



FOSS Full Option Science System
(FOSS™)
Grades 4 and 8

CORRELATION WITH

WISCONSIN

FRAMEWORK/PERFORMANCE
STANDARDS FOR SCIENCE



Correlation
of the
**Wisconsin Framework/Performance
Standards for Science**
with the
**FULL OPTION SCIENCE SYSTEM
(FOSS)**

The following correlation of the Indiana Wisconsin Framework/Performance Standards for Science to the Full Option Science System (FOSS) is to show representative examples of investigations and activities that address listed standards and their concepts. A citation does not reflect all of the investigations or activities from FOSS that might address a particular standard or concept.

February 2007 (5-8)
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Grade Four

A. SCIENCE CONNECTIONS

Content Standard Science Content A:

Students in Wisconsin will understand that there are unifying themes: systems, order, organization, and interactions; evidence, models, and explanations; constancy, change, and measurement; evolution, equilibrium, and energy; form and function among scientific disciplines.

The Full Option Science System program is inquiry-based. The fundamentals of scientific inquiry are imbedded in all modules. Examples of activities and investigations are listed. A citation does not reflect all of the investigations or activities from the program that might apply.

PERFORMANCE STANDARD	GRADE 4 FRAMEWORK	Examples of FOSS Investigations addressing standards:
By the end of Grade 4:	By the beginning of Grade 4:	
A.4.1 When conducting science investigations, ask and answer questions that will help decide the general areas of science being addressed.	<p>Describe the connections between and among the general domains of science; which are, physical, earth, and life science.</p> <p>Recognize and use information from the domains of science (physical, earth, and life science) to ask and answer testable questions during investigations.</p>	<p>Students make connections between physical, earth and life science as they ask and answer questions in ALL FOSS investigations. See for example:</p> <p>Wood and Paper Investigation 1, Parts 1-2, pp. 8-19</p> <p>Pebbles, Sand, and Silt Investigation 1, Parts 1-5, pp. 8-29 <u>Pebbles, Sand and Silt FOSS Science Stories</u> pp. 20-31 <u>Balance and Motion FOSS Science Stories</u> pp. 3-9</p> <p>Human Body Investigation 4, Parts 1-3, pp. 8-24</p> <p>Matter and Energy Investigation 3, Part 2, pp. 139-150</p>
A.4.2 When faced with a science-related problem, decide what evidence, models, or explanations previously studied can be used to better understand what is happening now.	<p>Compare previously studied evidence, models, or explanations with current observations to show that things change, stay the same, or follow a pattern. <i>Examples: plant growth that occurred a month ago and current plant growth; weather observations in the spring and fall...</i></p>	<p>Trees Investigation 3, Parts 1-9, pp. 10-38</p> <p>New Plants Investigation 3, Parts 2-3, pp. 14-25</p> <p>Air and Weather Investigation 4, Parts 1-3, pp. 8-24</p> <p>Balance and Motion Investigation 1, Parts 2-4, pp. 14-28</p> <p>Plants and Animals Investigation 3, Parts 2-3, pp. 128-140</p> <p>Earth Materials Investigation 3, Parts 1-2, pp.</p>

		8-19 Magnetism and Electricity Investigation 2, Part 4, pp. 26-29
A.4.3 When investigating a science-related problem, decide what data can be collected to determine the most useful explanations.	Identify and collect data which provides the best evidence that things change, stay the same, or follow a pattern.	Trees Investigation 2, Parts 1-4, p. 6-23 Investigation 3, Parts 1-9, pp. 10-38 Solids and Liquids Investigation 4, Parts 1-3, pp. 23-27 Air and Weather Investigation 4, Parts 1,3, pp. 8-11, 19-24 Plants and Animals Investigation 1, Part 2, pp. 58-62 Water Investigation 3, Parts 1-3, pp. 8-20 Ideas and Inventions Investigation 2, Parts 1-2, pp. 8-19 Sun, Moon and Stars Investigation 1, Part 2, pp. 56-64 Matter and Energy Investigation 3, Part 2, pp. 139-150
A.4.4 When studying science-related problems, decide which of the science themes are important	Identify change or lack of changes (constancy) and/or patterns that can be observed with data. <i>Examples of themes: change, constancy, patterns, evidence...</i>	Wood and Paper Investigation 4, Part 1, pp. 8-13 Air and Weather Investigation 3, Part 4, pp. 22-27 Human Body Investigation 3, Parts 1-3, pp. 8-21 Magnetism and Electricity Investigation 2, Parts 1-3, pp. 8-25 Ideas and Inventions Investigation 3, Parts 1-2, pp. 8-17 Matter and Energy Investigation 2, Part 1, pp. 93-102
A.4.5 When studying a science-related problem, decide what changes over time are occurring or have occurred.	Identify change or lack of changes (constancy) over an extended period of time. <i>Examples: temperature changes during the seasons, amount of daylight during different seasons, life cycle, growth, erosion, and changes in state between solid and liquid...</i>	Trees Investigation 3, Parts 1-9, pp. 10-38 Air and Weather Investigation 4, Parts 1-3, pp. 8-24 New Plants Investigation 1, Parts 2-3, pp. 13-30 Insects ALL, such as

		<p>Investigation 3, Parts 1-3, pp. 21-26</p> <p>Solids and Liquids Investigation 4, Parts 1-3, pp. 7-27</p> <p>Plants and Animals Investigation 3, Part 3, pp. 135-140</p> <p>Insects and Plants Investigation 1, Parts 1-3, pp. 52-75</p> <p>Measurement Investigation 4, Parts 1-2, pp. 8-17</p> <p>Earth Materials Investigation 3, Parts 1-2, pp. 8-19</p> <p>Structures of Life Investigation 2, Parts 1-3, pp. 8-22</p> <p>Sun, Moon and Stars Investigation 2, Parts 1-2, pp. 79-100</p>
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B. NATURE OF SCIENCE

Students in Wisconsin will understand that science is ongoing and inventive, and that scientific understandings have changed over time as new evidence is found.

The Full Option Science System program is inquiry-based. The fundamentals of scientific inquiry are imbedded in all modules. Examples of activities and investigations are listed. A citation does not reflect all of the investigations or activities from the program that might apply.

PERFORMANCE STANDARD	GRADE 4 FRAMEWORK	Examples of FOSS Investigations addressing standards:
<i>By the end of Grade 4:</i>	<i>By the beginning of Grade 4:</i>	
B.4.1 Use encyclopedias, source books, texts, computers, teachers, parents, other adults, journals, popular press, and various other sources, to help answer science-related questions and plan investigations.	Recognize that a variety of resources can be used to answer questions and plan investigations.	This standard is addressed with the FOSS Science Stories and FOSS web site and extensions in ALL FOSS modules, and also in end of module projects for Grades 3-4. See for example: www.fossweb.com
	Determine which resources are the most appropriate resources to use when asking testable questions and planning investigations. <i>Example, given a science-related question, list the resources necessary and appropriate to answer questions and plan investigations...</i>	<p>Air and Weather "Meteorologist Tool Kit" and Home/School Connection 2 p. 42</p> <p>Structures of Life Investigation 4, Part 4, pp. 25-29 Investigation 4, Home/School Connection p. 32</p>

		23-26
	Communicate understandings about science using timelines or simple diagrams as possible tools to show how scientific knowledge has changed over time. Examples: human understandings about the earth's shape has changed, or human understandings about the changes in the composition and configuration of the solar system...	<u>Measurement FOSS Science Stories</u> , pp. 8-9, 11-15, 21-23 Human Body FOSS Web, Movie: MRI Section <u>Human Body FOSS Science Stories</u> pp. 17-24 <u>Sun, Moon and Stars FOSS Science Resources</u> , pp. 40-43

C. SCIENCE INQUIRY

Students in Wisconsin will investigate questions using scientific methods and tools, revise their personal understanding to accommodate knowledge, and communicate these understandings to others.

The Full Option Science System program is inquiry-based. The fundamentals of scientific inquiry are imbedded in all modules. Examples of activities and investigations are listed. A citation does not reflect all of the investigations or activities from the program that might apply.

PERFORMANCE STANDARD	GRADE 4 FRAMEWORK	Examples of FOSS Investigations addressing standards:
By the end of Grade 4:	By the beginning of Grade 4:	
C.4.1 Use the vocabulary of the unifying themes to ask questions about objects, organisms, and events being studied.	<p>Ask testable questions about the natural world being studied.</p> <p>Ask testable questions that can be answered using scientific vocabulary/themes. <i>Examples: change, pattern, measurement...</i></p>	<p>Wood and Paper Investigation 2, Parts 1-4, pp. 8-23 Investigation 4, Parts 1-2, pp. 8-18 Investigation 5, Parts 1-2, pp. 8-17</p> <p>Fabric Investigation 2, Parts 1-4, pp. 7-25</p> <p>New Plants Investigation 2, Parts 1-3, pp. 8-28</p> <p>Insects Investigation 3, Parts 1-3, pp. 8-26 and timeline extension</p> <p>Measurement ALL, such as Investigation 2, Parts 1-3, pp. 8-24</p> <p>Pebbles, Sand, and Silt Investigation 4, Parts 1-3, pp. 8-25</p> <p>Plants and Animals Investigation 1, Parts 1-3, pp. 47-74</p> <p>Insects and Plants Investigation 3, Parts 1-3, pp. 129-152</p> <p>Structures of Life</p>

		<p>Investigation 1, Parts 1-3, pp. 8-33</p> <p>Ideas and Inventions Investigation 2, Parts 1-3, pp. 8-22</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>
<p>C.4.2 Use the science content being learned to ask questions, plan investigations, make observations, make predictions, and offer explanations.</p>	<p>Plan a simple investigation, using science content from physical, earth/space, or life/environmental science.</p> <p>Decide what observations are needed to explain the results.</p> <p>Predict the results of the investigations.</p> <p>Conduct simple investigations.</p> <p>Use evidence collected to explain results.</p>	<p>This standard is addressed in ALL FOSS investigations and projects at a developmentally appropriate level. See for example:</p> <p>Wood and Paper Investigation 1, Parts 4-5, pp. 24-32</p> <p>Animals Two by Two Investigation 4, Parts 2-3, pp. 12-19</p> <p>Solids and Liquids Investigation 4, Parts 1-3, pp. 7-27</p> <p>Insects Investigation 1, Parts 1-3, pp. 8-25</p> <p>Insects and Plants Investigation 1, Parts 1-3, pp. 52-75</p> <p>Structures of Life Investigation 1, Parts 2-3, pp. 18-33</p> <p>Measurement Investigation 3, Parts 1-3, pp. 8-21</p> <p>Earth Materials Investigation 4, Part 2, pp. 14-18</p> <p>Human Body Investigation 4, Part 4, pp. 25-29</p> <p>Water Investigation 3, pp. 27-28 Interdisciplinary Extensions, FOSS Web, Activity: Evaporation</p> <p>Matter and Energy Investigation 3, Part 2, pp. 139-150</p> <p>Magnetism and Electricity FOSS Web, Activity: Electromagnets</p> <p>Sun, Moon and Stars Investigation 3, Part 1, pp. 114-126</p>
<p>C.4.3 Select multiple</p>	<p>Select a variety of resources</p>	<p>This standard is addressed</p>

<p>sources of information to help answer questions selected for classroom investigations.</p>	<p>that best answer questions and plan investigations. Scientific resource examples: textbooks, internet, on-line and electronic resources, science speakers, reference books, peers, field trips...</p> <p>Recognize that there are multiple sources of information available to answer investigative questions. Scientific resource examples: textbooks, internet, on-line and electronic resources, science speakers, reference books, peers, field trips...</p> <p>Decide which of the resources are appropriate/credible to the investigation at hand.</p> <p>Develop a list of issues that citizens must make decisions about and describe a strategy for becoming informed about the science behind these issues to use which are not. Example: Using a comic book is probably not an excellent resource for a science investigation...</p>	<p>throughout FOSS as students use multiple resources such as investigations, reference books, peers, FOSS Science Stories, FOSS Web “Ask a Scientist” and other suggested resources to answer questions and plan investigations. See for example: www.fossweb.com “Ask a Scientist” (for all kits)</p> <p>Trees Investigation 1, Parts 1-7, pp. 7-34 including tree expert to help plant class tree, books and tree field guide in kit</p> <p>Solids and Liquids Investigation 4, Parts 1-3, pp. 7-27</p> <p>Balance and Motion Investigation 2, Parts 1-3, pp. 8-25</p> <p>Air and Weather Investigation 2, Part 2, pp. 14-19 and “Meteorologist Tool Kit”</p> <p>Earth Materials Investigation 2, Parts 1-2, pp. 8-21 Investigation 4, Part 2, pp. 14-18 <u>Earth Materials FOSS Science Stories</u> pp. 1-23</p> <p>Water Investigation 4, Parts 1-4, pp. 8-28 and extensions</p>
<p>C.4.4 Use simple equipment safely and effectively, including rulers, balances, graduated cylinders, hand lenses, thermometers, and computers, to collect data relevant to questions and investigations.</p>	<p>Select and safely use equipment relevant to a science investigation. <i>Examples: rulers, balances, graduated cylinders, hand lenses, thermometers, and computers...</i></p> <p>Collect data relevant to questions and investigations</p>	<p>This standard is addressed in ALL FOSS investigations and in the FOSS web site. See for example: www.fossweb.com (all modules)</p> <p>Trees Investigation 1, Parts 1,6-7, pp. 7-14, 28-34</p> <p>Air and Weather Investigation 2, Parts 1-4, pp. 8-27</p> <p>Pebbles, Sand, and Silt Investigation 1, Parts 1-4, pp. 8-25</p> <p>Insects Investigation 1, Parts 1-3, pp. 129-152</p> <p>Insects and Plants Investigation 3, Parts 1-3, pp. 129-152</p> <p>Measurement ALL, such as</p>

		<p>Investigation 2, Parts 1-3, pp. 8-24</p> <p>Earth Materials Investigation 1, Parts 1-2, pp. 8-23</p> <p>Human Body Investigation 4, Parts 1-3, pp. 8-24</p> <p>Water Investigation 3, Parts 1-3, pp. 8-20</p> <p>Sun, Moon and Stars Investigation 1, Part 1, pp. 42-55</p> <p>Matter and Energy Investigation 3, Parts 2-3, pp. 139-160</p>
<p>C.4.5 Use data they have collected to develop explanations and answer questions generated by investigations.</p>	<p>Interpret data (use the results of their data) to answer questions developed during their investigations.</p>	<p>This standard is addressed throughout all FOSS investigations and is very explicit in the Wrapping Up section of each lesson as well as in data sheets/ lab notebook entries. It is also addressed in end of module projects in the Grades 3-6 modules. See for example:</p> <p>Air and Weather Investigation 4, Part 1, pp. 8-11</p> <p>New Plants Investigation 2, Part 3, pp. 20-28</p> <p>Plants and Animals Investigation 1, Part 2, pp. 58-62</p> <p>Structures of Life Investigation 2, Parts 1-3, pp. 8-22</p> <p>Measurement Investigation 4, Part 3, pp. 18-23</p> <p>Magnetism and Electricity Investigation 1, Part 3, pp. 23-29</p> <p>Sun, Moon and Stars Investigation 1, Parts 1-2, pp. 42-64</p> <p>Matter and Energy Investigation 3, Parts 2-3, pp. 139-160</p>
<p>C.4.6 Communicate the results of their investigations in ways their audiences will understand by using charts, graphs, drawings, written descriptions, and various other means, to display their</p>	<p>Report the results of science investigations to different audiences (friends, teachers, and younger students) by using graphs, tables, and illustrations.</p>	<p>This standard is addressed throughout all FOSS investigations especially in class wrap-up time and data sheets/ lab notebook entries. It is also addressed in end of module projects in the Grades</p>

<p>answers.</p>		<p>3-6 modules. See for example: Wood and Paper Investigation 1, Parts 4-5, pp. 24-32 Fabric Investigation 2, Parts 1-3, pp. 7-21 Air and Weather Investigation 4, Part 1, pp. 8-11 Solids and Liquids Investigation 4, Part 1, pp. 7-16 Math Extensions 2A and 3A Plants and Animals Investigation 1, Part 3, pp. 63-74 Insects and Plants Investigation 5, Parts 1-3, pp. 206-227 Earth Materials Investigation 4, Part 1, pp. 8-13 Measurement Investigation 4, Parts 1-3, pp. 8-21 Ideas and Inventions Investigation 2, Part 2, pp. 16-19 Sun, Moon and Stars Investigation 2, Part 2, pp. 89-100 Matter and Energy Investigation 3, Parts 2-3, pp. 139-160</p>
<p>C.4.7 Support their conclusions with logical arguments.</p>	<p>State evidence from data to justify/ explain conclusions.</p>	<p>This standard is addressed throughout all FOSS investigations especially in class wrap-up time and data sheets/ lab notebook entries. See for example: Wood and Paper Investigation 1, Parts 4-5, pp. 24-32 <u>Animals Two by Two FOSS Science Stories</u> pp. 1-24 Solids and Liquids Investigation 4, Parts 1-3, pp. 7-27 Balance and Motion Investigation 1, Part 4, pp. 24-28 Plants and Animals Investigation 1, Part 2, pp. 58-62 Earth Materials Investigation 1, Parts 1-3, pp.</p>

		8-29 Investigation 3, Parts 1-2, pp. 8-19 Structures of Life Investigation 3, Parts 1-3, pp. 8-23 Water Investigation 1, Parts 1-3, pp. 8-20 Magnetism and Electricity Investigation 4, Parts 1-3, pp. 8-22 Matter and Energy Investigation 3, Parts 2-3, pp. 139-160 Sun, Moon and Stars Investigation 1, Part 2, pp. 56-64
C.4.8 Ask additional questions that might help focus or further an investigation.	After completing an investigation, develop additional questions that support new investigations about the original topic of study. <i>Example: "I wonder what would happen if..."</i>	This standard is addressed throughout all FOSS investigations especially in class wrap-up time as students and teacher record unanswered questions on the Content/Inquiry Bank (called "What We Learned" for younger students) and for Grades 3-6, good questions are put in the Project Folder for future study. See for example: Pebbles, Sand and Silt Investigation 2, Parts 1-3, pp. 8-23 Balance and Motion Investigation 3, Parts 1-3, pp. 6-25 and extensions Earth Materials Investigation 4, Parts 1-2, pp. 8-18 Structures of Life Investigation 5, Parts 1-2, pp. 8-18

D. PHYSICAL SCIENCE

Students in Wisconsin will demonstrate an understanding of the physical and chemical properties of matter, the forms and properties of energy, and the ways in which matter and energy interact.

The Full Option Science System program is inquiry-based. The fundamentals of scientific inquiry are imbedded in all modules. Examples of activities and investigations are listed. A citation does not reflect all of the investigations or activities from the program that might apply.

PERFORMANCE STANDARDS	GRADE 4 FRAMEWORK	Examples of FOSS Investigations addressing standards
<i>By the end of Grade 4:</i>	<i>By the beginning of Grade 4:</i>	

<p>D.4.1 Understand that objects are made of more than one substance, by observing, describing and measuring the properties of earth materials, including properties of size, weight, shape, color, temperature, and the ability to react with other substances.</p>	<p>Describe the properties of earth materials. <i>Examples: rocks, minerals, soils, air, water, and wood...</i></p> <p>Describe objects by the materials they are made of and by their physical properties.</p> <p>Observe that earth materials physically react with other substances in different ways based on their properties.</p>	<p>Wood and Paper Investigation 3, Parts 1-4, pp. 8-25</p> <p>Fabric Investigation 2, Parts 1-3, pp. 7-21</p> <p>Solids and Liquids Investigation 2, Parts 1-3, pp. 10-27 Investigation 3, Parts 1-4, pp. 8-27</p> <p><u>Solids and Liquids FOSS Science Stories</u>, pp. 8-23</p> <p>Air and Weather Investigation 1, Parts 1-5, pp. 8-33</p> <p>Pebbles, Sand and Silt Investigation 2, Parts 1-3, pp. 8-23 Investigation 4, Parts 1-2, pp. 8-18</p> <p><u>Pebbles, Sand and Silt FOSS Science Stories</u> pp.</p> <p>Earth Materials ALL, such as Investigation 1, Parts 1-3, pp. 8-29 Investigation 3, Parts 1-2, pp. 8-19</p> <p>Water Investigation 4, Part 1, pp. 8-13</p> <p>Physics of Sound Investigation 1, Part 1, pp. 8-15</p>
<p>D.4.2 Group and /or classify objects and substances based on the properties of earth materials.</p>	<p>Classify objects based on their observable physical properties; such as, texture, color, hardness, shape, and composition.</p>	<p>Pebbles, Sand, and Silt Investigation 1, Parts 1-3, pp. 8-21</p> <p>Solids and Liquids Investigation 1, Parts 1-2, pp. 8-20</p> <p>Earth Materials Investigation 2, Parts 1-2, pp. 8-21 Investigation 4, Part 1, pp. 8-13</p> <p>Magnetism and Electricity Investigation 1, Parts 1-3, pp. 8-29 Investigation 2, Parts 3-4, pp. 20-29</p>
<p>D.4.3 Understand that substances can exist in different states-solid, liquid, gas.</p>	<p>Know that there are three states of matter: solid, liquid, or gas. <i>Examples: Recognize that water can exist as liquid water, ice, and water vapor. Recognize that air takes up space...</i></p>	<p><u>Trees FOSS Science Stories</u> pp. 14-15</p> <p>Air and Weather Investigation 1, Parts 1-2, pp. 8-16</p> <p>Solids and Liquids Investigations 1-4 <u>Solids and Liquids FOSS</u></p>

	<p>Communicate that common substances exist either as a solid, liquid or gas.</p>	<p><u>Science Stories</u>, pp. 3-17 Water Investigation 3, Parts 1-4, pp. 8-26 <u>Water FOSS Science Stories</u>, pp. 12-17 Measurement Investigation 4, Parts 1-2, pp. 14-17 <u>Measurement FOSS Science Stories</u> pp. 21-23, 32-33 Matter and Energy Investigation 3, Part 1, pp. 139-150 <u>Matter and Energy FOSS Science Resources</u>, pp. 39-42</p>
<p>D.4.4 Observe and describe changes in form, temperature, color, speed, and direction of objects and construct explanations for changes.</p>	<p>Observe and describe physical changes in matter. <i>Example: change in size, shape, color, temperature, speed, or direction...</i></p>	<p>Wood and Paper Investigation 2, Parts 1-4, pp. 8-23 Air and Weather Investigation 3, Parts 1-4, pp. 8-27 Balance and Motion Investigation 3, Parts 1-2, pp. 6-18 Solids and Liquids Investigation 4, Part 1, pp. 7-16 Pebbles, Sand and Silt Investigation 1, Parts 1-2, pp. 8-17 Measurement Investigation 4, Part 2, pp. 14-17 Water Investigation 2, Parts 1-3, pp. 8-24 Matter and Energy Investigation 4, Part 2, pp. 181-192 <u>Matter and Energy FOSS Science Resources</u>, pp. 54-59</p>
<p>D.4.5 Construct simple models of what is happening to materials and substances undergoing change, using simple instruments or tools to aid observations and collect data.</p>	<p>Illustrate/show/model what is happening to something as it is physically changing. <i>Example: Use a simple model such as a ball rolling down a ramp as an illustration of acceleration of a car, or an ice cube melting as a model for snow melting or changing state of matter...</i></p> <p>Use appropriate simple science instruments to aid in making observations and collect data.</p>	<p>Air and Weather Investigation 3, Part 4, pp. 22-27 Balance and Motion Investigation 3, Parts 1-3, pp. 6-25 Water Investigation 2, Part 1, pp. 8-13 Investigation 4, Part 2, pp. 14-18 Human Body Investigation 3, Parts 1-3, pp. 8-21 Magnetism and Electricity Investigation 4, Parts 1-2, pp.</p>

		8-18 Investigation 5, Part 1, pp. 8-14 Physics of Sound Investigation 3, Part 1, pp. 8-14 Matter and Energy Investigation 4, Part 2, pp. 181-192 <u>Matter and Energy FOSS Science Resources</u> , pp. 54-59
D.4.6 Observe and describe physical events in objects at rest or in motion.	Compare, contrast, and explain what happens to an object at rest and an object in motion: <i>Examples: Motion does not happen if the forces are balanced. Motion occurs because of unbalanced forces (push or pull)...</i>	Wood and Paper Investigation 1, Parts 4-5, pp. 24-32 Balance and Motion Investigation 1, Parts 1-4, pp. 8-28 Investigation 3, Parts 1-3, pp. 6-25 <u>Balance and Motion FOSS Science Stories</u> pp. 3-17 Physics of Sound Investigation 3, Parts 1-2, pp. 8-19 Measurement Investigation 2, Parts 1-3, pp. 8-24 Magnetism and Electricity Investigation 1, Parts 1, 3, pp. 8-17, 23-29 Water Investigation 4, Part 2, pp. 14-18
D.4.7 Observe and describe physical events involving objects and develop record-keeping systems to follow these events by measuring and describing changes in their properties including	Describe and explain the position of an object by its position relative to another object, its motion (over time) relative to another object, and the forces acting upon it.	Balance and Motion ALL, such as Investigation 1, Part 4, pp. 24-28 Investigation 2, Parts 1-3, pp. 8-25 <u>Balance and Motion FOSS Science Stories</u> pp. 3-31
- Position relative to another object - Motion over time, and position due to forces	Devise simple record-keeping systems. <i>Examples: Use charts, graphs, or diagrams, to track physical events by measuring and describing changes in their properties, including position relative to another object, motion over time, and position due to forces...</i>	Air and Weather Investigation 2, Part 4, pp. 24-27 Investigation 3, Parts 1-4, pp. 8-27 Magnetism and Electricity Investigation 1, Part 3, pp. 23-29 Ideas and Inventions Investigation 3, Part 1, pp. 8-13 Water Investigation 4, Part 2, pp. 14-18 Measurement Investigation 2, Parts 2-3, pp. 14-24

		FOSS Web, Activity: Travel Game
D.4.8 Ask questions and make observations to discover the differences between substances that can be touched (matter) and substances that cannot be touched (forms of energy, light, heat, electricity, sound, and magnetism).	<p>Ask questions about the differences between matter (substances that can be touched) and energy.</p> <p>Describe and record observational differences between matter (substances that can be touched) and energy. (Examples: Light, heat, sound, electricity, and magnetism...)</p>	<p>Physics of Sound Investigation 2, Parts 1-3, pp. 8-24 <u>Physics of Sound FOSS Science Stories</u> pp. 22-28 “Energy”</p> <p>Magnetism and Electricity Investigation 1, Parts 1-4, pp. 8-34 Investigation 2, Parts 1-4, pp. 8-29 <u>Magnetism and Electricity FOSS Science Stories</u>, pp. 10-33</p> <p>Ideas and Inventions Investigation 4, Parts 1-3, pp. 8-21 <u>Ideas and Inventions FOSS Science Stories</u>, p. 23-31</p> <p>Water Investigation 2, Parts 1-2, pp. 8-18</p> <p>Matter and Energy Investigation 1, Parts 1-3, pp. 50-82 Investigation 2, Parts 1-2, pp. 93-115 <u>Matter and Energy FOSS Science Resources</u>, pp. 1-28</p>

E. EARTH AND SPACE SCIENCE

Students in Wisconsin will demonstrate an understanding of the structure and systems of earth and other bodies in the universe and of their interactions.

The Full Option Science System program is inquiry-based. The fundamentals of scientific inquiry are imbedded in all modules. Examples of activities and investigations are listed. A citation does not reflect all of the investigations or activities from the program that might apply.

<i>PERFORMANCE STANDARD</i> <i>By the end of Grade 4:</i>	<i>GRADE FOUR FRAMEWORK</i> <i>By the beginning of Grade 4:</i>	<i>Examples of FOSS Investigations addressing the Standards:</i>
E.4.1 Investigate that earth materials are composed of rocks and soils and correctly use the vocabulary for rocks, minerals, and soils during these investigations.	Describe the properties of earth materials. <i>Examples: Earth materials consist of rocks and soils. Rocks are made up of a combination of two or more minerals. Soil is a mixture of earth materials and can vary from place to place (e.g., clay vs. sand)...</i>	<p>Pebbles, Sand, and Silt Investigation 1, Parts 1-3, pp. 8-21 Investigation 4, Parts 1-3, pp. 8-25 <u>Pebbles, Sand and Silt FOSS Science Stories</u>, pp. 3-15, 20-25</p> <p>Earth Materials ALL Investigations 1-4 <u>Earth Materials FOSS Science Stories</u>, pp. 10-15 FOSS Web, Activity: Rock Data Base</p>

		<p>Water Investigation 4, Part 1, pp. 8-13</p>
<p>E.4.2 Show that earth materials have different physical and chemical properties, including the properties of soils found in Wisconsin.</p>	<p>Compare and contrast properties of soil including color, texture, and capacity to hold water.</p> <p>Compare and contrast properties of rocks and minerals; such as, hardness, color, texture, and appearance.</p>	<p>Pebbles, Sand, and Silt Investigation 2, Parts 1-4, pp. 8-29 Investigation 4, Parts 1-3, pp. 8-19 <u>Pebbles, Sand and Silt FOSS Science Stories</u>, pp. 20-25 Earth Materials Investigation 2, Parts 1-2, pp. 8-21 Investigation 4, Part 1, pp. 8-13 FOSS Web, Activity: Moh's Drill <u>Earth Materials FOSS Science Stories</u>, pp. 12-15, 24-33 Water Investigation 4, Part 1, pp. 8-13</p>
<p>E.4.3 Develop descriptions of the land and water masses of the earth and of Wisconsin's rocks and minerals, using common vocabulary of earth and space science.</p>	<p>Compare and contrast properties of soil including color, texture, and capacity to hold water.</p> <p>Compare and contrast properties of rocks and minerals; such as, hardness, color, texture, and appearance.</p>	<p>Pebbles, Sand, and Silt Investigation 2, Part 1, pp. 8-13 <u>Pebbles, Sand and Silt FOSS Science Stories</u>, pp. 1-13 Earth Materials Investigation 4, Part 1, pp. 8-13 <u>Earth Materials FOSS Science Stories</u>, pp. 1-7 <u>Water FOSS Science Stories</u>, pp. 1-2, 4, 5-7, 8-9 FOSS Web, Movie: Grand Canyon Rapids</p> <p>Please note that the resources cited explore general types of land and water masses. Local connections to Wisconsin need to be made with high-quality locally available maps and materials.</p>
<p>E.4.4 Identify celestial objects (stars, sun, moon, planets) in the sky, noting changes in patterns of those objects over time.</p>	<p>Identify the sun, moon, and stars in the sky, and recognize that they appear to change position in the sky over time. <i>Examples: Recognize the sun as a star. Identify that the appearance of the moon changes throughout the month. Understand that earth is one of nine or more planets in our solar system...</i></p>	<p>Air and Weather Investigation 4, Part 3, pp. 19-24 Sun, Moon and Stars Investigations 1-3, all parts <u>Sun, Moon and Stars FOSS Science Resources</u>, pp. 1-39</p> <p><u>Ideas and Inventions FOSS Science Stories</u> pp. 33-38 "Looking at the Sky"</p>

<p>E.4.5 Describe the weather commonly found in Wisconsin in terms of clouds, temperature, humidity, and forms of precipitation, and changes that occur over time, including season changes.</p>	<p>Identify both daily and seasonal weather changes in Wisconsin, noting changes in temperature, wind, precipitation, cloud cover, and sunshine.</p>	<p>Trees Investigation 3, Parts 1-9, pp. 10-38 <u>Trees FOSS Science Stories</u> pp. 14-23 Air and Weather Investigation 2, Parts 1-4, pp. 8-27 Investigation 3, Parts 2,4, pp. 12-16, 22-27 Investigation 4, Parts 1-2, pp. 8-18 <u>Air and Weather FOSS Science Stories</u>, pp.1-23 Water Investigation 3, Parts 1-3, pp. 8-20 <u>Water FOSS Science Stories</u> pp. 5-7,14-16</p>
<p>E.4.6 Using the science themes, find patterns and cycles in the earth's daily, yearly, and long-term changes.</p>	<p>Describe changes, patterns, and cycles that are observable during night/day and seasonal events on earth.</p> <p>Recognize that there are patterns in the earth's motion activities.</p>	<p>Trees Investigation 3, Parts 1-9, pp. 10-38 <u>Trees FOSS Science Stories</u> pp. 14-23 Air and Weather Investigation 4, Parts 1-3, pp. 8-23 <u>Air and Weather FOSS Science Stories</u> pp. 18-23 Water Investigation 3, Parts 1, 4, pp. 8-11, 21-26 <u>Water FOSS Science Stories</u>, pp. 5-7,14-16 FOSS Web, Picture: Water Cycle <u>Ideas and Inventions FOSS Science Stories</u> pp. 33-37 Sun, Moon and Stars Investigation 1, Parts 1-2, pp. 42-64 Investigation 2, Parts 1-2, pp. 79-100 Investigation 3, Part 1, pp. 114-125 <u>Sun, Moon and Stars FOSS Science Resources</u>, pp. 1-32</p>
<p>E.4.7 Using the science themes, describe resources used in the home, community, and nation as a whole.</p>	<p>Using the themes of form and function, models, organization, systems; identify resources (i.e., soils, rocks, minerals, and plants) that are used by humans. <i>Examples: How wood is used for building materials, how soils and plants are used for producing food and other manufactured materials, or how fossil fuels are used in the</i></p>	<p>Wood and Paper Investigation 1, Parts 1-2, pp. 8-19 Investigation 3, Parts 1-3, pp. 8-21 <u>Wood and Paper FOSS Science Stories</u> pp. 3-8,13-24 <u>Trees FOSS Science Stories</u> pp. 3-24 New Plants Investigation 2, Parts 1-3, pp.</p>

	<i>manufacturing of plastics...</i>	8-28 <u>New Plants FOSS Science Stories</u> pp. 12-21 <u>Pebbles, Sand, and Silt FOSS Science Stories</u> , pp. 20-25 <u>Earth Materials FOSS Science Stories</u> , pp. 8-15, 24-29 <u>Structures of Life FOSS Science Stories</u> pp. 2-16, 43 <u>Water FOSS Science Stories</u> , pp. 8-11, 17-23 FOSS Web, Activity: Match the Resource
E.4.8 Illustrate human resources used in mining, forestry, farming, and manufacturing in Wisconsin and elsewhere in the world.	Distinguish between natural and manufactured materials. Identify that natural resources such as soils, rocks, minerals, fossil fuels, and plants are used to make manufactured goods that people use in their daily lives.	Wood and Paper Investigation 1, Parts 1-2, pp. 8-19 Investigation 3, Parts 1-3, pp. 8-21 <u>Wood and Paper FOSS Science Stories</u> pp. 3-8, 13-24 Fabric Investigation 1, Parts 1-5, pp. 6-28 <u>Fabric FOSS Science Stories</u> pp. 3-24 <u>Pebbles, Sand, and Silt FOSS Science Stories</u> , pp. 16-25 <u>New Plants FOSS Science Stories</u> , pp. 3-7, 16-21 <u>Earth Materials FOSS Science Stories</u> , pp. 8-11, 24-29 <u>Structures of Life FOSS Science Stories</u> , pp. 4-9 <u>Matter and Energy FOSS Science Resources</u> , pp. 8-11

F. LIFE AND ENVIRONMENTAL SCIENCE

Students in Wisconsin will demonstrate an understanding of the characteristics and structures of living things, the processes of life, and how living things interact with one another and their environment.

The Full Option Science System program is inquiry-based. The fundamentals of scientific inquiry are imbedded in all modules. Examples of activities and investigations are listed. A citation does not reflect all of the investigations or activities from the program that might apply.

<i>PERFORMANCE STANDARD</i> <i>By the end of Grade 4:</i>	<i>GRADE FOUR FRAMEWORK</i> <i>By the beginning of Grade 4:</i>	<i>Examples of FOSS Investigations addressing the Standards:</i>
F.4.1 Discover how each organism meets its basic needs for water, nutrients, protection, and energy in order to survive.	Describe the basic needs of an organism. <i>Examples: energy, food, water, air, and protection...</i> Communicate (understand)	Animals Two by Two Investigation 1, Part 2, pp. 17-21 Trees Investigation 1, Parts 1-2, 7-8, pp. 7-19, 36-37 <u>Trees FOSS Science Stories</u>

	<p>that plants and animals have certain structures with specific functions that help them grow, reproduce, and survive.</p>	<p>pp. 3-5,12-13 New Plants Investigation 1, Parts 1-3, pp. 8-30 <u>New Plants FOSS Science Stories</u> pp. 3-7 Insects ALL, such as Investigation 3, Part 2, pp. 12-20 <u>Insects FOSS Science Stories</u>, pp. 8-11 Insects and Plants Investigation 1, Part 1, pp. 52-61 Investigation 3, Part 1, pp. 129-133 Investigation 4, Part 2, pp. 170-174 Plants and Animals Investigation 1, Part 1, pp. 47-57 Investigation 3, Parts 1-2, pp. 120-134 <u>Plants and Animals FOSS Science Resources</u>, pp. 3-7, 21-23 Video: How Plants Get Food Structures of Life ALL, such as Investigation 2, Part 2, pp. 14-17 <u>Structures of Life FOSS Science Stories</u>, pp. 17-19, 22-34,40-43 <u>Human Body FOSS Science Stories</u> pp. 17-20,25-29</p>
<p>F.4.2 Investigate how organisms, especially plants, respond to both internal cues (the need for water) and external cues (changes in the environment).</p>	<p>Describe how plants respond to changes in their environment.</p> <p>Observe and describe how an organism's behavior helps it to survive in a changing environment.</p> <p>Identify that animals have senses that help them to detect internal and external cues. <i>Examples: Recognize that when an animal is hungry, it eats; when it is thirsty, it drinks; when it is tired, it sleeps. Hibernation activities, the need to conserve water, or personal protection such as hiding from a predator...</i></p>	<p>Trees Investigation 3, Parts 1-9, pp. 10-38 Animals Two by Two Investigation 1, Part 2, pp. 17-21 New Plants Investigation 2, Parts 1-3, pp. 8-28 <u>New Plants FOSS Science Stories</u>, pp. 3-7, 22-39 Insects Investigation 3, Parts 2-3, pp. 12-26 Investigation 5, Part 1, pp. 10-15 <u>Insects FOSS Science Stories</u> pp. 36-41 Insects and Plants Investigation 3, Parts 2-3, pp. 124-152 Investigation 5, Part 1, pp.</p>

		<p>206-211 <u>Insects and Plants FOSS Science Resources</u>, pp. 11-13 Plants and Animals Investigation 1, Parts 1-3, pp. 47-74 <u>Plants and Animals FOSS Science Resources</u>, pp. 28, 31-32, 34, 40 Structures of Life Investigation 3, Part 2, pp. 16-19 <u>Structures of Life FOSS Science Stories</u>, pp. 22-36 <u>Human Body FOSS Science Stories</u> pp. 17-20,25-29</p>
<p>F.4.3 Illustrate the different ways that organisms grow through life stages and survive to produce new members of their type.</p>	<p>Identify that plants and animals have life cycles, which are different for each organism.</p> <p>Explain to others that offspring look very much, but not exactly, like their parents or one another.</p> <p>Explain that organisms have structures and behaviors that help them survive during each stage of their life cycle.</p> <p>Communicate to others that life stages occur in a specific order.</p>	<p>Animals Two by Two Investigation 1, Part 4, pp. 26-29 <u>Animals Two by Two FOSS Science Stories</u> pp. 3-24 <u>Trees FOSS Science Stories</u> p. 24 Insects ALL, such as Investigation 1, Parts 1-3, pp. 8-25 <u>Insects FOSS Science Stories</u>, pp. 16-33 New Plants Investigation 1, Parts 2-3, pp. 13-30 <u>New Plants FOSS Science Stories</u> pp. 12-21 Insects and Plants Investigation 1-5, all parts <u>Insects and Plants FOSS Science Resources</u>, pp. 37-55 Structures of Life Investigation 2, Parts 1-3, pp. 8-22 <u>Structures of Life FOSS Science Stories</u>, pp. 20-21, 40 FOSS Web, Activity: Life Cycles</p>
<p>F.4.4 Using the science themes, develop explanations for the connections among living and non-living things in various environments.</p>	<p>Using the themes, including systems, models, explanations, form and function, evolution, and order, to identify something as living or nonliving.</p> <p>Explain to others that some animals eat plants for food. Other animals eat animals for food. <i>Examples: food webs/food chains...</i></p> <p>Explain to others that plants</p>	<p>Animals Two by Two Investigation 3, Part 1, pp. 8-12 New Plants throughout, such as Investigation 1, Part 2, pp. 13-22 <u>New Plants FOSS Science Stories</u>, pp. 3-7, 8-11, 22-39, 40-43 Insects ALL, such as Investigation 3, Parts 1-3, pp. 8-26 Investigation 6, Parts 2-3, pp.</p>

	<p>and animals both depend on nonliving things in the environment (habitat). <i>Examples: water, air, and soil....</i></p>	<p>14-22 <u>Insects FOSS Science Stories</u> pp. 3-11 Insects and Plants Investigations 1-5, all parts <u>Insects and Plants FOSS Science Resources</u>, pp. 5-7, 26-29, Plants and Animals Investigations 1-4, all parts <u>Plants and Animals FOSS Science Resources</u>, pp. 4-7, 9-11, 16-19, 21-24, 28-45 Structures of Life ALL, such as Investigation 2, Parts 1-3, pp. 8-22 Investigation 3, Parts 2, 4, pp. 16-19, 24-30 Investigation 5, Part 1, pp. 8-12 <u>Structures of Life FOSS Science Stories</u>, pp. 3,10-16, 22-34, 41-42, 43</p>
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G. SCIENCE APPLICATIONS

Students in Wisconsin will demonstrate an understanding of the relationship between science and technology and the ways in which that relationship influences human activities.

The Full Option Science System program is inquiry-based. The fundamentals of scientific inquiry are imbedded in all modules. Examples of activities and investigations are listed. A citation does not reflect all of the investigations or activities from the program that might apply.

PERFORMANCE STANDARD	GRADE FOUR FRAMEWORK	Examples of FOSS Investigations addressing the Standards:
<i>By the end of Grade 4:</i>	<i>By the beginning of Grade 4:</i>	
<p>G.4.1 Identify the technology used by someone employed in a job or position in Wisconsin and explain how the technology helps.</p>	<p>Identify how technology helps people do their jobs in Wisconsin. <i>Examples may include robots, machines, transportation, computers, and telecommunication devices...</i></p>	<p>This standard is addressed throughout the FOSS Science Stories and on the FOSS Web Site in the “careers” section for each module. See for example:</p>
		<p>www.fossweb.com “Careers” Pebbles, Sand, and Silt Investigation 1, Part 1, pp. 8-12 and Geologist Tool Kit extension <u>Pebbles, Sand and Silt FOSS Science Stories</u>, pp. 16-19 Air and Weather Investigation 2, Parts 1-4, pp. 8-27 and “Meteorologist Tool Kit” extension <u>Air and Weather FOSS Science Stories</u>, pp. 14-15</p>

		<u>Plants and Animals FOSS Science Resources</u> , pp. 9-14 <u>Measurement FOSS Science Stories</u> pp. 14-15, 22-26 <u>Human Body FOSS Science Stories</u> , pp. 5-7, 17-24 <u>Physics of Sound FOSS Science Stories</u> , pp. 29-35
G.4.2 Discover what changes in technology have occurred in a career chosen by a parent, grandparent, or an adult friend over a long period of time.	Describe how careers have changed as technology has changed over time.	By its nature, this standard involves a local assignment. However, the FOSS Science Stories and FOSS Web Site listed in G.4.1 can form good background information as students investigate careers chosen by family members and friends, with a focus on the technology used to do their jobs.
G.4.3 Determine what science discoveries have led to changes in technologies that are being used in the workplace by someone employed locally.	Determine which science discoveries have led to changes in technologies that are being used in the workplace by someone employed locally. <i>Example: Understandings about tooth decay has led to sealants...</i>	By its nature, this standard involves a local assignment. However, the FOSS Science Stories and FOSS Web Site listed in G.4.1 and the following references can form good background information to help the students ask better-informed questions: <u>Magnetism and Electricity FOSS Science Stories</u> , pp. 28-33 <u>Water FOSS Science Stories</u> , pp. 18-19, 22-23 <u>Ideas and Inventions FOSS Science Stories</u> , pp. 1-3, 9-22
G.4.4 Identify the combinations of simple machines in a device used in the home, the workplace, or elsewhere in the community, to make or repair things, or to move goods or people.	Identify that a simple machine is something that makes work easier for humans. Identify common tools in the home, workplace, and community; identify the simple machines within the tool.	Magnetism and Electricity throughout, such as Investigation 5, Part 1, pp. 8-14 <u>Magnetism and Electricity FOSS Science Stories</u> , p. 24 FOSS Web, Movie: How a Speaker Works FOSS Web, Pictures: Dissection of Gadgets
G.4.5 Ask questions to find answers about how devices and machines were invented and produced.	Identify that technology is the result of people asking question and finding answers through science inquiry.	Ideas and Inventions Investigation 2, Science Extension, p.24 <u>Ideas and Inventions FOSS Science Stories</u> , pp. 1-3, 9-14, 17-22 <u>Measurement FOSS Science Stories</u> pp. 8-9, 11-12, 21-25 <u>Magnetism and Electricity FOSS Science Stories</u> , pp. 7-9, 12-23, 28-33

H. SCIENCE IN SOCIAL AND PERSONAL PERSPECTIVES

Students in Wisconsin will use scientific information and skills to make decisions about themselves, Wisconsin, and the world in which they live.

The Full Option Science System program is inquiry-based. The fundamentals of scientific inquiry are imbedded in all modules. Examples of activities and investigations are listed. A citation does not reflect all of the investigations or activities from the program that might apply.

PERFORMANCE STANDARD	GRADE FOUR FRAMEWORK	Examples of FOSS Investigations addressing the Standards:
<i>By the end of Grade 4:</i>	<i>By the beginning of Grade 4:</i>	
H.4.1 Describe how science and technology have helped, and in some cases hindered, progress in providing better food, more rapid information, quicker and safer transportation, and more effective health care.	List examples of how science and technology have had an impact on food quality and quantity, transportation, health, sanitation, and communication.	<u>Plants and Animals FOSS Science Resources</u> , pp. 9-13 <u>Structures of Life FOSS Science Stories</u> pp. 10-16 <u>Measurement FOSS Science Stories</u> pp. 14-18, 22-23 <u>Magnetism and Electricity FOSS Science Stories</u> , pp 12-23, 28-33 <u>Human Body FOSS Science Stories</u> , pp. 5-7, 17-20, 25-27 <u>Water FOSS Science Stories</u> , pp. 18-20, 24-26 <u>Ideas and Inventions FOSS Science Stories</u> , pp. 9, 10, 18, 21-22 <u>Matter and Energy FOSS Science Resources</u> , p. 13
H.4.2 Using the science themes, identify local and state issues that are helped by science and technology and explain how science and technology can also cause a problem.	Using the themes of change, evolution, and systems, describe the impact of science and technology on societal issues. <i>Examples: air and water pollution, and recycling...</i>	By its nature, this standard involves a <u>local assignment</u> . However, the FOSS Science Stories and extension/project ideas listed in the Grades 3-6 modules can form good background information as students investigate local and state issues involving science and technology. See for example: <u>Measurement FOSS Science Stories</u> pp. 16-17 Water Investigation 4, Part 4, pp. 24-28 <u>Water FOSS Science Stories</u> , pp. 18-20, 24-26 <u>Matter and Energy FOSS Science Resources</u> , p. 23 This standard is also introduced at a simpler level in: Wood and Paper Investigation 4, Part 1, pp. 8-13 <u>Wood and Paper FOSS Science Stories</u> pp. 19-24

<p>H.4.3 Show how science has contributed to meeting personal needs, including hygiene, nutrition, exercise, safety, and health care.</p>	<p>Show how science has contributed to the quality of personal health and safety.</p>	<p><u>Air and Weather FOSS Science Stories</u> pp. 14-17 <u>Human Body FOSS Science Stories</u>, pp. 5-7, 25-27 <u>Water FOSS Science Stories</u>, pp. 17-23, 24-26 <u>Structures of Life FOSS Science Stories</u>, pp.10-11 <u>Physics of Sound FOSS Science Stories</u>, pp. 32-35 www.fossweb.com “careers”</p>
<p>H.4.4 Develop a list of issues that citizens must make decisions about and describe a strategy for becoming informed about the science behind these issues.</p>	<p>Develop a list of issues that citizens must make decisions about and describe a strategy for becoming informed about the science behind these issues. <i>Examples: invasive species, recycling, exercise, nutrition, safety, and hygiene...</i></p>	<p>By its nature, this standard involves a <u>local assignment</u>. However, the FOSS Science Stories and extension/project ideas listed in the Grades 3-6 modules can form good background information as students develop lists of issues citizens must make decisions about. See for example: Wood and Paper Investigation 4, Part 1, pp. 8-13 <u>Wood and Paper FOSS Science Stories</u> pp. 19-24 <u>Water FOSS Science Stories</u>, pp. 17-23, 24-26 <u>Human Body FOSS Science Stories</u>, pp. 25-27</p>

Grade Eight

NOTE: This correlation contains references to FOSS modules from the Grades 5-6 section of the original K-6 FOSS program as well as modules from the FOSS Middle School Courses for Grades 6-8. All are appropriate for meeting the Grade Eight framework and performance standards.

A. SCIENCE CONNECTIONS

Students in Wisconsin will understand that there are unifying themes: systems, order, organization, and interactions; evidence, models, and explanations; constancy, change, and measurement; evolution, equilibrium, and energy; form and function among scientific disciplines.

PERFORMANCE STANDARD	GRADE EIGHT FRAMEWORK	<i>Examples of FOSS Investigations addressing the Standards:</i>
<i>By the end of Grade Eight:</i>	<i>By the beginning of Grade 8:</i>	
<p>A.8.1 Develop their understanding of the science themes by using the themes to frame questions about science-related issues and problems.</p>	<p>Through investigations routinely become involved in activities that improve the ability to use questioning and reasoning skills when investigating science-related issues and problems.</p>	<p>Environments Investigation 6, Parts 1-3, pp. 8-22</p> <p>Food and Nutrition Investigation 4, Parts 1-2, pp. 8-20</p> <p>Landforms Investigation 3, Parts 1-3, pp. 8-24</p> <p>Levers and Pulleys Investigation 4, Part 3, pp. 21-25</p> <p>Mixtures and Solutions Investigation 4, Parts 1-2, pp. 8-19</p> <p>Models and Designs Investigation 4, Parts 1-3, pp. 6-20</p> <p>Solar Energy Investigation 4, Parts 1-4, pp. 8-33</p> <p>Variables ALL, such as Investigation 3, Parts 1-3, pp. 8-23</p> <p>Living Systems Investigation 3, Part 3, pp. 136-141</p> <p>Chemical Interactions Investigation 9, Part 3, pp. 298-307</p> <p>Diversity of Life Investigation 9, Part 2, pp. 278-285</p> <p>Earth History Investigation 6, Parts 1-4, pp. 205-224</p> <p>Electronics Investigation 6, Parts 1-4, pp. 187-208</p> <p>Force and Motion</p>

		<p>Investigation 3, Parts 1-2, pp. 111-123</p> <p>Human Brain and Senses Investigation 7, Part 2, pp. 219-225</p> <p>Planetary Science Investigation 3, Parts 1-2, pp. 89-98</p> <p>Populations & Ecosystems Investigation 2 Part 1, pp. 70-75</p> <p>Weather and Water Investigation 5, Parts 1-3, pp. 152-174</p>
<p>A.8.2 Describe limitations of science systems and give reasons why specific science themes are included in or excluded from those systems.</p>	<p>Apply science themes while making connections among the earth and space, life and environmental, and physical sciences.</p>	<p>Environments Investigation 6, Parts 1-3, pp. 8-22</p> <p><u>Environments Science Stories</u> pp. 38-41, 43-45</p> <p><u>Food and Nutrition Science Stories</u> pp. 21, 34-36, 41-43</p> <p><u>Landforms Science Stories</u> pp. 13-14</p> <p><u>Mixtures & Solutions Science Stories</u> pp. 7-12, 16-17</p> <p>Models and Designs Investigation 2, Parts 1-3, pp. 8-24</p> <p><u>Models and Designs Science Stories</u> pp. 1-16</p> <p>Solar Energy Investigation 2, Parts 1-2, pp. 8-24</p> <p>Investigation 4, Parts 1-3, pp. 8-28</p> <p><u>Solar Energy Science Stories</u> pp. 12-15, 18-21, 22-25</p> <p>Variables Investigation 2, Parts 1-3, pp. 8-23</p> <p>Water Planet Investigation 3, Part 1, pp. 125-135</p> <p><u>Water Planet Science Resources</u>, pp. 42-45</p> <p>Chemical Interactions Investigation 2, Parts 1-2, pp. 70-80</p> <p>Investigation 6</p> <p><u>Chemical Interactions Resources</u> pp. 10-13, 51-53, 59-61, 76-77</p> <p>Diversity of Life Investigation 6, Parts 1-3, pp. 186-202</p> <p><u>Diversity of Life Resources</u> pp. 27-30, 36-37, 65-70</p> <p>Earth History</p>

		<p>Investigation 5, Parts 1-4, pp. 175-193 <u>Earth History Resources</u> pp. 64-67, 68-69, 83-88 <u>Electronics Resources</u> pp. 12-14 <u>Force and Motion Resources</u> pp. 67-69 Human Brain and Senses Investigation 4, Parts 1-3, pp. 120-143 <u>Human Brain and Senses Resources</u> p.33,43-44,59-62 Planetary Science Investigation 7, Parts 1-4, pp. 218-235 <u>Planetary Science Resources</u> pp. 67-70 Populations and Ecosystems Investigation 7, Part 1, pp. 210-215 <u>Populations and Ecosystems Resources</u> pp. 14-21 Weather and Water Investigation 3, Parts 1-3, pp. 93-110 <u>Weather & Water Resources</u> pp. 17-19, 22-33, 63-66</p>
<p>A.8.3 Defend explanations and models by collecting and organizing evidence that supports them and critique explanations and models by collecting and organizing evidence that conflicts with them.</p>	<p>Examine and evaluate data sets from multiple perspectives which can lead to several possible conclusions by emphasizing the themes of evidence (data), explanation, and models</p>	<p>Environments Investigation 6, Parts 1-3, pp. 8-22 Food and Nutrition Investigation 3, Parts 1-3, pp. 8-25 Landforms Investigation 3, Parts 1-2, pp. 8-19 Levers and Pulleys Investigation 1, Parts 1-3, pp. 8-28 Mixtures and Solutions Investigation 3, pp. 25-26 Math Extension 1 Models and Designs Investigation 4, p. 23, Science Extension 1 Solar Energy Investigation 3, Parts 1-2, pp. 8-24 Variables Investigation 2, Parts 1-3, pp. 8-23 Living Systems Investigation 3, Part 3, pp. 136-141</p>

		<p>Water Planet Investigation 3, Part 1, pp. 125-135</p> <p>Chemical Interactions Investigation 1, Parts 1-2, pp. 41-58</p> <p>Diversity of Life Investigation 6, Parts 1-3, pp. 186-202</p> <p>Earth History Investigation 7, Parts 1-2, pp. 234-243</p> <p>Electronics Investigation 6, Part 4, pp. 187-208</p> <p>Force and Motion Investigation 7, Parts 1-3, pp. 256-272</p> <p>Human Brain and Senses Investigation 7, Parts 1-3, pp. 210-230</p> <p>Planetary Science Investigation 5, Parts 1-4, pp. 154-173</p> <p>Populations & Ecosystems Investigation 6, Parts 1-3, pp. 142-160</p>
<p>A.8.4 Collect evidence to show that models developed as explanations for events were (and are) based on the evidence available to scientists at the time.</p>	<p>Based on historical and/or current scientific data and evidence, design a model to explain an event. <i>Examples: geocentric theory, flat earth, medical techniques, simulations; such as, wind tunnels, stream tables...</i></p>	<p>Landforms Investigation 3, Parts 1-3, pp. 8-24</p> <p>Levers and Pulleys Investigation 4, Parts 1-2, pp. 8-20</p> <p>Models and Designs Investigation 4, Parts 1-2, pp. 6-15</p> <p>Solar Energy Investigation 4 Parts 1-4, pp. 8-33</p> <p>Variables Investigation 1, Parts 1-3</p> <p>Water Planet Investigation 3, Part 2, pp. 136-144</p> <p><u>Water Planet Science Resources</u>, pp. 16-17</p> <p>Chemical Interactions Investigation 4, Part 1, pp. 122-129</p> <p>Earth History Investigation 5 Part 3, pp. 171-174</p> <p>Electronics, Investigation 2 Extending the Experience #2</p> <p>Force and Motion Investigation 7, Parts 1-3, pp. 256-272</p> <p>Human Brain and Senses</p>

		<p>Investigation 3 Part 3, pp. 106-110</p> <p>Planetary Science Investigation 7, Parts 1-5, pp. 218-237</p> <p>Weather and Water Investigation 8, Part 2, pp. 265-270</p>
<p>A.8.5 Show how models and explanations, based on systems, were changed as new evidence accumulated (the effects of constancy, evolution, change, and measurement should all be part of these explanations).</p>	<p>Emphasize the themes of change, constancy, models, explanation, evolution, change, and measurement to examine historical and current scientific thought and the nature of science using models and explanations. <i>Examples geocentric theory, flat earth, medical techniques, scientific tools...</i></p>	<p>Water Planet Investigation 1, Part 2, pp. 59-66</p> <p><u>Water Planet Science Resources</u>, pp. 16-17</p> <p><u>Mixtures and Solutions Science Stories</u> pp. 32-36</p> <p><u>Models and Designs Science Stories</u> pp. 1-16, 17-40 (includes <u>geocentric theory and scientific tools</u>)</p> <p><u>Solar Energy Science Stories</u> pp. 1-5, 29-39</p> <p><u>Variables Science Stories</u> pp. 4-5</p> <p><u>Chemical Interactions Resources</u> pp. 4-6</p> <p>Earth History Investigation 4, Parts 3-6, pp. 138-162</p> <p>Investigation 5, Parts 1-4, pp. 175-193</p> <p><u>Earth History Resources</u> pp. 73-88, 100-105</p> <p><u>Electronics Resources</u> p. 4</p> <p><u>Force and Motion Resources</u> pp. 50-52, 67-69</p> <p><u>Human Brain and Senses</u> pp. 23-24, 47-48</p> <p>Planetary Science Investigation 2, Parts 1-2, pp. 64-77</p> <p><u>Planetary Science Resources</u> pp. 47-53, 59-62, 69-70</p> <p>Populations & Ecosystems Investigation 8, Part 2, pp. 234-243</p> <p><u>Populations and Ecosystems Resources</u> pp. 46-55, 58-63</p> <p>Weather and Water Investigation 9, Part 4, pp. 315-318</p> <p><u>Weather & Water Resources</u> pp. 63-66</p>
<p>A.8.6 Use models and explanations to predict actions and events in the natural world.</p>	<p>Emphasize the themes of change, models, explanation, and systems to employ conceptual and/or physical models and explanations to</p>	<p>Environments Investigation 6, Parts 1-3, pp. 8-22</p> <p>Landforms Investigation 3, Part 2, pp.</p>

	<p>predict actions and events in the natural world. <i>Examples: Plate tectonics, succession, weather data/maps and weather events...</i></p>	<p>15-19 Levers and Pulleys Investigation 4, Parts 1-3, pp. 8-25 Mixtures and Solutions Investigation 4, Parts 1-3, pp. 8-24 Models and Designs Investigation 3, Parts 1-3, pp. 8-23 Solar Energy Investigation 3, Parts 1-2, pp. 8-24 Water Planet Investigation 4, Part 1, pp. 184-197 <u>Water Planet Science Resources</u>, pp. 67-70 Variables Investigation 2, Parts 1-3, pp. 8-23 Chemical Interactions Investigation 4 Parts 1-3, pp. 122-141 <u>Chemical Interactions Resources</u> pp. 4-6 Earth History Investigation 4, Parts 3-6, pp. 138-162 <u>Earth History Resources</u> pp. 100-105 <u>Electronics Resources</u> pp. 4, 30-33 Force and Motion Investigation 5, Part 4, pp. 193-201 Human Brain and Senses Investigation 3, Parts 1-3, pp. 92-110 <u>Human Brain and Senses</u> pp. 23-24 Planetary Science Investigation 2, Parts 1-2, pp. 64-77 Investigation 5, Parts 1-4, pp. 154-173 Populations & Ecosystems Investigation 5, Part 4, pp. 161-169 Investigation 6, Parts 1-3, pp. 179-197 <u>Populations and Ecosystems Resources</u> pp. 46-55 Weather and Water Investigation 9, Part 4, pp. 315-318 <u>Weather & Water Resources</u> pp. 63-66</p>
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<p>A.8.7 Design real or thought investigations to test the usefulness and limitations of a model.</p>	<p>Design, assess, and evaluate scientific models through group discussions.</p>	<p>Environments Investigation 3, Parts 1-3, pp. 8-22</p> <p>Landforms Investigation 1, Parts 1-2, pp. 8-19</p> <p>Levers and Pulleys Investigation 1, Parts 1-3, pp. 8-28</p> <p>Models and Designs ALL. such as Investigation 1, Parts 1-3, pp. 8-25</p> <p>Solar Energy Investigation 4, Parts 1-3, pp. 8-28</p> <p>Water Planet Investigation 1, Part 2, pp. 59-66</p> <p>Chemical Interactions Investigation 4, Parts 1-3, pp. 122-141</p> <p>Earth History Investigation 4, Part 3, pp. 138-146</p> <p>Force and Motion Investigation 5, Part 4, pp. 193-201</p> <p>Human Brain and Senses Investigation 3, Parts 1-3, pp. 92-110</p> <p>Planetary Science Investigation 5, Parts 1-4, pp. 154-173</p>
<p>A.8.8 Use the themes of evolution, equilibrium, and energy to predict future events or changes in the natural world.</p>	<p>Make connections among earth and space, life and environmental, and physical sciences through the unifying themes of change, evolution, equilibrium, and energy in the natural world in order to predict future events. <i>Examples: Investigate and predict what evolutionary changes might occur if our sun completed its life cycle; examine smaller systems such as unbalanced forces on a see-saw or coiled spring; study the elimination of one component in a food chain or web and examine its impacts...</i></p>	<p>Environments Investigation 4, Parts 1-3, pp. 8-22</p> <p>Landforms Investigation 3, Parts 1-2, pp. 8-19</p> <p>Solar Energy Investigation 4, Parts 1-3, pp. 8-28</p> <p>Water Planet Investigation 4, Part 2, pp. 198-203</p> <p><u>Water Planet Science Resources</u>, pp. 71-79</p> <p>Chemical Interactions Investigation 7, Parts 1-4, pp. 204-228</p> <p>Diversity of Life Investigation 6, Parts 1-3, pp. 186-202</p> <p>Earth History Investigation 4, Parts 3-4, pp. 138-149</p> <p>Force and Motion</p>

		Investigation 8, Part 2, pp. 294-301 Planetary Science Investigation 9 Parts, 1-4, pp. 283-301 Populations and Ecosystems Investigation 4, Parts 1-2, pp. 119-129 Weather and Water Investigation 4, Parts 1-2, pp. 121-139 <u>Weather and Water Resources</u> pp. 63-66
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B. NATURE OF SCIENCE

Students in Wisconsin will understand that science is ongoing and inventive, and that scientific understandings have changed over time as new evidence is found.

<i>PERFORMANCE STANDARD</i>	<i>GRADE EIGHT FRAMEWORK</i>	<i>Examples of FOSS Investigations addressing the Standards:</i>
<i>By the end of Grade 8:</i>	<i>By the beginning of Grade 8:</i>	
B.8.1 Describe how scientific knowledge and concepts have changed over time in the earth and space, life and environmental, and physical sciences.	<p>Relate historical perspectives to one or more major science concepts. <i>Examples: Models of solar system, evolution, cell theory, germ theory and disease, genetics...</i></p> <p>Show how the work of scientists has changed throughout history. <i>Examples: alchemy - modern chemistry; Galileo's telescope - Hubble telescope, space travel...</i></p>	<u>Environments FOSS Science Stories</u> , pp. 43-45 <u>Mixtures and Solutions FOSS Science Stories</u> , pp. 32-36 <u>Models and Designs FOSS Science Stories</u> pp. 1-16 <u>Variables FOSS Science Stories</u> , pp. 4-5 <u>Chemical Interactions Resources</u> , pp. 69-72 <u>Diversity of Life</u> , p. 65 <u>Earth History Resources</u> , pp. 83-88 <u>Force and Motion Resources</u> , pp. 50-52 <u>Human Brain and Senses Resources</u> , pp. 23-24, 47-49 <u>Planetary Science Resources</u> , pp. 52-53, 90--96 Populations and Ecosystems Investigation 9, Parts 1-2, pp. 262-273 <u>Populations and Ecosystems Resources</u> , pp. 46-55
B.8.2 Identify and describe major changes that have occurred in conceptual models and explanations in the earth and space, life and environmental, and physical sciences and identify the people, cultures, and conditions that led to these developments.	Regularly incorporate multicultural historical events that have contributed to the development of science over time.	<u>Food and Nutrition FOSS Science Stories</u> , pp. 21, 24-26 <u>Landforms FOSS Science Stories</u> , pp. 7-8, 11-12 <u>Levers and Pulleys FOSS Science Stories</u> , p. 4 <u>Mixtures and Solutions FOSS Science Stories</u> , pp. 29-36 <u>Models and Designs FOSS Science Stories</u> , pp. 5-10 <u>Water Planet Science Resources</u> , pp. 18-19

		<p><u>Solar Energy FOSS Science Stories</u> pp. 6, 32-34 <u>Variables FOSS Science Stories</u>, pp. 4-9, 21-28, 32 <u>Chemical Interactions Resources</u>, pp. 3-8, 69-72, 78-85 <u>Earth History Resources</u>, pp. 83-88 <u>Electronics Resources</u>, p. 10 <u>Force and Motion Resources</u>, pp. 50-52, 62-66 <u>Human Brain and Senses Resources</u>, pp. 47-48 Planetary Science Investigation 2, Parts 1-2, pp. 64-77 <u>Planetary Science Resources</u>, pp. 59-62 <u>Populations and Ecosystems Resources</u>, pp. 46-55 <u>Weather and Water Resources</u>, pp. 55, 67-68</p>
<p>B.8.3 Explain how the general rules of science apply to the development and use of evidence in science investigations, model-making, and applications.</p>	<p>Distinguish between common and scientific use of the word theory.</p> <p>Study how evidence and peer review are hallmarks of scientific thought.</p> <p>Discuss the development of a scientific theory as an explanation that has been robustly tested and supported through several lines of evidence.</p> <p>Explain the use of evidence and peer review in establishing scientific thought.</p> <p>Recognize that a hypothesis is a prediction based on previous information.</p> <p>Explain ways to make a scientific investigation valid. Examples: the use of multiple trials, control, one independent variable, dependent variable, and constants...</p>	<p>Environments Investigation 6, Parts 1-2, pp. 8-17 Food and Nutrition Investigation 2, Parts 1-3, pp. 8-25 <u>Food and Nutrition FOSS Science Stories</u>, pp. 24-25, 34-6 Landforms Investigation 3, Parts 1-2, pp. 8-19 Models and Designs ALL, such as Investigation 1, Parts 1-3, pp. 8-23 <u>Models and Designs FOSS Science Stories</u> pp. 1-16 Solar Energy Investigation 2, Part 2, pp. 16-24 Water Planet Investigation 3, Part 1, pp. 125-135 Living Systems Investigation 3, Part 3, pp. 136-141 Variables ALL, such as Investigation 4, Parts 1-3, pp. 8-23 <u>Variables FOSS Science Stories</u> pp. 1-14, 34-37 Chemical Interactions Investigation 4, Parts 1-3, pp. 122-141 <u>Chemical Interactions Resources</u>, pp. 69-72</p>

		<p>Diversity of Life Investigation 6, Parts 1-3, pp. 186-202 Investigation 8, Parts 1-2, pp. 239-252</p> <p>Earth History Investigation 5, Part 3, pp. 183-187 <u>Earth History Resources</u> pp. 73-87</p> <p>Electronics Investigation 1, Parts 1-3, pp. 55-70</p> <p>Force and Motion Investigation 7, Parts 1-3, pp. 256-272 <u>Force and Motion Resources</u>, pp. 50-52</p> <p>Planetary Science Investigation 5, Parts 1-3, pp. 154-167 <u>Planetary Science Resources</u>, pp. 59-66, 67-68</p> <p>Populations and Ecosystems Investigation 6, Parts 1-3, pp. 179-197 <u>Populations and Ecosystems Resource</u>, pp. 8-13, 46-55</p> <p>Weather and Water Investigation 4, Parts 1-2, pp. 121-139</p>
<p>B.8.4 Describe types of reasoning and evidence used outside of science to draw conclusions about the natural world.</p>	<p>Show how non-scientific evidence can lead to non-scientific conclusions about the natural world. <i>Examples: fad diets, television advertisements, information read in a newspaper ad...</i></p> <p>Demonstrate how science and scientific evidence can assist with making a decision. <i>Examples: whether to recycle, selecting a location for a house...</i></p>	<p>Food and Nutrition Investigation 4, Parts 1-2, pp. 8-20 <u>Food and Nutrition FOSS Science Stories</u>, pp. 27-33, 37-40</p> <p>Landforms Investigations 2-3 <u>Models and Designs FOSS Science Stories</u>, pp. 5-9</p> <p>Living Systems Investigation 3, Part 3, pp. 136-141 <u>Variables FOSS Science Stories</u>, pp. 5-6, 34-37 <u>Earth History Resources</u>, p. 83 <u>Electronics Resources</u> pp.18-21 <u>Force and Motion Resources</u>, pp. 70-74</p> <p>Human Brain and Senses Investigation 6, Part 2, pp. 193-196</p> <p>Planetary Science Investigation 5 Parts 1-7, pp. 154-84 <u>Planetary Science Resources</u>, pp. 47-51</p>

		<p>Populations and Ecosystems Investigation 5, Parts 1-3, pp. 142-160 <u>Populations and Ecosystems Resources</u> pp. 8-13,14-16</p>
<p>B.8.5 Explain ways in which science knowledge is shared, checked, and extended, and show how these processes change over time.</p>	<p>Demonstrate how science knowledge is shared, replicated, and extended by scientists through peer review, journals, databases, and student presentations.</p>	<p><u>Mixtures and Solutions FOSS Science Stories</u>, pp. 32-36 Models and Designs Investigation 1, Parts 1-3, pp. 8-25 <u>Models and Designs FOSS Science Stories</u>, pp. 1-10, 34-36 <u>Variables FOSS Science Stories</u>, pp. 4-5 Water Planet Investigation 3, Part 1, pp. 125-135 Living Systems Investigation 2, Part 1, pp. 85-98 <u>Chemical Interactions Resources</u>, pp. 69-72 <u>Earth History Resources</u>, pp. 64-67 <u>Planetary Science Resources</u>, pp. 59-62 <u>Populations and Ecosystems Resources</u> pp. 46-61 <u>Weather and Water Resources</u>, pp. 3-4, 12-16, 38, 55-56, 67-69</p>
<p>B.8.6 Explain the ways in which scientific knowledge is useful and also limited when applied to social issues.</p>	<p>Demonstrate how science and scientific evidence can assist with making an informed decision.</p> <p>Know the limitations that are associated with using science or scientific knowledge to a real world problem or issue.</p> <p>Understand the impact on society when making a decision.</p>	<p>Environments Inv. 6, p. 23, Language Extension #2 <u>Environments FOSS Science Stories</u>, pp. 23-26, 30-37, 43-48 Food and Nutrition Investigation 4, Part 1, pp. 8-15 <u>Landforms FOSS Science Stories</u>, pp. 43-44 Models and Designs Inv. 4, p. 23, Science Extension #1 Living Systems Investigation 3, Part 3, pp. 136-141 Solar Energy Investigation 4, Parts 1-3, pp. 8-28 <u>Solar Energy FOSS Science Stories</u>, pp. 26-39 <u>Chemical Interactions Resources</u>, pp. 84-85 <u>Diversity of Life Resources</u>, pp. 65-70 <u>Earth History Resources</u>, pp. 64-67 <u>Electronics Resources</u>, pp. 18-21 Force and Motion</p>

		<p>Investigation 8, Part 2, pp. 294-301</p> <p><u>Force and Motion Resources</u>, pp. 70-74</p> <p>Planetary Science</p> <p>Investigation 7, Parts 1-4, pp. 218-235</p> <p><u>Planetary Science Resources</u>, pp. 59-66</p> <p>Populations and Ecosystems</p> <p>Investigation 7, Part 1, pp. 210-215</p> <p><u>Populations and Ecosystems Resources</u> pp. 8-11, 25-29</p> <p>Weather and Water</p> <p>Investigation 6, Parts 1-2, pp. 190-199</p> <p>Investigation 9, Parts 1-4, pp. 296-318</p> <p><u>Weather and Water Resources</u> pp. 60-63</p>
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C. SCIENCE INQUIRY

Students in Wisconsin will investigate questions using scientific methods and tools, revise their personal understanding to accommodate knowledge, and communicate these understandings to others.

<i>PERFORMANCE STANDARD</i>	<i>GRADE EIGHT FRAMEWORK</i>	<i>Examples of FOSS Investigations addressing the Standards:</i>
<i>By the end of Grade 8:</i>	<i>By the beginning of Grade 8:</i>	
C.8.1 Identify questions they can investigate using resources and equipment they have available.	<p>Identify questions that can be answered with available equipment, resources, scientific tools, logical reasoning, and/or dichotomous keys.</p> <p>Determine which is the most logical equipment to use when answering a question in science.</p> <p>Determine if the questions asked are testable.</p>	<p>This standard is addressed throughout ALL FOSS modules, both within the modules and in the end of module projects. See for example:</p> <p>Environments Investigation 6, Parts 1-3, pp. 8-22</p> <p>Mixtures and Solutions Investigation 3, Part 3, pp. 21-24</p> <p>Investigation 4, Part 4, pp. 25-28</p> <p>Variables Investigation 4, Parts 1-4, pp. 8-28</p> <p>Water Planet Investigation 3, Part 1, pp. 125-135</p> <p>Living Systems Investigation 3, Part 3, pp. 136-141</p> <p>Chemical Interactions Investigation 4, Part 1, pp. 122-129</p> <p>Diversity of Life Investigation 6, Parts 1-2, pp. 186-197</p>

		<p>Investigation 8, Parts 1-2, pp. 239-252</p> <p>Planetary Science Investigation 5, Part 3, pp. 164-167</p> <p>Weather and Water Investigation 5, Parts 1-3, pp. 152-174</p>
<p>C.8.2 Identify data and locate sources of information including their own records to answer the questions being investigated.</p>	<p>Identify sources of data.</p> <p>Determine and explain which data is the most logical data needed to answer a scientific question.</p>	<p>This standard is addressed throughout the FOSS modules, and particularly in the Resources books for FOSS Middle Schools, which intentionally have sections entitled, "Images", "Data" and "Readings". Students use the Resources books as one of their data sources along with resources on the CD-ROM and from other resources, and they must determine which data is most useful to address a particular question. See for example:</p> <p>Chemical Interactions Investigation 8, Parts 1-3, pp. 248-268 <u>Chemical Interactions Resources</u>, pp. 47, 61</p> <p>Diversity of Life Investigation 6, Parts 1-3, pp. 179-197</p> <p>Earth History Investigation 4, Part 6, pp. 156-162 <u>Earth History Resources</u> pp. 31-42</p> <p>Force and Motion Investigation 2, Parts 1-3, pp. 78-99 <u>Force and Motion Resources</u>, pp. 7-10, 17-31, 36-40</p> <p>Human Brain and Senses Investigation 4, Parts 1-3, pp. 120-143</p> <p>Planetary Science Investigation 6, Parts 1-3, pp. 192-205 <u>Planetary Science Resources</u> pp. 18-31, 35, 37-39</p> <p>Populations and Ecosystems Investigation 6, Parts 1-3, p. 186-202</p> <p>Weather and Water Investigation 3, Parts 1-3, pp. 93-110 <u>Weather and Water Resources</u> pp. 12-19</p>

		<p>See also end of module projects in ALL grades 5-6 FOSS modules, such as:</p> <p>Food and Nutrition Investigation 4, Part 2, pp. 16-20</p> <p>Landforms Investigation 5, Part 4, pp. 27-31</p> <p>Solar Energy Investigation 4, Part 4, pp. 29-33</p>
<p>C.8.3 Design and safely conduct investigations that provide reliable quantitative or qualitative data, as appropriate, to answer their questions.</p>	<p>Design an investigation that will answer a scientifically testable question.</p> <p>Conduct experiments that will generate both qualitative and quantitative data.</p> <p>Emphasize appropriate safety measures in all scientific investigations.</p>	<p>Safety is top priority in ALL FOSS investigations, and is addressed with a special section in the Overview folio of the teacher guide as well as with a safety goggle icon in the text of the lesson plans. Students design and conduct experiments throughout the Grades 5-8 FOSS modules as well as in end of module projects.</p> <p>See for example:</p> <p>Environments Investigation 5, Parts 1-2, pp. 8-18 Investigation 6, Part 3, pp. 18-22</p> <p>Mixtures and Solutions Investigation 1, Part 4, pp. 25-29</p> <p>Water Planet Investigation 3, Part 1, pp. 125-135</p> <p>Living Systems Investigation 3, Part 2, pp. 126-135</p> <p>Variables Overview, p. 17 Investigation 1, Parts 1-3, pp. 8-27 Investigation 4, Part 4, pp. 24-28</p> <p>Chemical Interactions Investigation 1, Part 2, pp. 46-58 Investigation 4, Part 1, pp. 122-129</p> <p>Diversity of Life Investigation 6, Parts 1-2, pp. 186-197 Investigation 8, Parts 1-2, pp. 239-252</p> <p>Earth History Investigation 8, Part 2, pp. 259-265</p>

		<p>Human Brain and Senses Investigation 7, Part 2, pp. 219-225</p> <p>Planetary Science Investigation 5, Part 2, pp. 158-163</p> <p>Weather and Water Investigation 4, Parts 1-2, pp. 121-139</p>
<p>C.8.4 Use inferences to help decide possible results of their investigations, use observations to check their inferences.</p>	<p>Decide what the most likely results for an investigation are.</p> <p>Verify the decided results through experimentation.</p>	<p>Models and Designs Investigation 2, Parts 1-3, pp. 8-24</p> <p>Water Planet Investigation 2, Parts 2-3, pp. 86-100</p> <p>Living Systems Investigation 3, Part 3, pp. 136-141</p> <p>Solar Energy Investigation 4, Parts 1 and 2</p> <p>Chemical Interactions Investigation 1, Parts 1-2, pp. 41-58</p> <p>Diversity of Life Investigation 8, Part 2, pp. 244-252</p> <p>Earth History Investigation 5, Parts 1-4, pp. 175-193</p> <p>Electronics Investigation 1, Part 3, pp. 66-70</p> <p>Planetary Science Investigation 5, Parts 1-7, pp. 154-184</p> <p>Populations and Ecosystems Investigation 6, Parts 1-3, pp. 179-197</p> <p>Weather and Water Investigation 4, Parts 1-2, pp. 121-139</p>
<p>C.8.5 Use accepted scientific knowledge, models, and theories to explain their results and to raise further questions about their investigations.</p>	<p>Compare the results to known science concepts, models, or theories to determine the accuracy of their results.</p> <p>Raise further questions after making comparisons of experimental results to known science understandings</p>	<p>Food and Nutrition Investigation 3, Parts 1-2, pp. 8-20</p> <p>Levers and Pulleys Investigation 3, Parts 1-2, pp. 8-20</p> <p>Models and Designs Investigation 1, Parts 1-3, pp. 8-25</p> <p>Water Planet Investigation 3, Part 1, pp. 125-135</p>
		<p>Chemical Interactions Investigation 5, Parts 1-3, pp. 153-171</p> <p>Planetary Science Investigation 3, Parts 1-2, pp.</p>

		89-103 Populations and Ecosystems Investigation 9, Parts 1-4, pp. 262-291 Weather and Water Investigation 4, Parts 1-2, pp. 121-139
C.8.6 State what they have learned from investigations, relating their inferences to scientific knowledge and to data they have collected.	Explain the results of an investigation to others using multiple forms of communication such as oral presentation or written report. Use collected data to support and explain scientific inferences. Explain their results by using the scientific concepts being learned.	This standard is addressed throughout ALL FOSS investigations as students discuss their findings in the “Wrapping Up” session at the end of each part, as well as on students/response sheets. It is also addressed in student oral presentations, a suggested end of module project. See for example: Environments Investigation 3, Part 3, pp. 18-22 Landforms Investigation 3, Parts 2-3, pp. 15-24 Investigation 5, Part 4, pp. 27-31 Mixtures and Solutions Investigation 3, Parts 1-3, pp. 8-24 Investigation 4, Part 4, pp. 25-28 Water Planet Investigation 3, Part 1, pp. 125-135 Living Systems Investigation 2, Part 1, pp. 85-98 Solar Energy Investigation 4, Parts 1-3, pp. 8-28 Chemical Interactions Investigation 7, Parts 1-5, pp. 204-234 Diversity of Life Investigation 9, Parts 1-3, pp. 273-289 Earth History Investigation 7, Part 2, pp. 241-243 Electronics Investigation 1, Part 2, pp. 61-65 Force and Motion Investigation 7, Part 3, pp. 256-272 Human Brain and Senses Investigation 4, Part 1, pp. 120-128

		<p>Planetary Science Investigation 10, Parts 2-3, pp. 318-324</p> <p>Populations and Ecosystems Investigation 7, Part 1, pp. 210-215</p> <p>Weather and Water Investigation 5, Parts 1-3, pp. 152-174</p>
<p>C.8.7 Explain their data and conclusions in ways that allow an audience to understand the questions they selected for investigation and the answers they have developed.</p>	<p>Communicate the results to others, and communicate the results in ways others can understand. <i>Examples: understandable data, quantitative summary, clear presentation, use of visual aids...</i></p> <p>Routinely incorporate and discuss the use of appropriate graphical representations of data.</p>	<p>This standard is addressed throughout ALL FOSS as students communicate their results orally, as well as on data sheets and lab notebooks, which frequently incorporate graphs and tables. It is also addressed when students include an oral presentation for projects. See for example:</p> <p>Environments Investigation 5, Part 2, pp. 14-18</p> <p>Food and Nutrition Investigation 4, Part 2, pp. 16-20</p> <p>Landforms Investigation 5, Part 4, pp. 27-31</p> <p>Levers and Pulleys Investigation 4, Part 3, pp. 21-25</p> <p>Mixtures and Solutions Investigation 4, Part 4, pp. 25-28</p> <p>Water Planet Investigation 3, Part 1, pp. 125-135</p> <p>Living Systems Investigation 3, Part 3, pp. 136-141</p> <p>Models and Designs Investigation 4, Part 3, pp. 16-20</p> <p>Solar Energy Investigation 4, Part 4, pp. 29-33</p> <p>Variables Investigation 1, Parts 2-3, pp. 16-27</p> <p>Chemical Interaction Investigation 10, Part 1, pp. 323-329</p> <p>Diversity of Life Investigation 9, Part 3, pp. 286-289</p> <p>Earth History Investigation 8, Part 4, pp. 271-274</p>

		<p>Electronics Investigation 3, Part 4, pp. 128-132</p> <p>Force and Motion Investigation 6, Parts 1-4, pp. 218-251</p> <p>Human Brain and Senses Investigation 9, Part 2, pp. 270-275</p> <p>Planetary Science Investigation 8, Part 3, pp. 260-264</p> <p>Populations and Ecosystems Investigation 7, Part 1, pp. 210-215</p> <p>Weather and Water Investigation 4, Part 2, pp. 131-139</p>
C.8.8 Use computer software and other technologies to organize, process, and present their data.	Use equipment and/or computer software for their data that allows the students to present logical and reasoned results to others; equipment may include computers, probeware, microscope, or telescope.	<p>FOSS Web and CD's included in EVERY FOSS Middle School module (an integral part of the FOSS middle school courses) encourage use of computers to collect, organize, process, and present data. See for example: www.fossweb.com</p> <p>Chemical Interactions Investigation 2, Parts 1-2, pp. 70-80</p> <p>Diversity of Life Investigation 3, Parts 1-3</p> <p>Earth History Investigation 8, Parts 1-3, pp. 254-270</p> <p>Force and Motion Investigation 3, Part 1, pp. 111-118 Investigation 5, Parts 1-4, pp. 169-201</p> <p>Populations and Ecosystems Investigation 7, pp. 210-215 "Ecoscenarios"</p> <p>Weather and Water Investigation 1, Part 2, pp. 48-53</p>
C.8.9 Evaluate, explain, and defend the validity of questions, hypotheses, and conclusions to their investigations.	Using collected data, defend the validity of the experimental design and results.	<p>Environments Investigation 6, Part 2, pp. 14-17</p> <p>Mixtures and Solutions Investigation 3, Part 3, pp. 21-24</p> <p>Models and Designs ALL, such as Investigation 2, Parts 1-3, pp. 8-24 Investigation 4, Parts 1-3, pp. 6-20</p> <p>Water Planet</p>

		<p>Investigation 2, Parts 1-3, pp. 80-100</p> <p>Living Systems Investigation 3, Part 3, pp. 136-141</p> <p>Chemical Interactions Investigation 1, Parts 1-2, pp. 41-58</p> <p>Diversity of Life Investigation 6, Parts 1-2, pp. 179-190 Investigation 8, Parts 1-2, pp. 228-243</p> <p>Earth History Investigation 4, Part 3, pp. 138-146</p> <p>Electronics Investigation 6, Part 4, pp. 201-208</p> <p>Force and Motion Investigation 3, Parts 1-3, pp. 111-127</p> <p>Human Brain and Senses Investigation 7, Parts 1-2, pp. 210-225</p> <p>Planetary Science Investigation 5, Part 3, pp. 164-167</p> <p>Populations and Ecosystems Investigation 6, Parts 1-3, pp. 179-197</p> <p>Weather and Water Investigation 6, Part 1, pp. 190-193</p>
<p>C.8.10 Discuss the importance of their results and implications of their work with peers, teachers, and other adults.</p>	<p>Regularly discuss the results and implications of an investigation within the classroom with peers, teachers, and other adults.</p> <p>Verify the accuracy of the science concepts being presented.</p>	<p>This standard is addressed throughout ALL FOSS investigations as students discuss their experimentation in the “Wrapping Up” session at the end of each lesson, including the use of data sheets, Response Sheets, and lab notebooks. See for example:</p> <p>Environments Investigation 5, Part 2, pp. 14-18</p> <p>Food and Nutrition Investigation 4, Part 2, pp. 16-20</p> <p>Landforms Investigation 3, Parts 1-2, pp. 8-19</p> <p>Water Planet Investigation 3, Part 1, pp. 125-135</p> <p>Living Systems Investigation 2, Part 1, pp. 85-</p>

		<p>98</p> <p>Chemical Interactions Investigation 4, Parts 1-2, pp. 122-138</p> <p>Diversity of Life Investigation 1, Parts 1-2, pp. 43-63</p> <p>Earth History Investigation 5, Parts 1-4, pp. 175-193</p> <p>Electronics Investigation 9, Part 2, pp. 290-297</p> <p>Force and Motion Investigation 2, Parts 1-3, pp. 78-99</p> <p>Human Brain and Senses Investigation 7, Part 3, p. 226-230</p> <p>Planetary Science Investigation 5, Part 7, pp. 180-184 Investigation 7, Part 4, pp. 232-235</p> <p>Populations and Ecosystems Investigation 7, pp. 210-215</p> <p>Weather and Water Investigation 6, Part 1, pp. 190-193</p>
<p>C.8.11 Raise further questions which still need to be answered.</p>	<p>Generate new questions about existing experiments that reflect upon new science understandings.</p>	<p>This standard is addressed throughout all FOSS investigations especially in class wrap-up time as students and teacher record unanswered questions on the Content/Inquiry Bank. Good questions are also put in the Project Folder for possible future study.</p> <p>See for example:</p> <p>Landforms Investigation 3, Part 3, pp. 20-24</p> <p>Living Systems Investigation 3, Part 3, pp. 136-141</p> <p>Models and Designs Investigation 1, Parts 2-3, pp. 18-25</p> <p>Variables Investigation 3, Part 3, pp. 20-23 Investigation 4, Part 4, pp. 24-28</p> <p>Diversity of Life Investigation 9, Part 2, pp. 278-285</p> <p>Earth History</p>

		Investigation 2, Parts 3-4, pp. 68-74 Planetary Science Investigation 5, Part 3, pp. 164-167 Weather and Water Investigation 1, Part 1, pp. 43-47
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D. PHYSICAL SCIENCE

Students in Wisconsin will demonstrate an understanding of the physical and chemical properties of matter, the forms and properties of energy, and the ways in which matter and energy interact.

<i>PERFORMANCE STANDARD</i> <i>By the end of Grade 8:</i>	<i>GRADE EIGHT FRAMEWORK</i> <i>By the beginning of Grade 8:</i>	<i>Examples of FOSS Investigations</i> <i>addressing the Standards:</i>
D.8.1 Observe, describe, and measure physical and chemical properties of elements and other substances to identify and group them according to properties such as density, melting points, boiling points, conductivity, magnetic attraction, solubility, and reactions to common physical and chemical tests.	Observe chemical and physical properties of a substance. Measure chemical and physical properties of a substance. Classify substances using chemical and physical properties. <i>Examples: density, melting points, boiling points, conductivity, magnetic attraction, and solubility...</i> Differentiate between chemical and physical properties based on observation of physical and chemical changes.	Mixtures and Solutions ALL, such as Investigation 1, Parts 1-3, pp. 8-24 Investigation 4, Parts 1-3, pp. 8-24 Food and Nutrition Investigation 2, Parts 1-3, pp. 8-25 Solar Energy Investigation 2, Part 2, pp. 16-24 Chemical Interactions ALL, such as Investigation 3, Parts 1-3, pp. 92-113 Investigation 7, Parts 1-5, pp. 204-234 Earth History Investigation 5, Parts 1-2, pp. 175-182 Investigation 8, Part 3, pp. 266-270 Electronics Investigation 2, Parts 1-4, pp. 89-107 Planetary Science Investigation 8, Parts 3-4, pp. 260-270 Weather and Water Investigation 4, Parts 1-2, pp. 121-139
D.8.2 Use the major ideas of atomic theory and molecular theory to describe physical and chemical interactions among substances, including solids, liquids and gases.	Explain that all matter is composed of atoms. Describe that matter is in constant motion. Explain that changes of state are related to energy changes.	Mixtures and Solutions Investigation 4, Parts 1-3, pp. 8-24 <u>Mixtures and Solutions FOSS Science Stories</u> , pp. 3-6, 11-12, 25-28, 32-36 Water Planet Investigation 3, Part 2, pp. 136-144

		<p><u>Water Planet FOSS Science Resources</u>, pp. 26-37, 46-51</p> <p>Chemical Interactions Investigation 3, Parts 1-3, pp. 92-113 Investigation 4, Parts 1-3, pp. 122-141 Investigation 7, Parts 1-5, pp. 204-234 Investigation 9, Parts 1-4, pp. 280-312</p> <p><u>Chemical Interactions Resources</u>, pp. 3-27, 32-37, 42-48, 63-68</p> <p><u>Electronics Resources</u>, pp. 6-7, 26</p> <p>Weather and Water Investigation 4, Parts 1-2, pp. 121-139 <u>Weather and Water Resources</u> pp. 22-26</p>
<p>D.8.3 Understand how chemical interactions and behaviors lead to new substances with different properties.</p>	<p>Investigate common chemical reactions emphasizing the differing properties of reactants and products. <i>Examples of reactions: acid/base, oxidation, or combustion...</i></p>	<p>Food and Nutrition Investigation 2, Parts 1-2, pp. 8-21 <u>Food and Nutrition FOSS Science Stories</u>, pp. 41-43</p> <p>Mixtures and Solutions Investigation 4, Parts 1-3, pp. 8-24 <u>Mixtures and Solutions FOSS Science Stories</u>, pp. 23-24, 25-28</p> <p>Chemical Interactions Investigation 9, Parts 1-4, pp. 280-312 Investigation 10, Parts 1-2, pp. 323-336 <u>Chemical Interactions Resources</u>, pp. 63-68, 73-77 <u>Populations and Ecosystems Resources</u>, pp 14-16</p>
<p>D.8.4 While conducting investigations, use the science themes to develop explanations of physical and chemical interactions and energy exchanges.</p>	<p>Conduct investigations and apply science themes to explain physical and chemical changes. <i>Examples: rusting – change, balancing reactions – constancy...</i></p>	<p>Food and Nutrition Investigation 3, Parts 2-3, pp. 16-25 <u>Food and Nutrition FOSS Science Stories</u>, pp. 41-43</p> <p>Mixtures and Solutions Investigation 2, Parts 2-4, pp. 16-28</p> <p>Solar Energy Investigation 3, Parts 1-2, pp. 8-23 Investigation 4, Parts 1-4, pp. 8-33</p> <p>Water Planet Investigation 2, Parts 1-4, pp. 80-110 <u>Water Planet FOSS Science Resources</u>, pp. 26-30, 33-37</p>

		<p>Chemical Interactions Investigation 10, Part 2, pp. 330-336 <u>Chemical Interactions Resources</u>, pp. 32-37 <u>Diversity of Life Resources</u>, pp. 28, 36-37 <u>Electronics Resources</u>, pp. 12-3</p> <p>Weather and Water Investigation 4, Parts 1-2, pp. 121-139 <u>Weather and Water Resources</u>, pp. 22-26, 53-56</p>
D.8.5 While conducting investigations, explain the motion of objects by describing the forces acting on them.	<p>Conduct investigations which study how balanced and unbalanced forces act on objects either in motion or at rest.</p>	<p>Levers and Pulleys Investigation 4, Parts 1-2, pp. 8-20</p> <p>Models and Designs Investigation 3, Parts 1-2, pp. 8-19 <u>Solar Energy FOSS Science Stories</u>, pp. 18-21</p> <p>Variables Investigation 1, Parts 1-2, pp. 8-22</p> <p>Chemical Interactions Investigation 5, Parts 1-3, pp. 153-171 <u>Chemical Interactions Resources</u>, pp. 32-37</p> <p>Force and Motion ALL, such as Investigation 4, Parts 1-3, pp. 138-155 <u>Force and Motion Resources</u>, pp. 53-69 <u>Planetary Science Resources</u>, pp. 69-70</p> <p>Weather and Water Investigation 8, Parts 1-4, pp. 258-279 <u>Weather and Water Resources</u>, pp. 22-26, 53-56</p>
D.8.6 While conducting investigations, explain the motion of objects using concepts of speed, velocity, acceleration, friction, momentum, and changes over time, among others, and apply these concepts and explanations to real-life situations outside the classroom.	<p>Demonstrate a conceptual understanding of motion by conducting investigations of speed, velocity, acceleration, friction, and momentum.</p> <p>Investigate speed and velocity through their graphical representations and mathematical relationships.</p> <p>Apply these concepts to real-life situations.</p>	<p>Levers and Pulleys Investigation 4, Parts 1-2, pp. 8-20</p> <p>Models and Designs Investigation 3, Parts 1-3, pp. 8-23</p> <p>Variables Investigation 3, Parts 1-3, pp. 8-23</p> <p>Force and Motion ALL, such as Investigation 2, Parts 1-3, pp. 78-99 Investigation 5, Parts 1-4, pp. 169-201 <u>Force and Motion Resources</u>,</p>

<p>D.8.7 While conducting investigation of common physical and chemical interactions occurring in the laboratory and the outside world, use commonly accepted definitions of energy and the idea of energy conservation.</p>	<p>Describe kinetic and potential energy.</p> <p>Explain what happens to an object as the object's energy changes from potential and kinetic energy and vice versa.</p> <p>Understand that energy can neither be created nor destroyed; it is transformed among heat, light, sound, mechanical, chemical, nuclear, and electrical energy.</p>	<p>pp. 17-1927-31, 32-40</p> <p><u>Food and Nutrition FOSS Science Stories</u>, pp. 41-43</p> <p>Solar Energy Investigation 2, Parts 1-2, pp. 8-24</p> <p><u>Solar Energy FOSS Science Stories</u>, pp. 1-3, 29-39</p> <p>Chemical Interactions Investigation 5, Parts 1-3, pp. 153-171</p> <p><u>Chemical Interactions Resources</u>, pp. 24-27, 32-37</p> <p><u>Diversity of Life Resources</u>, pp. 28, 36-37</p> <p>Electronics Investigation 1, Part 1, pp. 55-60</p> <p><u>Electronics Resources</u>, pp. 1-2, 12-13</p> <p>Force and Motion ALL, such as Investigation 8, Parts 1-2, pp. 284-301</p> <p>Populations and Ecosystems Investigation 5, Parts 1-4</p> <p><u>Populations and Ecosystems Resources</u>, pp. 17, 19-21</p> <p>Weather and Water Investigation 4, Parts 1-2, pp. 121-139</p> <p><u>Weather and Water Resources</u>, pp. 22-26</p>
<p>D.8.8 Describe and investigate the properties of light, heat, gravity, radio waves, magnetic fields, electrical fields, and sound waves as they interact with material objects in common situations.</p>	<p>Describe and explain the properties of light (reflection, absorption, refraction), sound (wave behavior and motion through various media), heat transfer (conduction, convection, radiation), electricity (transfer through circuits) magnetism (magnetic fields) and gravity.</p>	<p>Solar Energy (light) Investigation 2, Parts 1-2, pp. 8-24</p> <p><u>Solar Energy FOSS Science Stories</u>, pp. 12-15</p> <p>Water Planet Investigation 1, Part 2, pp. 59-66</p> <p>Investigation 3, Part 1, pp. 125-135</p> <p><u>Water Planet FOSS Science Resources</u>, pp. 16-17, 42-45</p> <p>Chemical Interactions Investigation 5, Part 3, pp. 165-171</p> <p><u>Chemical Interactions Resources</u>, pp. 32-48</p> <p>Electronics (electricity) Investigation 1, Parts 1-5, pp. 55-79</p> <p><u>Electronics Resources</u> pp.12-13</p> <p><u>Force and Motion Resources</u>, pp. 62-69</p> <p>Human Brain & Senses (light) Investigation 3, Parts 1-2, pp.</p>

		<p>92-105 <u>Human Brain and Senses Resources</u>, pp. 31-33 <u>Planetary Science Resources</u>, p. 69 Weather and Water (heat) Investigation 4, Parts 1-2, pp. 121-139 <u>Weather and Water Resources</u>, pp. 22-26</p>
<p>D.8.9 Explain the behaviors of various forms of energy by using the models of energy transmission, both in the laboratory and in real-life situations in the outside world.</p>	<p>Identify the various forms of energy using models of energy transmission.</p> <p>Investigate energy transformations. <i>Examples: home energy diagrams, combustion cycle in a car...</i></p>	<p><u>Food and Nutrition Resources</u>, pp. 41-43 Solar Energy Investigation 4, Parts 1-3, pp. 8-28 <u>Solar Energy FOSS Science Stories</u>, pp. 16-17, 29-39 Living Systems Investigation 3, Parts 1-2, pp. 118-135 <u>Living Systems FOSS Science Resources</u>, pp. 31-36, 47-48 Chemical Interactions Investigation 4, Parts 1-3, pp. 122-141 <u>Chemical Interactions Resources</u>, pp. 32-37, 38-48 <u>Diversity of Life Resources</u>, pp. 36-37 Electronics Investigation 1, Parts 1-2, pp. 55-65 Force and Motion Investigation 8, Parts 1-2, pp. 284-301 <u>Human Brain and Senses Resources</u>, pp. 36-38 <u>Planetary Science Resources</u>, pp. 59-70 Populations and Ecosystems Investigation 5, Parts 1-4, pp. 142-169 <u>Populations and Ecosystems Resource</u>, pp. 14-21 Weather and Water Investigation 4, Parts 1-2, pp. 121-139 <u>Weather and Water Resources</u>, pp. 22-26, 32-33</p>
<p>D.8.10 Explain how models of the atomic structure of matter have changed over time, including historical models and modern atomic theory.</p>	<p>Compare historical atomic models to current atomic models.</p> <p>Explain how increased scientific knowledge led to changes in historical models of the atom.</p> <p>Explain how increased</p>	<p><u>Mixtures and Solutions FOSS Science Stories</u>, pp. 3-4, 32-36 <u>Chemical Interactions Resources</u>, pp. 3-8, 80-83 <u>Earth History Resources</u> pp. 88-89</p>

	<p>understandings about the atom have led to the development of current atomic models.</p> <p>Explain the limitations of current atomic models.</p>	
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E. EARTH AND SPACE SCIENCE

Students in Wisconsin will demonstrate an understanding of the structure and systems of earth and other bodies in the universe and of their interactions.

<i>PERFORMANCE STANDARD</i>	<i>GRADE EIGHT FRAMEWORK</i>	<i>Examples of FOSS Investigations addressing the Standards:</i>
<i>By the end of Grade 8:</i>	<i>By the beginning of Grade 8:</i>	
E.8.1 Using the science themes, explain and predict changes in major features of land, water, and atmospheric systems.	Use the themes of systems, change, and organization to describe and explain how land forms are a result of a combination of constructive and destructive forces and how these factors contribute to the forming and changing of Earth and its atmosphere. (Constructive forces include crustal deformation, volcanic eruption, and deposition of sediment, while destructive forces include weathering and erosion.)	<p>Landforms ALL, such as Investigation 2, Parts 1-2, pp. 8-22 Investigation 3, Parts 1-3, pp. 8-24 <u>Landforms FOSS Science Stories</u>, pp. 22-32 FOSS Web www.fossweb.com Movie: Grand Canyon Rapids Water Planet Investigation 4, Part 2, pp. 198-203 <u>Water Planet FOSS Science Resources</u>, pp. 71-79 Earth History Investigation 4, Parts 3-4, pp. 138-149 <u>Earth History Resources</u> pp. 100-104 "Destroying and Reconstructing Earth" <u>Earth History CD-ROM</u>, Earth Processes: Stream Tables</p>
		<p>Weather and Water Investigation 9, Parts 1-4, pp. 296-318 <u>Weather and Water CD-ROM</u>, Globe: Water Cycle</p>
E.8.2 Describe underlying structures of the earth that cause changes in the earth's surface.	Describe the layers of earth. <i>Examples: crust, mantle, core...</i> Describe how movement of plates within the earth result in major geological events. <i>Examples: volcanoes, earthquakes, mountain building...</i>	<p><u>Landforms FOSS Science Stories</u>, pp. 22-25 FOSS Web, Movie: Volcanic Eruption www.fossweb.com <u>Earth History Resources</u>, pp. 100-105 <u>Earth History CD-ROM</u>, Earth Processes: Volcanoes, Faulting/Folding</p>
E.8.3 Using the science themes during the process of investigation, describe climate, weather, ocean currents, soil movements and changes in the forces acting on the earth.	Emphasize the themes of change, systems, and models to investigate how uneven distribution of solar energy causes convection (of water and air) which influences climate, weather, and ocean currents.	<p>Landforms Investigation 2, Parts 1-2, pp. 8-22 <u>Solar Energy FOSS Science Stories</u>, pp. 22-25 FOSS Web www.fossweb.com, Movie: How Weather Occurs Water Planet</p>

	Explore and investigate patterns of soil movement.	Investigation 3, Part 2, pp. 136-144 <u>Water Planet FOSS Science Resources</u> , pp. 42-51 Weather and Water ALL Investigations 1, 3, 5, 7, 8, 9 <u>Weather and Water Resources</u> , pp. 45-47, 63-66
E.8.4 Using the science themes, analyze the influence living organisms have had on the earth's systems, including their impact on the composition of the atmosphere and the weathering of rocks.	Study the effects of living organisms, including humans, on the composition of earth's atmosphere and earth's systems. <i>Examples: global warming, acid rain, and ozone layer depletion...</i>	<u>Solar Energy FOSS Science Stories</u> , pp. 2-3 <u>Populations and Ecosystems Resources</u> pp. 8-13 Weather and Water Investigation 2, Parts 1-2, pp. 69-80 Investigation 7, Parts 1-2, pp. 232-243 Investigation 9, Parts 3-4, pp. 311-318 <u>Weather and Water Resources</u> , pp. 45-47, 63-66
E.8.5 Analyze the geologic and life history of the earth, including change over time, using various forms of scientific evidence.	Use geologic evidence to establish the history of earth. <i>Examples: Atmospheric composition, changes in earth's surface, fossil evidence, relative age and type of rocks...</i>	<u>Landforms FOSS Science Stories</u> , pp. 22-25 Earth History Investigation 6, Parts 1-4, pp. 190-213 Investigation 7, Parts 1-2, pp. 232-243 <u>Earth History Resources</u> , pp. 76-80, 83-88, 93-97, 100-105 <u>Planetary Science Resources</u> , pp. 67-68 <u>Weather and Water Resources</u> pp. 8-11
E.8.6 Describe through investigations the use of the earth's resources by humans in both past and current cultures, particularly how changes in the resources used for the past 100 years are the basis for efforts to conserve and recycle renewable and non-renewable resources.	Investigate how humans have used renewable and non-renewable natural resources through history. <i>Examples: Water, rocks and minerals, fossil fuels, and solar energy...</i> Recognize relationships and patterns in human resource use through data collection and analysis. <i>Example: long-term consequences of overuse...</i> Develop strategies for the conservation of resources.	<u>Environments FOSS Science Stories</u> , pp. 8, 30-37, 43-48 <u>Landforms FOSS Science Stories</u> , pp. 37-44 Solar Energy FOSS Web www.fossweb.com , Activity: Resource Identification <u>Solar Energy FOSS Science Stories</u> , pp. 29-39 Earth History Investigation 5, Extensions: Investigating Building Material <u>Earth History Resources</u> , pp. 64-67 Populations and Ecosystems Investigation 6, Parts 1-3, pp. 179-197 Investigation 7, Part 1, pp. 210-215 <u>Populations and Ecosystems Resources</u> pp. 8-13, 25-29 Weather and Water Investigation 7, Parts 1-2, pp. 232-243

		<p><u>Weather and Water Resources</u>, pp. 45-47, 63-66</p> <p><u>Weather and Water CD-ROM</u></p> <p>Water Cycle Game, regular and global warming versions</p>
<p>E.8.7 Describe the general structure of the solar system, galaxies, and the universe, explaining the nature of the evidence used to develop current models of the universe.</p>	<p>Recognize that the sun is a star in our solar system.</p> <p>Recognize that there are many different stars, and they have different properties.</p> <p>Research gravity's role in holding together the solar system.</p> <p>Study and analyze data from various sources to support or further understand current models of our solar system. <i>Examples: optical and radio-telescopes, computer models, space probes....</i></p> <p>Use models competently to represent solar system, galaxies, and universe.</p>	<p>Models and Designs</p> <p>Investigation 1, Parts 1-3, pp. 8-25</p> <p><u>Models and Designs FOSS Science Stories</u>, pp. 5-10</p> <p><u>Solar Energy FOSS Science Stories</u>, pp. 3-5, 40-44</p> <p>Water Planet</p> <p>Investigation 1, Part 1, pp. 50-58</p> <p><u>Water Planet FOSS Science Resources</u>, pp. 1-13</p> <p><u>Earth History Resources</u>, pp. 60-63</p> <p><u>Force and Motion Resources</u>, pp. 62-69</p> <p>Planetary Science ALL, such as</p> <p>Investigation 2, Part 2, pp. 71-77</p> <p>Investigation 3, Parts 1-2, pp. 89-98</p> <p>Investigation 10, Parts 1-3, pp. 312-324</p> <p><u>Planetary Science Resources</u>, pp. 84-103</p> <p>Weather and Water</p> <p>Investigation 3, Parts 1-3, pp. 93-110</p>
<p>E.8.8 Using past and current models of the structure of the solar system, explain the daily, monthly, yearly, and long-term cycles of the earth, citing evidence gained from personal observation as well as evidence used by scientists.</p>	<p>Research, using models, how objects in the solar system have regular and predictable orbits and motion.</p> <p>Recognize that the tilt of the earth on its axis as it revolves around the sun causes seasons.</p> <p>Explain that rotation of the earth on its axis causes day and night.</p> <p>Explore historical models of the solar system <i>Example: geocentric model...</i></p>	<p>Models and Designs</p> <p>Investigation 1, Parts 1-3, pp. 8-25</p> <p><u>Models and Designs FOSS Science Stories</u>, pp. 5-10</p> <p>Planetary Science throughout, such as</p> <p>Investigation 2, Part 2, pp. 71-77</p> <p>Investigation 3, Parts 1-2, pp. 89-98</p> <p>Investigation 9, Parts 1-4, pp. 283-301</p> <p><u>Planetary Science Resources</u>, pp. 84-103</p> <p><u>Planetary Science CD-ROM</u>, Day/Night, Phases of the Moon</p> <p>Weather and Water</p> <p>Investigation 3, Parts 1-3, pp. 93-110</p> <p><u>Weather and Water Resources</u> pp. 12-19</p> <p><u>Weather and Water CD-ROM</u></p>

F. LIFE AND ENVIRONMENTAL SCIENCE

Students in Wisconsin will demonstrate an understanding of the characteristics and structures of living things, the processes of life, and how living things interact with one another and their environment.

<i>PERFORMANCE STANDARD</i> <i>By the end of Grade 8:</i>	<i>GRADE EIGHT FRAMEWORK</i> <i>By the beginning of Grade 8:</i>	<i>Examples of FOSS Investigations</i> <i>addressing the Standards:</i>
<p>F.8.1 Understand the structure and function of cells, organs, tissues, organ systems, and whole organisms.</p>	<p>Understand that organisms are composed of cells and that cells are the basic unit of life.</p> <p>Explore cell components, including different components of plant and animal cells.</p> <p>Apply cell specialization to the organization of tissues, organs, systems, and organisms in both plants and animals (photosynthesis and respiration on a conceptual level).</p> <p>Explain how major systems within organisms interact.</p>	<p>Food and Nutrition FOSS Science Stories, pp. 6-9,41-50</p> <p>Living Systems Investigation 1, Parts 1-3, pp. 51-70</p> <p><u>Living Systems FOSS Science Resources</u>, pp. 2-13</p> <p>Diversity of Life Investigation 4, Parts 1-2, pp. 133-141</p> <p>Investigation 5, Parts 1-2, pp. 151-164</p> <p><u>Diversity of Life Resources</u>, pp. 24-45</p> <p>CD, Cells and the Ribbon of Life</p> <p>Human Brain and Senses Investigation 2, Part 1, pp. 67-72</p> <p><u>Human Brain and Senses Resources</u>, pp. 29-30, 60-74</p> <p>Populations and Ecosystems Investigation 5, Parts 1-3, pp. 142-160</p>
<p>F.8.2 Show how organisms have adapted structures to match their functions, providing means of encouraging individual and group survival within specific environments.</p>	<p>Compare form and function of various organisms' adaptations as related to their environments.</p> <p>Investigate natural selection.</p>	<p><u>Environments FOSS Science Stories</u>, pp. 9-17,18-19, 21-22, 42, 49-55</p> <p><u>Variables FOSS Science Stories</u>, pp. 5-6</p> <p>Diversity of Life Investigation 7, Parts 1-2, pp. 218-225</p> <p>Investigation 8, Part 1, pp. 239-243</p> <p><u>Diversity of Life Resources</u>, pp. 40-53</p> <p>Human Brain and Senses Investigation 2, Parts 1-3, pp. 67-83</p> <p><u>Human Brain and Senses Resources</u>, pp. 40-42</p> <p>Populations and Ecosystems Investigation 8, Parts 1-2, pp. 228-243</p> <p>Investigation 10, Parts 1-3, pp. 302-317</p> <p><u>Populations and Ecosystems Resources</u> pp. 42-45, 58-63</p> <p><u>Populations and Ecosystems CD-ROM</u></p>

<p>F.8.3 Differentiate between single-celled and multiple-celled organisms (humans) through investigation, comparing the cell functions of specialized cells for each type of organism.</p>	<p>Investigate a variety of cells using microscopes and illustrations. <i>Examples: single-celled, multi-celled organisms, plant and animal cells...</i></p> <p>Present conceptual understandings of differences between single-celled and multiple-celled organisms.</p> <p>Compare and contrast structure and function of specialized cells. <i>Examples: muscle, nerve, blood cells in animals, photosynthetic cells in plants...</i></p>	<p><u>Food and Nutrition FOSS Science Stories</u>, pp. 41-50 <u>Living Systems FOSS Science Resources</u>, pp. 1-3 Diversity of Life ALL, such as Investigation 3, Parts 1-3, pp. 102-122 Investigation 4, Part 1, pp. 133-136 Investigation 7, Parts 1-2, pp. 218-229 Investigation 8, Part 1, pp. 239-243 <u>Diversity of Life Resources</u>, pp. 24-30, 37-39, 40-53 CD, Database: Collection: Protista Human Brain and Senses Investigation 8, Parts 1-2, pp. 240-252 <u>Human Brain and Senses Resources</u>, pp. 60-62,65-74</p>
<p>F.8.4 Investigate and explain that heredity is comprised of the characteristic traits found in genes within the cell of an organism.</p>	<p>Investigate basic genetics including Mendel's theories, Punnett squares, and predictions of possible offspring.</p> <p>Understand that genes determine traits.</p>	<p>Populations and Ecosystems Investigation 9, Parts 1-4, pp. 262-291 Investigation 10, Parts 1-3, pp. 302-317 <u>Populations and Ecosystems Resources</u> pp. 46-55 <u>Populations and Ecosystems CD-ROM</u></p>
<p>F.8.5 Show how different structures both reproduce and pass on characteristics of their group.</p>	<p>Study sexual and asexual reproduction with emphasis on the advantages and disadvantages of each.</p>	<p>Diversity of Life Investigation 7, Part 1, pp. 218-223 <u>Diversity of Life Resources</u>, pp. 40-44, 53-54 Populations and Ecosystems Investigation 9, Parts 1-4, pp. 262-291 <u>Populations and Ecosystems Resources</u> pp. 46-55 <u>Populations and Ecosystems CD-ROM</u></p>
<p>F.8.6 Understand that an organism is regulated both internally and externally.</p>	<p>Investigate external/internal stimuli on organisms using themes of equilibrium and constancy. <i>Examples: stimulus/response, feedback loop, diffusion/osmosis within cells, body temperature regulation.</i></p>	<p>Environments Investigation 5, Parts 1-3, pp. 8-22 <u>Food and Nutrition FOSS Science Stories</u>, pp. 41-50 Diversity of Life Investigation 6, Parts 2-3, pp. 193-202 <u>Diversity of Life Resources</u>, pp. 38-39 Human Brain and Senses Investigation 5, Parts 1-4, pp. 152-175 <u>Human Brain and Senses Resources</u>, pp. 29-30</p>

		Populations and Ecosystems Investigation 6, Parts 1-3, pp. 179-197
F.8.7 Understand that an organism's behavior evolves through adaptation to its environment.	Study organisms behavioral modifications to their environment. <i>Examples: hibernation, fluffing feathers, migration, nesting, shivering, huddling, herding, caring for young...</i>	Environments Investigation 2, Parts 2-3, pp. 16-25 <u>Environments FOSS Science Stories</u> , pp. 10-17 <u>Variables FOSS Science Stories</u> , pp. 5-6 Diversity of Life Investigation 9, Parts 1-2, pp. 273-285 <u>Diversity of Life Resources</u> , pp. 60-64 Populations and Ecosystems Investigation 8, Parts 1-2, pp. 228-243 Investigation 10, Parts 1-3, pp. 302-317 <u>Populations and Ecosystems Resources</u> pp. 42-45, 58-63
F.8.8 Show through investigations how organisms both depend on and contribute to the balance or imbalance of populations and/or ecosystems, which in turn contribute to the total system of life on the planet.	Investigate interactions within various ecosystems and their components (including non-living). Analyze population fluctuations and energy flow in ecosystems.	Environments Investigation 1, Parts 1-2, pp. 8-19 Investigation 4, Parts 1-3, pp. 8-22 <u>Environments FOSS Science Stories</u> , pp. 1-17,27-37,38-45,49-55 Populations and Ecosystems Investigation 4, Parts 1-2, pp. 119-129 Investigation 5, Parts 1-4, pp. 142-169 Investigation 6, Parts 1-3, pp. 179-197 Investigation 7, Part 1, p. 210-215 <u>Populations and Ecosystems Resources</u> pp. 8-41
F.8.9 Explain how some of the changes on the earth are contributing to changes in the balance of life and affecting the survival or population growth of certain species.	Investigate environmental problems. <i>Examples: invasive species, extinction, overpopulation, degradation of habitat, exceeding carrying capacity, drought...</i>	Environments Investigation 4, Interdisciplinary Extensions p. 23 <u>Environments FOSS Science Stories</u> , pp. 9-10, 27-37,43-46 Populations and Ecosystems Investigation 6, Parts 1-3, pp. 179-197 Investigation 7, Part 1, pp. 210-215 <u>Populations and Ecosystems Resources</u> pp. 8-41

<p>F.8.10 Project how current trends in human resource use and population growth will influence the natural environment, and show how current policies affect those trends.</p>	<p>Study current policies and their impact on the environment.</p>	<p>This standard represents a local application of science principles studied throughout the following science modules: Environments Investigation 6, Part 3, pp. 18-22 Solar Energy Investigation 4, Part 4, pp. 29-33 Populations and Ecosystems Investigation 7, Part 1, pp. 210-215 Weather and Water Investigation 9, Part 4, pp. 315-318</p>
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G. SCIENCE APPLICATIONS

Students in Wisconsin will demonstrate an understanding of the relationship between science and technology and the ways in which that relationship influences human activities.

<i>PERFORMANCE STANDARD</i>	<i>GRADE EIGHT FRAMEWORK</i>	<i>Examples of FOSS Investigations addressing the Standards:</i>
<i>By the end of Grade 8:</i>	<i>By the beginning of Grade 8:</i>	
<p>G.8.1 Identify and investigate the skills people need for a career in science or technology and identify the academic courses that a person pursuing such a career would need.</p>	<p>Explore careers in science and technology.</p>	<p>This standard is addressed throughout readings for ALL Grades 5-8 FOSS modules, as well as on the FOSS web site for each module, under "Careers": <u>Environments FOSS Science Stories</u>, pp. 47-48</p>
		<p><u>Food and Nutrition FOSS Science Stories</u>, p. 5 <u>Landforms FOSS Science Stories</u>, pp. 13-14, 19-21, 35-36 <u>Mixtures and Solutions FOSS Science Stories</u>, pp. 29-31, 36 <u>Models and Designs FOSS Science Stories</u>, pp. 11-20 <u>Solar Energy FOSS Science Stories</u>, pp. 26-28, 29-39 <u>Variables FOSS Science Stories</u>, pp. 1-6 <u>Chemical Interactions Resources</u>, pp. 78-85 <u>Earth History Resources</u>, pp. 98-99 <u>Electronics Resources</u>, pp. 18-20 <u>Human Brain and Senses Resources</u>, pp. 80-82 <u>Planetary Science Resources</u>, pp. 59-73 <u>Populations and Ecosystems Resources</u>, pp. 8-13 <u>Weather and Water Resources</u>,</p>

<p>G.8.2 Explain how current scientific and technological discoveries have an influence on the work people do and how these discoveries also lead to new careers.</p>	<p>Explore and connect technology with changing trends in career options.</p>	<p>pp. 67-68</p> <p>This standard is addressed throughout readings for ALL Grades 5-8 FOSS modules, as well as on the FOSS web site for each module, under "Careers":</p> <p><u>Models and Designs FOSS Science Stories</u>, pp.17-20, 37-40</p> <p><u>Water Planet FOSS Science Resources</u>, pp. 15, 18-19</p> <p><u>Variables FOSS Science Stories</u>, pp. 15-28</p> <p><u>Chemical Interactions Resources</u>, pp. 60-61, 84-85</p> <p><u>Earth History Resources</u>, pp. 98-99</p> <p><u>Electronics Resources</u>, pp. 34-6</p> <p>Force and Motion</p> <p>Investigation 8, Parts 1-2, pp. 284-301</p> <p><u>Human Brain and Senses Resources</u>, 80-82</p> <p><u>Planetary Science Resources</u>, pp. 90-100</p> <p><u>Populations and Ecosystems Resources</u>, pp. 8-13</p> <p><u>Weather and Water Resources</u>, pp. 63-66</p>
<p>G.8.3 Illustrate the impact that science and technology have had, both good and bad, on careers, systems, society, environment, and quality of life.</p>	<p>Highlight the impacts science and technology have had on our culture both positive and negative. <i>Example: simple risk-benefit analysis...</i></p>	<p><u>Environments FOSS Science Stories</u>, pp. 33-37, 43-45</p> <p><u>Food and Nutrition FOSS Science Stories</u>, pp. 16-19, 24-25, 34-36</p> <p><u>Landforms FOSS Science Stories</u>, pp. 13-21</p> <p><u>Water Planet FOSS Science Resources</u>, pp. 16-17</p> <p><u>Levers and Pulleys FOSS Science Stories</u>, pp. 1-4, 9, 13, 15, 23-25</p> <p><u>Mixtures and Solutions FOSS Science Stories</u>, pp. 8, 21-22, 29-31, 43-45</p> <p><u>Models and Designs FOSS Science Stories</u>, pp.17-20, 37-40</p> <p><u>Solar Energy FOSS Science Stories</u>, pp. 26-39</p> <p><u>Variables FOSS Science Stories</u>, pp. 15-28</p> <p><u>Chemical Interactions Resources</u>, pp 59-62</p> <p><u>Diversity of Life Resources</u>, pp. 65-70</p> <p><u>Earth History Resources</u>, pp. 64-67</p>

		<p>Electronics Investigation 4, Parts 1-2, pp. 143-151 <u>Electronics Resources</u>, pp. 18-25 <u>Force and Motions Resources</u>, pp. 70-64 <u>Human Brain and Senses Resources</u>, pp. 31-35, 49, 75-82 <u>Planetary Science Resources</u>, pp. 74-79, 90, 95 <u>Populations and Ecosystems Resources</u>, pp. 25-41 Weather and Water Investigation 1, Parts 1-2, pp. 43-53 <u>Weather and Water Resources</u> pp. 63-66</p>
<p>G.8.4 Propose a design (or re-design) of an applied science model or machine that will have an impact in the community or elsewhere in the world and show how the design (or re-design) might work, including potential side-effects.</p>	<p>Design, test, and revise a model, machine, or device. Discuss a model's potential impact in the community or elsewhere in the world and show how the design (or re-design) might work, including potential side-effects.</p>	<p>This standard represents a local assignment and assessment for which students can be WELL-prepared by the following modules: Models and Designs Investigation 3, Parts 1-2, pp. 8-19 Investigation 4, Parts 1-3, pp. 6-20 <u>Models and Designs FOSS Science Stories</u>, pp. 17-20, 37-40 Solar Energy Investigation 4, Parts 1-4, pp. 8-33 <u>Solar Energy FOSS Science Stories</u>, pp. 26-39 Electronics Investigation 9, Part 2, pp. 290-297</p>
<p>G.8.5 Investigate a specific local problem to which there has been a scientific or technological solution, including proposals for alternative courses of action, the choices that were made, reasons for the choices, any new problems created, and the subsequent community satisfaction.</p>	<p>Investigate a specific local problem or issue where the issue was solved through science or technology. Examine the issue or problem to determine why the solution was chosen. <i>Examples: alternative solutions, reasons for the choices, new problems created by the solution, subsequent community satisfaction...</i></p>	<p>This standard represents a local assignment and assessment for which students can be well-prepared by the following modules: <u>Water Planet FOSS Science Resources</u>, pp. 65-66, 97 Populations and Ecosystems Investigation 7, Part 1, pp. 210-215 <u>Populations and Ecosystems Resources</u> pp. 25-29 Weather and Water Investigation 9, Part 4, pp. 315-318</p>

<p>G.8.6 Use current texts, encyclopedias, source books, computers, experts, the popular press, or other relevant sources to identify examples of how scientific discoveries have resulted in new technology.</p>	<p>Research (using multiple sources) how a scientific discovery resulted in new technology.</p>	<p><u>Environments FOSS Science Stories</u>, 47-48 <u>Food and Nutrition FOSS Science Stories</u>, p. 19 <u>Mixtures and Solutions FOSS Science Stories</u>, pp. 43-45 <u>Models and Designs FOSS Science Stories</u>, pp.17-20,24,28 <u>Solar Energy FOSS Science Stories</u>, pp. 29-39 Variables Inv.3 Language Extension #2 <u>Variables FOSS Science Stories</u>, pp. 8-9, 15-20, 32-33 <u>Chemical Interactions Resources</u>, p. 80 <u>Electronics Resources</u>, pp.23-5 <u>Human Brain and Senses Resources</u>, pp. 34-35, 49 <u>Populations and Ecosystems Resources</u> pp. 50-55</p>
<p>G.8.7 Show evidence of how science and technology are interdependent, using some examples drawn from personally conducted investigations.</p>	<p>Show relationships between science and technology over time. <i>Examples: changes in cell theory, medical advancements, space exploration, commercial applications, communications...</i></p>	<p><u>Environments FOSS Science Stories</u>, pp. 46-48 <u>Food and Nutrition FOSS Science Stories</u>, pp. 19, 21 <u>Landforms FOSS Science Stories</u>, pp. 13-14, 19-21 <u>Mixtures and Solutions FOSS Science Stories</u>, pp. 43-45 Models and Designs Investigation 4, Parts 1-2, pp. 6-15 <u>Models and Designs FOSS Science Stories</u>, pp.17-20,24,28 <u>Water Planet FOSS Science Resources</u>, pp. 18-19 Solar Energy Investigation 3, Parts 1-2, pp. 8-23 <u>Solar Energy FOSS Science Stories</u>, pp. 29-39 Variables Investigation 4, Parts 1-4, pp. 8-28 <u>Variables FOSS Science Stories</u>, pp. 8-9, 15-17 <u>Chemical Interactions Resources</u>, pp. 60-61 <u>Diversity of Life Resources</u>, pp. 65-70 <u>Earth History Resources</u>, pp. 87-88 Electronics Investigation 9, Parts 1-2, pp. 284-297 <u>Electronics Resources</u>, pp. 1-2, 6-8, 12-13 Force and Motion</p>

		<p>Investigation 8, Parts 1-2, pp. 284-301</p> <p><u>Force and Motion Resources</u>, pp. 70-74</p> <p>Human Brain and Senses</p> <p>Investigation 5, Parts 1-4, pp. 152-175</p> <p><u>Human Brain and Senses Resources</u>, pp. 34-35, 47-49</p> <p>Planetary Science</p> <p>Investigation 7, Part 5, pp. 236-237</p> <p><u>Planetary Science Resources</u> pp. 74-79, 90-100</p> <p>Populations and Ecosystems</p> <p>Investigation 6, Parts 1-3, pp. 186-202</p> <p><u>Populations and Ecosystems Resources</u>, pp. 8-13, 46-55</p> <p>Weather and Water</p> <p>Investigation 1, Part 2, pp. 48-53</p>
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H. SCIENCE IN SOCIAL AND PERSONAL PERSPECTIVES

Students in Wisconsin will use scientific information and skills to make decisions about themselves, Wisconsin, and the world in which they live.

<i>PERFORMANCE STANDARD</i>	<i>GRADE EIGHT FRAMEWORK</i>	<i>Examples of FOSS Investigations addressing the Standards:</i>
<i>By the end of Grade 8:</i>	<i>By the beginning of Grade 8:</i>	
H.8.1 Evaluate the scientific evidence used in various media (for example, television, radio, Internet, popular press, and scientific journals) to address a social issue, using criteria of accuracy, logic, bias, relevance of data, and credibility of sources.	Evaluate various sources of information about a social issue with emphasis on scientific quality (scientific accuracy, credibility, and bias). <i>Example: Compare tabloid versus scientific journal...</i>	<p>This standard represents a local assignment and assessment for which students can be prepared by the following modules:</p> <p>Food and Nutrition</p> <p>Investigation 4, Parts 1-2, pp. 8-20</p> <p><u>Food and Nutrition FOSS Science Stories</u> pp.26-29, 37-40</p> <p><u>Variables FOSS Science Stories</u>, pp. 1-3, 34-37</p> <p>Chemical Interactions</p> <p>Investigation 8, Part 3, pp. 263-268</p> <p><u>Chemical Interactions Resources</u>, pp. 60-61</p> <p>Earth History</p> <p>Investigation 5, Part 3, pp. 183-187</p> <p>Investigation 7, Parts 1-2, pp. 234-243</p> <p><u>Earth History Resources</u>, pp. 83-88</p> <p><u>Electronics Resources</u>, pp.18-20</p> <p>Planetary Science</p> <p>Investigation 5, Parts 1-7, pp. 154-184</p> <p><u>Planetary Science Resources</u>, pp. 59-68, 97-100</p>

		<p>Populations and Ecosystems Investigation 6 <u>Populations and Ecosystems Resources</u>, pp.25-9, 31-41, 62-3</p> <p>Weather and Water Investigation 9, Parts 3-4, pp. 311-318 <u>Weather and Water Resources</u>, pp. 45-47, 63-66</p>
H.8.2 Present a scientific solution to a problem involving the earth and space, life and environmental, or physical sciences and participate in a consensus-building discussion to arrive at group decision.	<p>Engage in consensus-building discussions about important current situations.</p> <p>Determine a solution to a problem based on scientific evidence.</p>	<p>Students participate in consensus-building and explore how scientists discuss evidence in the following investigations:</p> <p>Environments Investigation 6, Parts 1-2, pp. 8-17</p> <p>Models and Designs Investigation 1, Parts 1-2, pp. 8-21</p> <p>Solar Energy Investigation 4, Parts 1-3, pp. 8-28</p> <p>Chemical Interactions Investigation 7, Parts 4-5, pp. 222-234</p> <p>Diversity of Life Investigation 1, Parts 1-2, pp. 43-63</p> <p>Earth History Investigation 7, Part 2, pp. 241-243</p> <p>Electronics Investigation 9, Part 2, pp. 290-297</p> <p>Force and Motion Investigation 8, Part 2, pp. 294-301</p> <p>Planetary Science Investigation 5, Parts 1-3, pp. 154-167 Investigation 7, Parts 1-4, pp. 218-235</p>
H.8.3 Understand the consequences of decisions affecting person health and safety.	<p>Using scientific evidence, investigate and critique decision-making in personal health and safety issues. <i>Examples: nutrition, seat belt safety, helmet use, limitations of antibiotics, personal hygiene, spread of viruses, tobacco, and alcohol use...</i></p>	<p><u>Solar Energy FOSS Science Stories</u>, pp. 12-15</p> <p>Food and Nutrition Investigation 4, Parts 1-2, pp. 8-20</p> <p><u>Food and Nutrition FOSS Science Stories</u>, pp. 1-5, 14-15, 26-29, 37-40</p> <p>FOSS Web, Activity: What's For Dinner</p> <p><u>Living Systems FOSS Science Resources</u>, pp. 36-46</p> <p><u>Water Planet FOSS Science Resources</u>, pp. 64-66, 97</p> <p><u>Electronics Resources</u>, pp.12-14</p> <p>Force and Motion</p>

		Investigation 8, Parts 1-2, pp. 284-301 <u>Force and Motion Resources,</u> pp. 70-74 CD, Workbench: Safety
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