellation √ Galaxies √ Life cycle of a star √ HR Diagram √ Law of Gravitation √ Big Bang Theory √ Doppler Effect 	<p><u>Planetary Science</u> Investigation 7, Parts 1-5 Investigation 10, Parts 1-3 <u>Planetary Science Resources</u></p> <p><u>Planetary Science Resources</u></p> <p><u>Planetary Science Resources</u></p> <p><u>Planetary Science Resources</u></p> <p><u>Planetary Science Resources</u></p> <p><u>Planetary Science Resources</u> <u>Force and Motion Resources</u></p> <p><u>Planetary Science Resources</u></p>	<p>Pages 218-237 Pages 312-325 Pages 79-95</p> <p>Pages 79-95</p> <p>Pages 96-100</p> <p>Pages 79-100</p> <p>Pages 69-70 Pages 67-69</p> <p>Pages 96-100</p>
<p>8.E.2.2. Students are able to differentiate the influences of the relative positions of the Earth, Moon, and Sun.</p> <ul style="list-style-type: none"> • Lunar and solar eclipses, moon phases, tides, seasons 	<p><u>Planetary Science</u> Investigation 3, Parts 1-4 Investigation 9, Parts 1-4</p> <p><u>Planetary Science</u> Investigation 3, Parts 1-4 Investigation 9, Parts 1-4 <u>Weather and Water CD-ROM</u></p>	<p>Pages 89-109 Pages 283-302</p> <p>Pages 89-109 Pages 283-302 "Seasons"</p>

EIGHTH GRADE SCIENCE, TECHNOLOGY, ENVIRONMENT AND SOCIETY STANDARDS

Indicator 1: Analyze various implications/effects of scientific advancement within the environment and society.

Grade Standards and Supporting Skills	FOSS Investigation/Activities	Page Number(s)
<p>8.S.1.1. Students are able to describe how science and technology have been influenced by social needs, attitudes, and values.</p>	<p><u>Weather and Water</u> Investigation 9, Parts 1-4 <u>Weather and Water Resources</u> <u>Electronics Resources</u> <u>Populations and Ecosystems</u></p>	<p>Pages 177-222 Pages 45-47,63-66 Pages 18-21, 23-25</p>

	<u>Resources</u>	Pages 8-41
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Indicator 2: Analyze the relationships/interactions among science, technology, environment, and society.

Grade Standards and Supporting Skills	FOSS Investigation/Activities	Page Number(s)
8.S.2.1. Students are able, given a scenario, to offer solutions to problems created by human activity on the local, regional, or global environment.	<u>Weather and Water Resources</u> <u>Electronics Resources</u>	Pages 45-47, 63-66 Pages 18-21, 23-25