



**FOSS Full Option Science System
(FOSS™)
K-7**

Correlation

to

**Kansas
Science Education
Standards**



Kansas

Science Education
Standards

Correlation

to

Full Option Science System
(FOSS™)

This correlation shows representative examples of investigations and activities from the FOSS program that address the Science Content Standards. A citation does not reflect all of the investigations or activities that might address a particular standard.

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GRADES K-2 STANDARD 1: SCIENCE AS INQUIRY

SCIENCE AS INQUIRY – The student will experience science as *full inquiry*. In the elementary grades, students begin to develop the physical and intellectual abilities of scientific inquiry.

Benchmark 1: The student will be involved in activities that develop skills necessary to conduct scientific inquiries.

INDICATOR	FOSS
<p>The student...</p> <p>1. identifies <i>properties</i> of objects.</p> <p>2. <i>classifies</i> and arranges groups of objects by a variety of properties, one property at a time.</p> <p>3. uses appropriate materials, <i>tools</i>, and safety procedures to collect information.</p>	<p>Wood and Paper Investigation 1, Parts 1-4, pp. 8-27 Investigation 3, Parts 1-4, pp. 8-25</p> <p>Fabric Investigation 1, Parts 1-3, pp. 6-19</p> <p>Air and Weather Investigation 1, Parts 1-6, pp. 8-38</p> <p>Solids and Liquids Investigation 1, Parts 1-2, pp. 8-20 Investigation 2, Parts 1-3, pp. 10-27 Investigation 3, Parts 1-4, pp. 8-27 Investigation 4, Parts 1-2, pp. 7-23</p> <p>Pebbles, Sand and Silt Investigation 1, Parts 1-2, pp. 8-21 Investigation 2, Part 2, pp. 14-17 Investigation 4, Part 1, pp. 8-14</p> <p>Wood and Paper Investigation 1, Part 3, pp.20-23 Investigation 3, Part 4, pp. 22-25</p> <p>Fabric Investigation 1, Part 1, pp. 6-11</p> <p>Solids and Liquids Investigation 1, Part 2, pp. 17-20 Investigation 3, Parts 2, 4, pp. 14-18, 24-27</p> <p>Pebbles, Sand, and Silt Investigation 1, Parts 3-4, pp. 18-25 Investigation 2, Parts 1-4, pp. 8-29</p> <p>FOSS investigations have students use materials and tools in a safe manner to collect information. See for example:</p> <p>Trees Investigation 1, Part 7, pp. 31-34</p> <p>Fabric Investigation 1, Parts 4-6, pp. 20-33</p> <p>Wood and Paper Investigation 1, Parts 1-4, pp. 8-27</p> <p>Air and Weather Investigation 1, Parts 1-6, pp. 8-38 Investigation 2, Parts 1-4, pp. 8-27</p> <p>Pebbles, Sand and Silt Investigation 2, Parts 1-4, pp. 8-29</p> <p>Insects</p>

<p>4. asks and answers questions about objects, organisms, and events in his/her environment.</p>	<p>Investigation 1, Parts 1-3, pp. 8-25 Plants and Animals Investigation 1, Part 3, pp. 71-75</p> <p>FOSS provides opportunity for students to ask and answer questions throughout the program. See for example: Fabric Investigation 2, Part 1, pp. 7-11 Wood and Paper Investigation 3, Part 3, pp. 20-23 New Plants Investigation 2, Parts 1-2, pp. 8-19 Pebbles, Sand and Silt Investigation 4, Part 1, pp. 8-14 Solids and Liquids Investigation 4, Parts 1-3, pp. 7-27 Plants and Animals Investigation 1, Parts 1-2, pp. 52-70 Insects and Plants Investigation 5, Parts 1-3, pp. 203-225</p>
<p>5. describes an observation orally or pictorially.</p>	<p>FOSS provides ample opportunity for students to make reports and record observations. See for example: Animals Two by Two Investigation 2, Part 1, pp. 10-16 New Plants Investigation 3, Part 1, pp. 8-13 Insects Investigation 1, Part 1, pp. 8-15 Pebbles, Sand and Silt Investigation 1, Part 2, pp. 13-17 Solids and Liquids Investigation 2, Part 2, pp. 17-20 Air and Weather Investigation 4, Part 3, pp. 19-21 Plants and Animals Investigation 4, Parts 1-2, pp. 151-163 Insects and Plants Investigation 1, Parts 1-3, pp. 52-75</p>

GRADES K-2 STANDARD 2: PHYSICAL SCIENCE

PHYSICAL SCIENCE - The student will explore the world by observing and manipulating common objects and materials in their environment.

Benchmark 1: The student will develop skills to describe objects.

INDICATOR	FOSS
<p>The student...</p> <p>1. observes properties of objects and measures or describes those properties using age-appropriate tools and materials.</p>	<p>Wood and Paper Investigation 1, Parts 1-4, pp. 8-27 Investigation 3, Parts 1-4, pp. 8-25 Fabric Investigation 1, Parts 1-3, pp. 6-19</p>

<p>2. separates or sorts a group of objects or materials by <i>properties</i>.</p> <p>3. compares solids and liquids.</p> <p>4. describes the position of an object in relation to other objects</p>	<p>Air and Weather Investigation 1, Parts 1-6, pp. 8-38 Investigation 2, Part 2, pp. 14-19 Investigation 3, Parts 2, 4, pp. 12-16, 22-27</p> <p>Solids and Liquids Investigation 1, Parts 1-2, pp. 8-20 Investigation 2, Parts 1-3, pp. 10-27 Investigation 3, Parts 1-4, pp. 8-27 Investigation 4, Parts 1-2, pp. 7-23</p> <p>Pebbles, Sand and Silt Investigation 1, Parts 1-2, pp. 8-21 Investigation 2, Part 2, pp. 14-17 Investigation 3, Parts 1-5, pp. 8-29 Investigation 4, Part 1, pp. 8-14</p> <p>Fabric Investigation 1, Part 1, pp.6-11 Investigation 2, Part 1, pp. 7-11</p> <p>Wood and Paper Investigation 1, Part 3, pp. 20-23 Investigation 3, Part 4, pp. 22-25</p> <p>Animals Two by Two Investigation 2, Part 4, pp. 22-24</p> <p>Solids and Liquids Investigation 1, Part 2, pp. 17-20 Investigation 3, Parts 2, 4, pp. 14-18, 24-27 Investigation 4, Parts 1-2, pp. 7-22</p> <p>Pebbles, Sand and Silt Investigation 1, Parts 3-4, pp. 18-25 Investigation 2, Parts 1-4, pp. 8-29 Investigation 3, Parts 1, 3, pp. 8-14, 19-25</p> <p>Solids and Liquids Investigation 1, Parts 1-3, pp. 8-24 Investigation 2, Parts 1-3, pp. 10-27 Investigation 4, Parts 1-2, pp. 7-22 Science Stories, pp. 4-13</p> <p>Wood and Paper Investigation 1, Part 4, pp. 24-27 Investigation 2, Part 4, pp. 20-23</p> <p>Fabric Investigation 1, Part 5, pp. 23-28</p> <p>Solids and Liquids Investigation 1, Part 3, pp. 21-24</p> <p>Air and Weather Investigation 1, Part 2, 4, 6, pp. 13-16, 21-26, 34-38 Investigation 2, Parts 2, 4, pp. 14-19, 24-27</p> <p>Balance and Motion Investigation 1, Parts 1-4, pp. 8-28</p>
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GRADES K-2 STANDARD 3: LIFE SCIENCE

LIFE SCIENCE – The student will begin to develop an understanding of biological concepts.

Benchmark 1: The student will develop an understanding of the characteristics of living things.

INDICATOR	FOSS
<p>The student...</p> <p>1. discusses that <i>organisms</i> live only in <i>environments</i> in which their needs can be met.</p>	<p>Trees Investigation 1, Part 2, pp. 15-19</p> <p>Animals Two by Two Investigation 1, Part 2, pp. 17-21 Investigation 3, Part 1, pp. 8-12 Investigation 4, Part 4, pp. 20-23 Science Stories, pp. 6-11</p> <p>Insects Investigation 1, Part 1, pp. 8-15 Investigation 3, Part 2, pp. 12-20 Investigation 4, Part 2, pp. 14-18 Investigation 6, Parts 1-3, pp. 8-22</p> <p>New Plants Investigation 1, Part 2, pp. 13-22 Investigation 2, Part 1, pp. 8-14 Science Stories, pp. 4-7</p> <p>Plants and Animals Investigation 1, Part 1, pp. 47-57 Investigation 3, Parts 1-2, pp. 120-124 Resources, pp. 3-7, 21-24, 28-45</p> <p>Insects and Plants Investigation 1, Part 1, pp. 52-61 Investigation 3, Part 2, pp. 134-144 Investigation 4, Part 2, pp.170-174</p>
<p>2. observes <i>life cycles</i> of different living things.</p>	<p>Animals Two by Two Investigation 5, Parts 1-3, pp. 10-24 Science Stories, pp. 20-23</p> <p>Insects Investigation 1-5, All Parts Science Stories, pp. 16-33</p> <p>New Plants Investigation 1, Parts 1-3, pp. 8-30 Science Stories, pp. 8-15</p> <p>Insects and Plants Investigations 1-5, all parts Resources, pp. 37-55</p>
<p>3. observes living things in various <i>environments</i>.</p>	<p>Animals Two by Two Investigation 1, Parts 1-4, pp. 10-29 Investigation 3, Parts 1-3, pp. 8-20 Investigation 4, Part 4, pp. 20-23 Science Stories, pp. 4-23</p> <p>Trees Investigation 1, Part 1, pp. 7-14</p>

<p>4. examines the <i>structures</i>/parts of living things.</p>	<p>Science Stories, pp. 3-12 FOSS Web, Activity: Who Lives There Insects Investigation 3, Parts 2-3, pp. 12-26 Investigation 6, Parts 1-3, pp. 8-22 Science Stories, pp. 3-11, 26-33 FOSS Web, Activity: Insect Hunt New Plants Investigation 1, Parts 2-3, pp. 13-30 Science Stories, pp. 22-39 Plants and Animals Investigation 3, Parts 1-2, pp. 120-134 Resources, pp. 28-45 Video: How Plants Live in Different Places Insects and Plants Investigation 3, Parts 2-3, pp. 134-151 Resources, pp. 47-55</p> <p>Trees Investigation 1, Parts 5-6, pp. 25-30 Investigation 2, Part 1, pp. 6-9 Investigation 3, Parts 5, 7, pp. 22-25, 29-31 Science Stories, pp. 14-22 Animals Two by Two Investigation 1, Part 1, pp. 10-16 Investigation 2, Parts 1, 3, pp. 9-13, 18-21 Investigation 3, Part 1, pp. 8-12 Science Stories, pp. 5-6, 9-10, 13-14, 17-18, 21-22 Insects Investigation 1, Parts 1-3, pp. 8-25 Investigation 2, Parts 1-3, pp. 8-24 Investigation 3, Parts 1-3, pp. 8-26 Science Stories, pp. 12-15 New Plants Investigation 1, Part 3, pp. 23-30 Investigation 2, Part 3, pp. 20-25 Investigation 4, Parts 1-2, pp. 7-19 Science Stories, pp. 3-15, 40-43 Plants and Animals Investigation 1, Part 3, pp. 63-72 Investigation 2, Parts 1-3, pp. 87-108 Investigation 3, Parts 1-3, pp. 120-140 Investigation 4, Parts 1-2, pp. 151-165 Resources, pp. 4-7, 16-19, 47-50 Insects and Plants Investigation 1, Parts 1-3, pp. 52-75 Investigation 2, Part 3, pp. 105-115 Investigation 3, Parts 1-3, pp. 129-151 Resources, pp. 15-19, 30-33</p>
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GRADES K-2
STANDARD 4: EARTH AND SPACE SCIENCE

EARTH AND SPACE SCIENCE – The student will observe closely the objects and materials in their *environment*.

Benchmark 1: The student will describe *properties of earth materials*.

INDICATOR	FOSS
The student...	
1. observes, compares, and sorts <i>earth materials</i> .	Pebbles, Sand and Silt Investigation 1, Parts 1-5, pp. 8-29 Investigation 2, Parts 1-4, pp. 8-29 Investigation 4, Parts 1-3, pp. 8-25 Science Stories, pp. 2-13, 20-23, 26-31 FOSS Web, Activity: Find Earth Materials

GRADES K-2
STANDARD 4: EARTH AND SPACE SCIENCE

EARTH AND SPACE SCIENCE – The student will observe closely the objects and materials in their environment.

Benchmark 2: The student will observe and compare objects in the sky.

INDICATOR	FOSS
The student...	
1. observes and recognizes the sun, moon, stars, clouds, birds, airplanes, and other objects in the sky.	Air and Weather Investigation 4, Part 3, pp. 19-24
2. describes that the sun provides light and warmth	Air and Weather Investigation 2, Part 2, pp. 14-19 Science Stories, pp. 7, 10, 21 FOSS Web, Activity: What's the Weather

GRADES K-2
STANDARD 4: EARTH AND SPACE SCIENCE

EARTH AND SPACE SCIENCE – The student will observe closely the objects and materials in their environment.

Benchmark 3: The student will describe changes in weather.

INDICATOR	FOSS
The student...	
1. observes changes in the weather from day to day.	Trees Tools for Observing Weather, pp. 6-9 Air and Weather Investigation 2, Parts 1-4, pp. 8-27
2. records weather changes daily.	Trees Tools for Observing Weather, pp. 6-9

<p>2. discusses healthy foods</p> <p>3. discusses that humans need to practice being safe</p>	<p>personal care. See for example: Animals Two by Two Investigation 3, p. 20 Trees Investigation 1, p. 37</p> <p>FOSS modules provide a “Safety in the Classroom” section and identify safety concerns throughout the modules. See for example: Fabric Investigation 1, p. 32 Balance and Motion Investigation 2, p 15 Solids and Liquids Investigation 1, p. 23 Plants and Animals Investigation 1, Part 1, pp. 50-51</p>
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GRADES K-2
STANDARD 7: HISTORY AND NATURE OF SCIENCE

HISTORY AND NATURE OF SCIENCE – The student will experience scientific inquiry and learn about people from history.

Benchmark 1: The student will know they practice science.

INDICATOR	FOSS
<p>The student...</p> <p>1. is involved in explorations that make his/her mind wonder and know that he/she is practicing science.</p> <p>2. uses <i>technology</i> to learn about people in science.</p>	<p>FOSS is an inquiry-based program that engages students in the scientific process. See for example: Wood and Paper Investigation 1, Parts 3-5, pp. 20-32 Science Stories, pp. 9-12 Animals Two by Two Investigation 1, Parts 3-4, pp. 22-29 Balance and Motion Investigation 3, Parts 1-3, pp. 6-25 Pebbles, Sand, and Silt Investigation 4, Parts 1-3, pp. 8-25 Air and Weather Investigation 1, Parts 1-6, pp. 8-38 Plants and Animals Investigation 1, Parts 1-3, pp. 47-72 Insects and Plants Investigation 4, Parts 1-5, pp. 166-19</p> <p>FOSS Web: Ask a Scientist</p>

GRADES 3-4 STANDARD 1: SCIENCE AS INQUIRY

SCIENCE AS INQUIRY – The student will experience science as inquiry.

Benchmark 1: The student will develop the skills necessary to do full inquiry. *Full inquiry* involves asking a simple question, completing an *investigation*, answering the question, and sharing the results with others.

INDICATOR	FOSS
<p>The student...</p> <ol style="list-style-type: none"> 1. asks questions that he/she can answer by investigating. 2. plans and conducts a simple investigation. 3. employs appropriate equipment, <i>tools</i>, and safety procedures to gather data. 	<p>FOSS investigations and inquiry approach encourage investigative questions. See for example:</p> <p>Structures of Life Investigation 4, Part 3, pp. 20-24</p> <p>Human Body Investigation 4, Part 2, pp. 17-19</p> <p>Water Investigation 3, Parts 2-3, pp. 12-20</p> <p>Ideas and Inventions Investigation 3, Part 2, pp. 14-17</p> <p>Sun, Moon and Stars Investigation 1, Parts 1-2, pp. 42-64</p> <p>Matter and Energy Investigation 2, Parts 1-2, pp. 93-114</p> <p>Human Body Investigation 4, Part 3, pp. 20-24</p> <p>Magnetism and Electricity Investigation 4, Parts 2-3, pp. 14-22</p> <p>Ideas and Inventions Investigation 4, Part 3, pp. 18-21</p> <p>Water Investigation 3, Parts 2-3, pp. 12-20</p> <p>Measurement Investigation 2, Part 3, pp. 18-24</p> <p>Sun, Moon and Stars Investigation 1, Parts 1-2, pp. 42-64</p> <p>Matter and Energy Investigation 3, Part 2, pp. 139-150</p> <p>Measurement Investigation 2, Parts 1-3, pp. 8-27 Investigation 3, Parts 1-3, pp. 8-21</p> <p>Earth Materials Investigation 3, Parts 1-2, pp. 8-19</p> <p>Magnetism and Electricity Investigation 3, Parts 1-3, pp. 10-26</p> <p>Physics of Sound Investigation 2, Parts 1-3, pp. 8-24</p> <p>Water Investigation 4, Part 1, pp. 8-13</p> <p>Sun, Moon and Stars Investigation 1, Part 1, pp. 42-55</p> <p>Matter and Energy</p>

<p>4. begins developing the abilities to communicate, critique, analyze his/her own investigations, and interprets the work of other students.</p>	<p>Investigation 3, Parts 2-3, pp. 139-160 Investigation 4, Part 1, pp. 174-180</p> <p>FOSS investigations encourage these inquiry skills. See for example:</p> <p>Measurement Investigation 4, Part 2, pp. 14-17</p> <p>Magnetism and Electricity Investigation 1, Part 3, pp. 23-30 Investigation 4, Part 3, pp. 14-18</p> <p>Human Body Investigation 4, Parts 1-3, pp. 8-24</p> <p>Water Investigation 3, Parts 2-3, pp. 12-20</p> <p>Sun, Moon and Stars Investigation 2, Parts 1-2, pp. 79-100</p> <p>Matter and Energy Investigation 3, Part 2, pp. 139-150</p>
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GRADES 3-4 STANDARD 2: PHYSICAL SCIENCE

PHYSICAL SCIENCE - The student will increase their understanding of the *properties* of objects and materials that they encounter on a daily basis. The student will compare, describe, and sort and *classify* these materials by observable properties.

Benchmark 1: The student will develop skills to describe objects.

INDICATOR	FOSS
<p>The student...</p> <p>1. observes <i>properties</i> of objects and measures those <i>properties</i> using appropriate <i>tools</i>.</p> <p>2. describes and <i>classifies</i> objects by more than one property.</p> <p>3. observes and records how one object <i>interacts</i> with another object.</p>	<p>Measurement Investigation 2, Parts 2-3, pp. 14-24 Investigation 3, Parts 2-3, pp. 14-21 Investigation 4, Parts 1-2, pp. 8-17</p> <p>Water Investigation 2, Part 3, pp. 19-25 Investigation 4, Part 1, pp. 8-13</p> <p>Earth Materials Investigation 2, Part 2, pp. 14-21</p> <p>Earth Materials Investigation 2, Part 2, pp. 14-21</p> <p>Ideas and Inventions Investigation 2, Parts 1-2, pp. 8-19</p> <p>Water Investigation 4, Part 1, pp. 8-13</p> <p>Human Body Investigation 3, Parts 1-3, pp. 8-21</p> <p>Earth Materials Investigation 3, Parts 1-2, pp. 8-19</p> <p>Ideas and Inventions Investigation 3, Parts 1-2, pp. 8-17</p> <p>Magnetism and Electricity Investigation 1, Parts 1-2, pp. 8-22</p>

<p>4. recognizes and describes the differences between solids, liquids, and gases.</p>	<p>Sun, Moon and Stars Investigation 2, Part 2, pp. 89-100</p> <p>Matter and Energy Investigation 3, Part 2, pp. 1139-150 Investigation 4, Part 3, pp. 193-203</p> <p>Water Investigation 1, Parts 1-3, pp. 8-23 Investigation 2, Part 3, pp. 19-24 Investigation 3, Part 4, pp. 21-26 Science Stories, pp. 1-2, 8-9, 13-16</p> <p>Matter and Energy Investigation 3, Part 1, pp. 129-138 Science Resources, pp. 39-42</p>
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GRADES 3-4 STANDARD 2: PHYSICAL SCIENCE

PHYSICAL SCIENCE – The student will increase their understanding of the properties of objects and materials that they encounter on a daily basis. The student will compare, describe, and sort and classify these materials by observable properties.

Benchmark 2: The student will describe the motion of objects.

INDICATOR	FOSS
<p>The student...</p> <p>1. moves objects by pushing, pulling, throwing, spinning, dropping, and rolling and describes the motion.</p> <p>2. describes the change in position of objects when moved.</p>	<p>Human Body Investigation 3, Parts 1-3, pp. 8-21 Investigation 4, Parts 1-3, pp. 8-24</p> <p>Physics of Sound Investigation 3, Part 1, pp. 8-14</p> <p>Structures of Life Investigation 4, Part 3, pp. 20-24</p> <p>Water Investigation 1, Part 3, pp. 19-23 Investigation 4, Part 2, pp. 14-18</p> <p>Water Investigation 1, Part 3, pp. 19-23 Investigation 2, Part 2, pp. 14-18</p> <p>Human Body Investigation 1, Part 2, pp. 16-20 Investigation 3, Parts 1-3, pp. 8-21 Investigation 4, Part 3, pp. 20-24</p> <p>Ideas and Inventions Investigation 3, Parts 1-2, pp. 8-17 Investigation 4, Part 2, pp. 14-17</p>

GRADES 3-4 STANDARD 2: PHYSICAL SCIENCE

PHYSICAL SCIENCE – The student will increase their understanding of the properties of objects and materials that they encounter on a daily basis. The student will compare, describe, and sort and classify these materials by observable properties.

Benchmark 3: The student will recognize and demonstrate what makes sounds.

INDICATOR	FOSS
The student...	
1. identifies that the source of sound is vibrations..	Physics of Sound Investigation 1, Part 3, pp. 21-29 Investigation 3, Parts 1-2, pp. 8-19 Science Stories, pp. 6, 9
2. discriminates between sounds made by different objects	Physics of Sound Investigation 1, Parts 1-2, pp. 8-20 Investigation 4, Part 1, pp. 6-15 Science Stories, pp. 5-8
3. discriminates between various pitches.	Physics of Sound Investigation 2, Parts 1-3, pp. 8-24 Science Stories, 11-13

GRADES 3-4 STANDARD 2: PHYSICAL SCIENCE

PHYSICAL SCIENCE – The student will increase their understanding of the properties of objects and materials that they encounter on a daily basis. The student will compare, describe, and sort and classify these materials by observable properties.

Benchmark 4: The student will experiment with electricity and magnetism:

INDICATOR	FOSS
The student...	
1. demonstrates that magnets attract and repel.	Magnetism and Electricity Investigation 1, Parts 1-4, pp. 8-34 Investigation 4, Part 1, pp. 8-15 Science Stories, pp. 5-9 FOSS Web, Activity: Electromagnets; Kitchen
2. designs a simple experiment to determine whether various objects will be attracted to magnets.	Magnetism and Electricity Investigation 1, Parts 1-2, pp. 8-22
3. constructs a <i>simple circuit</i> .	Magnetism and Electricity Investigation 2, Parts 1-4, pp. 8-29 Investigation 3, Parts 1-3, pp. 10-26 Matter and Energy Investigation 1, Parts 1, 3, pp. 50-62, 71-82

GRADES 3-4 STANDARD 3: LIFE SCIENCE

LIFE SCIENCE – The student will develop an understanding of biological concepts through direct experience with living things, their life cycles, and their habitats.

Benchmark 1: The student will develop knowledge of organisms in their environment.

INDICATOR	FOSS
<p>The student...</p> <ol style="list-style-type: none"> 1. observes different organisms and compares and contrasts how similar functions are served by different structural characteristics. 2. compares basic needs of different organisms in their environment. 3. discusses ways organisms use their senses to survive in their environments. 	<p>Structures of Life Investigation 1, Parts 1-2, pp. 8-27 Investigation 2, Part 3, pp. 18-22 Investigation 3, Part 1, pp. 8-15 Investigation 4, Parts 1-2, pp. 8-19 Science Stories, pp. 1-3, 17-18, 22-21, 23, 25-35, 37, 40-43</p> <p>Human Body Investigation 1, Parts 1-2, pp. 8-20 Investigation 2, Parts 1-4, pp. 8-25 Investigation 3, Parts 1-3, pp. 8-21 Science Stories, pp. 1-4, 10-13</p> <p>Structures of Life Investigation 2, Part 2, pp. 14-17 Investigation 3, Part 2, pp. 16-19 Investigation 4, Part 1, pp. 8-13 Science Stories, pp. 17-18</p> <p>Structures of Life Investigation 3, Part 1, pp. 8-15 Investigation 4, Part 1, pp. 8-13 Science Stories, pp. 18, 39</p>

GRADES 3-4 STANDARD 3: LIFE SCIENCE

LIFE SCIENCE – The student will develop an understanding of biological concepts through direct experience with living things, their life cycles, and their habitats.

Benchmark 2: The student will observe and illustrate the life cycles of various organisms.

INDICATOR	FOSS
<p>The student...</p> <ol style="list-style-type: none"> 1. compares, contrasts, and asks questions about life cycles of various organisms. 	<p>Structures of Life Investigation 2, Part 3, pp. 18-22 Science Stories, pp. 20-21 FOSS Web, Activity: Life Cycles</p>

GRADES 3-4
STANDARD 4: EARTH AND SPACE SCIENCE

EARTH AND SPACE SCIENCE – The student will observe objects, materials, and changes in their *environment*, note their *properties*, distinguish one from another, and develop their own explanations making sense of their observations.

Benchmark 1: The student will develop an understanding of the properties of *earth materials*.

INDICATOR	FOSS
<p>The student...</p> <ol style="list-style-type: none"> 1. collects, observes <i>properties</i>, and <i>classifies</i> a variety of <i>earth materials</i> in his/her <i>environment</i>. 2. experiments with a variety of soil types (clay, silt, sand, and loam). 3. describes <i>properties</i> of water and process of the water cycle. 4. observes and records the properties of <i>fossils</i> and discusses what <i>fossils</i> are. 	<p>Earth Materials Investigation 1, Parts 1-3, pp. 8-29 Investigation 2, Parts 1-2, pp. 8-21 Investigation 3, Parts 1-2, pp. 8-19 Investigation 4, Part 1, pp. 8-13 Science Stories, pp. 1-15, 30-37 FOSS Web, Activity: Rock Database</p> <p>Water Investigation 1, Parts 1-3, pp. 8-23 Investigation 2, Part 3, pp. 19-24 Science Stories, pp. 1-9, 17</p> <p>This topic is addressed in the grade two module <u>Pebbles, Sand and Silt</u>.</p> <p>Water Investigation 1, Parts 1-3, pp. 8-23 Science Stories, pp. 14-16 Foss Web, Pictures, Water Cycle</p> <p>Earth Materials Science Stories, p. 4 FOSS Web, Pictures</p> <p>Structures of Life Science Stories, pp. 45-48</p> <p>Human Body Science Stories, pp. 21-24</p>

GRADES 3-4
STANDARD 4: EARTH AND SPACE SCIENCE

EARTH AND SPACE SCIENCE – The student will observe objects, materials, and changes in their environment, note their *properties*, distinguish one from another, and develop their own explanations making sense of their observations.

Benchmark 2: The student will observe and describe objects in the sky.

INDICATOR	FOSS
<p>The student...</p> <ol style="list-style-type: none"> 1. observes the moon and stars. 	<p>Ideas and Inventions Science Stories, pp. 34-37</p> <p>Sun, Moon and Stars Investigation 2, Parts 1-2, pp. 79-100</p>

<p>2. observes and compares the length of shadows.</p> <p>3. discusses that the sun provides light and heat (electro-magnetic radiation) to maintain the temperature of the earth.</p>	<p>Investigation 3, Parts 1-2, pp. 114-130 Resources, pp. 25-32, 35-39</p> <p>Ideas and Inventions Science Stories, p. 33 Sun, Moon and Stars Investigation 1, Parts 1-2, pp. 42-64 Resources, pp. 4-11</p> <p>Ideas and Inventions Science Stories, p. 33 Water Science Stories, pp. 14-15 Matter and Energy Investigation 1, Part 1, pp. 50-62 Science Resources, pp. 1-5 Sun, Moon and Stars Resources, pp. 1-3</p>
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GRADES 3-4

STANDARD 4: EARTH AND SPACE SCIENCE

EARTH AND SPACE SCIENCE – The student will observe objects, materials, and changes in their environment, note their properties, distinguish one from another, and develop their own explanations making sense of their observations.

Benchmark 3: The student will develop skills necessary to describe changes in the earth and weather.

INDICATOR	FOSS
<p>The student...</p> <p>1. describes changes in the surface of the earth.</p> <p>2. observes, describes, and records daily and seasonal weather changes.</p>	<p>Earth Materials Science Stories, pp. 5-7 This indicator is further addressed in the grade five module <u>Landforms</u>.</p> <p>This indicator is addressed in the grade Two module <u>Air and Weather</u>.</p>

GRADES 3-4

STANDARD 5: SCIENCE AND TECHNOLOGY

SCIENCE AND TECHNOLOGY – The student will have a variety of educational experiences which involve science and technology. The student will begin to understand the design process.

Benchmark 1: The student will work with a technology design.

INDICATOR	FOSS
<p>The student...</p> <p>1. identifies a simple <i>design problem</i> (designs a plan, implements the plan, evaluates the results, makes changes to improve the product, and communicates the results).</p>	<p>Water Investigation 4, Part 2, pp. 14-18 Magnetism and Electricity Investigation 4, Part 3, pp. 19-22 Physics of Sound</p>

GRADES 3-4 STANDARD 5: SCIENCE AND TECHNOLOGY

SCIENCE AND TECHNOLOGY – The student will have a variety of educational experiences which involve science and technology. They will begin to understand the design process.

Benchmark 2: The student will apply their understanding about science and technology.

INDICATOR	FOSS
The student...	
1. will understand that the design process produces knowledge that can be used to solve a problem and improve our world.	FOSS provides the opportunity to address this indicator. See examples below: Ideas and Inventions Science Stories, pp. 1-3, 9-10, 17-22 Magnetism and Electricity Science Stories, pp. 16-20, 28-33 Physics of Sound Science Stories, pp. 32-35 Water Science Stories, pp. 18-19, 22-23
2. invents a product to solve problems.	Magnetism and Electricity Investigation 4, Part 3, pp. 19-22 Water Investigation 4, Part 2, pp. 17-19 Physics of Sound Investigation 4, Part 1, pp. 6-15
3. works with others to solve problems.	FOSS investigations involve students working in cooperative groups. See for example: Earth Materials Investigation 3, Parts 1-2, pp. 8-19 Structures of Life Investigation 3, Part 3, pp. 20-23 Measurement Investigation 3, Part 3, pp. 18-21 Physics of Sound Investigation 4, Part 1, pp. 6-15 Matter and Energy Investigation 3, Part 2, pp. 139-150
4. develops an awareness that women and men of all ages, backgrounds, and ethnic groups engage in a variety of scientific and technological work.	Magnetism and Electricity Science Stories, pp. 12-23 Water Science Stories, pp. 24-26 Ideas and Inventions Science Stories, pp. 1-3, 9-22 Structures of Life Science Stories, pp. 6-9 Sun, Moon and Stars Resources, pp. 44-46
5. investigates how scientists use <i>tools</i> to	Measurement

observe.	Investigation 1, Parts 2-3, pp. 16-24 Investigation 2, Parts 2-3, pp. 14-24 Investigation 3, Parts 2-3, pp. 14-21 Investigation 4, Parts 1-2, pp. 8-17 Water Investigation 4, Part 1, pp. 8-13 Earth Materials Investigation 2, Parts 1-2, pp. 8-21 Ideas and Inventions Investigation 2, Parts 1-2, pp. 8-19 Magnetism and Electricity Investigation 1, Part 3, pp. 23-29 Sun, Moon and Stars Investigation 3, Part 2, pp. 126-130 Resources, pp. 40-43
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GRADES 3-4
STANDARD 6: SCIENCE IN PERSONAL AND ENVIRONMENTAL PERSPECTIVES

SCIENCE IN PERSONAL AND ENVIRONMENTAL PERSPECTIVES – The student will demonstrate personal health and environmental practices.

Benchmark 1: The student will develop an understanding of personal health.

INDICATOR	FOSS
The student... 1. discusses the nutritional value of various foods and their contribution to health. 2. discusses that safety involves preventing injury by avoiding inappropriate risks and dangers. 3. assumes some responsibility for his/her own health , and the health and well being of others.	Human Body Science Stories, p. 25 FOSS modules contain a "Safety in the Classroom" section and designate safety concerns in investigations. See for example: Magnetism and Electricity Investigation 1, p. 14 Investigation 2, p. 9 Earth Materials Investigation 1, pp. 18 and 19 Human Body Investigation 1, pp. 22 and 23 Sun, Moon and Stars Investigation 1, Part 1, pp. 50-51 Matter and Energy Investigation 1, p. 58

GRADES 3-4
STANDARD 6: SCIENCE IN PERSONAL AND ENVIRONMENTAL PERSPECTIVES

SCIENCE IN PERSONAL AND ENVIRONMENTAL PERSPECTIVES – The student will demonstrate personal health and environmental practices.

Benchmark 2: The student will demonstrate an awareness of changes in the environment.

INDICATOR	FOSS
The student...	
1. defines pollution .	
2. develops personal actions to solve pollution problems in and around the neighborhood.	Water Science Stories, pp. 20-21 Measurement Science Stories, pp. 16-17
3. practices reducing, reusing, and recycling.	Water Science Stories, p. 21 Measurement Science Stories, pp. 16-17

GRADES 3-4
STANDARD 7: HISTORY AND NATURE OF SCIENCE

HISTORY AND NATURE OF SCIENCE – The student will experience some things about scientific inquiry and learn about people from history.

Benchmark 1: The student will develop an awareness that people practice science.

INDICATOR	FOSS
The student...	
1. recognizes that students participate in science inquiry by asking questions.	FOSS investigations encourage student questions and seeking answers to questions. See for example: Structures of Life Investigation 4, Part 3, pp. 20-24 Human Body Investigation 4, Part 2, pp. 17-19 Magnetism and Electricity Investigation 4, Parts 2-3, pp. 14-22 Water Investigation 3, Parts 2-3, pp. 12-20 Sun, Moon and Stars Investigation 1, Parts 1-2, pp. 42-64 Matter and Energy Investigation 2, Parts 1-2, pp. 93-114 Investigation 3, Part 2, pp. 139-150
2. studies the lives of people who have made scientific contributions.	Structures of Life Science Stories, pp. 6-9 Magnetism and Electricity

	Science Stories, pp. 12-23, 34-37 Ideas and Inventions Science Stories, pp. 17-22 Measurement Science Stories, p. 21 Sun, Moon and Stars Resources, pp. 40, 44-46
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<p>4. communicates scientific procedures, results and explanations.</p>	<p>Investigation 4, Parts 1-2, pp. 8-20 Landforms Investigation 3, Parts 1-3, pp. 8-24 Water Planet Investigation 2, Parts 1-3, pp. 80-100 Living Systems Investigation 2, Part 1, pp. 85-98 Human Brain and Senses Investigation 7, Part 2, pp. 219-225 Weather and Water Investigation 5, Part 2, pp. 163-168 Force and Motion Investigation 2, Part 3, pp. 89-99</p> <p>Students communicate both written and orally in their investigations. See for example: Variables Investigation 1, Parts 1-3, pp. 8-27 Environments Investigation 2, Part 4, pp. 26-30 Mixtures and Solutions Investigation 1, Part 2, pp. 16-20 Water Planet Investigation 3, Part 1, pp. 125-135 Living Systems Investigation 3, Part 3, pp. 136-141 Diversity of Life Investigation 8, Part 2, pp. 244-252 Chemical Interactions Investigation 1, Part 2, pp. 46-58 Planetary Science Investigation 8, Parts 3-4, pp. 260-270 Populations and Ecosystems Investigation 5, Part 1, pp. 142-150</p>
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GRADES 5-7
STANDARD 1: SCIENCE AS INQUIRY

SCIENCE AS INQUIRY – The student will develop the abilities to do scientific inquiry, be able to demonstrate how scientific inquiry is applied, and develop understandings about scientific inquiry.

Benchmark 2: The student will apply different kinds of investigations to different kinds of questions.

INDICATOR	FOSS
<p>The student....</p> <p>1. develops questions and adapts (frames) the inquiry process to guide the appropriate type of investigation.</p>	<p>FOSS investigations provide the opportunity to teach this indicator. See for example: Variables Investigation 3, Part 3, pp. 20-23 Landforms Investigation 3, Part 3, pp. 20-24 Environments Investigation 2, Part 4, pp. 26-30 Water Planet</p>

<p>2. differentiates between qualitative and quantitative data in an investigation.</p>	<p>Investigation 3, Part 1, pp. 125-135 Living Systems Investigation 2, Part 1, pp. 85-98 Planetary Science Investigation 5, Parts 2-3, pp. 158-167 Diversity of Life Investigation 9, Part 2, pp. 278-285</p> <p>FOSS investigations provide the opportunity to teach this indicator. See for example: Food and Nutrition Investigation 1, Parts 1-2, pp. 8-20 Investigation 2, Part 2, pp. 18-21 Landforms Investigation 3, Parts 1-3, pp. 8-24 Water Planet Investigation 2, Parts 1-3, pp. 80-100 Living Systems Investigation 2, Part 1, pp. 85-98 Variables Investigation 1, Parts 1-3, pp. 8-27 Force and Motion Investigation 1, Part 2, pp. 57-62 Chemical Interaction Investigation 7, Part 2, pp. 210-214 Investigation 8, Parts 1-3, pp. 248-268 Weather and Water Investigation 4, Part 1, pp. 121-130 Planetary Science Investigation 8, Parts 2-3, pp. 260-270</p>
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GRADES 5-7 STANDARD 1: SCIENCE AS INQUIRY

SCIENCE AS INQUIRY – The student will develop the abilities to do scientific inquiry, be able to demonstrate how scientific inquiry is applied, and develop understandings about scientific inquiry.

Benchmark 3: The student will analyze how science advances through the interaction of new ideas, scientific investigations, skepticism, and examinations of evidence of varied explanations.

INDICATOR	FOSS
<p>The student...</p> <p>1. after completing an investigation, generates alternative methods of investigation and/or further questions for inquiry.</p>	<p>FOSS investigations provide the opportunity to teach this indicator. See for example: Variables Investigation 4, Part 3, pp. 18-23 Environments Investigation 2, Part 4, pp. 26-30 Landforms Investigation 3, Part 3, pp. 20-24 Water Planet Investigation 3, Part 1, pp. 125-135 Living Systems Investigation 3, Part 3, pp. 136-141</p>

<p>2. evaluates the work of others to determine evidence which scientifically supports or contradicts the results, identifying faulty reasoning or conclusions that go beyond evidence and/or are not supported by data.</p>	<p>Diversity of Life Investigation 9, Part 2, pp. 278-285</p> <p>Planetary Science Investigation 5, Part 3, pp. 164-167</p> <p>Earth History Investigation 4, Part 3, pp. 138-146</p> <p>FOSS investigations provide the opportunity to teach this indicator. See for example:</p> <p>Solar Energy Investigation 3, Parts 1-2, pp. 8-23</p> <p>Models and Designs Investigation 2, Parts 1-2, pp. 8-21</p> <p>Water Planet Investigation 2, Parts 1-3, pp. 80-100</p> <p>Living Systems Investigation 2, Part 1, pp. 85-98</p> <p>Food and Nutrition Investigation 2, Parts 2-3, pp. 18-25</p> <p>Populations and Ecosystems Investigation 5, Part 1, pp. 142-150</p> <p>Diversity of Life Investigation 6, Part 1, pp. 186-192</p> <p>Chemical Interactions Investigation 1, Part 2, pp. 46-58</p> <p>Human Brain and Senses Investigation 7, Part 2, pp. 219-225</p>
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GRADES 5-7 STANDARD 2: PHYSICAL SCIENCE

PHYSICAL SCIENCE – The student will apply process skills to develop an understanding of physical science including: properties, changes of properties of matter, motion and forces, and transfer of energy.

Benchmark 1: The student will observe, compare, and classify properties of matter.

INDICATOR	FOSS
<p>The student...</p> <p>1. compares and classifies the states of matter; solids, liquids, gases, and plasma</p> <p>2. compares and contrasts the classes of matter, elements, compounds, and mixtures.</p>	<p>Mixtures and Solutions Investigation Chemical Interactions Investigation 4, Part, 1-3, pp. 122-141 Resources, pp. 23-27,, 42-48</p> <p>Mixtures and Solutions Investigation 1, Parts1-2, pp. 8-21 Investigation 4, Parts 1-3, pp. 8-24 Science Stories, pp. 1-8, 25-28, 37-42 Chemical Interactions Investigation 2, Parts 1-2, pp. 70-80 Investigation 8, Part 1, pp. 248-255 Investigation 9, Parts 1-4, p. 280-312 Resources, pp. 3-6, 9-13, 49-53, 63-68, 73-77, 96</p>

<p>3. identifies and communicates properties of matter (including but not limited to: phases of matter, boiling point, solubility, and density).</p>	<p>Mixtures and Solutions Investigation 1, Part 1, pp. 8-15 Investigation 2, Parts 1-2, pp. 8-20 Water Planet Investigation 3, Part 1, pp. 125-135 Earth History Investigation 5, Part 2, pp.179-182 Weather and Water Investigation 5, Part 1, pp.152-162 Planetary Science Investigation 8, Parts 2-3, pp. 260-270 Chemical Interactions Investigation 1, Parts 1-2, pp. 41-58 Investigation 4, Part 1-3, pp. 122-141 Investigation 7, Parts 1-5, pp. 204-234 Resources, pp. 16-17, 28-31, 42-48</p>
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GRADES 5-7 STANDARD 2: PHYSICAL SCIENCE

PHYSICAL SCIENCE – The student will apply process skills to develop an understanding of physical science including: properties, changes of properties of matter, motion and forces, and transfer of energy.

Benchmark 2: The student will observe, measure, infer, and classify changes in properties of matter.

INDICATOR	FOSS
<p>The student...</p> <p>1. understands the relationship of atoms to elements and elements to compounds.</p> <p>2. measures and graphs the effects of temperature on matter.</p>	<p>Mixtures and Solutions Science Stories, pp. 3-6, 25-28 Chemical Interactions Investigation 2, Parts 1-2, pp. 70-80 Investigation 9, Parts 1-4, pp. 280-312 Resources, pp. 4-6, 63-68, 96</p> <p>Solar Energy Investigation 2, Part 2, pp. 16-24 Water Planet Investigation 3, Part 1, pp. 125-135 Weather and Water Investigation 4, Part 1, pp. 121-130 Chemical Interactions Investigation 5, Part 1-3, pp. 153-171 Investigation 6, pp. 178-187 Investigation 7, Parts 2-4, pp. 210-228</p>

GRADES 5-7 STANDARD 2: PHYSICAL SCIENCE

PHYSICAL SCIENCE – The student will apply process skills to develop an understanding of physical science including: properties, changes of properties of matter, motion and forces, and transfer of energy.

Benchmark 3: The student will investigate motion and forces.

INDICATOR	FOSS
<p>The student...</p> <ol style="list-style-type: none"> 1. identifies the forces that act on an object (e.g. gravity and friction). 2. describes, measures, and represents data on a graph showing the motion of an object (position, direction of motion, speed). 3. recognizes and describes examples of Newton's Laws of Motion. 4. investigates and explains how simple machines multiply force at the expense of distance. 	<p>Variables Investigation 1, Parts 1-2, pp. 8-22 Investigation 3, Parts 1-3, pp. 8-23 Science Stories, pp. 5, 32-33</p> <p>Water Planet Investigation 1, Part 2, pp. 59-66 Science Resources, pp. 16-17</p> <p>Models and Designs Investigation 3, Parts 1-2, pp. 8-19 Science Stories, pp. 37-43, 48-55</p> <p>Levers and Pulleys Investigation 1, Parts 2-3, pp. 18-28 Investigation 3, Parts 1-2, pp. 8-20 Science Stories, pp. 5-6, 10-17</p> <p>Force and Motion Investigation 6, Parts 1-3, pp. 223-241 Investigation 7, Parts 1-3, pp. 256-272 Resources, pp. 62-65, 67-69</p> <p>Planetary Science Resources, pp. 70, 84-85</p> <p>Variables Investigation 1, Part 2, pp. 16-22 Investigation 3, Part 3, pp. 20-23 Investigation 4, Part 4, pp. 24-27</p> <p>Force and Motion Investigation 1, Part 2, pp. 57-62 Investigation 2, Part 3, pp. 89-99 Investigation 3, Part 2, pp. 119-123 Investigation 4, Part 2, pp. 146-151</p> <p>Models and Designs Science Stories, pp. 48-49</p> <p>Force and Motion Investigation 6, Parts 1-3, pp. 223-241 Investigation 8, Parts 1-2, pp. 284-301 Resources, pp. 50-52</p> <p>Levers and Pulleys Investigation 1, Parts 2-3, pp. 18-28 Investigation 2, Parts 1-3, pp. 8-22 Investigation 3, Parts 1-2, pp. 8-20 Investigation 4, Parts 1-2, pp. 8-20 Science Stories, pp. 1-17, 21-27</p>

GRADES 5-7 STANDARD 2: PHYSICAL SCIENCE

PHYSICAL SCIENCE – The student will apply process skills to develop an understanding of physical science including: properties, changes of properties of matter, motion and forces, and transfer of energy.

Benchmark 4: The student will understand and demonstrate the transfer of energy.

INDICATOR	FOSS
<p>The student...</p> <ol style="list-style-type: none"> 1. understands the difference between potential and kinetic energy. 2. understands that when work is done, energy may transform from one form to another, including mechanical, heat, light, sound, electrical, chemical, and nuclear energy, yet is conserved 3. observes and communicates how light (electromagnetic) energy interacts with matter: transmitted, reflected, refracted, and absorbed. 4. understands that heat energy can be transferred from hot to cold by radiation, convection, and conduction. 	<p>FOSS provides the opportunity to address this indicator. See examples below:</p> <p>Variables Investigation 1, Parts 1-3, pp. 8-27 Investigation 3, Parts 1-2, pp. 8-19</p> <p>Force and Motion Investigation 1, Part 1, pp. 47-56 Investigation 2, Part 3, pp. 89-99</p> <p>Solar Energy Investigation 3, Parts 1-2, pp. 8-23 Science Stories, pp. 29-39 FOSS Web, Activity: Solar Road Race</p> <p>Models and Designs Investigation 2, Parts 1-2, pp. 8-21 Science Stories, pp. 25-28</p> <p>Weather and Water Investigation 5, Parts 2-3, pp. 163-174 Resources, pp. 22-26, 65</p> <p>Electronics Investigation 1, Parts 1-3, pp. 55-70 Investigation 4, Part 2, pp. 149-151 Resources, pp. 1-2, 12-13</p> <p>Human Brain and Senses Investigation 3, Parts 1-3, pp. 92-110 Resources, pp. 31-35 CD, Optics Bench</p> <p>Water Planet Investigation 3, Parts 1-2, pp. 125-144 Science Resources, pp. 42-51</p> <p>Weather and Water Investigation 4, Parts 1-2, pp. 121-139 Investigation 5, Parts 2-3, pp. 162-174 Resources, pp. 22-26, 32-33 CD, Matter and Energy: Heat and Energy; Molecules in Solids, Liquids, and Gases Video: Convection Chamber; Conduction through Metals</p> <p>Chemical Interactions Investigation 4, Parts 1-3, pp. 122-141 Investigation 6, pp. 178-187 Investigation 7, Parts 2-5, pp. 222-234 Resources, pp. 23-31, 32-48</p>

GRADES 5-7 STANDARD 3: LIFE SCIENCE

LIFE SCIENCE – The student will apply process skills to explore and understand structure and function in living systems, reproduction and heredity, regulation and behavior, populations and ecosystems, and diversity and adaptations of organisms.

Benchmark 1: The student will model structures of organisms and relate functions to the structures.

INDICATOR	FOSS
<p>The student...</p> <ol style="list-style-type: none"> 1. will understand the cell theory; that all organisms are composed of one or more cells, cells are the basic unit of life, and that cells come from other cells. 2. relates the structure of cells, organs, tissues, organ systems, and whole organisms to their functions. 3. compares organisms composed of single cells with organisms that are multi-cellular. 4. concludes that breakdowns in structure or function may be caused by disease, damage, heredity, or aging. 	<p>Food and Nutrition Science Stories, p. 41</p> <p>Living Systems Investigation 1, Part 1, pp. 51-59 Science Resources, pp. 1-3</p> <p>Diversity of Life Investigation 3, Parts 1-3, pp. 102-122 Investigation 4, Parts 1-2, pp. 133-141 Investigation 10, Part 1, pp. 302-309 Resources, pp. 9, 27-30, 31-44, 65-67 CD, Database</p> <p>Food and Nutrition Science Stories, pp. 6-9, 41-50</p> <p>Diversity of Life Investigation 4, Parts 1-2, pp. 133-141 Resources, pp. 24-30, 31-44 CD, Cells and the Ribbon of Life</p> <p>Living Systems Investigation 1, Parts 1-3, pp. 51-70 Science Resources, pp. 1-13</p> <p>Food and Nutrition Science Stories, pp. 42-43</p> <p>Diversity of Life Investigation 3, Parts 1-3, pp. 102-122 Investigation 4, Part 1, pp. 133-136 Investigation 5, Parts 1-3, pp. 151-170 Investigation 7, Part 1, pp. 218-223 Investigation 8, Part 1, pp. 239-243 Investigation 9, Parts 1-2, pp. 273-285 Investigation 10, Part 1, pp. 302-309 Resources, pp. 4-14, 24-26, 31-44, 51-70 CD, Database</p> <p>Diversity of Life Resources, pp. 66-68</p>

GRADES 5-7 STANDARD 3: LIFE SCIENCE

LIFE SCIENCE – The student will apply process skills to explore and understand structure and function in living systems, reproduction and heredity, regulation and behavior, populations and ecosystems, and diversity and adaptations of organisms.

Benchmark 2: The student will understand the role of reproduction and heredity for all living things.

INDICATOR	FOSS
<p>The student...</p> <ol style="list-style-type: none"> 1. differentiates between asexual and sexual reproduction of organisms. 2. understands how hereditary information of each cell is passed from one generation to the next. 3. infers that the characteristics of an organism result from heredity and interactions with the environment. 	<p>Diversity of Life Investigation 7, Part 1, pp. 218-223 Resources, pp. 26, 40-45, 53-54, 58-59, 61-62</p> <p>Populations and Ecosystems Investigation 9, Parts 1-4, pp. 262-291 Resources, pp. 46-55 CD, Larkeys: Genotypes and Phenotypes; Punnett Square</p> <p>FOSS investigations and resources provide the opportunity to teach this indicator. See number 2 above.</p>

GRADES 5-7 STANDARD 3: LIFE SCIENCE

LIFE SCIENCE – The student will apply process skills to explore and understand structure and function in living systems, reproduction and heredity, regulation and behavior, populations and ecosystems, and diversity and adaptations of organisms.

Benchmark 3: The student will describe homeostasis, the regulation and balance of internal conditions in response to a changing external environment.

INDICATOR	FOSS
<p>The student...</p> <ol style="list-style-type: none"> 1. understands that internal and/or environmental conditions affect an organism's behavior and/or response in order to maintain and regulate stable internal conditions to survive in a continually changing environment. 2. recognizes that the survival of all organisms requires the ingestion of materials the intake and release of energy, growth, release of wastes and response to environmental change. 	<p>Food and Nutrition Science Stories, pp. 16-19</p> <p>Environments Investigation 2, Parts 2-3, pp. 16-25 Investigation 6, Parts 1-2, pp. 8-17 Science Stories, pp. 15-16</p> <p>Diversity of Life Investigation 6, Part 2, pp. 193-197 Investigation 8, Part 2, pp. 244-252 Resources, pp. 33-39</p> <p>Food and Nutrition Science Stories, pp. 6-9, 41-43, 44-50</p> <p>Living Systems Investigation 1, Part 2, pp. 60-65 Science Resources, pp. 7-10, 13</p> <p>Environments</p>

	Investigation 5, Parts 1-3, pp. 8-22 Science Stories, pp. 9-16, 23-25, 38-41, 43-45 Populations and Ecosystems Investigation 4, Part 2, pp. 122-129 Investigation 5, Parts 1-4, pp. 142-169 Resources, pp. 8-21 CD, Mono Lake, Food Web Diversity of Life Investigation 6, Parts 1-3, pp. 186-202 Resources, pp. 21-26, 31-39
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GRADES 5-7 STANDARD 3: LIFE SCIENCE

LIFE SCIENCE – The student will apply process skills to explore and understand structure and function in living systems, reproduction and heredity, regulation and behavior, populations and ecosystems, and diversity and adaptations of organisms.

Benchmark 4: The student will identify and relate interactions of populations of organisms within an ecosystem.

INDICATOR	FOSS
The student...	
1. recognizes that all populations living together (biotic resources) and the physical factors (abiotic resources) with which they interact compose an ecosystem.	Environments Investigation 3, Parts 1-3, pp. 8-22 Investigation 5, Parts 1-3, pp. 8-22 Investigation 6, Parts 1-2, pp. 8-17 FOSS Web, Activity: Virtual Aquarium Populations and Ecosystems Investigation 1, Parts 1-3, pp. 41-59 Investigation 2, Parts 1-2, pp. 70-79 Investigation 3, Parts 1-3, pp. 90-107 Resources, pp. 6-18
2. understands how limiting factors determine the carrying capacity of an ecosystem.	Environments Investigation 3, Parts 1-3, pp. 8-22 Investigation 5, Parts 1-3, pp. 8-22 Investigation 6, Parts 1-2, pp. 8-17 FOSS Web, Activity: Virtual Aquarium Populations and Ecosystems Investigation 6, Parts 1-3, pp. 179-197 Resources, pp. 22-29
3. traces the energy flow from the sun (source of radiant energy) to producers (via photosynthesis – chemical energy) to consumers and decomposers in food webs.	Environments Science Stories, pp. 38-41 Living Systems Investigation 3, Part 1, pp. 118-125 Science Resources, pp. 31-34, 47 Populations and Ecosystems Investigation 5, Parts 2, 4, pp. 151-155, 161-169 Resources, pp. 14-21

GRADES 5-7 STANDARD 3: LIFE SCIENCE

LIFE SCIENCE – The student will apply process skills to explore and understand structure and function in living systems, reproduction and heredity, regulation and behavior, populations and ecosystems, and diversity and adaptations of organisms.

Benchmark 5: The student will observe the diversity of living things and relate their adaptations to their survival or extinction.

INDICATOR	FOSS
<p>The student...</p> <ol style="list-style-type: none"> concludes that species of animals, plants, and microorganisms may look dissimilar on the outside but have similarities in internal structures, developmental characteristics, chemical processes, and genomes. understands that adaptations of organisms (changes in structure, function, or behavior that accumulate over successive generations) contribute to biological diversity. associates extinction of a species with environmental changes and insufficient adaptive characteristics. 	<p>Diversity of Life Investigation 3, Parts 1-3, pp. 102-122 Investigation 5, Parts 1-3, pp. 151-170 Investigation 7, Parts 1-2, pp. 218-229 Investigation 9, Part 1, pp. 273-277 Resources, pp. 31-50, 51-63</p> <p>Populations and Ecosystems Resources, pp. 58-63</p> <p>Populations and Ecosystems Investigation 10, Parts 1-3, pp. 302-317 Resources, pp. 58-61</p> <p>Populations and Ecosystems Resources, p. 61</p>

GRADES 5-7 STANDARD 4: EARTH and SPACE SCIENCE

EARTH and SPACE SCIENCE – The student will apply process skills to explore and develop an understanding of the structure of the earth system, earth’s history, and earth in the solar system.

Benchmark 1: The student will understand that the structure of the earth system is continuously changing due to earth's physical and chemical processes.

INDICATOR	FOSS
<p>The student...</p> <ol style="list-style-type: none"> identifies properties of the solid earth, the oceans and fresh water, and the atmosphere. 	<p>Landforms Investigation 2, Parts 8-22 Investigation 3, Parts 1-3, pp. 8-24 Science Stories, pp. 15-29</p> <p>Solar Energy Science Stories, pp. 18-20</p> <p>Water Planet Investigation 4, Part 4, pp. 212-216 Science Resources, pp. 52-57, 63-66</p> <p>Earth History Investigation 4, Parts 1-2, 5-6, pp. 127-137, 150-162</p>

<p>2. models Earth's cycles, constructive and destructive processes, and weather systems.</p>	<p>Investigation 8, Parts 1-4, pp. 254-274 Resources, pp. 93-97 CD, Geology Lab, Rock Database Weather and Water Investigation 2, Parts 1-2, pp. 69-80 Resources, pp. 6-11, 45-47 CD, Atmospheric Data, Elevator to Space</p> <p>Environments FOSS Web, Pictures: Water Cycle Landforms Investigation 2, Parts 1-2, pp. 8-22 Investigation 3, Parts 1-3, pp. 8-24 Solar Energy Science Stories, pp. 22-25 FOSS Web, Movies Water Planet Investigation 4, Parts 1-3, pp. 184-211 Science Resources, pp. 67-88 Weather and Water Investigation 7, Parts 1-2, pp. 232-239 CD, Cycles: Water Cycle Earth History Investigation 4, Parts 3-4, pp. 138-149 Resources, pp. 100-105 CD, Geology Lab; Earth Processes</p>
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GRADES 5-7 STANDARD 4: EARTH and SPACE SCIENCE

EARTH and SPACE SCIENCE – The student will apply process skills to explore and develop an understanding of the structure of the earth system, earth's history, and earth in the solar system.

Benchmark 2: The student will understand past and present earth processes and their similarity.

INDICATOR	FOSS
<p>The student...</p> <p>1. understands that earth processes observed today (including movement of lithospheric plates, constructive and destructive forces, and changes in atmospheric conditions) are similar to those that occurred in the past; Earth history is also influenced by occasional catastrophes, such as the impact of a comet or asteroid.</p>	<p>Landforms Science Stories, pp. 22-29 Earth History Investigation 4, Parts 5-6, pp. 150-162 Investigation 8, Part 1, pp. 254-258 Resources, pp. 73-75, 93-97, 100-102 CD, Geology Lab; Earth Processes</p>

GRADES 5-7
STANDARD 4: EARTH and SPACE SCIENCE

EARTH and SPACE SCIENCE – The student will apply process skills to explore and develop an understanding of the structure of the earth system, earth’s history, and earth in the solar system.

Benchmark 3: The student will identify and classify stars, planets, and other solar system components.

INDICATOR	FOSS
<p>The student...</p> <ol style="list-style-type: none"> compares and contrasts the characteristics of stars, planets, moons, comets, and asteroids. models spatial relationships of the earth/moon/planets/sun system to scale. identifies past and present methods used to explore space 	<p>Solar Energy Science Stories, pp. 40-43</p> <p>Water Planet Investigation 1, Part 1, pp. 50-58 Science Resources, pp. 1-13, 20-22</p> <p>Planetary Science Investigation 10, Parts 2-3, pp. 318-324 Resources, pp. 83-89 CD, Planet Images; Notebooks</p> <p>Water Planet Investigation 1, Part 1, pp. 50-58</p> <p>Planetary Science Investigation 6, Part 2-3, pp. 197-205 Investigation 7, Part 2, pp. 222-229</p> <p>Planetary Science Resources, pp. 74-77, 90-99 CD, Notebooks: Space Exploration</p>

GRADES 5-7
STANDARD 4: EARTH and SPACE SCIENCE

EARTH and SPACE SCIENCE – The student will apply process skills to explore and develop an understanding of the structure of the earth system, earth’s history, and earth in the solar system.

Benchmark 4: The student will model motions and identify forces that explain earth phenomena.

INDICATOR	FOSS
<p>The student...</p> <ol style="list-style-type: none"> demonstrates and models object/space/time relationships that explain phenomena such as the day, the month, the year, seasons, phases of the moon, eclipses and tides. describes how the angle of incidence of solar energy striking 	<p>Weather and Water Investigation 3, Parts 1-2, pp. 93-102 Resources, pp. 12-19 CD, Cycles, Seasons</p> <p>Planetary Science Investigation 3, Parts 1-2, pp. 89-98 Investigation 9, Parts 2-4, pp. 288-301 CD, Day/Night Simulation; Phases of the Moon</p> <p>Water Planet Science Resources, p. 45</p>

earth's surface affects the amount of heat energy absorbed at earth's surface.	Weather and Water Investigation 3, Part 3, pp. 103-110 Resources, pp. 17-19
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GRADES 5-7 STANDARD 5: SCIENCE AND TECHNOLOGY

SCIENCE AND TECHNOLOGY – The student will demonstrate abilities of technological design and understanding about science and technology.

Benchmark 1: The student will demonstrate abilities of technological design.

INDICATOR	FOSS
The student...	
1. identifies appropriate problems for technological design, designs a solution or product, implements the proposed design, evaluates the product, and communicates the process of technological design.	Models and Designs Investigation 2, Parts 1-2, pp. 8-21 Investigation 3, Parts 1-3, pp. 8-23 Investigation 3, Science Extension, pp. 26-27 Force and Motion Investigation 8, Part 2, pp. 294-301

GRADES 5-7 STANDARD 5: SCIENCE AND TECHNOLOGY

SCIENCE AND TECHNOLOGY – The student will demonstrate abilities of technological design and understanding about science and technology.

Benchmark 2: The student will develop understandings of the similarities, differences, and relationships in science and technology.

INDICATOR	FOSS
The student...	
1. compares the work of various types of scientists and engineers.	FOSS investigations provide the opportunity to teach this indicator. See for example: Mixtures and Solutions Science Stories, pp. 43-45 Models and Designs Science Stories, pp. 25-30 Variables Science Stories, pp. 8-9 Water Planet Science Resources, pp. 15, 18-19 Solar Energy Science Stories, pp. 29-39 Planetary Science Resources, pp. 71-77 Populations and Ecosystems Resources, pp. 46-55
2. evaluates benefits, risks, limitations and trade-offs of technological solutions.	FOSS investigations provide the opportunity to teach this indicator. See for example: Models and Designs Science Stories, pp. 9, 25-36 Solar Energy Science Stories, pp. 29-39

<p>3. identifies contributions to science and technology by many people and many cultures.</p>	<p>Electronics Resources, pp. 12-13</p> <p>Weather and Water Resources, pp. 63-66</p> <p>Mixtures and Solutions Science Stories, pp. 5, 9-10, 33, 35-36</p> <p>Food and Nutrition Science Stories, pp. 24-26</p> <p>Models and Designs Science Stories, pp. 4-10, 29-32</p> <p>Water Planet Science Resources, pp. 15, 18-19</p> <p>Variables Science Stories, pp. 4-6, 18-28</p> <p>Force and Motion Resources, pp. 50-52, 62-63</p> <p>Populations and Ecosystems Resources, pp. 46-61</p>
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GRADES 5-7

STANDARD 6: SCIENCE IN PERSONAL AND ENVIRONMENTAL PERSPECTIVES

SCIENCE IN PERSONAL AND ENVIRONMENTAL PERSPECTIVES – The student will apply process skills to explore and develop an understanding of issues of personal health, population, resources and environment, and natural hazards.

Benchmark 1: The student will understand scientific knowledge relative to personal health.

INDICATOR	FOSS
<p>The student...</p> <p>1. identifies individual nutrition, exercise, and rest needs based on science and uses a scientific approach to thinking critically about personal health, lifestyle choices, risks and benefits.</p>	<p>Food and Nutrition Investigation 4, Part 1, pp. 8-15 Science Stories, pp. 1-4, 21-23, 27-29, 37-40</p>

GRADES 5-7

STANDARD 6: SCIENCE IN PERSONAL AND ENVIRONMENTAL PERSPECTIVES

SCIENCE IN PERSONAL AND ENVIRONMENTAL PERSPECTIVES – The student will apply process skills to explore and develop an understanding of issues of personal health, population, resources and environment, and natural hazards.

Benchmark 2: The student will understand the impact of human activity on resources and environment.

INDICATOR	FOSS
<p>The student...</p> <p>1. investigates the effects of human activities</p>	<p>Landforms</p>

on the environment and bases decisions on knowledge of benefits and risks.	Science Stories, pp. 13-14, 43-44 Environments Science Stories, pp. 36-37, 43-45 Water Planet Science Resources, pp. 64-66 Earth History Resources, pp. 64-67 Weather and Water Resources, pp. 65-66 Populations and Ecosystems Resources, pp. 31-41
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GRADES 5-7

STANDARD 6: SCIENCE IN PERSONAL AND ENVIRONMENTAL PERSPECTIVES

SCIENCE IN PERSONAL AND ENVIRONMENTAL PERSPECTIVES – The student will apply process skills to explore and develop an understanding of issues of personal health, population, resources and environment, and natural hazards.

Benchmark 3: The student will understand that natural hazards are dynamic examples of earth processes which cause us to evaluate risks.

INDICATOR	FOSS
The student...	
1. recognizes patterns of natural processes and/or human activities that may cause and/or contribute to natural hazards.	Landforms Science Stories, pp. 13-14 Water Planet Investigation 4, Part 2, pp. 198-203 Science Resources, pp. 64-66 Environments Science Stories, pp. 36-37, 43-45 Weather and Water Resources, pp. 63-66, 67-76
2. evaluates risks and defines appropriate actions associated with the natural hazard.	Weather and Water Resources, pp. 63-66

GRADES 5-7

STANDARD 7: HISTORY AND NATURE OF SCIENCE

HISTORY AND NATURE OF SCIENCE – The student will examine and develop an understanding of science as a historical human endeavor.

Benchmark 1: The student will develop scientific habits of mind.

INDICATOR	FOSS
The student...	
1. practices intellectual honesty, demonstrates skepticism appropriately, displays open-mindedness to new ideas, and bases decisions on evidence.	FOSS investigations are inquiry-based and provide the opportunity to teach this indicator.

GRADES 5-7
STANDARD 7: HISTORY AND NATURE OF SCIENCE

HISTORY AND NATURE OF SCIENCE – The student will examine and develop an understanding of science as a historical human endeavor.

Benchmark 2: The student will research contributions to science throughout history.

INDICATOR	FOSS
<p>The student...</p> <p>1. recognizes that new knowledge leads to new questions and new discoveries, replicates historic experiments to understand principles of science, and relates contributions of men and women to the fields of science.</p>	<p>Mixtures and Solutions Science Stories, pp. 5, 9-10, 33, 35-36</p> <p>Variables Science Stories, pp. 4-6, 18-28</p> <p>Models and Designs Science Stories, pp. 4-10, 29-32</p> <p>Force and Motion Investigation 7, Part 3, pp. 267-272 Resources, pp. 50-52, 62-63</p> <p>Populations and Ecosystems Resources, pp. 46-61</p> <p>Planetary Science Resources, pp. 71-73</p>