



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

Correlation With



A Correlation of the New York City Science Performance Standards to the Full Options Science Systems

The following correlation of the New York City Science Performance Standards to Full Options Science Systems (FOSS) is to show representative examples of investigations from FOSS that address the Performance Standards. A citation does not reflect all of the investigations from FOSS that might address a particular standard.

NOTE: Examples for each of the standards are listed from the elementary FOSS modules for grades K-6 and from the FOSS Middle School Courses for grades 6-8. Of the courses, Human Brain and Senses, Earth History, Planetary Science, and Electronics are completed and included fully in the correlation. The other Middle School Courses, Weather and Water, Force and Motion, Chemistry, Populations and Ecosystems, and Diversity of Life are in various stages of development and are included where their correlation is anticipated.

Elementary School Science

S1. Physical Sciences Concepts

S1a. Demonstrates understanding of properties of objects and materials.

<i>SCIENCE STANDARD</i> <i>By the end of grade four,</i> <i>students know and are able to:</i>	<i>FOSS MODULE</i>	<i>PAGE NUMBER(S)</i>
Produce evidence that demonstrates understanding of properties of objects and materials, such as similarities and differences in the size, weight, and color of objects; the ability of materials to react with other substances; and different states of materials.	<u>Wood</u>	Activity 1, Part 1, Pages 4-5 through Part 5, Pages 12-14;
	<u>Paper</u>	Activity 1, Part 1, Pages 4-6 through Part 4, Pages 13-14; Activity 2, Part 1, Pages 4-5 through Part 3, Pages 8-10;
	<u>Fabric</u>	Activity 1, Part 1, Pages 4-5; Activity 1, Part 2, Pages 6-7;
	<u>Solids and Liquids</u>	Investigation 1, Part 1, Pages 8-17, through Part 3, Pages 21-28; Investigation 2, Part 1, Pages 8-14, through Part 2, Pages 15-21; Investigation 3, Part 1, Pages 8-13 through Part 4, Pages 25-32; Investigation 4, Part 1, Pages 9-16 through Part 3, Pages 23-32; <i>Science Stories</i> Pages 3-23.
	<u>Structures</u>	Investigation 1, Part 1, Pages 8-17;
	<u>Pebbles, Sand and Silt</u>	Investigation 1, Part 1, Pages 8-12; Part 2, Pages 13-17; Part 3, Pages 18-21; Part 4, Pages 22-15; <i>Science Stories</i> pages 3-13;

S1b. Demonstrates understanding of position and motion of objects.

<i>SCIENCE STANDARD</i> <i>By the end of grade four,</i> <i>students know and are able to:</i>	<i>FOSS MODULE</i>	<i>PAGE NUMBER(S)</i>
Produce evidence that demonstrates understanding of position and motion of objects, such as how the motion of an object can be described by tracing and measuring its position over time; and how sound is produced by vibrating objects.	<u>Balance and Motion</u>	Investigation 1, Part 1, Pages 8-13 through Part 3, Pages 19-23; Investigation 2, Part 1, Pages 8-13 through Part 3, Pages 20-28; Investigation 3, Part 2, Pages 13-18; Investigation 3, Part 3, Pages 19-28; <i>Science Stories</i> pages 3-23;
	<u>Physics of Sound</u>	This complete module teaches students to understand that sound

		is produced by vibrating objects. They investigate the properties of sound such as volume and pitch, and how sound travels and is received. It consists of four folios of activities. There are 12 articles related to the concepts and investigations in the <i>Science Stories</i> folio, pages 1-29.
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S1c. Demonstrates understanding of light, heat, electricity, and magnetism.

SCIENCE STANDARD <i>By the end of grade four, students know and are able to:</i>	FOSS MODULE	PAGE NUMBER(S)
Produce evidence that demonstrates understanding of light, heat, electricity, and magnetism, such as the variation of heat and temperature; how light travels in a straight line until it strikes an object or how electric circuits work.	<u>Magnetism and Electricity</u>	In the five folios of activities students freely explore and do systematic investigations of, permanent magnetism, series and parallel circuits, and electromagnetism. Twelve related articles in the <i>Science Stories</i> folio focuses on ideas, inventions and uses of electricity and magnetism, pages 1-29.
	<u>Air and Weather</u>	Investigation 2, Part 2, Pages 14-19;
	<u>Ideas and Inventions</u>	Investigation 4, Part 1, Pages 8-13; Part 2, Pages 14-17; Part 3, Pages 18-21;
	<u>Measurement</u>	Investigation 4, Part 1, Pages 8-12; Part 2, Pages 14-24; Part 3, Pages 18-21; <i>Science Stories</i> pages 20-23;

S2. Life Sciences Concepts

S2a. Demonstrates understanding of properties of characteristics of organisms.

SCIENCE STANDARD <i>By the end of grade four, students know and are able to:</i>	FOSS MODULE	PAGE NUMBER(S)
Produce evidence that demonstrates understanding of characteristics of organisms, such as survival and environmental support; the relationship between structure and function; and variations in behavior.	<u>Trees</u>	In this module of three folios of activities, students observe, compare and describe the properties, structures (parts of trees), and functions and changes through the seasons of trees.
	<u>Animals Two by Two</u>	In this module, five folios of

		diagrams and models to investigate the human skeleton. They discover how different tissues (bone, muscle, ligament, tendon) work together to provide movement, protection, and structure. Students also investigate to find out how body parts work together to respond to tactile and visual stimuli.
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S2b. Demonstrates understanding of life cycles of organisms.

SCIENCE STANDARD <i>By the end of grade four, students know and are able to:</i>	FOSS MODULE	PAGE NUMBER(S)
Produce evidence that demonstrates understanding of life cycles of organisms, such as how inheritance and environment determine the characteristics of an organism and that all plants and animals have life cycles.	<u>Animals Two by Two</u> <u>Insects</u> <u>New Plants</u> <u>Structures of Life</u> <u>Ideas and Inventions</u>	Activity 5, Part 1, Pages 6-8; Part 2, Pages 9-10; In this module (six folio investigations) students observe and compare insect structures and behaviors in different stages of the life cycle of six insects. Investigation 1, Part 3, Pages 23-32; <i>Science Stories</i> pages 3-7; Investigation 2, Part 3, Pages 21-32, <i>Science Stories</i> pages 12-17; Investigation 3, Part 1, Pages 8-13; Part 2, Pages 14-18; Part 3, Pages 19-28, Investigation 4, Part 2, Pages 13-24; Investigation 1, Part 1, Pages 8-17; Part 2, Pages 18-27; Part 3, Pages 28-33; <i>Science Stories</i> pages 1-9; Investigation 2, Part 3, Pages 18-22; <i>Science Stories</i> pages 12-16; <i>Science Stories</i> pages 11-16

S2c. Demonstrates understanding of organisms and environments.

SCIENCE STANDARD <i>By the end of grade four, students know and are able to:</i>	FOSS MODULE	PAGE NUMBER(S)
Produce evidence that demonstrates understanding of organisms and environments, such as interdependence of animals and plants in an ecosystem; and populations and their effects on the environment.	<u>Trees</u> <u>Animals Two by Two</u>	Activity 3, Part 4, Page 7-8; Part 5, Pages 9-10; Part 6, Page 11; Part 9, Page 14; Activity 1, Part 2, Pages 9-10; Activity 2, Part 3, Pages 9-11; Activity 3, Part 1, Pages 5-6; Part

	<p><u>Insects</u></p> <p><u>New Plants</u></p> <p><u>Structures of Life</u></p>	<p>3, Pages 9-10; Activity 4, Part 4, Pages 10-11;</p> <p>Investigation 1, Part 1, Pages 8-15; Investigation 2, Part 1, Pages 8-13; Investigation 2, Part 1, Pages 8-13; Investigation 5, Part 1, Pages 10-15; Investigation 6, Part 1, Pages 8-13; Part 2, Pages 14-18; Part 3, Pages 19-28; <i>Science Stories</i> pages 22-23;</p> <p>Investigation 1, Part 2, Pages 13-22; Part 3, Pages 23-32; <i>Science Stories</i> pages 3-7; Investigation 2, Part 1, Pages 8-15; Investigation 3, Part 1, Pages 8-13; Part 2, Pages 14-18; Part 3, Pages 19-28; Investigation 4, Part 1, Pages 7-12; <i>Science Stories</i> pages 18-23;</p> <p>Investigation 1, Part 2, Pages 18-27; <i>Science Stories</i> pages 1-3; Investigation 2, Part 2, Pages 14-17; <i>Science Stories</i> pages 10-11; Investigation 3, Part 2, Pages 16-19; Part 4, Pages 24-30; Investigation 4, Part 1, Pages 8-13; <i>Science Stories</i> pages 22-25;</p>
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S2d. Demonstrates understanding of properties of characteristics of organisms.

<i>SCIENCE STANDARD</i> <i>By the end of grade four, students know and are able to:</i>	<i>FOSS MODULE</i>	<i>PAGE NUMBER(S)</i>
Produce evidence that demonstrates understanding of change over time, such as evolution and fossil evidence depicting the great diversity of organisms developed over geologic history.	<p><u>Trees</u></p> <p><u>Earth Materials</u></p>	<i>Science Stories</i> pages 1-4, 24-26

S3b. Demonstrates understanding of objects in the sky.

<i>SCIENCE STANDARD</i> <i>By the end of grade four, students know and are able to:</i>	<i>FOSS MODULE</i>	<i>PAGE NUMBER(S)</i>
Produce evidence that demonstrates understanding of objects in the sky, such as Sun, Moon, planets and other objects that can be observed and described; and the importance of the Sun to provide the light and heat necessary for survival.	<u>Air and Weather</u> <u>Solar Energy</u>	Investigation 2, Part 3, Pages 20-23; Investigation 4, Part 1, Pages 8-11; Part 2, Pages 12-18; Part 3, Pages 19-28; See also <u>Solar Energy</u> , recommended for grades 5-6.

S3c. Demonstrates understanding of changes in earth and sky.

<i>SCIENCE STANDARD</i> <i>By the end of grade four, students know and are able to:</i>	<i>FOSS MODULE</i>	<i>PAGE NUMBER(S)</i>
Produce evidence that demonstrates understanding of changes in Earth and sky, such as changes caused by weathering, volcanism, and earthquakes; and the patterns of movement of objects in the sky.	<u>Air and Weather</u> <u>Landforms</u>	Investigation 2, Part 3, Pages 20-23; Investigation 4, Part 1, Pages 8-11; Part 2, Pages 12-18; Part 3, Pages 19-28; See also <u>Landforms</u> , recommended for grades 5-6.

S4. Scientific Connections and Applications

S4a. Demonstrates understanding of big ideas and unifying concepts.

<i>SCIENCE STANDARD</i> <i>By the end of grade four, students know and are able to:</i>	<i>FOSS MODULE</i>	<i>PAGE NUMBER(S)</i>
Produce evidence that demonstrates understanding of big ideas and unifying concepts, such as order and organization; models, form and function; change and constancy; and cause and effect.	<u>Trees</u> <u>Animals Two by Two</u> <u>Insects</u>	Activity 1, Part 5, Pages 13-14; Part 6, Page 15; Activity 2, Part 3, Pages 9-10; Activity 3, Part 2, Page 5; Part 4, Page 7-8; Part 7, Page 12; Part 8, Page 13; Activity 1, Part 1, Pages 6-8; Part 4, Pages 13-14; Activity 2, Part 1, Pages 5-6; Activity 3, Part 1, Pages 5-6; Activity 4, Part 1, Pages 4-5; Part 2, Pages 6-7; Activity 5, Part 3, Pages 11-13; Investigation 1, Part 2, Pages 16-21; Part 3, Pages 22-28; Investigation 2, Part 2, Pages 14-19; Part 3, Pages 20-28; Investigation 3, Part 3, Pages 21-28; Investigation 4, Part 3, Pages 19-22; Part 4, Pages 23-27; Part 5, Pages 28-32; Investigation 5,

	<p><u>New Plants</u></p> <p><u>Structures of Life</u></p> <p><u>Human Body</u></p> <p><u>Pebbles, Sand, and Silt</u></p> <p><u>Air and Weather</u></p> <p><u>Earth Materials</u></p> <p><u>Water</u></p> <p><u>Wood</u></p>	<p>Part 3, Pages 20-28; Investigation 6, Part 1, Pages 8-13; Part 2, Pages 14-18;</p> <p>Investigation 1, Part 3, Pages 23-32; Investigation 2, Part 3, Pages 21-32; Investigation 3, Part 1, Pages 8-13; Part 2, Pages 14-18; Part 3, Pages 19-28; Investigation 4, Part 2, Pages 13-24;</p> <p>Investigation 1, Part 3, Pages 28-33; Investigation 2, Part 3, Pages 18-22; Investigation 3, Part 1, Pages 8-15; Investigation 4, Part 2, Pages 14-19;</p> <p>Investigation 1, Part 1, Pages 8-15; Part 2, Pages 16-20; Part 3, Pages 21-24; Investigation 2, Part 1, Pages 8-12; Part 3, Pages 18-22; Investigation 3, Part 1, Pages 8-14; Part 2, Pages 15-18; Part 3, Pages 19-21;</p> <p>Investigation 1, Part 3, Pages 18-21; Part 4, Pages 22-15; Investigation 2, Part 2, Pages 14-17;</p> <p>Investigation 1, Part 3, Pages 17-20; Part 4, Pages 21-26; Part 5, Pages 27-33; Investigation 2, Part 1, Pages 8-13; Investigation 3, Part 1, Pages 8-12; Part 2, Pages 13-16; Part 3, Pages 17-21; Part 4, Pages 22-27; Part 5, Pages 28-36;</p> <p>Investigation 1, Part 1, Pages 8-15; Part 2, Pages 16-23; Investigation 2, Part 2, Pages 14-21; Investigation 3, Part 2, Pages 14-19;</p> <p>Investigation 1, Part 2, Pages 15-18; Investigation 2, Part 1, Pages 8-13; Part 2, Pages 14-20; Part 3, Pages 21-27; Investigation 3, Part 1, Pages 8-11; Part 2, Pages 12-16; Part 3, Pages 17-20; Part 4, Pages 21-26; Investigation 4, Part 3, Pages 19-23;</p> <p>Activity 1, Part 1, Pages 4-5;</p>
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<p>Produce evidence that demonstrates understanding of big ideas and unifying concepts, such as order and organization; models, form and function; change and constancy; and cause and effect.</p>	<p><u>Paper</u></p> <p><u>Fabric</u></p> <p><u>Solids and Liquids</u></p> <p><u>Balance and Motion</u></p> <p><u>Physics of Sound</u></p> <p><u>Magnetism and Electricity</u></p>	<p>Part 4, Pages 10-11; Activity 2, Part 1, Pages 4-5; Part 6, Pages 14-15;</p> <p>Activity 1, Part 4, Pages 13-14; Activity 2, Part 1, Pages 4-5;</p> <p>Activity 1, Part 4, Pages 10-11; Activity 2, Part 2, Pages 6-9; Part 3, Pages 10-11; Part 4, Pages 12-13;</p> <p>Investigation 1, Part 2, Pages 18-20; Investigation 2, Part 3, Pages 22-32; Investigation 4, Part 1, Pages 9-16; Part 2, Pages 17-22;</p> <p>Investigation 1, Part 1, Pages 8-13; Part 2, Pages 14-18; Investigation 2, Part 1, Pages 8-13; Part 2, Pages 14-19; Investigation 3, Part 1, Pages 6-12; Part 2, Pages 13-18; Part 3, Pages 19-28;</p> <p>Investigation 1, Part 3, Pages 21-29; Investigation 2, Part 1, Pages 8-12; Part 2, Pages 13-19; Part 3, Pages 20-24; Investigation 3, Part 1, Pages 8-14; Part 2, Pages 15-19; Investigation 4, Part 1, Pages 6-15;</p> <p>The study of magnetism and electricity illustrates constancy. In this module (5 folios of investigations) students study cause and effect as they explore magnetic interactions and circuitry. They create models of electric circuits and electromagnets and discover the constancy of magnetic fields and electricity.</p>
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S4b. Demonstrates understanding of the designed world.

<p><i>SCIENCE STANDARD</i> <i>By the end of grade four, students know and are able to:</i></p>	<p><i>FOSS MODULE</i></p>	<p><i>PAGE NUMBER(S)</i></p>
<p>Produce evidence that demonstrates understanding of the designed world, such as development of agricultural techniques; and the viability of</p>	<p><u>Ideas and Inventions</u></p>	<p>In this module (four folio investigations) students use tools and techniques that allow them to see details about the designed world that would otherwise be</p>

technological designs.		difficult to see. <i>Science Stories</i> for this module consist of expository writing, narrative stories and technical readings about inventions and technological techniques. <i>Science Stories</i>
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S4c. Demonstrates understanding of personal health.

SCIENCE STANDARD <i>By the end of grade four, students know and are able to:</i>	FOSS MODULE	PAGE NUMBER(S)
Produce evidence that demonstrates understanding of personal health, such as nutrition, substance abuse, and exercise; germs and toxic substances; personal and environmental safety.	<u>New Plants</u>	Investigation 2, Part 3, Pages 21-32;
	<u>Water</u>	<i>Science Stories</i> , pages 17-21
	<u>Human Body</u>	Investigation 4, Part 3, Pages 20-24; <i>Science Stories</i> , pages 25-27
	<u>Structures of Life</u>	<i>Science Stories</i> , page 2

S4d. Demonstrates understanding of science as a human endeavor.

SCIENCE STANDARD <i>By the end of grade four, students know and are able to:</i>	FOSS MODULE	PAGE NUMBER(S)
Produce evidence that demonstrates understanding of science as a human endeavor, such as communication, cooperation, and diverse input in scientific research; and the importance of reason, intellectual honesty, and skepticism.	<u>Earth Materials</u>	The <i>FOSS Science Stories</i> recommended for grades 3-4 often give biographical accounts of famous scientists and accounts of their endeavor to do scientific research. The following sites examples: <i>Science Stories</i> pages 1-4, 10-13;
	<u>Human Body</u>	<i>Science Stories</i> pages 17-20, 21-24, 25-27;
	<u>Ideas and Inventions</u>	<i>Science Stories</i> pages 1-3, 10, 14, 17-22, 28-29;
	<u>Magnetism and Electricity</u>	<i>Science Stories</i> pages 8-23, 26-29;
	<u>Measurement</u>	<i>Science Stories</i> pages 14-15, 21;
	<u>Physics of Sound</u>	<i>Science Stories</i> pages 22-24;
	<u>Structures of Life</u>	<i>Science Stories</i> pages 6-16;
	<u>Water</u>	<i>Science Stories</i> pages 8-11, 24-26;

S5. Scientific Connections and Applications

S5a. Asks questions about natural phenomena; objects and organisms; and events and discoveries.

<p><i>SCIENCE STANDARD</i> <i>By the end of grade four,</i> <i>students know and are able to:</i></p>	<p><i>FOSS MODULE</i></p>	<p><i>PAGE NUMBER(S)</i></p>
<p>Asks questions about natural phenomena; objects and organisms; and events and discoveries.</p>	<p><u>Air and Weather</u></p> <p><u>Animals Two by Two</u></p> <p><u>Balance and Motion</u></p> <p><u>Earth Materials</u></p> <p><u>Fabric</u></p> <p><u>Human Body</u></p> <p><u>Ideas and Inventions</u></p> <p><u>Insects</u></p> <p><u>Magnetism and Electricity</u></p> <p><u>Measurement</u></p> <p><u>New Plants</u></p> <p><u>Paper</u></p> <p><u>Pebbles, Sand, and Silt</u></p>	<p>Consistently in the FOSS Science modules, activities are designed around open and guided inquiry about natural phenomena, organisms and events. Additionally, in some modules, in the final session, students individually design their own investigations. The following are examples of both:</p> <p>Investigation 1, Part 4, Pages 21-26;</p> <p>Activity 2, Part 1, Pages 5-6;</p> <p>Investigation 3, Part 1, Pages 6-12;</p> <p>Investigation 4, Part 2, Pages 14-18;</p> <p>Activity 1, Part 3, Pages 8-9;</p> <p>Investigation 4, Part 4, Pages 25-29;</p> <p>Investigation 4, Part 4, Pages 22-25;</p> <p>Investigation 6, Part 1, Pages 8-13;</p> <p>Investigation 5, Part 3, Pages 21-25;</p> <p>Investigation 1, Part 1, Pages 8-15;</p> <p>Investigation 1, Part 2, Pages 13-22;</p> <p>Activity 2, Part 1, Pages 4-5;</p> <p>Investigation 4, Part 1, Pages 8-14;</p>

	<u>Physics of Sound</u>	Investigation 4, Part 2, Pages 16-20;
	<u>Solids and Liquids</u>	Investigation 2, Part 2, Pages 15-21;
	<u>Structures of Life</u>	Investigation 4, Part 4, Pages 25-29;
	<u>Trees</u>	Activity 2, Part 4, Page 11;
	<u>Water</u>	Investigation 4, Part 3, Pages 19-23;
	<u>Wood</u>	Activity 1, Part 4, Pages 10-11;

S5b. Uses concepts from Science Standards 1 to 4 to explain a variety of observations and phenomena.

<i>SCIENCE STANDARD</i> <i>By the end of grade four,</i> <i>students know and are able to:</i>	<i>FOSS MODULE</i>	<i>PAGE NUMBER(S)</i>
Use concepts from Science Standards 1 to 4 to explain a variety of observations and phenomena.		Throughout the FOSS program, students are provided opportunity to explain observations and phenomena. The most evident is on the Student Sheets (beginning with grades 1-2) that accompany most investigations and activities. The following provides a few examples
	<u>Measurement</u>	Investigation 1, Part 2, “ <i>How Long Is It?</i> ”
	<u>Ideas and Inventions</u>	Investigation 2, Part 2, “ <i>Solving a Mystery</i> ”
	<u>Pebbles, Sand, and Silt</u>	Investigation 2, Part 2, “ <i>Sand, Gravel and Pebbles</i> ”
	<u>Water</u>	Investigation 3, Part 2, “ <i>Water Vapor</i> ”
	<u>Earth Materials</u>	Investigation 3, Part 2, “ <i>Calcite Quest</i> ”
	<u>Human Body</u>	Investigation 3, Part 3, “ <i>Muscle Action</i> ”
	<u>Insects</u>	Investigation 5, Part 3, “ <i>Life Cycle of the Square Moth</i> ”
	<u>Electricity and Magnetism</u>	Investigation 3, Part 2, “ <i>Circuit Design</i> ”

S5c. Uses evidence from reliable sources to construct explanations.

SCIENCE STANDARD <i>By the end of grade four, students know and are able to:</i>	FOSS MODULE	PAGE NUMBER(S)
Use evidence from reliable sources to construct explanations..		In FOSS, sources of explanations most often come from students' observations, teacher guidance and first-hand experiences. For every Investigation (grades 1-4) and Activity (K) teachers are provided ample background information and suggestions for guiding students' inquiry and learning. Additional sources include the FOSS <i>Science Stories</i> (Grades 1-4), which contain biographical, narrative and expository writing about the science content students are studying. Finally, the FOSS website (www.fossweb.com) is another reliable source that offers opportunities for extended learning.

S5d. Evaluates different points of view using relevant experience, observations, and knowledge; and distinguishes between fact and opinion.

SCIENCE STANDARD <i>By the end of grade four, students know and are able to:</i>	FOSS MODULE	PAGE NUMBER(S)
Evaluate different points of view using relevant experiences, observations, and knowledge; and distinguishes between fact and opinion.	<p><u>Insects</u></p> <p><u>Earth Materials</u></p> <p><u>New Plants</u></p> <p><u>Magnetism and Electricity</u></p>	<p>The Teacher Guide of FOSS Program offers carefully guided questions and possible responses. This design encourages the discovery of scientific phenomena and leads students to differentiate between fact and opinion and avoid students' misconceptions. These lesson titles are often in question format. Some examples include:</p> <p>Investigation 4, Part 1, Pages 10-13;</p> <p>Investigation 3, Part 2, Pages 13-20;</p> <p>Investigation 3, Part 1, Pages 8-13;</p> <p>Investigation 2, Part 3, Pages 20-25;</p>

	<u>Balance and Motion</u>	Investigation 2, Part 1, Pages 8-13;
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S5e. Identifies problems; proposes and implements solutions; and evaluates the accuracy, design, and outcomes of investigations.

<i>SCIENCE STANDARD</i> <i>By the end of grade four,</i> <i>students know and are able to:</i>	<i>FOSS MODULE</i>	<i>PAGE NUMBER(S)</i>
Identify problems; propose and implement solutions; and evaluate the accuracy design, and outcomes of investigations.	<p><u>Earth Materials</u></p> <p><u>Human Body</u></p> <p><u>Ideas and Inventions</u></p> <p><u>Magnetism and Electricity</u></p> <p><u>Physics of Sound</u></p> <p><u>Structures of Life</u></p> <p><u>Water</u></p>	<p>Frequently students are given the opportunity to design their own experiment and evaluate the outcome. The following are a few examples:</p> <p>Investigation 4, Part 2, Pages 14-18;</p> <p>Investigation 4, Part 4, Pages 25-29;</p> <p>Investigation 4, Part 4, Pages 22-25;</p> <p>Investigation 5, Part 3, Pages 21-25;</p> <p>Investigation 4, Part 2, Pages 16-20;</p> <p>Investigation 4, Part 4, Pages 25-29;</p> <p>Investigation 4, Part 4, Pages 24-28;</p>

S5f. Works individually and in teams to collect and share information and ideas.

<i>SCIENCE STANDARD</i> <i>By the end of grade four,</i> <i>students know and are able to:</i>	<i>FOSS MODULE</i>	<i>PAGE NUMBER(S)</i>
Work individually and in a team to collect and share information and ideas.		<p>In all FOSS modules, students work individually, with a partner or in groups of four to investigate and discover science concepts. This is most obvious in the “Materials” preparation of the lesson. See also, in Grades 1-4 Teacher manuals, directions for teachers in sections “Working in Collaborative Groups” and “Encouraging Discourse” behind the <i>Overview</i> tab in the instructor’s manual.</p>

S6. Scientific Tools and Technologies

S6a. Uses technology and tools to gather data and extend the senses.

<i>SCIENCE STANDARD</i> <i>By the end of grade four,</i> <i>students know and are able to:</i>	<i>FOSS MODULE</i>	<i>PAGE NUMBER(S)</i>
Use technology and tools (such as rulers, computers, balances, thermometers, watches, magnifiers, and microscopes) to gather data and extend the senses.	<p><u>Air and Weather</u></p> <p><u>Animals Two by Two</u></p> <p><u>Balance and Motion</u></p> <p><u>Earth Materials</u></p> <p><u>Fabric</u></p> <p><u>Human Body</u></p> <p><u>Ideas and Inventions</u></p> <p><u>Insects</u></p> <p><u>Magnetism and Electricity</u></p> <p><u>Measurement</u></p> <p><u>New Plants</u></p> <p><u>Pebbles, Sand, and Silt</u></p> <p><u>Physics of Sound</u></p> <p><u>Solids and Liquids</u></p>	<p>“Hands-on Science” is the nature of the FOSS Modules thus, the success of the lessons is dependent on developmentally-appropriate data-gathering tools. Examples of how these are used can be found in the following references</p> <p>Investigation 1, Part 4, Pages 21-26;</p> <p>Activity 1, Part 3, Pages 11-12;</p> <p>Investigation 2, Part 1, Pages 8-13;</p> <p>Investigation 3, Part 1, Pages 8-13;</p> <p>Activity 1, Part 1, Pages 4-5;</p> <p>Investigation 3, Part 1, Pages 8-14;</p> <p>Investigation 3, Part 3, Pages 18-21;</p> <p>Investigation 2, Part 1, Pages 8-13;</p> <p>Investigation 2, Part 2, Pages 14-19;</p> <p>Investigation 4, Part 1, Pages 8-12;</p> <p>Investigation 1, Part 3, Pages 23-32;</p> <p>Investigation 2, Part 1, Pages 8-13;</p> <p>Investigation 2, Part 2, Pages 13-19;</p> <p>Investigation 3, Part 4, Pages 25-32;</p>

	<u>Structures of Life</u>	Investigation 3, Part 1, Pages 8-15;
	<u>Trees</u>	Activity 2, Part 2, Pages 6-8;
	<u>Water</u>	Investigation 2, Part 1, Pages 8-13;
	<u>Wood</u>	Activity 2, Part 2, Pages 6-7;

S6b. Collects and analyzes data using concepts and techniques in Mathematics Standard 4.

<i>SCIENCE STANDARD By the end of grade four, students know and are able to:</i>	<i>FOSS MODULE</i>	<i>PAGE NUMBER(S)</i>
Collect and analyze data using concepts and technologies in Mathematics Standard 4, such as average, data displays, graphing, variability and sampling.	<p><u>Measurement</u></p> <p><u>Air and Weather</u></p> <p><u>Fabric</u></p> <p><u>Human Body</u></p> <p><u>Ideas and Inventions</u></p> <p><u>Insects</u></p> <p><u>Magnetism and Electricity</u></p> <p><u>New Plants</u></p> <p><u>Solids and Liquids</u></p> <p><u>Structures of Life</u></p>	<p>Throughout the FOSS Program students collect and analyze data and incorporate mathematics into data collecting and calculations. Some examples include the following: The design of this FOSS module is to guide students to discover the need for standard units of measurement and learn metric measurement (length, mass, volume and temperature).</p> <p>Investigation 4, Part 1, Pages 8-11;</p> <p>Activity 2, Part 4, Pages 12-13;</p> <p>Investigation 4, Part 3, Pages 20-24;</p> <p>Investigation 2, Part 1, Pages 8-15;</p> <p>Investigation 4, Part 4, Pages 23-27;</p> <p>Investigation 2, Part 1, Pages 8-13;</p> <p>Investigation 1, Part 1, Pages 8-12;</p> <p>Investigation 4, Part 2, Pages 17-22;</p> <p>Investigation 3, Part 4, Pages 24-30;</p>

	<u>Water</u>	Investigation 3, Part 3, Pages 17-20;
	<u>Wood</u>	Activity 1, Part 5, Pages 12-14;

S6c. Acquires information from multiple sources, such as experimentation and print and non-print sources.

<i>SCIENCE STANDARD</i> <i>By the end of grade four, students know and are able to:</i>	<i>FOSS MODULE</i>	<i>PAGE NUMBER(S)</i>
Acquire information from multiple sources, such as experimentation and print and non-print sources.		Four information resources, experimental design, print (<i>Science Stories</i> , Grades 3-6, supplementary big books K-2) non-print resources, (i.e. field trips), and the internet (www.fossweb.com) in Grades 3-6 are used in the FOSS Modular program. The FOSS website contains interactive simulations, opportunities to write questions to scientists and talk with other classes using the FOSS program.

S7. Scientific Communication

S7a. Represents data and results in multiple ways.

<i>SCIENCE STANDARD</i> <i>By the end of grade four, students know and are able to:</i>	<i>FOSS MODULE</i>	<i>PAGE NUMBER(S)</i>
Represent data and results in multiple ways, such as numbers, tables, and graphs; drawings, diagrams, and artwork; and technical and creative writing.	<u>Air and Weather</u> <u>Fabric</u>	In all FOSS Modules recommended for Grades K-4, students organize data in tables and graphs, draw/ diagram evidence and provide explanations. The most evident component to convey the way this is done is through the <i>Student Sheets</i> that accompany the lessons. The black line masters are found in each Teacher's Guide and are visually embedded in the margin of each lesson plans at appropriate places. Examples are: Investigation 4, Part 1, Pages 8-11; Activity 2, Part 4, Pages 12-13;

	<u>Human Body</u>	Investigation 4, Part 3, Pages 20-24;
	<u>Ideas and Inventions</u>	Investigation 2, Part 1, Pages 8-15;
	<u>Insects</u>	Investigation 4, Part 4, Pages 23-27;
	<u>Measurement</u>	Investigation 3, Part 3, Pages 18-21;
	<u>Magnetism and Electricity</u>	Investigation 2, Part 1, Pages 8-13;
	<u>New Plants</u>	Investigation 1, Part 1, Pages 8-12;
	<u>Solids and Liquids</u>	Investigation 4, Part 2, Pages 17-22;
	<u>Structures of Life</u>	Investigation 3, Part 4, Pages 24-30;
	<u>Water</u>	Investigation 3, Part 3, Pages 17-20;
	<u>Wood</u>	Activity 1, Part 5, Pages 12-14;

S7b. Uses facts to support conclusions.

<i>SCIENCE STANDARD</i> <i>By the end of grade four,</i> <i>students know and are able to:</i>	<i>FOSS MODULE</i>	<i>PAGE NUMBER(S)</i>
		The nature of the FOSS Science program is to provide experiences for students to investigate science phenomena from which students use this factual information to draw conclusions. This activity is most obvious on the student sheets. The following is a representation of this activity:
	<u>Water</u>	Investigation 3, Student Sheet No. 14;
	<u>Physics of Sound</u>	Investigation 1, Student Sheet No. 5;
	<u>Magnetism and Electricity</u>	Investigation 2, Student Sheet No. 7;
	<u>Ideas and Inventions</u>	Investigation 2, Student Sheet No. 9;

Use facts to support conclusions.	<u>Earth Materials</u>	Investigation 1, Student Sheet No. 9;
	<u>Measurement</u>	Investigation 3, Student Sheet No. 12;

S7c. Communicates in a form suited to the purpose and the audience.

<i>SCIENCE STANDARD By the end of grade four, students know and are able to:</i>	<i>FOSS MODULE</i>	<i>PAGE NUMBER(S)</i>
Communicate in a form suited to the purpose and audience, such as writing instructions that others can follow.		The FOSS program provides opportunities for students to do expository writing. The most obvious indicator is on the student sheets. The following is a sample of this activity.
	<u>Water</u>	Investigation 4, Student Sheet No. 16;
	<u>Magnetism and Electricity</u>	Investigation 3, Student Sheet No. 17;
	<u>Earth Materials</u>	Investigation 4, Student Sheet No. 20;

S7d. Critiques written and oral explanations, and uses data to resolve disagreements.

<i>SCIENCE STANDARD By the end of grade four, students know and are able to:</i>	<i>FOSS MODULE</i>	<i>PAGE NUMBER(S)</i>
Critique written and oral explanations, and use data to resolve disagreements.		Often in the FOSS program students are given an example of another "students' " work or ideas to critique. These situations are posed on the Student Sheets. The following are examples of this activity.
	<u>Magnetism and Electricity</u>	Investigation 4, Student Sheet No. 19;
	<u>Ideas and Inventions</u>	Investigation 4, Student Sheet No. 15;
	<u>Earth Materials</u>	Investigation 1, Student Sheet No. 11;

S8. Scientific Investigation

S8a. Demonstrate Scientific competence by completing an experiment.

SCIENCE STANDARD <i>By the end of grade four, students know and are able to:</i>	FOSS MODULE	PAGE NUMBER(S)
During the course of a year, complete <i>an experiment, such as conducting a fair test.</i>	<p><u>Earth Materials</u></p> <p><u>Human Body</u></p> <p><u>Electricity and Magnetism</u></p> <p><u>Physics of Sound</u></p> <p><u>Structures</u></p> <p><u>Water</u></p> <p><u>New Plants</u></p>	<p>Throughout grades K-4, FOSS students participate in guided investigations. In modules recommended for grades 3 and 4, students design their own experiments at the end of every module. They develop a plan and base their conclusions on the result of the experiment. Examples of each of these activities follow:</p> <p>Investigation 4, Part 2, Pages 14-18;</p> <p>Investigation 4, Part 4, Pages 25-29</p> <p>Investigation 5, Part 3, Pages 21-25;</p> <p>Investigation 4, Part 2, Pages 16-20;</p> <p>Investigation 4, Part 4, Pages 25-29;</p> <p>Investigation 4, Part 4, Pages 24-28;</p> <p>Investigation 3, Part 1, Pages 8-13;</p>

S8b. Demonstrates competence by completing a systematic observation.

SCIENCE STANDARD <i>By the end of grade four, students know and are able to:</i>	FOSS MODULE	PAGE NUMBER(S)
During the course of a year, complete <i>a systematic observation, such as a field study.</i>	<u>Trees</u>	In this module, students observe a tree throughout the year. They investigate and document changes they observe.

S8c. Demonstrates scientific competency by completing a design.

SCIENCE STANDARD <i>By the end of grade four, students know and are able to:</i>	FOSS MODULE	PAGE NUMBER(S)
During the course of a year, complete <i>a design, such as building a model or scientific apparatus.</i>	<u>Ideas and Inventions</u>	Investigation 1, Part 3, Pages 18-21; Investigation 2, Part 3, Pages 20-22; Investigation 3, Part 3, Pages 18-21;
	<u>Air and Weather</u>	Investigation 1, Part 4, Pages 21-26;
	<u>Balance and Motion</u>	Investigation 3, Part 3, Pages 19-28;
	<u>Solids and Liquids</u>	Investigation 1, Part 3, Pages 21-28;

S8d. Demonstrates scientific competence by completing non-experimental research using print and electronic information.

SCIENCE STANDARD <i>By the end of grade four, students know and are able to:</i>	FOSS MODULE	PAGE NUMBER(S)
During the course of a year, complete <i>non-experimental research using print and electronic information such as journals, video or computers.</i>		For each grade 3-6 module there is an interactive web site (www.fossweb.com) where students and families can find instructional games and interactive simulations. Those interested in visiting websites can select a link and explore subjects in greater depth.

Middle School Science

S1. Physical Sciences Concepts

S1a. Demonstrates understanding of properties and changes of properties of matter.

<i>SCIENCE STANDARD</i> <i>By the end of grade four,</i> <i>students know and are able to:</i>	<i>FOSS MODULE</i>	<i>PAGE NUMBER(S)</i>
Produce evidence that demonstrates understanding of properties and changes in properties in matter, such as density and boiling point; chemical reactivity; and conservation of matter.	<u>Mixtures and Solutions</u>	In this module (4 investigation folios) students investigate basic concepts of chemistry-properties and changes in properties of matter. They investigate mixtures and solutions and explore the processes of solvents, saturation, chemical reaction, evaporation and crystal formation. <i>Science Stories</i> pages 1, 7, 11, 14, 16, 18, 21, 23, 26, & 31;
	<u>Solar Energy</u>	Investigation 2, Part 1, Pages 8-15, <i>Science Stories</i> pg. 16; Investigation 3, Part 1, Pages 8-16, <i>Science Stories</i> pg. 22;
	<u>Food and Nutrition</u>	Investigation 1, Part 1, Pages 8-15, <i>Science Stories</i> , pg. 1; Investigation 3, Part 1, Pages 8-15, <i>Science Stories</i> , pg. 20;Part 2, Pages 16-20, <i>Science Stories</i> , pg. 21;Part 3, Pages 21-25, <i>Science Stories</i> , pg. 24 & 26;
	<u>Weather and Water</u>	Investigation 2, Part 2; Part 3; Investigation 3, Part 2; Part 3;
	<u>Chemistry</u>	Investigation 5, Part 3;

S1b. Demonstrates understanding of position and motion and forces.

<i>SCIENCE STANDARD</i> <i>By the end of grade four,</i> <i>students know and are able to:</i>	<i>FOSS MODULE</i>	<i>PAGE NUMBER(S)</i>
Produce evidence that demonstrates understanding of position and motion of motions and forces, such as inertia and the net effects of balanced and unbalanced forces.	<u>Solar Energy</u>	Investigation1, Part 1, Pages 8-13, <i>Science Stories</i> pg. 1 & 8; Part 2, Pages 14-21, <i>Science Stories</i> pg. 10 & 12; Investigation 4, Part 1, Pages 8-19, <i>Science Stories</i> pg. 28 & 31; Investigation 4, Part 2, Pages 20-23;
	<u>Variables</u>	Investigation 1, Part 1, Pages 8-14, <i>Science Stories</i> , pg. 1; Part 2,

	<p><u>Levers and Pulleys</u></p> <p><u>Earth History</u></p> <p><u>Force and Motion</u></p>	<p>Pages 15-21; Investigation 3, Part 1, Pages 8-13, <i>Science Stories</i>, pg. 15 & 18; Part 2, Pages 14-19, <i>Science Stories</i>, pg. 21; Investigation 4, Part 2, Pages 12-17, <i>Science Stories</i>, pg. 32; Part 3, Pages 18-23, <i>Science Stories</i>, pg. 34;</p> <p>In this module (4 investigation folios) students investigate two kinds of simple machines, levers and pulleys. They relate the force needed to lift a load to the advantage resulting from the simple machines. <i>Science Stories</i> pages 1,5,7,10,12,14,16, 19,21, 23, and 26;</p> <p>Investigation 1, Part 1, Pages 38-41; Part 2, Pages 43-47; Part 3, Pages 48-52; Investigation 2, Part 2, Pages 71-77;</p>
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S1c. Demonstrates understanding of transfer of energy and the nature of chemical reaction.

<i>SCIENCE STANDARD</i> <i>By the end of grade four,</i> <i>students know and are able to:</i>	<i>FOSS MODULE</i>	<i>PAGE NUMBER(S)</i>
Produce evidence that demonstrates understanding transfer of energy, such as transformation of energy as heat; light, and mechanical motion, and sound; and the nature of chemical reaction.	<p><u>Food and Nutrition</u></p> <p><u>Mixtures and Solutions</u></p> <p><u>Levers and Pulleys</u></p> <p><u>Solar Energy</u></p>	<p>Investigation 3, Part 1, Pages 8-15, <i>Science Stories</i>, pg. 20;Part 2, Pages 16-20, <i>Science Stories</i>, pg. 21;Part 3, Pages 21-25, <i>Science Stories</i>, pg. 24 & 26;</p> <p>Investigation 4, Part 1, Pages 8-15, <i>Science Stories</i> pg. 21;Part 2, Pages16-19, <i>Science Stories</i> pgs. 23 & 26;Part 3, Pages 20-24, <i>Science Stories</i> pg. 31;Part 4, Pages 25-28;</p> <p>Investigation 4, Part 1, Pages 8-13, <i>Science Stories</i> pg. 23; Part 2, Pages 14-20, <i>Science Stories</i> pg. 26; Part 3, Pages 21-25, <i>Science Stories</i> pg. 28;</p> <p>Investigation 2, Part 1, Pages 8-15, <i>Science Stories</i> pg. 16; Part 2, Pages 16-24, <i>Science Stories</i> pg. 18; Investigation 3, Part 1, Pages 8-16, <i>Science Stories</i> pg. 22; Part 2, Pages 17-23, <i>Science Stories</i></p>

		pg. 25 & 26; Investigation 4, Part 1, Pages 8-19, <i>Science Stories</i> pg. 28 & 31; Part 2, Pages 20-23; Part 3, Pages 24-28; Part 4, Pages 29-33;
	<u>Electronics</u>	Investigation 1, Part 1, Pages 55-60; Part 3, Pages 66-70;
	<u>Weather and Water</u>	Investigation 4, Part 1; Investigation 4, Part 2;
	<u>Force and Motion</u>	Investigation 4, Part 3;

S2. Life Sciences Concepts

S2a. Demonstrates understanding of structure and function in living systems.

<i>SCIENCE STANDARD</i> <i>By the end of grade four,</i> <i>students know and are able to:</i>	<i>FOSS MODULE</i>	<i>PAGE NUMBER(S)</i>
Produce evidence that demonstrates understanding of structure and function in living systems, such as the complementary nature of structure and function in cells, organisms, tissues, organ systems, whole organisms, and ecosystems..	<u>Environments</u>	<i>Science Stories</i> pgs. 18-19, 2-33
	<u>Food and Nutrition</u>	<i>Science Stories</i> pgs. 6-9, 20
	<u>Human Brain and Senses</u>	Investigation 2, Part 1, Pages 67-72; Part 2, Pages 73-76; Part 3, Pages 77-83; CD Video: <i>How the Eye Looks, How the Eye Works, Cow Eye Dissection</i> ; Investigation 4, Part 2, Pages 129-135; Investigation 5, Part 3, Pages 165-168. CD-ROM <i>Brain</i> ; Investigation 7, Part 1, Pages 210-218 Part 2, Pages 219-225; Part 3, Pages 226-230, CD-ROM <i>How the Skin Works</i> ; Investigation 8, Part 1, Pages 240-245; Part 2, Pages 246-252; CD-Rom <i>Games Room, Brain</i> ; Investigation 9, Part 1, Pages 264-269; Investigation 9, Part 2, Pages 270-277;
	<u>Diversity of Life</u>	Investigation 3 and 4, Resources pages 68-70;
	<u>Populations and Ecosystems</u>	

S2b. Demonstrates understanding of reproduction and heredity and the role of genes and environment on trait expression.

SCIENCE STANDARD <i>By the end of grade four, students know and are able to:</i>	FOSS MODULE	PAGE NUMBER(S)
Produce evidence that demonstrates understanding of reproduction and heredity, such as sexual and asexual reproduction; and the role of genes and environment on trait expression.	<u>Environments</u>	Investigation 3, Part 2, Pages 14-17, <i>Science Stories</i> , pg. 23; Investigation 5, Part 1, Pages 8-13, <i>Science Stories</i> pg. 38; Part 2, Pages 14-18, <i>Science Stories</i> pg. 39; Part 3, Pages 19-22, <i>Science Stories</i> pg. 42;
	<u>Diversity of Life</u>	Investigation 7
	<u>Food and Nutrition</u>	<i>Science Stories</i> , pg. 16;
	<u>Populations And Ecosystems</u>	

S2c. Demonstrates understanding of regulation and behavior and response to environmental stimuli.

SCIENCE STANDARD <i>By the end of grade four, students know and are able to:</i>	FOSS MODULE	PAGE NUMBER(S)
Produce evidence that demonstrates understanding of regulation and behavior, such as senses and behavior; and response to environmental stimuli.	<u>Environments</u>	In this module (6 folio investigations), students investigate the responses of organisms to living and nonliving factors in terrestrial and aquatic systems. They develop the concepts of environmental factor, range, and optimum conditions for survival. Students learn how organisms respond to and can change the environmental conditions. <i>Science Stories</i> pgs. 1,9,18,21,22,23,27,36,38,39,42,& 43.
	<u>Food and Nutrition</u>	<i>Science Stories</i> pgs. 6, 15, 16, 20, 24,
	<u>Human Brain and Senses</u>	Investigation 2, Part 1, Pages 67-72; <i>Science Stories</i> pg. 16; Investigation 7, Part 1, Pages 210-218Part 2, Pages 219-225; Part 3, Pages 226-230, CD-ROM <i>How the Skin Works</i> ; Investigation 9, Part 1, Pages 264-269; Investigation 9, Part 2, Pages 270-277; CD-ROM <i>All pedestal rooms</i> and related readings.

S3. Earth and Space Sciences Concepts

S3a. Demonstrates understanding of properties of the structure of the Earth systems.

<p>SCIENCE STANDARD <i>By the end of grade eight, students know and are able to:</i></p>	<p>FOSS MODULE</p>	<p>PAGE NUMBER(S)</p>
<p>Produce evidence that demonstrates understanding of Earth systems, such as crustal plates and landforms; water and rock cycles; oceans, weather and climate.</p>	<p><u>Solar Energy</u></p> <p><u>Landforms</u></p> <p><u>Weather and Water</u></p> <p><u>Earth History</u></p>	<p>Investigation 2, Part 2, Pages 16-24, <i>Science Stories</i> pgs. 18 & 31;</p> <p>Investigation 1, Part 1, Pages 8-15; Part 2, Pages 16-19, <i>Science Stories</i> pg. 1&7; Investigation 4, Part 1, Pages 8-15, <i>Science Stories</i> pg. 22; Part 2, Pages 16-20, <i>Science Stories</i> pg. 25; Part 3, Pages 21-24, <i>Science Stories</i> pg. 27; Investigation 5, Part 1, Pages 8-15, <i>Science Stories</i> pg. 35; Investigation 5, Part 2, Pages 16-20, <i>Science Stories</i> pg. 37; Investigation 5, Part 3, Pages 21-26, <i>Science Stories</i> pg. 43; Investigation 5, Part 4, Pages 27-31;</p> <p>In this module (7 investigation folios), students investigate the properties of Earth’s atmosphere and the processes that produce weather, including energy transfer, atmospheric pressure and water cycle. This includes principles that govern temperature, wind, humidity, precipitation and severe weather.</p> <p>Investigation 2, Part 1, Pages 60-63; Part 2, Pages 64-68; Part 3, Pages 69-70; CD-ROM <i>Grand Canyon Rim, Pima Point</i>; Investigation 3, Part 1, Pages 88-95; Part 2, Pages 96-101; Part 3, Pages 102-108; Investigation 4, Part 1, Pages 127-131; Part 2, Pages 132-137; CD-ROM <i>Geology Labs, Sand Types and Earth Processes</i> and related readings. Investigation 5, Part 4, Pages 188-193 CD-ROM <i>Geology Labs, Sedimentary Rocks, Limestone</i>; Investigation 8, Part 1, Pages 254-258; Part 2, Pages 259-265; CD-ROM <i>Rock</i></p>

		<i>database, Expeditions Desk;</i>
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S3b. Demonstrates understanding of Earth’s history.

<i>SCIENCE STANDARD</i> <i>By the end of grade eight,</i> <i>students know and are able to:</i>	<i>FOSS MODULE</i>	<i>PAGE NUMBER(S)</i>
Produce evidence that demonstrates understanding of Earth’s history, such as Earth processes including erosion and movement of plates; changes over time and fossil evidence.	<u>Landforms</u> <u>Earth History</u>	Investigation 2, Part 1, Pages 8-15, <i>Science Stories</i> pg. 9; Part 2, Pages 16-22; Investigation 3, Part 1, Pages 8-14, <i>Science Stories</i> pg. 15; Part 2, Pages 15-19; Part 3, Pages 20-24; In this module, (8 folio investigations) students investigate rocks and fossils to discover clues to the Earth’s history. They explore sedimentary rocks and fossils and consider the processes that created them, and compare evidence to present-day geologic processes. They learn concepts related to erosion, deposition, sedimentation, lithification, and prehistoric environment.

S3c. Demonstrates understanding of Earth in the Solar Systems.

<i>SCIENCE STANDARD</i> <i>By the end of grade eight,</i> <i>students know and are able to:</i>	<i>FOSS MODULE</i>	<i>PAGE NUMBER(S)</i>
Produce evidence that demonstrates understanding of Earth in the solar systems, such as the predictable motion of planets, moons, and other objects in the solar systems including days, years, moon phases, and eclipses; and the role of the Sun as a major source of energy for phenomena on the Earth’s surface.	<u>Solar Energy</u> <u>Weather and Water</u>	In this module (4 folios of investigations) students study the role of as a major source of energy for phenomena on the Earth’s surface. They investigate the relationship between the sun and its shadow and the sun’s apparent movement over a year. Students also experiment with variables that affect the transfer of energy to air, water and earth materials. <i>Science Stories</i> pgs, 1, 8, 10, 12, 16, 18, 22, 25, 26, 28, 31, & 33. Investigation 4, Part 1; Investigation 4, Part 2; Investigation 4, Part 3; Investigation 5, Part 2; Investigation 6, Part 1; Investigation 6, Part 2; Investigation 6, Part 3; Investigation 7, Part 1; Inves-

		Part 1;
	<u>Human Brain and Senses</u>	Investigation 2, Part 1, Pages 67-72; Investigation 3, Part 2, Pages 101-105; Investigation 3, Part 2, Pages 101-105; Investigation 8, Part 1, Pages 240-245; Part 2, Pages 246-252, CD-ROM: Games Room, <i>Reaction Timer</i> and Brain: <i>Synapse Function and Neuron Growth</i> ;
	<u>Electronics</u>	Investigation 1, Part 3, Pages 66-70, Part 5, Pages 76-79;
	<u>Models and Design</u>	This module (4 folios of investigations) is designed for students to explore technological design by proposing solutions and evaluating products. Students create models to help them think productively about complex problems and explain the relationship of parts in a system.
	<u>Landforms</u>	Investigation 1, Part 1, Pages 8-15; Part 3, Pages 20-24; Investigation 2, Part 1, Pages 8-15, <i>Science Stories</i> pg. 9, Part 2, Pages 16-22;
	<u>Environments</u>	Investigation 1, Part 2, Pages 16-19, <i>Science Stories</i> , pg. 9; Investigation 2, Part 2, Pages 16-21;
	<u>Food and Nutrition</u>	Investigation 1, Part 2, Pages 16-23, <i>Science Stories</i> , pg. 6; Investigation 3, Part 2, Pages 16-20, <i>Science Stories</i> , pg. 21;
	<u>Variables</u>	Investigation 1, Part 1, Pages 8-14, <i>Science Stories</i> , pg. 1; Part 2, Pages 15-21; Investigation 2, Part 1, Pages 8-13; Part 2, Pages 14-18, <i>Science Stories</i> , pg. 10;
	<u>Mixtures and Solutions</u>	Investigation 4, Part 1, Pages 8-15, <i>Science Stories</i> pg. 21;
	<u>Solar Energy</u>	Investigation 1, Part 2, Pages 14-21, <i>Science Stories</i> pg. 10 & 12; Investigation 2, Part 2, Pages 16-24, <i>Science Stories</i> pg. 18; Investigation 3, Part 1, Pages 8-

		16, <i>Science Stories</i> pg. 22;
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S4b. Demonstrates understanding of the designed world.

SCIENCE STANDARD <i>By the end of grade eight, students know and are able to:</i>	FOSS MODULE	PAGE NUMBER(S)
Produce evidence that demonstrates understanding of the designed world, such as development of agricultural techniques; and the viability of technological designs.	<u>Planetary Science</u>	Investigation 7, Part 5, Pages 236-238;
	<u>Weather and Water</u>	Investigation 6, Part 2;
	<u>Human Brain and Senses</u>	Investigation 5, Part 2, Pages 161-164; Part 4, Pages 169-175, CD-ROM <i>Lab: MRI Lab, EEG Lab</i> ; Investigation 7, Part 3, Pages 226-230, CD-ROM: <i>EEG Lab</i> ;
	<u>Electronics</u>	Investigation 6, Part 1, Pages 186-189; Part 2, Pages 190-194; Investigation 7, Part 1, Pages 220-225; Part 2, Pages 226-230; Part 3, Pages 231-237;
	<u>Models and Design</u>	This module (4 folios of investigations) is designed for students to explore technological design by proposing solutions and evaluating products. Students create models to help them think productively about complex problems and explain the relationship of parts in a system.
	<u>Landforms</u>	Investigation 4, Part 2, Pages 16-20, <i>Science Stories</i> pg. 25, Part 3, Pages 21-24, <i>Science Stories</i> pg. 27;
	<u>Variables</u>	Investigation 3, Part 3, Pages 20-23, <i>Science Stories</i> , pg. 29;
	<u>Solar Energy</u>	Investigation 4, Part 1, Pages 8-19, <i>Science Stories</i> pg. 22, 26, 28 & 31;
	<u>Levers and Pulleys</u>	<i>Science Stories</i> pg. 1, & 23

S4c. Demonstrates understanding of personal health.

SCIENCE STANDARD <i>By the end of grade eight, students know and are able to:</i>	FOSS MODULE	PAGE NUMBER(S)
Produce evidence that demonstrates understanding of health, such as nutrition, exercise and disease; effects of drugs and toxic substances; personal and environmental safety; and resources and environmental stress.	<u>Earth History</u>	Investigation 3, Part 4, Pages 109-111, Geology Lab, Earth Processes;
	<u>Environments</u>	Investigation 2, Part 2, Pages 16-21;
	<u>Food and Nutrition</u>	Investigation 1, Part 2, Pages 16-23, <i>Science Stories</i> , pg. 6; Investigation 3, Part 3, Pages 21-25, <i>Science Stories</i> , pg. 24 & 26; Investigation 4, Part 1, Pages 8-15, <i>Science Stories</i> , pg. 30, Part 2, Pages 15-23, <i>Science Stories</i> , pg. 34 & 37; FOSS Website: www.fossweb.com
	<u>Mixtures and Solutions</u>	<i>Science Stories</i> pg. 1, 11, & 18
	<u>Solar Energy</u>	<i>Science Stories</i> pg. 12

S4d. Demonstrates understanding of impact of technology.

SCIENCE STANDARD <i>By the end of grade eight, students know and are able to:</i>	FOSS MODULE	PAGE NUMBER(S)
Produce evidence that demonstrates understanding of impact of technology, such as constraints and trade-offs; feedback; benefits and risks; and problems and solutions.	<u>Planetary Science</u>	Investigation 7, Part 1, Pages 218-221; Part 2, Pages 222-227; Part 3, Pages 228-231; Part 5, Pages 236-238; CD-ROM <i>Space Exploration, Moon Before Apollo</i>
	<u>Human Brain and Senses</u>	Investigation 5, Part 2, Pages 161-164; Part 4, Pages 169-175, CD-ROM <i>Lab: MRI Lab, EEG Lab</i> ; Investigation 7, Part 3, Pages 226-230, CD-ROM: <i>EEG Lab</i> ;
	<u>Electronics</u>	Investigation 2, Part 3, Pages 99-103, Part 4, Pages 104-107; Investigation 6, Part 2, Pages 190-194;
	<u>Models and Design</u>	Investigation 1, Part 3, Pages 22-25, <i>Science Stories</i> , pg. 1; Investigation 2, Part 3, Pages 22-24; Investigation 3, Part 3, Pages 20-23, <i>Science Stories</i> , pg. 33;
	<u>Variables</u>	<i>Science Stories</i> , pg. 8, 18, & 21

	Mixtures and Solutions	<i>Science Stories</i> pg. 1, 18, &31
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S4e. Demonstrates understanding of impact of science.

SCIENCE STANDARD <i>By the end of grade eight, students know and are able to:</i>	FOSS MODULE	PAGE NUMBER(S)
Produce evidence that demonstrates understanding of science, such as historical and contemporary contributions; and interactions between science and society.	<u>Planetary Science</u>	Investigation 7, Part 1, Pages 218-221; Video <i>For All Mankind</i> . CD-ROM <i>Space Exploration, Moon Before Apollo</i>
	<u>Earth History</u>	Investigation 1, Part 1, Pages 34-44; Video <i>River Song</i> ; , Part 2, Pages 45-48, CD-ROM, Expedition Desk, <i>Grand Canyon Rim, Pima Point</i> ;
	<u>Human Brain and Senses</u>	Investigation 1, Part 4, Pages 55-59;
	<u>Models and Design</u>	<i>Science Stories</i> , pg. 5, 11, 21, 25, & 37;
	<u>Variables</u>	<i>Science Stories</i> , pg. 8, 18, 21,
	<u>Mixtures and Solutions</u>	<i>Science Stories</i> , pg. 5, 8, 22, 27, 29 & 31.
	<u>Solar Energy</u>	<i>Science Stories</i> pg. 25

S5. Scientific Thinking

S5a. Frames questions to distinguish cause and effect; identifies or controls variables.

SCIENCE STANDARD <i>By the end of grade eight, students know and are able to:</i>	FOSS MODULE	PAGE NUMBER(S)
Frame questions to distinguish cause and effect; and identify or control variables in experimental and non-experimental research settings.	<u>Levers and Pulleys</u>	Investigation 1, Part 2, Pages 18-23, <i>Science Stories</i> pg. 5, Part 3, Pages 23-28, <i>Science Stories</i> pg. 7; Investigation 4, Part 3, Pages 21-25, <i>Science Stories</i> pg. 28;
	<u>Solar Energy</u>	Investigation 1, Part 2, Pages 14-21, <i>Science Stories</i> pg. 10 & 12; Investigation 3, Part 2, Pages 17-23, <i>Science Stories</i> pg. 25 & 26; Investigation 4, Part 4, Pages 29-33;
	<u>Mixtures and Solutions</u>	Investigation 4, Part 4, Pages 25-

	<p><u>Variables</u></p> <p><u>Food and Nutrition</u></p> <p><u>Landforms</u></p> <p><u>Environments</u></p> <p><u>Electronics</u></p>	<p>28;</p> <p>The purpose of this module is to have students engage in scientific inquiry. Through the four folio investigations students identify and control variables and conduct controlled experiments using several multivariable systems. They identify the relationships between the dependent and independent variables and generate further predictions from their findings. See also <i>Science Stories</i> pg.18.</p> <p>Investigation 4, Part 2, Pages 15-23;</p> <p>Investigation 4, Part 3, Pages 21-24, Investigation 5, Part 4, Pages 27-31;</p> <p>Investigation 2, Part 4, Pages 26-30; Investigation 3, Part 1, Pages 8-13; Investigation 5, Part 1, Pages 8-13;</p> <p>Investigation 2, Part 1, Pages 89-93; Investigation 3, Part 2, Pages 124-127;</p>
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S5b. Uses concepts from Science Standards 1 to 4 to explain a variety of observations and phenomena.

<i>SCIENCE STANDARD</i> <i>By the end of grade eight, students know and are able to:</i>	<i>FOSS MODULE</i>	<i>PAGE NUMBER(S)</i>
Use concepts from Science Standards 1 to 4 to explain a variety of observations and phenomena.		The FOSS Elementary (Grades 4-6) and Middle School (Grades 6-8) Science Program is an interactive science program where students use materials and equipment to explore science phenomena. Lessons are accompanied by <i>Student Sheets</i> on which students respond to questions related to observations, predictions, inferences and explanations. The FOSS Middle School Program is accompanied by a Lab Notebook which contain black line masters or can be purchased individually.

S5c. Uses evidence from reliable sources to develop descriptions, explanations and models.

SCIENCE STANDARD <i>By the end of grade eight, students know and are able to:</i>	FOSS MODULE	PAGE NUMBER(S)
Use evidence from reliable sources to develop descriptions, explanations and models..	<p><u>Human Brain and Senses</u></p> <p><u>Landforms</u></p> <p><u>Weather and Water</u></p> <p><u>Human Brain and Senses</u></p> <p><u>Models and Design</u></p> <p><u>Landforms</u></p>	<p>In FOSS the sources of explanations most often come from students’ observations and first-hand experiences. Some modules (Middle School Program) contain videos. All 5-6 modules and 6-8 modules have accompanying reading resources (Science Stories or Resource Manual) and opportunity to gain knowledge from either from a CD-ROM or to use the FOSS website (www.fossweb.com). Some examples of the use of other resources are in the following lessons:</p> <p>Investigation 3, Part 3, Pages 106-110; CD-ROM <i>Optics Bench</i>;</p> <p>Investigation 1, Part 1, Pages 8-15; Part 2, Pages 16-19, <i>Science Stories</i> pg. 1&7;</p> <p>Investigation 7, Part 1;</p> <p>Investigation 3, Part 2, Pages 101-105;</p> <p><i>Science Stories</i> pgs. 17, 21,</p> <p>Investigation 1, Part 1, Pages 8-15; Part 3, Pages 20-24; Investigation 2, Part 1, Pages 8-15, <i>Science Stories</i> pg. 9, Part 2, Pages 16-22;</p>

S5d. Proposes, recognizes, analyzes, considers, critiques alternative explanations; and distinguishes between fact and opinion.

SCIENCE STANDARD <i>By the end of grade eight, students know and are able to:</i>	FOSS MODULE	PAGE NUMBER(S)
Propose, recognize analyze, consider, and critique alternative explanations; distinguish between fact and opinion.	<p><u>Earth History</u></p> <p><u>Planetary Science</u></p>	<p>Investigation 1, Part 2, Pages 45-48;</p> <p>Investigation 4, Part 1, Pages 120-125, Part 2, Pages 126-131,</p>

		Part 3, Pages 132-135, Readings: <i>Lunar Myths # 1-4.</i>
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S5e. Identifies problems; proposes and implements solutions; and evaluates the accuracy, design, and outcomes of investigations.

SCIENCE STANDARD <i>By the end of grade eight, students know and are able to:</i>	FOSS MODULE	PAGE NUMBER(S)
Identify problems; propose and implement solutions; and evaluate the accuracy, design, and outcomes of investigations.	<p><u>Levers and Pulleys</u></p> <p><u>Mixtures and Solutions</u></p> <p><u>Solar Energy</u></p> <p><u>Environments</u></p> <p><u>Human Brain and Senses</u></p>	<p>One feature in the FOSS Elementary Program (Levels 5 & 6) is to have students design their own investigation related to the content of the module as a culminating activity. They write up their plan and are invited to present their findings to the class. Examples include the following:</p> <p>Investigation 4, Part 3, Pages 21-25;</p> <p>Investigation 4, Part 4, Pages 25-28;</p> <p>Investigation 4, Part 4, Pages 29-33;</p> <p>Investigation 6, Part 3, Pages 18-22;</p> <p>Having students design their own investigation is common throughout the Middle School Program. One example includes: Investigation 4, Part 3, Pages 136-143;</p>

S5f. Works individually and in teams to collect and share information and ideas.

SCIENCE STANDARD <i>By the end of grade eight, students know and are able to:</i>	FOSS MODULE	PAGE NUMBER(S)
Work individually and in a team to collect and share information and ideas.		In all FOSS modules, students work in cooperative groups and employ the nature of science activity, which involves communication, reasoning, skepticism and cooperative efforts. The individual or cooperative evidence of the lesson is most easily found in the "Materials" feature of each

	<u>Earth History</u>	chapter preparation section. Investigation 1, Part 2, Pages 45-48;
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S6. Scientific Tools and Technologies

S6a. Uses technology and tools to observe and measure objects, organisms, and phenomena, directly, indirectly, and remotely.

SCIENCE STANDARD <i>By the end of grade eight, students know and are able to:</i>	FOSS MODULE	PAGE NUMBER(S)
Use technology and tools (such as traditional laboratory equipment, video, and computer aids) to observe and measure objects, organisms, and phenomena, directly, indirectly, and remotely.	<u>Planetary Science</u> <u>Earth History</u>	<p>In FOSS, technology is a vital part of the 4-8 program. In the Elementary Program (4-6) students can access the FOSS website (www.fossweb.com) which is an interactive site containing instructional games and interactive simulations that are directly linked to the modules. Students can also contact other school sites where FOSS is being used and/or can send questions to be answered by scientists. An integral component of the Middle School program is the Multimedia (video, interactive simulation) CD-ROM. It is an interactive instructional tool for use with a whole class or individual resource. The references are examples of how the CD-ROM and/or video are used:</p> <p>Investigation 5, Part 6, Pages 176-179, CD-ROM: <i>Earth Crater Location Map</i>, Video: <i>Asteroids-Deadly Impact</i>;</p> <p>Investigation 2, Part 1, Pages 60-63, CD-ROM: <i>Powell River Trip</i>, Video: <i>River Song</i>; Investigation 3, Part 3, Pages 102-108;</p> <p>“Hands-on Science” is the nature of the FOSS Modules thus, the success of the lessons is dependent on developmentally-appropriate data-gathering tools. Examples of how these are used can be found in the following references:</p>

	<u>Solar Energy</u>	Investigation 3, Part 1, Pages 8-16; Part 2, Pages 17-23;
	<u>Landforms</u>	Investigation 2, Part 1, Pages 8-15; Part 2, Pages 16-22;
	<u>Mixtures and Solutions</u>	Investigation 2, Part 1, Pages 8-15;
	<u>Electronics</u>	Investigation 2, Part 1, Pages 89-93;

S6b. Collects and analyzes data using a variety of formats.

<i>SCIENCE STANDARD</i> <i>By the end of grade eight, students know and are able to:</i>	<i>FOSS MODULE</i>	<i>PAGE NUMBER(S)</i>
Record and store data using a variety of formats, such as data bases, audiotapes, and videotapes.		

S6c. Collects and analyzes data using concepts and techniques in Mathematics Standard 4.

<i>SCIENCE STANDARD</i> <i>By the end of grade eight, students know and are able to:</i>	<i>FOSS MODULE</i>	<i>PAGE NUMBER(S)</i>
Collect and analyze data using a variety of formats, such as data bases, audiotapes, and videotapes.	<u>Weather and Water</u>	Investigation 6, Part 1; Investigation 7, Part 3; Investigation 5, Part 3;
	<u>Human Brain and Senses</u>	Investigation 9, Part 2, Pages 270-277;

S6d. Acquires information from multiple resources.

<i>SCIENCE STANDARD</i> <i>By the end of grade eight, students know and are able to:</i>	<i>FOSS MODULE</i>	<i>PAGE NUMBER(S)</i>
Acquire information from multiple source such as print the Internet, computer data bases, and experimentation.		In FOSS the sources of explanations most often come from students' observations and first-hand investigations. Some modules (Middle School Program) contain videos. All 5-6 modules and 6-8 modules have accompanying reading resources (Science Stories or Resource Manual) and opportunity to gain knowledge from either from a CD-ROM or to use the FOSS website (www.fossweb.com). Some examples of the use of

		other resources are in the following lessons:
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S6e. Recognizes sources of bias in data.

SCIENCE STANDARD <i>By the end of grade eight, students know and are able to:</i>	FOSS MODULE	PAGE NUMBER(S)
Recognize sources of bias in data, such as observer and sampling biases.		

S7. Scientific Communication

S7a. Represents data and results in multiple ways.

SCIENCE STANDARD <i>By the end of grade eight, students know and are able to:</i>	FOSS MODULE	PAGE NUMBER(S)
Represent data and results in multiple ways, such as numbers, tables, and graphs; drawings, diagrams, and artwork; and technical and creative writing.	<p><u>Levers and Pulleys</u></p> <p><u>Environments</u></p> <p><u>Solar Energy</u></p> <p><u>Electronics</u></p>	<p>The FOSS Science Program is an interactive science program where students use materials and equipment to explore science phenomena. Lessons are accompanied by <i>Student Sheets</i> in Grades 3-6 on which students respond to questions related to quantifiable data. The data-collecting format of many contains tables and graphs. Lab notebooks accompany the Middle School Program, which contain student sheets. Additionally, the 4-6 modules contain “<i>Math Extension-Problem of the Week</i>” which is an integration of the content and a mathematical application. The following lessons contain a few examples:</p> <p>Investigation 1, Part 1 Student Sheet #5 & 6, and Math Extension pg. #28; Investigation 5, Student Sheet #17 and Math Extension pg. #27</p> <p>Investigation 3, Student Sheet #16 & 17 and Math Extension pg. #34.</p> <p>Investigation 3, Student Sheet # 14 & 15; Investigation 8, Part 3, Pages 261-264;</p>

	<u>Planetary Science</u>	Investigation 5, Part 2, Pages 158-159; Part 4, Pages 168-173;
	<u>Human Brain and Senses</u>	Investigation 7, Part 3, Pages 226-230;

S7b. Argues from evidence.

<i>SCIENCE STANDARD</i> <i>By the end of grade eight, students know and are able to:</i>	<i>FOSS MODULE</i>	<i>PAGE NUMBER(S)</i>
Argue from evidence, such as data produced through his or her own experimentation or by others.	<u>Levers and Pulleys</u>	Investigation 2, Part 2, Pages 14-17;
	<u>Human Brain and Senses</u>	Investigation 9, Part 2, Pages 270-277;
	<u>Landforms</u>	Investigation 5, Part 4, Pages 27-31;
	<u>Mixtures and Solutions</u>	Investigation 4, Part 4, Pages 25-28;
	<u>Solar Energy</u>	Investigation 4, Part 4, Pages 29-33;
	<u>Environments</u>	Investigation 6, Part 3, Pages 18-22;
	<u>Food and Nutrition</u>	Investigation 4, Part 2, Pages 15-23, <i>Science Stories</i> , pg. 34 & 37;
	<u>Models and Designs</u>	Investigation 4, Part 3, Pages 16-20;

S7c. Critiques published material.

<i>SCIENCE STANDARD</i> <i>By the end of grade eight, students know and are able to:</i>	<i>FOSS MODULE</i>	<i>PAGE NUMBER(S)</i>
Critique published materials.		One feature of the FOSS program includes the print materials (<i>FOSS Science Stories</i> at levels 5 & 6 and <i>FOSS Resources Book for Middle School</i>) that compliment each module. The materials are designed to provide a variety of information and the teacher manual provides questioning strategies to help students critique the print materials.

S7d. Explains a scientific concept or procedure to other students.

SCIENCE STANDARD <i>By the end of grade eight, students know and are able to:</i>	FOSS MODULE	PAGE NUMBER(S)
Explain a scientific concept or procedure to other students.	<u>Human Brain and Senses</u> <u>Levers and Pulleys</u> <u>Electronics</u> <u>Models and Designs</u> <u>Mixtures and Solutions</u> <u>Solar Energy</u> <u>Environments</u>	Investigation 9, Part 2, Pages 270-277; Investigation 2, Part 2, Pages 14-17; Investigation 7, Part 2, Pages 226-230; Investigation 4, Part 3, Pages 16-20; Investigation 4, Part 4, Pages 25-28; Investigation 4, Part 4, Pages 29-33; Investigation 6, Part 3, Pages 18-22;

S7e. Communicates in a form suited to the purpose and the audience.

SCIENCE STANDARD <i>By the end of grade eight, students know and are able to:</i>	FOSS MODULE	PAGE NUMBER(S)
Communicate in a form suited to the purpose and audience, such as writing instructions that others can follow; critiquing written and oral explanations; and using data to resolve disagreements.	<u>Levers and Pulleys</u> <u>Mixtures and Solutions</u> <u>Levers and Pulleys</u> <u>Electronics</u> <u>Models and Designs</u>	Investigation 9, Part 2, Pages 270-277; Investigation 7, Part 2, Pages 226-230; Investigation 2, Part 2, Pages 14-17; Investigation 7, Part 2, Pages 226-230; Investigation 4, Part 3, Pages 16-20;

S8. Scientific Investigation

S8a. Demonstrate scientific competence by completing a controlled experiment.

SCIENCE STANDARD <i>By the end of grade eight, students know and are able to:</i>	FOSS MODULE	PAGE NUMBER(S)
During the course of a year, complete <i>a controlled experiment</i> .	<u>Solar Energy</u>	Investigation 3, Part 2, Pages 17-23; Investigation 4, Part 2, Pages 20-23;
	<u>Environments</u>	Investigation 2, Part 4, Pages 26-30; Investigation 3, Part 1, Pages 8-13; Investigation 5, Part 1, Pages 8-13, Part 2, Pages 14-18;
	<u>Variables</u>	This FOSS Module was designed for students to engage in scientific inquiry. They identify and control variables and conduct controlled experiments. They learn to identify the difference between independent and dependent variables and graph the relationships.
	<u>Electronics</u>	Investigation 3, Part 3, Pages 128-132;
	<u>Human Brain and Senses</u>	Investigation 9, Part 2, Pages 270-277;

S8b. Demonstrates competence by completing fieldwork.

SCIENCE STANDARD <i>By the end of grade eight, students know and are able to:</i>	FOSS MODULE	PAGE NUMBER(S)
During the course of a year, complete <i>fieldwork</i> .		

S8c. Demonstrates scientific competency by completing a design.

SCIENCE STANDARD <i>By the end of grade eight, students know and are able to:</i>	FOSS MODULE	PAGE NUMBER(S)
During the course of a year, complete <i>a design</i> .	<u>Human Brain and Senses</u>	Investigation 3, Part 2, Pages 101-105;
	<u>Electronics</u>	Investigation 2, Part 1, Pages 89-93; Investigation 7, Part 2, Pages 226-230;
	<u>Models and Designs</u>	In this module (4 folio investigations), students explore

		<p>technological design by proposing solutions and evaluating products. They create models to explain the relationship of parts in systems and build model carts that respond to a series of engineering challenges. In the final investigation, they design their own model: Investigation 4, Part 3, Pages 16-20;</p>
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S8d. Demonstrates scientific competence by completing secondary research.

<i>SCIENCE STANDARD</i> <i>By the end of grade eight, students know and are able to:</i>	<i>FOSS MODULE</i>	<i>PAGE NUMBER(S)</i>
During the course of a year, complete <i>secondary research</i> , such as use of others' data.	<u>Human Brain and Senses</u>	Investigation 9, Part 2, Pages 270-277;

FOSS Cross Reference 5-8

Earth History

Investigation 1, Part 1, Pages 34-44; Investigation 1, Part 2, Pages 45-48; Investigation 2, Part 1, Pages 60-63; Investigation 2, Part 2, Pages 64-68; Investigation 2, Part 3, Pages 69-70; Investigation 2, Part 4, Pages 71-74; Investigation 3, Part 1, Pages 88-95; Investigation 3, Part 2, Pages 96-101; Investigation 3, Part 3, Pages 102-108; Investigation 3, Part 4, Pages 109-111; Investigation 4, Part 1, Pages 127-131; Investigation 4, Part 2, Pages 132-137; Investigation 4, Part 3, Pages 138-146; Investigation 4, Part 4, Pages 147-149; Investigation 4, Part 5, Pages 150-155; Investigation 4, Part 6, Pages 156-162; Investigation 5, Part 1, Pages 175-178; Investigation 5, Part 2, Pages 179-182; Investigation 5, Part 4, Pages 188-193; Investigation 6, Part 1, Pages 205-208; Investigation 6, Part 2, Pages 209-214; Investigation 6, Part 3, Pages 215-219; Investigation 6, Part 4, Pages 220-224; Investigation 7, Part 1, Pages 234-239; Investigation 7, Part 2, Pages 240-243; Investigation 8, Part 1, Pages 254-258; Investigation 8, Part 2, Pages 259-265; Investigation 8, Part 3, Pages 266-269; Investigation 8, Part 4, Pages 270-274;

Electronics

Investigation 1, Part 1, Pages 55-60; Investigation 1, Part 2, Pages 61-65; Investigation 1, Part 3, Pages 66-70; Investigation 1, Part 4, Pages 71-75; Investigation 1, Part 5, Pages 76-79; Investigation 2, Part 1, Pages 89-93; Investigation 2, Part 2, Pages 94-98; Investigation 2, Part 3, Pages 99-103; Investigation 2, Part 4, Pages 104-107; Investigation 3, Part 1, Pages 119-123; Investigation 3, Part 2, Pages 124-127; Investigation 3, Part 3, Pages 128-132; Investigation 3, Part 4, Pages 133-135; Investigation 4, Part 1, Pages 143-148; Investigation 4, Part 2, Pages 149-151; Investigation 5, Part 1, Pages 161-165; Investigation 5, Part 2, Pages 166-170; Investigation 5, Part 3, Pages 171-174; Investigation 6, Part 1, Pages 186-189; Investigation 6, Part 2, Pages 190-194; Investigation 6, Part 3, Pages 195-200; Investigation 6, Part 4, Pages 201-208; Investigation 7, Part 1, Pages 220-225; Investigation 7, Part 2, Pages 226-230; Investigation 7, Part 3, Pages 231-237; Investigation 8, Part 1, Pages 250-255; Investigation 8, Part 2, Pages 256-260; Investigation 8, Part 3, Pages 261-264; Investigation 8, Part 4, Pages 265-271; Investigation 9, Part 1, Pages 284-289; Investigation 9, Part 2, Pages 290-297;

Environments

Investigation 1, Part 1, Pages 8-15, *Science Stories*, pg. 1; Investigation 1, Part 2, Pages 16-19, *Science Stories*, pg. 9; Investigation 2, Part 1, Pages 10-15, *Science Stories*, pg. 18; Investigation 2, Part 2, Pages 16-21; Investigation 2, Part 3, Pages 11-25, *Science Stories*, pg. 21 & 22; Investigation 2, Part 4, Pages 26-30; Investigation 3, Part 1, Pages 8-13; Investigation 3, Part 2, Pages 14-17, *Science Stories*, pg. 23; Investigation 3, Part 3, Pages 18-22; Investigation 4, Part 1, Pages 8-12, *Science Stories*, pg. 27; Investigation 4, Part 2, Pages 13-18; Investigation 4, Part 3, Pages 19-22, *Science Stories*, pg. 36; Investigation 5, Part 1, Pages 8-13, *Science Stories*, pg. 38; Investigation 5, Part 2, Pages 14-18, *Science Stories*, pg. 39; Investigation 5, Part 3, Pages 19-22, *Science Stories*, pg. 42; Investigation 6, Part 1, Pages 8-13, *Science Stories*, pg. 43; Investigation 6, Part 2, Pages 9-14; Investigation 6, Part 3, Pages 18-22;

Food and Nutrition

Investigation 1, Part 1, Pages 8-15, *Science Stories*, pg. 1; Investigation 1, Part 2, Pages 16-23, *Science Stories*, pg. 6; Investigation 2, Part 1, Pages 8-17, *Science Stories*, pg. 10; Investigation 2, Part 2, Pages 18-21, *Science Stories*, pg. 14; Investigation 2, Part 3, Pages 22-25, *Science Stories*, pg. 16; Investigation 3, Part 1, Pages 8-15, *Science Stories*, pg. 20; Investigation 3, Part 2, Pages 16-20, *Science Stories*, pg. 21; Investigation 3, Part 3, Pages 21-25, *Science Stories*, pg. 24 & 26; Investigation 4, Part 1, Pages 8-15, *Science Stories*, pg. 30; Investigation 4, Part 2, Pages 15-23, *Science Stories*, pg. 34 & 37;

Human Brain and Senses

Investigation 1, Part 1, Pages 37-40; Investigation 1, Part 2, Pages 41-47; Investigation 1, Part 3, Pages 48-54; Investigation 1, Part 4, Pages 55-59; Investigation 2, Part 1, Pages 67-72; Investigation 2, Part 2, Pages 73-76; Investigation 2, Part 3, Pages 77-83; Investigation 3, Part 1, Pages 92-100; Investigation 3, Part 2, Pages 101-105; Investigation 3, Part 3, Pages 106-110; Investigation 4, Part 1, Pages 120-128; Investigation 4, Part 2, Pages 129-135; Investigation 4, Part 3, Pages 136-143; Investigation 5, Part 1, Pages 152-160; Investigation 5, Part 2, Pages 161-164; Investigation 5, Part 3, Pages 165-168; Investigation 5, Part 4, Pages 169-175; Investigation 6, Part 1, Pages 186-192; Investigation 6, Part 2, Pages 193-196; Investigation 6, Part 3, Pages 197-203; Investigation 7, Part 1, Pages 210-218; Investigation 7, Part 2, Pages 219-225; Investigation 7, Part 3, Pages 226-230; Investigation 8, Part 1, Pages 240-245; Investigation 8, Part 2, Pages 246-252; Investigation 9, Part 1, Pages 264-269; Investigation 9, Part 2, Pages 270-277;

Landforms

Investigation 1, Part 1, Pages 8-15; Investigation 1, Part 2, Pages 16-19, *Science Stories* pg. 1&7; Investigation 1, Part 3, Pages 20-24; Investigation 2, Part 1, Pages 8-15, *Science Stories* pg. 9; Investigation 2, Part 2, Pages 16-22; Investigation 3, Part 1, Pages 8-14, *Science Stories* pg. 15; Investigation 3, Part 2, Pages 15-19; Investigation 3, Part 3, Pages 20-24; Investigation 4, Part 1, Pages 8-15, *Science Stories* pg. 22; Investigation 4, Part 2, Pages 16-20, *Science Stories* pg. 25; Investigation 4, Part 3, Pages 21-24, *Science Stories* pg. 27; Investigation 5, Part 1, Pages 8-15, *Science Stories* pg. 35; Investigation 5, Part 2, Pages 16-20, *Science Stories* pg. 37; Investigation 5, Part 3, Pages 21-26, *Science Stories* pg. 43; Investigation 5, Part 4, Pages 27-31;

Levers and Pulleys

Investigation 1, Part 1, Pages 8-17, *Science Stories* pg. 1; Investigation 1, Part 2, Pages 18-23, *Science Stories* pg. 5; Investigation 1, Part 3, Pages 23-28, *Science Stories* pg. 7; Investigation 2, Part 1, Pages 8-13; Investigation 2, Part 2, Pages 14-17, *Science Stories* pg. 10; Investigation 2, Part 3, Pages 18-22, *Science Stories* pg. 12; Investigation 2, Part 4, Pages 23-24, *Science Stories* pg. 14; Investigation 3, Part 1, Pages 8-15, *Science Stories* pg. 16; Investigation 3, Part 2, Pages 16-20, *Science Stories* pg. 19; Investigation 3, Part 3, Pages 21-24, *Science Stories* pg. 21; Investigation 4, Part 1, Pages 8-13, *Science Stories* pg. 23; Investigation 4, Part 2, Pages 14-20, *Science Stories* pg. 26; Investigation 4, Part 3, Pages 21-25, *Science Stories* pg. 28;

Mixtures and Solutions

Investigation 1, Part 1, Pages 8-15; Investigation 1, Part 2, Pages 16-20, *Science Stories* pg. 1; Investigation 1, Part 3, Pages 21-24, *Science Stories* pg. 7; Investigation 1, Part 4, Pages 25-29; Investigation 2, Part 1, Pages 8-15, *Science Stories* pg. 11; Investigation 2, Part 2, Pages 16-20, *Science Stories* pg. 14; Investigation 2, Part 3, Pages 21-25; Investigation 2, Part 4, Pages 26-28; Investigation 3, Part 1, Pages 8-14; Investigation 3, Part 2, Pages 15-20, *Science Stories* pg. 16; Investigation 3, Part 3, Pages 21-24, *Science Stories* pg. 18; Investigation 4, Part 1, Pages 8-15, *Science Stories* pg. 21; Investigation 4, Part 2, Pages 16-19, *Science Stories* pgs. 23 & 26; Investigation 4, Part 3, Pages 20-24, *Science Stories* pg. 31; Investigation 4, Part 4, Pages 25-28;

Models and Design

Investigation 1, Part 1, Pages 8-17, *Science Stories*, pg. 1; Investigation 1, Part 2, Pages 18-21, *Science Stories*, pg. 5; Investigation 1, Part 3, Pages 22-25, *Science Stories*, pg. 11; Investigation 2, Part 1, Pages 8-16, *Science Stories*, pg. 17; Investigation 2, Part 2, Pages 17-21, *Science Stories*, pg. 21; Investigation 2, Part 3, Pages 22-24; Investigation 3, Part 1, Pages 8-12, *Science Stories*, pg. 25; Investigation 3, Part 2, Pages 13-19, *Science Stories*, pg. 29; Investigation 3, Part 3, Pages 20-23, *Science Stories*, pg. 33; Investigation 4, Part 1, Pages 6-10, *Science Stories*, pg. 37; Investigation 4, Part 2, Pages 11-15; Investigation 4, Part 3, Pages 16-20;

Planetary Science

Investigation 1, Part 1, Pages 38-41; Investigation 1, Part 2, Pages 43-47; Investigation 1, Part 3, Pages 48-52; Investigation 2, Part 1, Pages 64-70; Investigation 2, Part 2, Pages 71-77; Investigation 3, Part 1, Pages 89-93; Investigation 3, Part 2, Pages 94-98; Investigation 3, Part 3, Pages 99-103; Investigation 3, Part 4, Pages 104-109; Investigation 4, Part 1, Pages 120-125; Investigation 4, Part 2, Pages 126-131; Investigation 4, Part 3, Pages 132-135; Investigation 4, Part 4, Pages 136-140; Investigation 5, Part 1, Pages 154-157; Investigation 5, Part 2, Pages 158-159; Investigation 5, Part 3, Pages 164-169; Investigation 5, Part 4, Pages 168-173; Investigation 5, Part 5, Pages 174-175; Investigation 5, Part 6, Pages 176-179; Investigation 5, Part 7, Pages 180-182; Investigation 6, Part 1, Pages 192-196; Investigation 6, Part 2, Pages 197-200; Investigation 6, Part 3, Pages 201-205; Investigation 7, Part 1, Pages 218-221; Investigation 7, Part 2, Pages 222-227; Investigation 7, Part 3, Pages 228-231; Investigation 7, Part 4, Pages 232-235; Investigation 7, Part 5, Pages 236-238; Investigation 8, Part 1, Pages 250-254; Investigation 8, Part 2, Pages 255-259; Investigation 8, Part 3, Pages 260-264; Investigation 8, Part 4, Pages 265-269; Investigation 9, Part 1, Pages 283-287; Investigation 9, Part 2, Pages 288-292; Investigation 9, Part 3, Pages 293-297; Investigation 9, Part 4, Pages 298-301; Investigation 10, Part 1, Pages 312-317; Investigation 10, Part 2, Pages 318-321; Investigation 10, Part 3, Pages 322-324;

Solar Energy

Investigation 1, Part 1, Pages 8-13, *Science Stories* pg. 1 & 8; Investigation 1, Part 2, Pages 14-21, *Science Stories* pg. 10 & 12; Investigation 2, Part 1, Pages 8-15, *Science Stories* pg. 16; Investigation 2, Part 2, Pages 16-24, *Science Stories* pg. 18; Investigation 3, Part 1, Pages 8-16, *Science Stories* pg. 22; Investigation 3, Part 2, Pages 17-23, *Science Stories* pg. 25 & 26; Investigation 4, Part 1, Pages 8-19, *Science Stories* pg. 28 & 31; Investigation 4, Part 2, Pages 20-23; Investigation 4, Part 3, Pages 24-28; Investigation 4, Part 4, Pages 29-33;

Variables

Investigation 1, Part 1, Pages 8-14, *Science Stories*, pg. 1; Investigation 1, Part 2, Pages 15-21; Investigation 1, Part 3, Pages 22-27, *Science Stories*, pg. 8; Investigation 2, Part 1, Pages 8-13; Investigation 2, Part 2, Pages 14-18, *Science Stories*, pg. 10; Investigation 2, Part 3, Pages 19-23, *Science Stories*, pg. 12; Investigation 3, Part 1, Pages 8-13, *Science Stories*, pg. 15 & 18; Investigation 3, Part 2, Pages 14-19, *Science Stories*, pg. 21; Investigation 3, Part 3, Pages 20-23, *Science Stories*, pg. 29; Investigation 4, Part 1, Pages 8-11; Investigation 4, Part 2, Pages 12-17, *Science Stories*, pg. 32; Investigation 4, Part 3, Pages 18-23, *Science Stories*, pg. 34; Investigation 4, Part 4, Pages 24-28;

Weather and Water

Investigation 1, Part 1; Investigation 1, Part 2; Investigation 1, Part 3; Investigation 2, Part 1; Investigation 2, Part 2; Investigation 2, Part 3; Investigation 3, Part 1; Investigation 3, Part 2; Investigation 3, Part 3; Investigation 4, Part 1; Investigation 4, Part 2; Investigation 4, Part 3; Investigation 5, Part 1; Investigation 5, Part 2; Investigation 5, Part 3; Investigation 5, Part 4; Investigation 5, Part 5; Investigation 6, Part 1; Investigation 6, Part 2; Investigation 6, Part 3; Investigation 7, Part 1; Investigation 7, Part 2; Investigation 7, Part 3;

Life Science

Environments

Food and Nutrition

Human Brain and Senses

Earth Science

Solar Energy
Landforms
Earth History
Planetary Science

Physical Science

Levers and Pulleys
Mixtures and Solutions
Electronics

Scientific Reasoning and Technology

Models and Designs
Variables