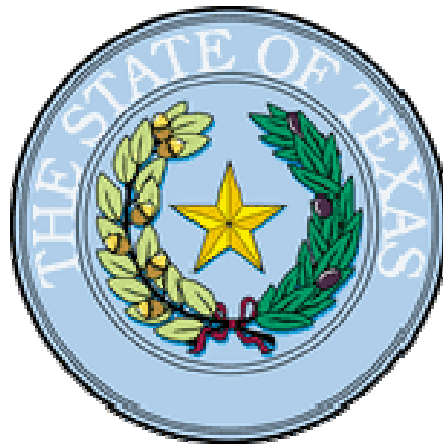




Full Option Science System
(FOSS)
Grades K-5

CORRELATION TO

Texas
Essential Knowledge
and Skills



Texas Essential Knowledge and Skills For Science

Correlation To Full Option Science System

The following is a correlation of the State of Texas Essential Knowledge and Skills for Science to the Full Option Science System. This correlation shows representative examples of investigations and activities from the FOSS program that address the Essential Knowledge and Skills. A citation does not include all of the investigations or activities from FOSS that might address a particular standard.

June 2010

Kindergarten

TEXAS ESSENTIAL KNOWLEDGE AND SKILL ELEMENT	FOSS INVESTIGATION/ ACTIVITY	PAGE NUMBER (S)
<i>(K.1) Scientific investigations and reasoning. The student conducts classroom and outdoor investigations following home and school safety procedures and uses environmentally appropriate and responsible practices. The student is expected to:</i>		
(A) identify and demonstrate safe practices as described in the Texas Safety Standards during classroom and outdoor investigations, including wearing safety goggles, washing hands, and using materials appropriately;	All FOSS modules are designed to include safe practices. Where special caution is needed, safety-warning statements are included as in: <u>Fabric</u> , Investigation 1, Part 6 <u>Wood and Paper</u> , Investigation 2, Part 1	Pages 29-33 Pages 8-11
(B) discuss the importance of safe practices to keep self and others safe and healthy; and	Teachers and students would have the opportunity to discuss safety with each safety statement. See above for example.	
(C) demonstrate how to use, conserve, and dispose of natural resources and materials such as conserving water and reusing or recycling paper, plastic, and metal.	<u>Wood and Paper</u> , Investigation 4, Parts 1-2 Science Stories	Pages 8-18 Pages 3-8, 13-19, 23
<i>(K.2) Scientific investigations and reasoning. The student develops abilities to ask questions and seek answers in classroom and outdoor investigations. The student is expected to:</i>		
(A) ask questions about organisms, objects, and events observed in the natural world;	<u>Trees</u> , Investigation 1, Part 1 <u>Fabric</u> , Investigation 1, Parts 1-4 <u>Animals Two by Two</u> , Investigation 3, Parts 1-3 <u>Wood and Paper</u> , Investigation 1, Parts 3-5	Pages 7-14 Pages 6-22 Pages 8-20 Pages 20-32
(B) plan and conduct simple descriptive investigations such as ways objects move;	<u>Wood and Paper</u> , Investigation 1, Parts 4-5 <u>Animals Two by Two</u> , Investigation 2, Part 1 <u>Fabric</u> , Investigation 2, Parts 1-3	Pages 24-32 Pages 9-13 Pages 7-21
(C) collect data and make observations using simple equipment such as hand lenses, primary balances, and non-standard measurement tools;	<u>Fabric</u> , Investigation 1, Part 4 <u>Trees</u> , Investigation 3, Part 5 <u>Trees</u> , Tools for Observing Weather <u>Wood and Paper</u> , Investigation 1, Part 5	Pages 20-22 Pages 22-25 Pages 6-24 Pages 28-32
(D) record and organize data and observations using pictures, numbers, and words, and;	<u>Fabric</u> , Investigation 2, Parts 1, 4 <u>Wood and Paper</u> , Investigation 1, Part 5 <u>Trees</u> , Investigation 1, Part 7 <u>Trees</u> , Tools for Observing Weather	Pages 7-11, 22-25 Pages 28-32 Pages 31-34 Pages 6-9
(E) communicate observations with others about simple descriptive investigations	<u>Wood and Paper</u> , Investigation 1, Parts 4-5 <u>Animals Two by Two</u> , Investigation 2, Part 1	Pages 24-32 Pages 9-13

	<u>Fabric</u> , Investigation 2, Parts 1-3	Pages 7-21
(K.3) Scientific investigations and reasoning. <i>The student knows that information and critical thinking are used in scientific problem solving. The student is expected to:</i>		
(A) identify and explain a problem such as the impact of littering on the playground and propose a solution in his/her own words.	<u>Wood and Paper</u> , Investigation 1, Parts 4-5 <u>Fabric</u> , Investigation 2, Part 2 <u>Animals Two by Two</u> , Investigation 1, Part 3	Pages 24-32 Page 12-17 Pages 22-25
(B) make predictions based on observable patterns in nature such as the shapes of leaves; and	<u>Animals Two by Two</u> , Investigation 5, Parts 1-2 <u>Trees</u> , Investigation 2, Parts 2-3	Pages 10-19 Pages 15-22
(C) explore that scientists investigate different things in the natural world and use tools to help in their investigation	<u>Wood and Paper</u> , Science Stories	Pages 9-12
(K.4) Scientific investigations and reasoning. <i>The student uses age-appropriate tools and models to investigate the natural world. The student is expected to:</i>		
(A) collect information using tools, including computers, hand lenses, primary balances, cups, bowls, magnets, collecting nets, and notebooks; timing devices, including clocks and timers; non-standard measuring items such as paper clips and clothespins; weather instruments such as demonstration thermometers and wind socks; and materials to support observations of habitats of organisms such as terrariums and aquariums; and	<u>Fabric</u> , Investigation 1, Part 4 <u>Trees</u> , Investigation 1, Part 7 <u>Trees</u> , Tools for Observing Weather <u>Animals Two by Two</u> , Investigation 1, Parts 2-4 Investigation 4, Part 4	Pages 20-22 Pages 31-35 Pages 6-24 Pages 17-29 Pages 20-23
(B) use senses as a tool of observation to identify properties and patterns of organisms, objects, and events in the environment.	<u>Fabric</u> , Investigation 1, Part 4 <u>Trees</u> , Investigation 1, Part 1 Investigation 2, Part 1 <u>Animals Two by Two</u> , Investigation 1, Part 4 Investigation 2, Part 4	Pages 20-22 Pages 7-14 Pages 6-9 Pages 26-29 Pages 22-24
(K.5) Matter and energy. <i>The student knows that, objects have properties and patterns. The student is expected to:</i>		
(A) observe and record properties of objects, including relative size and mass, such as bigger or smaller and heavier or lighter, shape, color, and texture; and	<u>Wood and Paper</u> , Investigation 1, Parts 1-3 Investigation 3, Part 1 <u>Fabric</u> , Investigation 1, Parts 1-2	Pages 8-23 Pages 8-12 Pages 6-15
(B) observe record, and discuss how materials can be changed by heating or cooling.		
(K.6) Force, motion and energy. <i>The student knows that energy, force, and motion are related and are part of their everyday life.. The student is expected to:</i>		
(A) use the five senses to explore different forms of energy such as light, heat, and sound;		
(B) explore interactions between magnets and various materials;		
(C) observe and describe the location of an object in relation to another such as above, below, behind, in front of, and beside; and	<u>Wood and Paper</u> , investigation 1, Parts 3-5 Investigation 2, Part 1 Investigation 5, Parts 2-3 <u>Fabric</u> , Investigation 1, Parts	Pages 20-32 Pages 8-11 Pages 12-21

	4-6 <u>Trees</u> , Investigation 1, Parts 5-6	Pages 20-33 Pages 25-31
(D) observe and describe the ways that objects can move such as in a straight line, zigzag, up and down, back and forth, round and round, fast and slow.	<u>Fabric</u> , Investigation 1, Parts 5-6 <u>Wood and Paper</u> , Investigation 1, Part 4 <u>Animals Two by Two</u> , Investigation 1, Part 3 Investigation 2, Part 2 Investigation 3, Part 2	Pages 23-33 Pages 24-32 Pages 22-5 Pages 14-17 Pages 13-16
(K.7) Earth and space. <i>The student knows that the natural world includes earth materials. The student is expected to:</i>		
(A) observe, describe, compare, and sort rocks by size, shape, color, and texture;		
(B) observe and describe physical properties of natural sources of water, including color and clarity; and		
(C) give examples of ways rocks, soil, and water are useful.	<u>Animals Two by Two</u> , Investigation 1, Part 2 Investigation 4, Part 4 <u>Trees</u> , Investigation 1, Parts 2, 8 <u>Wood and Paper</u> , Science Stories	Pages 17-21 Pages 20-23 Pages 15-19, 35-37 Pages 15, 21-22
(K.8) Earth and space. <i>The student knows that there are recognizable patterns in the natural world and among objects in the sky. The student is expected to:</i>		
(A) observe and describe weather changes from day to day and over seasons;	<u>Trees</u> , Tools for Observing Weather Science Stories	Pages 6-24 Pages 14-23
(B) identify events that have repeating patterns, including seasons of the year and day and night; and	<u>Trees</u> , Investigation 3, Parts 3, 6, 9 Science Stories	Pages 15-18, 26-28, 35-38 Pages 14-23
(C) observe, describe and illustrate objects in the sky such as clouds, Moon, and stars, including the Sun.	<u>Trees</u> , Tools for Observing Weather	Pages 14-15
(K.9) Organisms and environments. <i>The student knows that plants and animals have basic needs and depend on the living and nonliving things around them for survival. The student is expected to:</i>		
(A) differentiate between living and nonliving things based upon whether they have basic needs and produce offspring; and	All kindergarten modules provide the opportunity to address this element as some involve living things and some nonliving things.	
(B) examine evidence that living organisms have basic needs such as food, water, and shelter for animals and air, water, nutrients, sunlight, and space for plants.	<u>Trees</u> , Investigation 1, Parts 2, 8 Investigation 3, Part 7 <u>Animals Two by Two</u> , Investigation 1, Part 2 Investigation 4, Part 4	Pages 15-19, 35-37 Pages 29-31 Pages 17-21 Pages 20-23
(K.10) Organisms and environments. <i>The student knows that organisms resemble their parents and have structures and processes that help them survive within their environments. The student is expected to:</i>		
(A) sort plants and animals into groups	<u>Trees</u> , Investigation 2, Parts	Pages, 6-19, 26-

based on physical characteristics such as color, size, body covering, or leaf shape;	1-3, 6 Investigation 3, Part 8 <u>Animals Two by Two</u> , Investigation 1, Part 4 Investigation 2, Part 3 Investigation 3, Part 3 Investigation 4, Part 2 Science Stories	28 Pages 32-34 Pages 26-29 Pages 18-21 Pages 17-20 Pages 12-15 Pages 4-23
(B) identify parts of plants such as roots, stem, and leaves and parts of animals such as head, eyes, and limbs.	<u>Trees</u> , Investigation 1, Parts 1-2, 5-6 Investigation 2, Parts 1-2 Investigation 3, Parts 1, 8 Science Stories <u>Animals Two by Two</u> , Investigation 1, Part 1 Investigation 2, Parts 1, 3 Investigation 3, Part 1, 3 Investigation 4, Part 1 Science Stories	Pages 7-19, 25-31 Pages 6-15 Pages 10-11, 32-34 Pages 14-21 Pages 10-16 Pages 9-13, 18-21 Pages 8-12, 17-20 Pages 8-11 Pages 5-6, 9-10, 13-14, 17-18, 21-22
(C) identify ways that young plants resemble the parent plant; and	<u>Trees</u> , Investigation 1, Parts 1-2 <u>Animals Two by Two</u> , Foss web, Activity; Find the Parent	Pages 7-19
(B) observe changes that are part of a simple life cycle of a plant: seedling, plant, flower, fruit.	<u>Trees</u> , Investigation 1, Part 2 Investigation 3, Part 1 Science Stories	Pages 15-19 Pages 10-11 Pages 14-24

Grade One

TEXAS ESSENTIAL KNOWLEDGE AND SKILL ELEMENT	FOSS INVESTIGATION/ ACTIVITY	PAGE NUMBER (S)
(1.1) Scientific investigations and reasoning. <i>The student conducts classroom and outdoor investigations following home and school safety procedures and uses environmentally appropriate and responsible practices. The student is expected to:</i>		
(A) recognize and demonstrate safe practices as described in the Texas Safety Standards during classroom and outdoor investigations, including wearing safety goggles, washing hands, and using materials appropriately;	All FOSS modules are designed to include safe practices. Where special caution is needed, safety-warning statements are included as in: <u>New Plants</u> , Investigation 1, Part 2 <u>Insects and Plants</u> , Investigation 2, Part 2	Page 17 Pages 99
(B) recognize the importance of safe practices to keep self and others safe and healthy; and	Teachers and students would have the opportunity to discuss safety with each safety statement. See above for example.	
(C) identify and learn how to use, natural resources and materials including conservation and reuse or recycling of paper, plastic, and metal.	<u>Insects and Plants</u> , Investigation 2, Part 3 <u>New Plants</u> , Investigation 1, Part 3 <u>Pebbles, Sand and Silt</u> , Investigation 3, Parts 1-5 Science Stories	Page 113 Page 29 Pages 8-29 Pages 16-19
(1.2) Scientific investigations and reasoning. <i>The student develops abilities to ask questions and seek answers in classroom and outdoor investigations. The student is expected to:</i>		
(A) ask questions about organisms, objects, and events observed in the natural world;	<u>New Plants</u> , Investigation 2, Part 2 <u>Pebbles, Sand and Silt</u> , Investigation 1, Part 1 <u>Solids and Liquids</u> , Investigation 4, Part 1 <u>Insects and Plants</u> , Investigation 3, Parts 1-3 <u>Plants and Animals</u> , Investigation 1, Part 2	Pages 15-19 Page 12 Pages 7-16 Pages 129-151 Pages 58-62
(B) plan and conduct simple descriptive investigations such as ways objects move;	<u>Solids and Liquids</u> , Investigation 3, Part 1 <u>Pebbles, Sand and Silt</u> , Investigation 1, Part 2 <u>Insects and Plants</u> , Investigation 2, Part 3 <u>Plants and Animals</u> , Investigation 1, Parts 1-2 Investigation 3, Part 2	Pages 8-13 Pages 13-17 Pages 105-115 Pages 47-62 Pages 128-134
(C) Collect data and make observations using simple equipment such as hand lenses, primary balances, and non-standard measurement tools.	<u>Pebbles, Sand and Silt</u> , Investigation 1, Part 3 <u>New Plants</u> , Investigation 2, Parts 1-2 <u>Insects and Plants</u> , Investigation 3, Parts 1-3	Pages 18-24 Pages 1-19 Pages 52-75
(D) Record and organize data using pictures, numbers, and words; and	<u>Pebbles, Sand and Silt</u> , Investigation 2, Parts 1-4	Pages 8-29

	<u>Air and Weather</u> , Investigation 1, Parts 4-5 <u>Plants and Animals</u> , Investigation 1, Part 2 <u>Solids and Liquids</u> , Investigation 4, Part 1	Pages 21-33 Pages 58-62 Pages 7-16
(E) Communicate observations and provide reasons for explanations using student-generated data from simple descriptive investigations.	<u>Solids and Liquids</u> , Investigation 3, Part 1 <u>Pebbles, Sand and Silt</u> , Investigation 1, Part 2 <u>Insects and Plants</u> , Investigation 2, Part 3 <u>Plants and Animals</u> , Investigation 1, Parts 1-2 Investigation 3, Part 2	Pages 8-13 Pages 13-17 Pages 105-115 Pages 47-62 Pages 128-134
(1.3) Scientific investigations and reasoning. <i>The student knows that information and critical thinking are used in scientific problem solving. The student is expected to:</i>		
(A) Identify and explain a problem such as finding a home for a classroom pet and propose a solution in his/her own words;	<u>Solids and Liquids</u> , Investigation 1, Part 3 Investigation 4, Part 3 <u>Balance and Motion</u> , Investigation 1, Part 3 <u>Plants and Animals</u> , Investigation 1, Parts 1-2 <u>Air and Weather</u> , Investigation 1, Parts 2, 5	Pages 21-24 Pages 23-27 Pages 19-23 Pages 1347-62 Pages 13-16, 27-33
(B) Make predictions based on observable patterns; and	<u>Air and Weather</u> , Investigation 1, Part 6 <u>Pebbles, Sand and Silt</u> , Investigation 1, Part 4 <u>Plants and Animals</u> , Investigation 2, Part 2 <u>Balance and Motion</u> , Investigation 1, Part 2	Pages 34-38 Pages 22-25 Pages 96-103 Pages 14-18
(C) Describe what scientists do.	<u>Air and Weather</u> , Science Stories <u>Pebbles, sand and Silt</u> , Science Stories	Pages 14-15 Pages 26-31
(1.4) Scientific investigations and reasoning. <i>The student uses age-appropriate tools and models to investigate the natural world. The student is expected to:</i>		
(A) Collect, record, and compare information using tools, including computers, hand lenses, primary balances, cups, bowls, magnets, collecting nets, notebooks, and safety goggles; timing devices, including clocks and timers; non-standard measuring items such as paper clips and clothespins; weather instruments such as classroom demonstration thermometers and wind socks; and materials to support observations of habitats of organisms such as aquariums and terrariums; and	<u>Air and Weather</u> , Investigation 2, Part 2, 4 <u>Plants and Animals</u> , Investigation 3, Parts 1-2 <u>Pebbles, Sand and Silt</u> , Investigation 2, Parts 1-4 <u>Insects</u> , Investigation 2, Parts 1-3 <u>Insects and Plants</u> , Investigation 1, Parts 1-3	Pages 14-19, 24-27 Pages 120-134 Pages 8-29 Pages 8-24 Pages 52-75
(B) Measure and compare organisms and objects using non-standard units.	<u>New Plants</u> , Investigation 1, Part 3 Investigation 2, Part 3	Pages 23-30 Pages 20-28

	<u>Plants and Animals,</u> Investigation 1, Part 3 <u>Insects and Plants,</u> investigation 2, Part 3	Pages 63-74 Pages 105-115
(1.5) Matter and energy. <i>The student knows that objects have properties and patterns. The student is expected to:</i>		
(A) Classify objects by observable properties of the materials from which they are made such as larger and smaller, heavier and lighter, shape, color, and texture;	<u>Pebbles, Sand and Silt,</u> Investigation 1, Part 3 Investigation 2, Parts 1-4 <u>Solids and Liquids,</u> Investigation 1, Part 2 Investigation 2, Parts 1-3 Investigation 3, Part 2	Pages 18-21 Pages 8-29 Pages 17-20 Pages 10-20 Pages 14-18
(B) Predict and identify changes in materials caused by heating and cooling such as ice melting, water freezing, and water evaporating.	<u>Solids and Liquids,</u> Investigation 4, Part 1 Investigation 4, Science Extension Foss web: Activity: Change It <u>Air and Weather,</u> Investigation 2, Science Extension	Pages 7-16 Page 29 Page 32
(1.6) Force, motion, and energy. <i>The student knows that energy, force, and motion are related and are a part of their everyday life. The student is expected to:</i>		
(A) Identify and discuss how different forms of energy such as light, heat, and sound are important to everyday life;	<u>New Plants,</u> Investigation 1, Parts 2-3 Investigation 2, Science Extension FOSS Science Stories <u>Insects and Plants,</u> Investigation 2, Parts 2-3 Investigation 1, Science Extension Science Resources	Pages 13-30 Page 30 Page 6 Pages 95-115 Page 76 Page 6
(B) Predict and describe how a magnet can be used to push or pull an object;	<u>Balance and Motion,</u> Science Stories <u>Solids and Liquids,</u> Investigation 3, Science Extension	Pages 18-21 Page 31
(C) Describe the change in the location of an object such as closer to, nearer to, and farther from; and	<u>Air and Weather,</u> Investigation 1, Parts 2-6 Investigation 3, Parts 1, 4 <u>Balance and Motion,</u> Investigation 1, Parts 1-4 Investigation 3, Parts 1-3	Pages 13-38 Pages 8-11, 22-27 Pages 8-28 Pages 6-25
(D) Demonstrate and record the ways that objects can move such as in a straight line, zigzag, up and down, back and forth, round and round, and fast and slow	<u>Air and Weather,</u> Investigation 1, Parts 3-6 Investigation 3, Parts 1, 3-5 <u>Balance and Motion,</u> Investigation 2, Parts 1-3 Investigation 3, Parts 1-3	Pages 17-38 Pages 8-11, 17-33 Pages 8-25 Pages 6-25
(1.7) Earth and space. <i>The student knows that the natural world includes rocks, soil, and water that can be observed in cycles, patterns, and systems. The student is expected to:</i>		
(A) Observe, describe, compare, and sort components of soil by size, color, and texture;	<u>Pebbles, Sand and Silt,</u> Investigation 4, Parts 1-3 Science Stories	Pages 18-25 Pages 20-23
(B) Observe and describe a variety of natural sources of water, including		

streams, lakes, and oceans; and		
(C) Gather evidence of how rocks, soil, and water help to make useful products.	<u>Pebbles, Sand and Silt</u> , Investigation 3, Parts 1-5 Science Stories	Pages 8-29 Pages 16-19
(1.8) Earth and space. <i>The student knows that the natural world includes the air around us and objects in the sky. The student is expected to:</i>		
(A) Record weather information, including relative temperature, such as hot or cold, clear or cloudy, calm or windy, and rainy or icy;	<u>Air and Weather</u> , Investigation 2, Parts 1-4 Investigation 3, Parts 2, 4 Investigation 4, Parts 1-2	Pages 8-27 Pages 12-17, 22-27 Pages 8-18
(B) Observe and record changes in the appearance of objects in the sky such as clouds, the Moon, and stars, including the Sun;	<u>Air and Weather</u> , Investigation 2, Part 3 Investigation 4, Part 3	Pages 20-23 Pages 19-24
(C) Identify characteristics of the seasons of the year and day and night;	<u>Air and Weather</u> , Investigation 4, Part 3 Science Stories	Pages 12-17 Pages 18-23
(D) Demonstrate that air is all around us and observe that wind is moving air.	<u>Air and Weather</u> , Investigation 1, Parts 1-6 Investigation 3, Parts 1-5 Science Stories	Pages 8-38 Pages 8-33 Pages 3-6
(1.9) Organisms and environments. <i>The student knows that the living environment is composed of relationships between organisms and the life cycles that occur. The student is expected to:</i>		
(A) Sort and classify living and nonliving things based upon whether or not they have basic needs and produce offspring.	All grade one modules provide the opportunity to address this element as some involve living things and some nonliving things.	
(B) Analyze and record examples of interdependence found in various situations such as terrariums and aquariums or pet and caregiver; and	<u>Insects</u> , Investigation 6, Parts 1-3 <u>Plants and Animals</u> , Investigation 3, Parts 1-3	Pages 8-22 Pages 120-140
(C) Gather evidence of interdependence among living organisms such as energy transfer through food chains and animals using plants for shelter.	<u>Insects</u> , Investigation 1, Part 1 Investigation 4, Part 2 <u>Plants and Animals</u> , Science Resources <u>New Plants</u> , Science Stories <u>Insects and Plants</u> , Investigation 1, Part 1 Investigation 4, Part 2 Science Resources	Pages 8-15 Pages 14-18 Pages 21-26, 28-45 Pages 10-11, 22-39 Pages 52-61 Pages 170-174 Pages 26-27
(1.10) Organisms and environments. <i>The student knows that organisms resemble their parents and have structures and processes that help them survive within their environments. The student is expected to:</i>		
(A) Investigate how the external characteristics of an animal are related to where it lives, how it moves, and what it eats;	<u>Insects</u> , Investigation 1-6, all parts Science Stories <u>Plants and Animals</u> , Investigation 3, Part 2	Pages 26-33 Pages 128-134

	<u>Science Resources</u> <u>New Plants,</u> <u>Science Stories</u> <u>Insects and Plants,</u> <u>Investigation 1, 3-5, all parts</u> <u>Science Resources</u>	Pages 28-51 Pages 22-43 Pages 47-55
(B) identify and compare the parts of plants;	<u>New Plants,</u> Investigation 1, Part 3 Investigation 3, Parts 1-3 Investigation 4, Parts 1-2 <u>Science Stories</u> <u>Plants and Animals,</u> Investigation 2, Parts 1-3 Investigation 4, Parts 1-2 <u>Science Resources</u>	Pages 23-30 Pages 8-25 Pages 7-19 Pages 4-15, 17-19 Pages 87-108 Pages 151-166 Pages 4-7, 10-12, 16-19
(C) compare ways that young animals resemble their parents; and	<u>Insects and Plants,</u> Investigation 3, Parts 1-3 <u>Science Resources</u> <u>Insects,</u> Investigation 3, Parts 1-3 <u>Science Stories</u>	Pages 129-152 Pages 42-55 Pages 8-26 Pages 21-33
(D) Observe and record life cycles of animals such as a chicken, frog, or fish.	<u>Insects and Plants,</u> Investigation 1, 2-5, all parts Investigation 5, Science Extension <u>Science Resources</u> <u>Insects,</u> Investigation 1-5, all parts Investigation 6, Science Extension <u>Science Stories</u>	Page 231 Pages 37-55 Page 24 Pages 16-33

Grade Two

TEXAS ESSENTIAL KNOWLEDGE AND SKILL ELEMENT	FOSS INVESTIGATION/ ACTIVITY	PAGE NUMBER (S)
(2.1) Scientific investigation and reasoning. <i>The student conducts classroom and outdoor investigations following home and school safety procedure and uses environmentally appropriate and responsible practices. The student is expected to:</i>		
(A) Identify and demonstrate safe practices as described in the Texas Safety Standards during classroom and outdoor investigations, including wearing safety goggles, washing hands, and using materials appropriately;	All FOSS modules are designed to include safe practices. Where special caution is needed, safety-warning statements are included as in: <u>New Plants</u> , Investigation 1, Part 2 <u>Insects and Plants</u> , Investigation 2, Part 2	Page 17 Pages 99
(B) discuss the importance of safe practices to keep self and others safe and healthy; and	Teachers and students would have the opportunity to discuss safety with each safety statement. See above for example.	
(C) demonstrate how to use, conserve, and dispose of natural resources and materials such as conserving water and reuse or recycling of paper, plastic, and metal.	<u>Insects and Plants</u> , Investigation 2, Part 3 <u>New Plants</u> , Investigation 1, Part 3 <u>Pebbles, Sand and Silt</u> , Investigation 3, Parts 1-5 Science Stories	Page 113 Page 29 Pages 8-29 Pages 16-19
(2.2) Scientific investigations and reasoning. <i>The student develops abilities to ask questions and seek answers in classroom and outdoor investigations. The student is expected to:</i>		
(A) Ask questions about organisms, objects, and events during observations and investigations;	<u>New Plants</u> , Investigation 2, Part 2 <u>Pebbles, Sand and Silt</u> , Investigation 1, Part 1 <u>Solids and Liquids</u> , Investigation 4, Part 1 <u>Insects and Plants</u> , Investigation 3, Parts 1-3 <u>Plants and Animals</u> , Investigation 1, Part 2	Pages 15-19 Page 12 Pages 7-16 Pages 129-151 Pages 58-62
(B) plan and conduct descriptive investigations such as how organisms grow;	<u>Solids and Liquids</u> , Investigation 3, Part 1 <u>Pebbles, Sand and Silt</u> , Investigation 1, Part 2 <u>Insects and Plants</u> , Investigation 2, Part 3 <u>Plants and Animals</u> , Investigation 1, Parts 1-2 Investigation 3, Part 2	Pages 8-13 Pages 13-17 Pages 105-115 Pages 47-62 Pages 128-134
(C) Collect data from observations using simple equipment such as hand lenses, primary balances, thermometers, and non-standard measurement tools.	<u>Pebbles, Sand and Silt</u> , Investigation 1, Part 3 <u>New Plants</u> , Investigation 2, Parts 1-2 <u>Insects and Plants</u> , Investigation 3, Parts 1-3	Pages 18-24 Pages 1-19 Pages 52-75
(D) Record and organize data using pictures, numbers, and words;	<u>Pebbles, Sand and Silt</u> , Investigation 2, Parts 1-4	Pages 8-29

	<u>Air and Weather</u> , Investigation 1, Parts 4-5 <u>Plants and Animals</u> , Investigation 1, Part 2 <u>Solids and Liquids</u> , Investigation 4, Part 1	Pages 21-33 Pages 58-62 Pages 7-16
(E) Communicate observations and justify explanations using student-generated data from simple descriptive investigations;	<u>Solids and Liquids</u> , Investigation 3, Part 1 <u>Pebbles, Sand and Silt</u> , Investigation 1, Part 2 <u>Insects and Plants</u> , Investigation 2, Part 3 <u>Plants and Animals</u> , Investigation 1, Parts 1-2 Investigation 3, Part 2	Pages 8-13 Pages 13-17 Pages 105-115 Pages 47-62 Pages 128-134
(F) Compare results of investigations with what students and scientists know about the world.	FOSS investigations allow for students to discuss their investigations with each other and the FOSS Science Stories provide information on what scientists know about the world that can be referred to by students.	
(2.3) Scientific investigation and reasoning. <i>The student knows that information and critical thinking, scientific problem solving, and the contributions of scientists are used in making decisions. The student is expected to:</i>		
(A) Identify and explain a problem in his/her own words and propose a task and solution for the problem such as lack of water in a habitat;	<u>Solids and Liquids</u> , Investigation 1, Part 3 Investigation 4, Part 3 <u>Balance and Motion</u> , Investigation 1, Part 3 <u>Plants and Animals</u> , Investigation 1, Parts 1-2 <u>Air and Weather</u> , Investigation 1, Parts 2, 5	Pages 21-24 Pages 23-27 Pages 19-23 Pages 1347-62 Pages 13-16, 27-33
(B) make predictions based on observable patterns; and	<u>Air and Weather</u> , Investigation 1, Part 6 <u>Pebbles, Sand and Silt</u> , Investigation 1, Part 4 <u>Plants and Animals</u> , Investigation 2, Part 2 <u>Balance and Motion</u> , Investigation 1, Part 2	Pages 34-38 Pages 22-25 Pages 96-103 Pages 14-18
(C) identify what a scientist is and explore what different scientists do.	<u>Air and Weather</u> , Science Stories <u>Pebbles, sand and Silt</u> , Science Stories	Pages 14-15 Pages 26-31
(2.4) Scientific investigation and reasoning. <i>The student uses age-appropriate tools and models to investigate the natural world. The student is expected to:</i>		
(A) Collect, record, and compare information using tools, including computers , hand lenses , rulers , primary balances, plastic beakers, magnets, collecting nets, notebooks, and safety goggles; timing devices, including clocks and stopwatches ; weather instruments such as thermometers , wind vanes, and	<u>Air and Weather</u> , Investigation 2, Part 2, 4 <u>Plants and Animals</u> , Investigation 3, Parts 1-2 <u>Pebbles, Sand and Silt</u> , Investigation 2, Parts 1-4 <u>Insects</u> , Investigation 2, Parts	Pages 14-19, 24-27 Pages 120-134 Pages 8-29

rain gauges; and materials to support observations of habitats of organisms such as terrariums and aquariums; and	1-3 <u>Insects and Plants</u> , Investigation 1, Parts 1-3	Pages 8-24 Pages 52-75
(B) Measure and compare organisms and objects using non-standard units that approximate metric units.	<u>New Plants</u> , Investigation 1, Part 3 Investigation 2, Part 3 <u>Plants and Animals</u> , Investigation 1, Part 3 <u>Insects and Plants</u> , investigation 2, Part 3	Pages 23-30 Pages 20-28 Pages 63-74 Pages 105-115
<i>(2.5) Matter and energy. The student knows that matter has physical properties and those properties determine how it is described, classified, changed, and used. The student is expected to:</i>		
(A) classify matter by physical properties, including shape, relative mass, relative temperature, texture, flexibility, and whether material is a solid or liquid;	<u>Pebbles, Sand and Silt</u> , Investigation 1, Part 1 Investigation 2, Parts 1-4 Science Stories <u>Solids and Liquids</u> , Investigation 1, Part 1 Investigation 2, Parts 1-3 Science Stories	Pages 8-16 Pages 10-27 Pages 3-13 Pages 8-17 Pages 8-29 Pages 4-7
(B) compare changes in materials caused by heating and cooling;	<u>Solids and Liquids</u> , Investigation 4, Part 1 Investigation 4, Science Extension Foss web: Activity: Change It <u>Air and Weather</u> , Investigation 2, Science Extension	Pages 7-16 Page 29 Page 32
(C) Demonstrate that things can be done to materials to change their physical properties such as cutting, folding, sanding, and melting; and	<u>Pebbles, Sand and Silt</u> , Investigation 1, Part 2 Investigation 3, Parts 3, 5 <u>Solids and Liquids</u> , Investigation 4, Part 1 Science Stories	Pages 13-17 Pages 16-19, 24-29 Pages 7-16 Pages 14-17
(D) Combine materials that when put together can do things that they cannot do by themselves such as building a tower or a bridge and justify the selection of those materials based on their physical properties.	<u>Pebbles, Sand and Silt</u> , Investigation 3, Parts 3-5 <u>Solids and Liquids</u> , Investigation 1, Part 3 <u>Balance and Motion</u> , Investigation 1, Parts 1-4 Investigation 2, Parts 1-3	Pages 16-29 Pages 21-24 Pages 8-28 Pages 8-25
<i>(2.6) Force, motion, and energy. The student knows that forces cause change and energy exists in many forms. The student is expected to:</i>		
(A) Investigate the effects on an object by increasing or decreasing amounts of light, heat, and sound energy such as how the color of an object appears different in dimmer light or how heat melts butter;		
(B) observe and identify how magnets are used in everyday life;	<u>Balance and Motion</u> , Science Stories <u>Solids and Liquids</u> , Investigation 3, Science Extension	Pages 18-21 Page 31
(C) Trace the changes in the position of an object over time such as a cup rolling on	<u>Balance and Motion</u> , Investigation 3, Parts 1-3	Pages 6-25

the floor and a car rolling down a ramp; and	<u>Air and Weather</u> , Investigation 1, Part 6 Investigation 3, Part 4	Pages 34-38 Pages 22-28
(D) compare patterns of movement of objects such as sliding, rolling, and spinning.	<u>Balance and Motion</u> , Investigation 2, Parts 1-3 Investigation 3, Parts 1-3 Science Stories <u>Air and Weather</u> , Investigation 1, Part 6 Investigation 3, Parts 1, 3-4	Pages 8-25 Pages 6-25 Pages 22-31 Pages 34-38 Pages 6-11, 17-33
<i>(2.7) Earth and space. The student knows that the natural world includes earth materials. The student is expected to:</i>		
(A) observe and describe rocks by size, texture, and color;	<u>Pebbles, Sand and Silt</u> , Investigation 1, Parts 1-5 Investigation 2, Parts 1-4 Science Stories	Pages 8-29 Pages 8-29 Pages 3-8
(B) identify and compare the properties of natural sources of fresh water and saltwater; and	<u>Air and Weather</u> , Investigation 2, Part 4	Pages 26-27
(C) distinguish between natural and manmade resources.	<u>Air and Weather</u> , Investigation 2, Part 4	Pages 26-27
<i>(2.8) Earth and space. The student knows that there are recognizable patterns in the natural world and among objects in the sky. The student is expected to:</i>		
(A) Measure, record, and graph weather information, including temperature, wind conditions, precipitation, and cloud coverage, in order to identify patterns in the data.	<u>Air and Weather</u> , Investigation 2, Parts 1-4 Investigation 4, Parts 1-2	Pages 8-27 Pages 8-18
(B) Identify the importance of weather and seasonal information to make choices in clothing, activities, and transportation;	<u>Air and Weather</u> , Science Stories Foss web, Activity: What's the Weather	Pages 18-21
(C) Explore the processes in the water cycle, including evaporation, condensation, and precipitation, as connected to weather conditions; and	<u>Air and Weather</u> , Investigation 2, Parts 1-4	Pages 8-27
(D) Observe, describe, and record patterns of objects in the sky, including the appearance of the Moon.	<u>Air and Weather</u> , Investigation 4, Part 3	Pages 19-24
<i>(2.9) Organisms and environments. The student knows that living organisms have basic needs that must be met for them to survive within their environment. The student is expected to:</i>		
(A) identify the basic needs of plants and animals;	<u>Insects</u> , Investigation 1, Part 1 Investigation 5, Part 1 <u>New Plants</u> , Investigation 1, Part 2 Investigation 2, Part 1 Science Stories <u>Insects and Plants</u> , Investigation 1, Part 1 Investigation 3, Part 2 <u>Plants and Animals</u> , Investigation 1, Part 1 Investigation 2, Part 1 Science Resources Video: How Plants Get Food	Pages 8-25 Pages 10-15 Pages 13-22 Pages 8-14 Pages 3-7 Pages 52-61 Pages 134-144 Pages 21-26 Pages 47-57 Pages 3-7, 21-26

(B) Identify factors in the environment, including temperature and precipitation that affect growth and behavior such as migration, hibernation, and dormancy of living things; and	<u>New Plants,</u> Science Stories <u>Plants and Animals,</u> Science Resources	Pages 25-28, 30, 33 Pages 31-34, 36, 39
(C) Compare and give examples of the ways living organisms depend on each other and on their environments such as food chains within a garden, park, beach, lake, and wooded area.	<u>Insects,</u> Investigation 4, Part 2 Investigation 6, Parts 1-3 Science Stories <u>New Plants,</u> Investigation 1, Parts 2-3 Science Stories <u>Insects and Plants,</u> Investigation 2, Parts 2-3 Investigation 3, Parts 2-3 Science Resources <u>Plants and Animals,</u> Investigation 3, Parts 1-3 Science Resources	Pages 14-18 Pages 8-22 Pages 6, 8-9 Pages 13-30 Pages 4-11, 22-39 Pages 95-115 Pages 134-152 Pages 6, 26-27 Pages 120-140 Pages 3-7, 21-26, 28-45
(2.10) <i>Organisms and environments.</i> The student knows that organisms resemble their parents and have structures and processes that help them survive within their environments. The student is expected to:		
(A) Observe, record, and compare how the physical characteristics and behaviors of animals help them meet their basic needs such as fins help fish move and balance in the water;	<u>Insects,</u> Investigation 1, Part 1 Investigation 3, Part 3 Investigation 5, Part 3 Investigation 6, Parts 1-3 Science Stories <u>New Plants,</u> Science Stories <u>Insects and Plants,</u> Investigation 3, Part 3 Investigation 4, Parts 4-5 Science Resources <u>Plants and Animals,</u> Science Resources	Pages 8-15 Pages 21-26 Pages 20-24 Pages 8-22 Pages 8-11, 26-33 Pages 22-43 Pages 145-152 Pages 179-191 Pages 22-29, 48-55 Pages 28-50
(B) Observe, record, and compare how the physical characteristics of plants help them meet their basic needs such as stems carry water throughout the plant; and	<u>New Plants,</u> Investigation 3, Parts 1-3 Investigation 4, Parts 1-2 Science Stories <u>Plants and Animals,</u> Investigation 2, Parts 1-3 Investigation 4, Parts 1-2 Science Resources	Pages 8-25 Pages 7-19 Pages 4-11 Pages 87-108 Pages 151-166 Pages 4-7, 16-19
(C) Investigate and record some of the unique stages that insects undergo during their life cycle.	<u>Insects,</u> Investigations 1-5, all parts Science Stories <u>Insects and Plants,</u> Investigation 1, 3-5, all parts Science Resources	Pages 7-19 Pages 37-47

Grade Three

TEXAS ESSENTIAL KNOWLEDGE AND SKILL ELEMENT	FOSS INVESTIGATION/ ACTIVITY	PAGE NUMBER (S)
<p>(3.1) Scientific investigation and reasoning. <i>The student conducts classroom and outdoor investigations following school and home safety procedures and environmentally appropriate practices. The student is expected to:</i></p>		
(A) Demonstrate safe practices as described in the Texas Safety Standards during classroom and outdoor investigations, including observing a schoolyard habitat; and	All FOSS modules are designed to include safe practices. Where special caution is needed, safety-warning statements are included as in: <u>Water</u> , Investigation 2, Part 1 <u>Magnetism and Electricity</u> , Investigation 1, Part 1 <u>Sun, Moon and Stars</u> , Investigation 1, Part 1 <u>Matter and Energy</u> , Investigation 1, Part 1	Page 9 Page 14 Page 51 Page 58
(B) Make informed choices in the use and conservation of natural resources by recycling or reusing materials such as paper, aluminum cans, and plastics.	<u>Water</u> , Investigation 3, Interdisciplinary Extensions Investigation 4, Math Extensions Science Stories <u>Measurement</u> , Science Stories	Page 27 Pages 30-31 Pages 17-21 Pages 16-17
<p>(3.2) Scientific investigation and reasoning. <i>The student uses scientific inquiry methods during laboratory and outdoor investigations. The student is expected to:</i></p>		
(A) Plan and implement descriptive investigations, including asking and answering questions, making inferences, and selecting and using equipment or technology needed, to solve a specific problem in the natural world;	<u>Water</u> , Investigation 4, Part 4 <u>Measurement</u> , Investigation 2, Part 3 <u>Structures of Life</u> , Investigation 1, Parts 2-3 <u>Sun, Moon and Stars</u> , Investigation 1, Part 2 <u>Matter and Energy</u> , Investigation 3, Part 2	Pages 24-28 Pages 20-21 Pages 18-33 Pages 56-64 Pages 139-150
(B) Collect data by observing and measuring using the metric system and recognize differences between observed and measured data;	<u>Water</u> , Investigation 4, Part 1 <u>Matter and Energy</u> , Investigation 4, Part 1 <u>Earth Materials</u> , Investigation 1, Part 1 <u>Measurement</u> , Investigation 2, Part 3 Investigation 3, Part 3	Pages 8-13 Pages 174-180 Pages 8-15 Pages 18-24 Pages 18-21
(C) Construct maps, graphic organizers, simple tables, charts, and bar graphs using tools and current technology to organize, examine, and evaluate measured data;	<u>Water</u> , Investigation 3, Part 3 <u>Sun, Moon and Stars</u> , Investigation 1, Part 2 <u>Matter and Energy</u> , Investigation 3, Part 2 <u>Magnetism and Electricity</u> , Investigation 1, Part 3 Investigation 4, Part 2 <u>Human Body</u> , investigation 4, Part 2	Pages 17-20 Pages 56-64 Pages 139-150 Pages 23-29 Pages 14-18 Pages 17-19

(D) Analyze and interpret patterns in data to construct reasonable explanations based on evidence from investigations;	<u>Measurement</u> , Investigation 2, Part 3 <u>Water</u> , Investigation 3, Part 3 <u>Sun, Moon and Stars</u> , Investigation 2, Part 2 <u>Matter and Energy</u> , Investigation 4, Part 2 <u>Magnetism and Electricity</u> , Investigation 4, Parts 1-2	Pages 18-24 Pages 17-20 Pages 89-100 Pages 181-192 Pages 8-18
(E) Demonstrate that repeated investigations may increase the reliability of results; and	FOSS provides the opportunity to address this element as the results of each investigation is discussed in a class setting by the various groups. See for example: <u>Measurement</u> , Investigation 2, Part 3 <u>Structures of Life</u> , Investigation 1, Parts 2-3 <u>Sun, Moon and Stars</u> , Investigation 1, Part 2 <u>Matter and Energy</u> , Investigation 3, Part 2	 Pages 20-21 Pages 18-33 Pages 56-64 Pages 139-150
(F) Communicate valid conclusions supported by data in writing, by drawing pictures, and through verbal discussion.	<u>Measurement</u> , Investigation 2, Part 3 <u>Water</u> , Investigation 3, Part 3 <u>Sun, Moon and Stars</u> , Investigation 2, Part 2 <u>Matter and Energy</u> , Investigation 4, Part 2 <u>Magnetism and Electricity</u> , Investigation 4, Parts 1-2	Pages 18-24 Pages 17-20 Pages 89-100 Pages 181-192 Pages 8-18
(3.3) Scientific investigation and reasoning. <i>The student knows that information, critical thinking, scientific problem solving, and the contributions of scientists are used in making decisions. The student is expected to:</i>		
(A) In all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student;	FOSS investigations provide the opportunity for students to engage in critical thinking. See for example: <u>Measurement</u> , Investigation 2, Part 3 <u>Structures of Life</u> , Investigation 1, Parts 2-3 <u>Sun, Moon and Stars</u> , Investigation 1, Part 2 <u>Matter and Energy</u> , Investigation 3, Part 2	 Pages 20-21 Pages 18-33 Pages 56-64 Pages 139-150
(B) Draw inferences and evaluate accuracy of product claims found in advertisements and labels such as for toys and food;	<u>Measurement</u> , Investigation 3, Part 3 Science Stories	Pages 18-21 Pages 18-20
(C) Represent the natural world using models such as volcanoes or Sun, Earth, and Moon system and identify their limitations, including size, properties, and materials; and	<u>Earth Materials</u> , Investigation 1, Parts 1-2 <u>Ideas and Inventions</u> , Investigation 1, Parts 1-2 <u>Human Body</u> , Investigation 3, Parts 1-3 <u>Sun, Moon and Stars</u> ,	Pages 8-23 Pages 8-13 Pages 8-21

	Investigation 2, Part 2 Investigation 3, Part 1	Pages 89-100 Pages 114-125
(D) Connect grade-level appropriate science concepts with the history of science, science careers, and contributions of scientists.	<u>Magnetism and Electricity</u> , FOSS Science Stories <u>Ideas and Inventions</u> , FOSS Science Stories <u>Sun, Moon and Stars</u> , Science Resources <u>Structures of Life</u> , Science Stories	Page 12-23 Pages 17-22 Pages 40-43 Pages 6-9
(3.4) Scientific investigation and reasoning. <i>The student knows how to use a variety of tools and methods to conduct science inquiry. The student is expected to:</i>		
(A) Collect, record, and analyze information using tools, including microscopes , cameras , computers , hand lenses , metric rulers , Celsius thermometers , wind vanes, rain gauges, pan balances , graduated cylinders , beakers , spring scales, hot plates , meter sticks , compasses , magnets, collecting nets, notebooks, sound recorders, and Sun, Earth, and Moon system models ; timing devices, including clocks and stopwatches; and materials to support observation of habitats of organisms such as terrariums and aquariums; and	<u>Water</u> , Investigation 4, Part 1 <u>Structures of Life</u> , Investigation 1, Part 3 <u>Measurement</u> , Investigation 1, Parts 2-3 Investigation 2, Parts 2-3 Investigation 3, Parts 2-3 Investigation 4, Parts 1-3 <u>Sun, Moon and Stars</u> , Investigation 2, Part 2 <u>Matter and Energy</u> , Investigation 3, Parts 2-3	Pages 8-13 Pages 28-33 Pages 16-24 Pages 14-23 Pages 14-21 Pages 8-21 Pages 89-100 Pages 139-160
(B) use safety equipment as appropriate, including safety goggles and gloves.	<u>Earth Materials</u> , Investigation 1, Part 1 Investigation 1, Part 2	Page 18 Page 19
(3.5) Matter and energy. <i>The student knows that matter has measurable physical properties and those properties determine how matter is classified, changed, and used. The student is expected to:</i>		
(A) Measure, test, and record physical properties of matter, including temperature, mass, magnetism, and the ability to sink or float;	<u>Magnetism and Electricity</u> , Investigation 1, Part 1 <u>Water</u> , Investigation 2, Parts 2-3 Investigation 4, Parts 1, 3 <u>Matter and Energy</u> , Investigation 3, Parts 1-3 Investigation 4, Part 1 Science Resources <u>Earth Materials</u> , Investigation 1, Parts 1-2 Investigation 2, Part 2 Science Stories	Pages 8-17 Pages 14-24 Pages 8-13, 19-23 Pages 129-160 Pages 174-180 Pages 39-42, 51 Pages 8-23 Pages 14-21 Pages 30-33
(B) Describe and classify samples of matter as solids, liquids, and gases and demonstrate that solids have a definite shape and that liquids and gases take the shape of their container;	<u>Matter and Energy</u> , Investigation 3, Part 1 Science Resources <u>Water</u> , Investigation 1, Part 1 Investigation 2, Part 3 Science Stories	Pages 129-138 Pages 39-42 Pages 8-13 Pages 19-24 Pages 1-2
(C) Predict, observe, and record changes in the state of matter caused by heating or cooling; and	<u>Matter and Energy</u> , Investigation 2, Parts 1-4 Investigation 4, Part 2 Science Resources <u>Water</u> , Investigation 3, Parts 1-4 Science Stories	Pages 80-110 Pages 181-192 Pages 54-59, 63 Pages 8-26 Pages 13-16

	Foss web, Activity: Evaporation	
D) Explore and recognize that a mixture is created when two materials are combined such as gravel and sand and metal and plastic paper clips.	<u>Earth Materials</u> , Investigation 1, Parts 2-3	Pages 16-29
(3.6) Force, motion, and energy. <i>The student knows that forces cause change and that energy exists in many forms. The student is expected to:</i>		
(A) Explore different forms of energy, including mechanical, light, sound, and heat/thermal in everyday life.	<u>Matter and Energy</u> , Investigation 1, Parts 1-3 Investigation 2, Parts 1-2 Investigation 4, Part 2 Science Resources <u>Magnetism and Electricity</u> , Investigations 1-5, all parts Science Stories <u>Water</u> , Investigation 4, Part 2 <u>Physics of Sound</u> , Investigation 1, Part 3 Investigation 2, Parts 1-3 Science Stories <u>Ideas and Inventions</u> , Investigation 4, Parts 1-3 Science Stories	Pages 50-82 Pages 93-114 Pages 181-192 Pages 1-17, 24-25, 63 Pages 6-11, 23, 28-33 Pages 14-18 Pages 21-29 Pages 8-24 Pages 6, 14, 19, 22-28 Pages 8-21 Pages 28-29
(B) Demonstrate and observe how position and motion can be changed by pushing and pulling objects to show work being done such as swings, balls, pulleys, and wagons; and	<u>Water</u> , Investigation 1, Part 3 Investigation 4, Part 2 <u>Human Body</u> , Investigation 3, Parts 1-3 <u>Structures of Life</u> , Investigation 4, Part 3	Pages 14-18 Pages 19-23 Pages 18-21 Pages 29024
(C) Observe forces such as magnetism and gravity acting on objects.	<u>Magnetism and Electricity</u> , Investigation 1, Parts 1-4 Science Stories	Pages 8-34 Pages 1-9
(3.7) Earth and space. <i>The student knows that Earth consists of natural resources and its surface is constantly changing. The student is expected to:</i>		
(A) Explore and record how soils are formed by weathering of rock and the decomposition of plant and animal remains;		
(B) Investigate rapid changes in Earth's surface such as volcanic eruptions, earthquakes, and landslides;		
(C) Identify and compare different landforms, including mountains, hills, valleys, and plains; and	<u>Earth Materials</u> , Science Stories	Pages 5-7
(D) Explore the characteristics of natural resources that make them useful in products and materials such as clothing and furniture and how resources may be conserved.		
(3.8) Earth and space. <i>The student knows there are recognizable patterns in the natural world and among objects in the sky The student is expected to:</i>		
(A) Observe, measure, record, and compare day-to-day weather changes in		

different locations at the same time that include air temperature, wind direction, and precipitation;		
(B) Describe and illustrate the sun as a star composed of gases that provides light and heat in the water cycle;	<u>Sun, Moon and Stars,</u> Science Resources <u>Water,</u> Science Stories	Pages 15, 33 Pages 14-16
(C) Construct models that demonstrate the relationship of the Sun, Earth, and Moon, including orbits and positions; and	<u>Sun, Moon and Stars,</u> Investigation 2, Parts 1-2 Science Resources <u>Ideas and Inventions,</u> Science Stories	Pages 79-100 Pages 19-24, 30-31 Pages 34-36
(D) Identify the planets in Earth's solar system and their position in relation to the Sun.	<u>Sun, Moon and Stars,</u> Science Resources	Pages 16-17
(3.9) <i>Organisms and environments.</i> The student knows that organisms have characteristics that help them survive and can describe patterns, cycles, systems, and relationships within the environments. The student is expected to:		
(A) Observe and describe the physical characteristics of environments and how they support populations and communities within an ecosystem;	<u>Structures of Life,</u> Science Stories	Pages 22-34
(B) Identify and describe the flow of energy in a food chain and predict how changes in a food chain affect the ecosystem such as removal of frogs from a pond or bees from a field; and	<u>Structures of Life,</u> Science Stories	Page 43
(C) Describe environmental changes such as floods and droughts where some organisms thrive and others perish or move to new locations.	<u>Structures of Life,</u> Science Stories	Pages 35-36
(3.10) <i>Organisms and environments.</i> The student knows that organisms undergo similar life processes and have structures that help them survive within their environments. The student is expected to:		
(A) Explore how structures and functions of plants and animals allow them to survive in a particular environment;	<u>Structures of Life,</u> Investigation 2, Part 1 Science Stories	
(B) Explore that some characteristics of organisms are inherited such as the number of limbs on an animal or flower color and recognize that some behaviors are learned in response to living in a certain environment such as animals using tools to get food; and	<u>Structures of Life,</u> Investigation 3, Part 1 Investigation 4, Parts 1-2 Investigation 5, Parts 1-2 Science Stories	Pages 8-15 Pages 8-19 Pages 8-18 Pages 3, 17-18, 22-34, 39-42
(C) Investigate and compare how animals and plants undergo a series of orderly changes in their diverse life cycles such as tomato plants, frogs, and lady bugs.	<u>Structures of Life,</u> Science Stories Foss web, Activity: Life Cycles	Pages 20-21

Grade Four

TEXAS ESSENTIAL KNOWLEDGE AND SKILL ELEMENT	FOSS INVESTIGATION/ ACTIVITY	PAGE NUMBER (S)
(4.1) Scientific investigation and reasoning. <i>The student conducts classroom and outdoor investigations, following home and school safety procedures and environmentally appropriate and ethical practices. The student is expected to:</i>		
(A) Demonstrate safe practices and the use of safety equipment as described in the Texas Safety Standards during classroom and outdoor investigations; and	All FOSS modules are designed to include safe practices. Where special caution is needed, safety-warning statements are included as in: <u>Water</u> , Investigation 2, Part 1 <u>Magnetism & Electricity</u> , Investigation 1, Part 1 <u>Sun, Moon and Stars</u> , Investigation 1, Part 1 <u>Matter and Energy</u> , Investigation 1, Part 1	Page 9 Page 14 Page 51 Page 58
(B) Make informed choices in the use and conservation of natural resources and reusing and recycling of materials such as paper, aluminum, glass, cans, and plastic.	<u>Water</u> , Investigation 3, Interdisciplinary Extensions Investigation 4, Math Extensions Science Stories <u>Measurement</u> , Science Stories	Page 27 Pages 30-31 Pages 17-21 Pages 16-17
(4.2) Scientific investigation and reasoning. <i>The student uses scientific inquiry methods during laboratory and outdoor investigations. The student is expected to:</i>		
(A) Plan and implement descriptive investigations, including asking well-defined questions, making inferences, and selecting and using appropriate equipment or technology to answer his/her questions;	<u>Water</u> , Investigation 4, Part 4 <u>Measurement</u> , Investigation 2, Part 3 <u>Structures of Life</u> , Investigation 1, Parts 2-3 <u>Sun, Moon and Stars</u> , Investigation 1, Part 2 <u>Matter and Energy</u> , Investigation 3, Part 2	Pages 24-28 Pages 20-21 Pages 18-33 Pages 56-64 Pages 139-150
(B) Collect and record data by observing and measuring, using the metric system, and using descriptive words and numerals such as labeled drawings, writing, and concept maps.	<u>Water</u> , Investigation 4, Part 1 <u>Matter and Energy</u> , Investigation 4, Part 1 <u>Earth Materials</u> , Investigation 1, Part 1 <u>Measurement</u> , Investigation 2, Part 3 Investigation 3, Part 3	Pages 8-13 Pages 174-180 Pages 8-15 Pages 18-24 Pages 18-21
(C) Construct simple tables, charts, bar graphs, and maps using tools and current technology to organize, examine, and evaluate data;	<u>Water</u> , Investigation 3, Part 3 <u>Sun, Moon and Stars</u> , Investigation 1, Part 2 <u>Matter and Energy</u> , Investigation 3, Part 2 <u>Magnetism and Electricity</u> , Investigation 1, Part 3 Investigation 4, Part 2 <u>Human Body</u> , investigation 4, Part 2	Pages 17-20 Pages 56-64 Pages 139-150 Pages 23-29 Pages 14-18 Pages 17-19
(D) Analyze data and interpret patterns to construct reasonable explanations from	<u>Measurement</u> , Investigation 2, Part 3	Pages 18-24

data that can be observed and measured;	<u>Water</u> , Investigation 3, Part 3 <u>Sun, Moon and Stars</u> , Investigation 2, Part 2 <u>Matter and Energy</u> , Investigation 4, Part 2 <u>Magnetism and Electricity</u> , Investigation 4, Parts 1-2	Pages 17-20 Pages 89-100 Pages 181-192 Pages 8-18
(E) Perform repeated investigations to increase the reliability of results; and	FOSS provides the opportunity to address this element as the results of each investigation is discussed in a class setting by the various groups. See for example: <u>Measurement</u> , Investigation 2, Part 3 <u>Structures of Life</u> , Investigation 1, Parts 2-3 <u>Sun, Moon and Stars</u> , Investigation 1, Part 2 <u>Matter and Energy</u> , Investigation 3, Part 2	Pages 20-21 Pages 18-33 Pages 56-64 Pages 139-150
(F) Communicate valid, oral, and written results supported by data.	<u>Measurement</u> , Investigation 2, Part 3 <u>Water</u> , Investigation 3, Part 3 <u>Sun, Moon and Stars</u> , Investigation 2, Part 2 <u>Matter and Energy</u> , Investigation 4, Part 2 <u>Magnetism and Electricity</u> , Investigation 4, Parts 1-2	Pages 18-24 Pages 17-20 Pages 89-100 Pages 181-192 Pages 8-18
(4.3) Scientific investigation and reasoning. <i>The student uses critical thinking and scientific problem solving to make informed decisions. The student is expected to:</i>		
(A) In all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student;	FOSS investigations provide the opportunity for students to engage in critical thinking. See for example: <u>Measurement</u> , Investigation 2, Part 3 <u>Structures of Life</u> , Investigation 1, Parts 2-3 <u>Sun, Moon and Stars</u> , Investigation 1, Part 2 <u>Matter and Energy</u> , Investigation 3, Part 2	Pages 20-21 Pages 18-33 Pages 56-64 Pages 139-150
(B) Draw inferences and evaluate accuracy of services and product claims found in advertisements and labels such as for toys, food, and sunscreen;	<u>Measurement</u> , Investigation 3, Part 3 Science Stories	Pages 18-21 Pages 16-18
(C) Represent the natural world using models such as rivers, stream tables, or fossils and identify their limitations, including accuracy and size;	<u>Earth Materials</u> , Investigation 1, Parts 1-2 <u>Ideas and Inventions</u> , Investigation 1, Parts 1-2 <u>Human Body</u> , Investigation 3, Parts 1-3 <u>Sun, Moon and Stars</u> , Investigation 2, Part 2 Investigation 3, Part 1	Pages 8-23 Pages 8-13 Pages 8-21 Pages 89-100 Pages 114-125
(D) Connect grade-level appropriate	<u>Magnetism and Electricity</u> ,	

science concepts with the history of science, science careers, and contributions of scientists.	FOSS Science Stories <u>Ideas and Inventions</u> , FOSS Science Stories <u>Sun, Moon and Stars</u> , Science Resources <u>Structures of Life</u> , Science Stories	Page 12-23 Pages 17-22 Pages 40-43 Pages 6-9
(4.4) Scientific investigation and reasoning. <i>The student knows how to use a variety of tools, materials, equipment, and models to conduct science inquiry. The student is expected to:</i>		
(A) Collect, record, and analyze information using tools, including calculators , microscopes , cameras , computers , hand lenses , metric rulers , Celsius thermometers , mirrors , spring scales, pan balances , triple beam balances , graduated cylinders , beakers , hot plates , meter sticks , compasses , magnets, collecting nets, and notebooks ; timing devices, including clocks and stopwatches; and materials to support observation of habitats of organisms such as terrariums and aquariums; and	<u>Water</u> , Investigation 4, Part 1 <u>Structures of Life</u> , Investigation 1, Part 3 <u>Measurement</u> , Investigation 1, Parts 2-3 Investigation 2, Parts 2-3 Investigation 3, Parts 2-3 Investigation 4, Parts 1-3 <u>Sun, Moon and Stars</u> , Investigation 2, Part 2 <u>Matter and Energy</u> , Investigation 3, Parts 2-3	8-13 Pages 28-33 Pages 16-24 Pages 14-23 Pages 14-21 Pages 8-21 Pages 89-100 Pages 139-160
(B) Use safety equipment as appropriate, including safety goggles and gloves.	<u>Earth Materials</u> , Investigation 1, Part 1 Investigation 1, Part 2	Page 18 Page 19
(4.5) Matter and energy. <i>The student knows that matter has measurable physical properties and those properties determine how matter is classified, changed, and used. The student is expected to:</i>		
(A) Measure, compare, and contrast physical properties of matter, including size, mass, volume, states (solid, liquid, gas), temperature, magnetism, and the ability to sink or float;	<u>Magnetism and Electricity</u> , Investigation 1, Part 1 <u>Water</u> , Investigation 2, Parts 2-3 Investigation 4, Parts 1, 3 <u>Matter and Energy</u> , Investigation 3, Parts 1-3 Investigation 4, Part 1 Science Resources <u>Earth Materials</u> , Investigation 1, Parts 1-2 Investigation 2, Part 2 Science Stories	Pages 8-17 Pages 14-24 Pages 8-13, 19-23 Pages 129-160 Pages 174-180 Pages 39-42, 51 Pages 8-23 Pages 14-21 Pages 30-33
(B) Predict the changes caused by heating and cooling such as ice becoming liquid water and condensation forming on the outside of a glass of ice water; and	<u>Water</u> , Investigation 1, Part 3 Investigation 3, Parts 1-4 Science Stories <u>Matter and Energy</u> , Investigation 4, Part 2 Science Resources	Pages 19-24 Pages 8-26 Page 13 Pages 181-192 Pages 54-56
(C) Compare and contrast a variety of mixtures and solutions such as rocks in sand, sand in water, or sugar in water.	<u>Earth Materials</u> , Investigation 1, Parts 2-3	Pages 16-29
(4.6) Force, motion, and energy. <i>The student knows that energy exists in many forms and can be observed in cycles, patterns, and systems. The student is expected to:</i>		
(A) Differentiate among forms of energy, including mechanical, electrical, light, and heat/thermal;	<u>Matter and Energy</u> , Investigation 1, Parts 1-3 Investigation 2, Parts 1-2 Investigation 4, Part 2 Science Resources	Pages 50-82 Pages 93-114 Pages 181-192 Pages 1-17, 24-25, 63

	<u>Magnetism and Electricity</u> , Investigations 1-5, all parts Science Stories <u>Water</u> , Investigation 4, Part 2 <u>Physics of Sound</u> , Investigation 1, Part 3 Investigation 2, Parts 1-3 Science Stories <u>Ideas and Inventions</u> , Investigation 4, Parts 1-3 Science Stories	Pages 6-11, 23, 28-33 Pages 14-18 Pages 21-29 Pages 8-24 Pages 6, 14, 19, 22-28 Pages 8-21 Pages 28-29
(B) Differentiate between conductors and insulators;	<u>Magnetism and Electricity</u> , Investigations 2, Part 3	Pages 20-25
(C) Demonstrate that electricity travels in a closed path, creating an electrical circuit, and explore an electromagnetic field; and	<u>Magnetism and Electricity</u> , Investigations 2-4, all parts <u>Matter and Energy</u> , Investigation 1, Parts 1, 3	Pages 50-62, 71-82
(D) Design an experiment to test the effect of force on an object such as a push or a pull, gravity, friction, or magnetism.	<u>Magnetism and Electricity</u> , Investigation 1, Part 3 Investigation 4, Parts 1-3 <u>Water</u> , Investigation 1, Part 3 Investigation 4, Part 2 <u>Structures of Life</u> , Investigation 4, Part 3	Pages 23-29 Pages 8-22 Pages 19-23 Pages 14-18 Pages 20-24
(4.7) Earth and space. The students know that Earth consists of useful resources and its surface is constantly changing. The student is expected to:		
(A) Examine properties of soils, including color and texture, capacity to retain water, and ability to support the growth of plants;		
(B) Observe and identify slow changes to Earth's surface caused by weathering, erosion, and deposition from water, wind, and ice; and	<u>Earth Materials</u> , Science Stories	Pages 6-7
(C) Identify and classify Earth's renewable resources, including air, plants, water, and animals; and nonrenewable resources, including coal, oil, and natural gas; and the importance of conservation.	<u>Water</u> , Science Stories Foss web, Activity: Match the Resource <u>Structures of Life</u> , Science Stories	Pages 17-21 Pages 4-5, 10-11
(4.8) Earth and space. The student knows that there are recognizable patterns in the natural world and among the Sun, Earth, and Moon system. The student is expected to:		
(A) Measure and record changes in weather and make predictions using weather maps, weather symbols, and a map key;		
(B) Describe and illustrate the continuous movement of water above and on the surface of Earth through the water cycle and explain the role of the Sun as a major source of energy in this process; and	<u>Water</u> , Science Stories	Pages 14-16
(C) Collect and analyze data to identify sequences and predict patterns of change	<u>Sun, Moon and Stars</u> , Investigation 1, Parts 1-2	Pages 42-64

in shadows, tides, seasons, and the observable appearance of the Moon over time.	Investigation 2, Parts 1-2 Investigation 3, Part 1 Science Resource <u>Ideas and Inventions</u> , Science Stories	Pages 79-100 Pages 114-125 Pages 1-11, 14, 19-32 Pages 33-36
(4.9) Organisms and environments. <i>The student knows and understands that living organisms within an ecosystem interact with one another and with their environment. The student is expected to:</i>		
(A) Investigate that most producers need sunlight, water, and carbon dioxide to make their own food, while consumers are dependent on other organisms for food; and	<u>Structures of Life</u> , Science Stories <u>Matter and Energy</u> , Science Resources	Page 43 Pages 5, 17
(B) Describe the flow of energy through food webs, beginning with the Sun, and predict how changes in the ecosystem affect the food web such as a fire in a forest..	<u>Structures of Life</u> , Investigation 3, Part 1 Investigation 4, Parts 1-2 Investigation 5, Parts 1-2 Science Stories	Pages 8-15 Pages 8-19 Pages 8-18 Pages 3, 17-18, 22-34, 39-42
(4.10) Organisms and environments. <i>The student knows that organisms undergo similar life processes and have structures that help them survive within their environment. The student is expected to:</i>		
(A) Explore how adaptations enable organisms to survive in their environment such as comparing birds' beaks and leaves on plants;	<u>Structures of Life</u> , Investigation 1, Part 2 Investigation 2, Part 1-3 <u>Water</u> , Investigation 1, Part 3	Pages 22-27 Pages 11-24 Pages 21-27
(B) Demonstrate that some likenesses between parents and offspring are inherited, passed from generation to generation such as eye color in humans or shapes of leaves in plants. Other likenesses are learned such as table manners or reading a book and seals balancing balls on their noses; and		
(C) Explore, illustrate, and compare life cycles in living organisms such as butterflies, beetles, radishes, or lima beans.	<u>Structures of Life</u> , Science Stories Foss web, Activity: Life Cycles	Pages 20-21

Grade Five

TEXAS ESSENTIAL KNOWLEDGE AND SKILL ELEMENT	FOSS INVESTIGATION/ ACTIVITY	PAGE NUMBER (S)
(5.1) Scientific investigation and reasoning. <i>The student conducts classroom and outdoor investigations following home and school safety procedures and environmentally appropriate and ethical practices. The student is expected to:</i>		
(A) Demonstrate safe practices and the use of safety equipment as described in the Texas Safety Standards during classroom and outdoor investigations; and	All FOSS modules are designed to include safe practices. Where special caution is needed, safety-warning statements are included as in: <u>Mixtures and Solutions</u> , Investigation 1, Part 1 <u>Landforms</u> , Investigation 1, Part 1 <u>Variables</u> , Investigation 3, Part 1 <u>Water Planet</u> , Investigation 1	Page 11 Page 9 Page 10 Page 62
(B) Make informed choices in the conservation, disposal, and recycling of materials.	<u>Environments</u> , Investigation 5, Part 3 <u>Mixtures and Solutions</u> , Investigation 1, Part 1	Page 23 Page 11
(5.2) Scientific investigation and reasoning. <i>The student uses scientific methods during laboratory and outdoor investigations. The student is expected to:</i>		
(A) Describe, plan, and implement simple experimental investigations testing one variable;	<u>Variables</u> , Investigation 3, Part 2 <u>Environments</u> , Investigation 6, Parts 1-2 <u>Water Planet</u> , Investigation 2, Parts 2-3 <u>Living Systems</u> , Investigation 3, Parts 2-3 <u>Solar Energy</u> , Investigation 3, Parts 1-2	Pages 14 - 19 Pages 8-21 Pages 86-100 Pages 126-141 Pages 8-22
(B) Ask well-defined questions, formulate testable hypotheses, and select and use appropriate equipment and technology;	<u>Mixtures and Solutions</u> , Investigation 2, Part 2 <u>Food and Nutrition</u> , Investigation 2, Parts 1-2 <u>Environments</u> , Investigation 3, Parts 1-3 <u>Water Planet</u> , Investigation 3, Part 1 <u>Living Systems</u> , Investigation 2, Part 1	Pages 16 – 20 Pages 8-21 Pages 8-22 Pages 125-135 Pages 85-98
(C) Collect information by detailed observations and accurate measuring;	<u>Solar Energy</u> , Investigation 2, Part 2 <u>Water Planet</u> , Investigation 2, Parts 2-3 <u>Living Systems</u> , Investigation 3, Part 3 <u>Levers and Pulleys</u> , Investigation 1, Parts 1-2 <u>Mixtures and Solutions</u> , Investigation 1, Part 2 <u>Variables</u> ,	Pages 16-24 Pages 86-100 Pages 136-141 Pages 18-23 Pages 16-20

	Investigation 3, Parts 2-4	Pages 14-27
(D) Analyze and interpret information to construct reasonable explanations from direct (observable) and indirect (inferred) evidence;	<u>Food and Nutrition</u> , Investigation 1, Part 2 <u>Solar Energy</u> , Investigation 3, Parts 1-2 <u>Water Planet</u> , Investigation 3, Part 1 <u>Living Systems</u> , Investigation 2, Part 1 <u>Variables</u> , Investigation 1, Parts 1-3 <u>Models and Designs</u> , Investigation 2, Parts 1-2	Pages 16-20 Pages 8-23 Pages 125-135 Pages 85-98 Pages 8-27 Pages 8-21
(E) Demonstrate that repeated investigations may increase the reliability of results;	FOSS provides the opportunity to address this element as the results of each investigation is discussed in a class setting by the various groups. See for example: <u>Variables</u> , Investigation 3, Part 2 <u>Environments</u> , Investigation 6, Parts 1-2 <u>Water Planet</u> , Investigation 2, Parts 2-3 <u>Living Systems</u> , Investigation 3, Parts 2-3 <u>Solar Energy</u> , Investigation 3, Parts 1-2	Pages 14 - 19 Pages 8-21 Pages 86-100 Pages 126-141 Pages 8-22
(F) Communicate valid conclusions in both written and verbal forms; and	<u>Mixtures and Solutions</u> , Investigation 2, Part 2 <u>Food and Nutrition</u> , Investigation 2, Parts 1-2 <u>Environments</u> , Investigation 3, Parts 1-3 <u>Water Planet</u> , Investigation 3, Part 1 <u>Living Systems</u> , Investigation 2, Part 1	Pages 16 – 20 Pages 8-21 Pages 8-22 Pages 125-135 Pages 85-98
(G) Construct appropriate simple graphs, tables, maps, and charts using technology, including computers, to organize, examine, and evaluate information.	<u>Landforms</u> , Investigation 4, Parts 1-3 <u>Variables</u> , Investigation 1, Part 2 <u>Solar Energy</u> , Investigation 2, Part 2 <u>Levers and Pulleys</u> , Investigation 1, Parts 2-3 <u>Environments</u> , Investigation 3, Part 2	Pages 8-24 Pages 16-22 Pages 16-24 Pages 18-28 Pages 14-17
(5.3) Scientific investigation and reasoning. <i>The student uses critical thinking and scientific problem solving to make informed decisions. The student is expected to:</i>		
(A) In all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those	FOSS investigations provide the opportunity for students to engage in critical thinking. See for example: <u>Variables</u> , Investigation 3, Part 2	Pages 14 - 19

scientific explanations, so as to encourage critical thinking by the student;	<u>Environments</u> , Investigation 6, Parts 1-2 <u>Water Planet</u> , Investigation 2, Parts 2-3 <u>Living Systems</u> , Investigation 3, Parts 2-3 <u>Solar Energy</u> , Investigation 3, Parts 1-2	Pages 8-21 Pages 86-100 Pages 126-141 Pages 8-22
(B) Evaluate the accuracy of the information related to promotional materials for products and services such as nutritional labels;	<u>Food and Nutrition</u> , Investigation 2, Parts 2-3 Investigation 3, Part 3 Science Stories	Pages 18-25 Pages 21-25 Pages 27-29
(C) Draw or develop a model that represents how something works or looks that cannot be seen such as how a soda dispensing machine works; and	<u>Models and Designs</u> , Investigation 1, Parts 1-3 Investigation 2, Part 1	Pages 8-25 Pages 8-16
(D) Connect grade-level appropriate science concepts with the history of science, science careers, and contributions of scientists.	<u>Food and Nutrition</u> , Science Stories <u>Variables</u> , Science Stories <u>Models and Designs</u> , Science Stories <u>Mixtures and Solutions</u> , Science Stories <u>Solar Energy</u> , Science Stories	Pages 24-26 Pages 4-6, 12-14 Pages 5-10, 35 Pages 9-10, 33, 35-36 Page 34
(5.4) Scientific investigation and reasoning. <i>The student knows how to use a variety of tools and methods to conduct science inquiry. The student is expected to:</i>		
(A) Collect, record, and analyze information using tools, including calculators , microscopes , cameras , computers , hand lenses , metric rulers , Celsius thermometers , prisms , mirrors , pan balances , triple beam balances , spring scales , graduated cylinders , beakers , hot plates , meter sticks , magnets , collecting nets , and notebooks ; timing devices , including clocks and stopwatches ; and materials to support observations of habitats or organisms such as terrariums and aquariums ; and	<u>Solar Energy</u> , Investigation 2, Parts 1-2 <u>Mixtures and Solutions</u> , Investigation 1, Part 2 <u>Levers and Pulleys</u> , Investigation 1, Parts 2-3 <u>Variables</u> , Investigation 3, Parts 2-3 <u>Food and Nutrition</u> , Investigation 2, Parts 1-3 <u>Environments</u> , Investigation 4, Parts 1-3 <u>Water Planet</u> , Investigation 3, Part 1 <u>Living Systems</u> , Investigation 3, Part 1	Pages 8-24 Pages 16-20 Pages 18-28 Pages 14-23 Pages 8-25 Pages 8-22 Pages 118-125 Pages 125-135
(B) Use safety equipment, including safety goggles and gloves.	<u>Food and Nutrition</u> , Investigation 3, Part 1 <u>Mixtures and Solutions</u> , Investigation 4, Part 1 Investigation 4, Part 3	Page 10 Page 11 Page 21
(5.5) Matter and energy. <i>The student knows that matter has measurable physical properties and those properties determine how matter is classified, changed, and used. The student is expected to:</i>		
(A) Classify matter based on physical properties, including mass, magnetism, physical state (solid, liquid, and gas), relative density (sinking and floating), solubility in water, and the ability to conduct or insulate thermal energy or electric	<u>Mixtures and Solutions</u> , Investigation 1, Part 1 Investigation 2, Parts 1-3 Investigation 3, Parts 1-3 Science Stories <u>Variables</u> , Science Stories	Pages 8-15 Pages 8-25 Pages 8-24 Pages 1-3 Pages 10-11

energy;	<u>Solar Energy</u> , Investigation 3, Part 1	Pages 8-16
(B) Identify the boiling and freezing/melting points of water on the Celsius scale;		
(C) Demonstrate that some mixtures maintain physical properties of their ingredients such as iron filings and sand; and	<u>Mixtures and Solutions</u> , Investigation 1, Part 1	Pages 8-15
(D) Identify changes that can occur in the physical properties of the ingredients of solutions such as dissolving salt in water or adding lemon juice to water.	<u>Mixtures and Solutions</u> , Investigation 1, Parts 1-3 Investigation 2, Parts 1-3 Investigation 3, Parts 1-3	Pages 8-24 Pages 8-28 Pages 8-24
(5.6) Force, motion, and energy. <i>The student knows that energy occurs in many forms and can be observed in cycles, patterns, and systems. The student is expected to:</i>		
(A) Explore the uses of energy, including mechanical, light, thermal, electrical, and sound energy;	<u>Solar Energy</u> , Investigation 4, Parts 1-3 Science Stories <u>Models and Designs</u> , Investigation 2, Parts 1-3 Investigation 2, Science Extension Science Stories	Pages 8-28 Pages 4-5, 29-33, 35-39 Pages 8-24 Pages 27 Pages 25-28, 44-47
(B) Demonstrate that the flow of electricity in circuits requires a complete path through which an electric current can pass and can produce light, heat, and sound;	<u>Models and Designs</u> , Investigation 2, Parts 1-3 Investigation 2, Science Extension	Pages 8-24 Page 27
(C) Demonstrate that light travels in a straight line until it strikes an object or travels through one medium to another and demonstrate that light can be reflected such as the use of mirrors or other shiny surfaces and refracted such as the appearance of an object when observed through water; and		
(D) Design an experiment that tests the effect of force on an object.	<u>Models and Designs</u> , Investigation 3, Parts 2-3 Investigation 4, Parts 1-2 <u>Variables</u> , Investigation 3, Parts 2-3 Investigation 4, Parts 2-3	Pages 8-23 Pages 8-15 Pages 14-23 Pages 12-17
(5.7) Earth and space. <i>The student knows Earth's surface is constantly changing and consists of useful resources. The student is expected to:</i>		
(A) Explore the processes that led to the formation of sedimentary rocks and fossil fuels;		
(B) Recognize how landforms such as deltas, canyons, and sand dunes are the result of changes to Earth's surface by wind, water, and ice;	<u>Landforms</u> , Investigation 2, Parts 1-2 Investigation 3, Parts 1-3 Science Stories	Pages 8-22 Pages 8-24 Pages 15-17, 25-29
(C) Identify alternative energy resources such as wind, solar, hydroelectric, geothermal, and biofuels; and	<u>Solar Energy</u> , Investigation 4, Parts 1-3 Investigation 3, Science Extension Science Stories	Pages 8-28 Page 27 Pages 4-5, 29-33,

		35-39
(D) Identify fossils as evidence of past living organisms and the nature of the environments at the time using models.	<u>Models and Designs</u> , <u>Science Stories</u>	Pages 13-16
(5.8) Earth and space. <i>The student knows that there are recognizable patterns in the natural world and among the Sun, Earth, and Moon system. The student is expected to:</i>		
(A) Differentiate between weather and climate;	FOSS provides the opportunity to address this element. See below: <u>Water Planet</u> , <u>Science Resources</u>	Page 72
(B) Explain how the Sun and the ocean interact in the water cycle;	<u>Solar Energy</u> , <u>Science Stories</u> <u>Water Planet</u> , Investigation 4, Part 1 <u>Science Resources</u>	Pages 22-24 Pages 184-197 Pages 67-70
(C) Demonstrate that Earth rotates on its axis once approximately every 24 hours causing the day/night cycle and the apparent movement of the Sun across the sky; and	<u>Solar Energy</u> , Investigation 1, Parts 1-2	Pages 8-24
(D) Identify and compare the physical characteristics of the Sun, Earth, and Moon.	<u>Water Planet</u> , Investigation 1, Part 1 <u>Science Resources</u> <u>Solar Energy</u> , <u>Science Stories</u>	Pages 50-58 Pages 2-3, 6 Page 40
(5.9) Organisms and environments. <i>The student knows and understands that living organisms within an ecosystem interact with one another and with their environment. The student is expected to:</i>		
(A) Observe the way organisms live and survive in their ecosystem by interacting with the living and non-living elements;	<u>Environments</u> , Investigation 1, Parts 1-2 Investigation 3, Parts 1-3 Investigation 5, Parts 1-2 Investigation 6, parts 1-2 <u>Science Stories</u> Foss web, Activity: Virtual Aquarium	Pages 8-19 Pages 8-22 Pages 8-18 Pages 8-17 Pages 1-17, 27-35, 43-45, 53-55
(B) Describe how the flow of energy derived from the Sun, used by producers to create their own food, is transferred through a food chain and food web to consumers and decomposers;	<u>Environments</u> , <u>Science Stories</u>	Pages 38-41
(C) Predict the effects of changes in ecosystems caused by living organisms, including humans, such as the overpopulation of grazers or the building of highways; and	<u>Environments</u> , <u>Science Stories</u> Investigation 6, Language Extension <u>Landforms</u> , <u>Science Stories</u>	Pages 35-36, 43-44, 49-52 Page 23 Pages 13-14
(D) Identify the significance of the carbon dioxide-oxygen cycle to the survival of plants and animals.	FOSS provides the opportunity to address this element. See below: <u>Living Systems</u> , <u>Science Resources</u>	Pages 31-35, 47-48
(5.10) Organisms and environments. <i>The student knows that organisms undergo similar life processes and have structures that help them survive within their environments. The student is expected to:</i>		
(A) Compare the structures and functions	<u>Environments</u> ,	

of different species that help them live and survive such as hooves on prairie animals or webbed feet in aquatic animals;	Science Stories	Pages 2-6, 11-17, 20, 22
(B) Differentiate between inherited traits of plants and animals such as spines on a cactus or shape of a beak and learned behaviors such as an animal learning tricks or a child riding a bicycle; and		
(C) Describe the differences between complete and incomplete metamorphosis of insects.		