



Grade K

Unit 1: Trees Through the Seasons

NYS Science Standard	FOSS Alignment
<b>Major Understandings</b>	
<b>LE 1.1b.</b> Plants require air, water, nutrients, and light in order to live and thrive.	<b>FOSS Next Generation Trees and Weather</b> Investigations Guide Investigation 1: Parts 1-6 Investigation 4: Parts 1-9
<b>LE 1.2a.</b> Living things grow, take in nutrients, breathe, reproduce, eliminate waste, and die.	<b>FOSS Next Generation Trees and Weather</b> Investigations Guide Investigation 1: Parts 1-6 Investigation 4: Parts 1-9
<b>LE 4.2a.</b> Growth is the process by which plants and animals increase in size.	<b>FOSS Next Generation Trees and Weather</b> Investigations Guide Investigation 1: Parts 1-6 Investigation 4: Parts 1-9
<b>LE 5.1a.</b> All living things grow, take in nutrients, breathe, reproduce, and eliminate waste.	<b>FOSS Next Generation Trees and Weather</b> Investigations Guide Investigation 1: Parts 1-6 Investigation 4: Parts 1-9
<b>LE 3.1b.</b> Each plant has different structures that serve different functions in growth, survival, and reproduction.	<b>FOSS Next Generation Trees and Weather</b> Investigations Guide Investigation 1: Parts 1-6 Investigation 2: Parts 1-5 Investigation 4: Parts 1-9
<b>LE 3.1c.</b> In order to survive in their environment, plants and animals must be adapted to that environment. Seeds disperse by a plant's own mechanism and/or in a variety of ways that can include wind, water, and animals. Leaf, flower, stem, and root adaptations may include variations in size, shape, thickness, color, smell, and texture.	<b>FOSS Next Generation Trees and Weather</b> Investigations Guide Investigation 1: Parts 1-6 Investigation 2: Parts 1-5 Investigation 4: Parts 1-9
<b>LE 5.2a.</b> Plants respond to changes in their environment. For example, the leaves of some green plants change position as the direction of light changes; the parts of some plants undergo seasonal changes that enable the plant to grow; seeds germinate, and leaves form and grow.	<b>FOSS Next Generation Trees and Weather</b> Investigations Guide Investigation 4: Parts 1-9



Grade K

Unit 1: Trees Through the Seasons

MST Standard	FOSS Alignment
<b>Standard 2: Information Systems</b>	
<b>Key Idea 1:</b> Information technology is used to retrieve, process, and communicate information as a tool to enhance learning.	<b>FOSS Next Generation Trees and Weather Investigations Guide</b> Investigation 1: Parts 5-6 Investigation 2: Part 5 Investigation 3: Parts 1, 3 Investigation 4: Parts 2, 4, 6, 9
<b>Key Idea 2:</b> Knowledge of the impacts and limitations of information systems is essential to its effective and ethical use.	<b>FOSS Next Generation Trees and Weather Investigations Guide</b> Investigation 1: Parts 5-6 Investigation 2: Part 5 Investigation 3: Parts 1, 3 Investigation 4: Parts 2, 4, 6, 9
<b>Standard 6: Interconnectedness: Common Themes</b>	
<b>Key Idea 1:</b> Through systems thinking, people can recognize the commonalities that exist among all systems and how parts of a system interrelate and combine to perform specific functions.	<b>FOSS Next Generation Trees and Weather Investigations Guide</b> Investigation 1: Parts 2-4
<b>Key Idea 2:</b> Models are simplified representations of objects, structures, or systems used in analysis, explanation, interpretation, or design.	<b>FOSS Next Generation Trees and Weather Investigations Guide</b> Investigation 1: Parts 2-3 Investigation 2: Part 4
<b>Key Idea 3:</b> The grouping of magnitudes of size, time, frequency, and pressures or other units of measurement into a series of relative order provides a useful way to deal with the immense range and the changes in scale that affect the behavior and design of systems.	<b>FOSS Next Generation Trees and Weather Investigations Guide</b> Investigation 2: Part 3
<b>Key Idea 4:</b> Equilibrium is a state of stability due either to a lack of change (static equilibrium) or a balance between opposing forces (dynamic equilibrium).	<b>FOSS Next Generation Trees and Weather Investigations Guide</b> Investigation 4: Part 9
<b>Key Idea 5:</b> Identifying patterns of change is necessary for making predictions about future behavior and conditions.	<b>FOSS Next Generation Trees and Weather Investigations Guide</b> Investigation 1: Parts 3-4, 6 Investigation 2: Parts 1-4 Investigation 3: Part 2 Investigation 4: Parts 4, 6, 9
<b>Key Idea 6:</b> In order to arrive at the best solution that meets criteria within constraints, it is often necessary to make trade-offs.	<b>FOSS Next Generation Trees and Weather Investigations Guide</b> Investigation 1: Part 5 Investigation 2: Part 3 Investigation 3: Parts 2-3 Investigation 4: Part 9
<b>Standard 7: Interdisciplinary Problem Solving</b>	
<b>Key Idea 1:</b> The knowledge and skills of mathematics, science, and technology are used together to make informed decisions and solve problems, especially those relating to issues of science/technology/society, consumer decision making, design, and inquiry into phenomena.	<b>FOSS Next Generation Trees and Weather Investigations Guide</b> Investigation 2: Part 5 Investigation 3: Part 3 Investigation 4: Part 9
<b>Key Idea 2:</b> Solving interdisciplinary problems involves a variety of skills and strategies, including effective work habits; gathering and processing information; generating and analyzing ideas; realizing ideas; making connections among the common themes of mathematics, science, and technology; and presenting results.	<b>FOSS Next Generation Trees and Weather Investigations Guide</b> Investigation 1: Parts 1-6 Investigation 2: Parts 1-5 Investigation 3: Parts 1-3 Investigation 4: Parts 1-9



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Unit 1: Trees Through the Seasons

NGSS Cross-Cutting Concepts	FOSS Alignment
<p><b>Patterns:</b> Observed patterns in nature guide organization and classification and prompt questions about relationships and causes underlying them.</p> <ul style="list-style-type: none"> <li>- Patterns in the natural and human designed world can be observed, used to describe phenomena, and used as evidence.</li> </ul>	<p><b>FOSS Next Generation Trees and Weather Investigations Guide</b> Investigation 1: Parts 3-4, 6 Investigation 2: Parts 1-4 Investigation 3: Part 2 Investigation 4: Parts 4, 6, 9</p>
<p><b>Cause and Effect: Mechanism and Prediction:</b> Events have causes, sometimes simple, sometimes multifaceted. Deciphering causal relationships, and the mechanisms by which they are mediated, is a major activity of science and engineering.</p> <ul style="list-style-type: none"> <li>- Events have causes that generate observable patterns.</li> <li>- Simple tests can be designed to gather evidence to support or refute student ideas about causes.</li> </ul>	<p><b>FOSS Next Generation Trees and Weather Investigations Guide</b> Investigation 3: Parts 2-3 Investigation 4: Parts 2, 7</p>
<p><b>Scale, Proportion, and Quantity:</b> In considering phenomena, it is critical to recognize what is relevant at different size, time, and energy scales, and to recognize proportional relationships between different quantities as scales change.</p> <ul style="list-style-type: none"> <li>- Relative scales allow objects and events to be compared and described (e.g., bigger and smaller; hotter and colder; faster and slower).</li> <li>- Standard units are used to measure length.</li> </ul>	<p><b>FOSS Next Generation Trees and Weather Investigations Guide</b> Investigation 2: Parts 3</p>
<p><b>Systems and System Models:</b> A system is an organized group of related objects or components; models can be used for understanding and predicting the behavior of systems.</p> <ul style="list-style-type: none"> <li>- Objects and organisms can be described in terms of their parts.</li> <li>- Systems in the natural and designed world have parts that work together.</li> </ul>	<p><b>FOSS Next Generation Trees and Weather Investigations Guide</b> Investigation 1: Parts 2-4 Investigation 3: Part 3</p>
<p><b>Structure and Function:</b> The way an object is shaped or structured determines many of its properties and functions.</p> <ul style="list-style-type: none"> <li>- The shape and stability of structures of natural and designed objects are related to their function(s).</li> </ul>	<p><b>FOSS Next Generation Trees and Weather Investigations Guide</b> Investigation 1: Part 1 Investigation 2: Part 5</p>
<p><b>Stability and Change:</b> For both designed and natural systems, conditions that affect stability and factors that control rates of change are critical elements to consider and understand.</p> <ul style="list-style-type: none"> <li>- Some things stay the same while other things change.</li> <li>- Things may change slowly or rapidly.</li> </ul>	<p><b>FOSS Next Generation Trees and Weather Investigations Guide</b> Investigation 4: Part 9</p>



Grade K

**Unit 2: Exploring Properties**

NYS Science Standard	FOSS Alignment
<b>Major Understandings</b>	
<p><b>PS 3.1b.</b> Matter has properties that can be observed through the senses.</p>	<p><b>FOSS Next Generation Materials and Motion</b> Investigations Guide Investigation 1: Parts 1-7 Investigation 2: Parts 1-5 Investigation 3: Parts 1-6</p>
<p><b>PS 3.1c.</b> Objects have properties that can be observed, described, and/or measured: length, width, volume, size, shape, mass or weight, temperature, texture, flexibility, reflectiveness of light.</p>	<p><b>FOSS Next Generation Materials and Motion</b> Investigations Guide Investigation 1: Parts 1-7 Investigation 2: Parts 1-5 Investigation 3: Parts 1-6</p>
<p><b>PS 3.1d.</b> Measurements can be made with standard metric units and nonstandard units.</p>	<p><b>FOSS Next Generation Materials and Motion</b> Investigations Guide Investigation 1: Part 3 Investigation 3: Part 4 Investigation 4: Part 4</p>
<p><b>PS 3.1e.</b> The material(s) an object is made up of determines some specific properties of the object. Properties can be observed or measured with tools such as hand lenses, metric rulers, thermometers, balances, magnets, circuit testers, and graduated cylinders</p>	<p><b>FOSS Next Generation Materials and Motion</b> Investigations Guide Investigation 1: Parts 1-7 Investigation 2: Parts 1-5 Investigation 3: Parts 1-6, especially Parts 2, 5</p>
<p><b>PS 3.1g.</b> Some properties of an object are dependent on the conditions of the present surroundings in which the object exists.</p> <ul style="list-style-type: none"> <li>- temperature: hot or cold</li> <li>- lighting: shadows, color</li> <li>- moisture: wet or dry</li> </ul>	<p><b>FOSS Next Generation Materials and Motion</b> Investigations Guide Investigation 1: Parts 2-3, 5-6 Investigation 2: Parts 3-5 Investigation 3: Parts 3-4, 6</p>
<p><b>PS 3.1f.</b> Objects and/or materials can be sorted or classified according to their properties.</p>	<p><b>FOSS Next Generation Materials and Motion</b> Investigations Guide Investigation 1: Parts 1, 3, 6-7 Investigation 2: Parts 1-3 Investigation 3: Parts 1, 4-5</p>



Grade K

**Unit 2: Exploring Properties**

MST Standard	FOSS Alignment
<b>Standard 2: Information Systems</b>	
<p><b>Key Idea 1:</b> Information technology is used to retrieve, process, and communicate information as a tool to enhance learning.</p>	<p><b>FOSS Next Generation Materials and Motion</b> Investigations Guide Investigation 1: Parts 1, 7 Investigation 2: Part 1 Investigation 3: Parts 2, 4-5 Investigation 4: Parts 1-2</p>
<b>Standard 6: Interconnectedness: Common Themes</b>	
<p><b>Key Idea 1:</b> Through systems thinking, people can recognize the commonalities that exist among all systems and how parts of a system interrelate and combine to perform specific functions.</p>	<p><b>FOSS Next Generation Materials and Motion</b> Investigations Guide Investigation 4: Parts 2, 4</p>
<p><b>Key Idea 2:</b> Models are simplified representations of objects, structures, or systems used in analysis, explanation, interpretation, or design.</p>	<p><b>FOSS Next Generation Materials and Motion</b> Investigations Guide Investigation 1: Part 6 Investigation 2: Part 4</p>
<p><b>Key Idea 3:</b> The grouping of magnitudes of size, time, frequency, and pressures or other units of measurement into a series of relative order provides a useful way to deal with the immense range and the changes in scale that affect the behavior and design of systems.</p>	<p><b>FOSS Next Generation Materials and Motion</b> Investigations Guide Investigation 4: Part 2</p>
<p><b>Key Idea 5:</b> Identifying patterns of change is necessary for making predictions about future behavior and conditions.</p>	<p><b>FOSS Next Generation Materials and Motion</b> Investigations Guide Investigation 1: Part 2 Investigation 2: Parts 2-3 Investigation 3: Parts 2-3 Investigation 4: Parts 2-3</p>
<b>Standard 7: Interdisciplinary Problem Solving</b>	
<p><b>Key Idea 2:</b> Solving interdisciplinary problems involves a variety of skills and strategies, including effective work habits; gathering and processing information; generating and analyzing ideas; realizing ideas; making connections among the common themes of mathematics, science, and technology; and presenting results.</p>	<p><b>FOSS Next Generation Materials and Motion</b> Investigations Guide Investigation 1: Parts 1-7 Investigation 2: Parts 1-5 Investigation 3: Parts 1-6 Investigation 4: Parts 1-4</p>



Grade K

Unit 2: Exploring Properties

NGSS Cross-Cutting Concepts	FOSS Alignment
<p><b>Patterns:</b> Observed patterns in nature guide organization and classification and prompt questions about relationships and causes underlying them.</p> <ul style="list-style-type: none"> <li>- Patterns in the natural and human designed world can be observed, used to describe phenomena, and used as evidence.</li> </ul>	<p><b>FOSS Next Generation Materials and Motion</b> Investigations Guide</p> <p>Investigation 1: Part 2 Investigation 2: Parts 2-3 Investigation 3: Parts 2-3 Investigation 4: Parts 2-3</p>
<p><b>Cause and Effect: Mechanism and Prediction:</b> Events have causes, sometimes simple, sometimes multifaceted. Deciphering causal relationships, and the mechanisms by which they are mediated, is a major activity of science and engineering.</p> <ul style="list-style-type: none"> <li>- Events have causes that generate observable patterns.</li> <li>- Simple tests can be designed to gather evidence to support or refute student ideas about causes.</li> </ul>	<p><b>FOSS Next Generation Materials and Motion</b> Investigations Guide</p> <p>Investigation 1: Parts 3-5 Investigation 2: Parts 3-5 Investigation 3: Parts 3, 6 Investigation 4: Parts 1-4</p>
<p><b>Scale, Proportion and Quantity:</b> In considering phenomena, it is critical to recognize what is relevant at different size, time, and energy scales, and to recognize proportional relationships between different quantities as scales change.</p> <ul style="list-style-type: none"> <li>- Relative scales allow objects and events to be compared and described (e.g., bigger and smaller; hotter and colder; faster and slower).</li> <li>- Standard units are used to measure length.</li> </ul>	<p><b>FOSS Next Generation Materials and Motion</b> Investigations Guide</p> <p>Investigation 4: Part 2</p>
<p><b>Systems and System Models:</b> A system is an organized group of related objects or components; models can be used for understanding and predicting the behavior of systems.</p> <ul style="list-style-type: none"> <li>- Objects and organisms can be described in terms of their parts.</li> <li>- Systems in the natural and designed world have parts that work together.</li> </ul>	<p><b>FOSS Next Generation Materials and Motion</b> Investigations Guide</p> <p>Investigation 4: Parts 2, 4</p>
<p><b>Energy and Matter: Flows, Cycles, and Conservation:</b> Tracking energy and matter flows into, out of, and within systems helps one understand their system's behavior.</p> <ul style="list-style-type: none"> <li>- Objects may break into smaller pieces, be put together into larger pieces, or change shapes.</li> </ul>	<p><b>FOSS Next Generation Materials and Motion</b> Investigations Guide</p> <p>Investigation 1: Part 7</p>
<p><b>Structure and Function:</b> The way an object is shaped or structured determines many of its properties and functions.</p> <ul style="list-style-type: none"> <li>- The shape and stability of structures of natural and designed objects are related to their function(s).</li> </ul>	<p><b>FOSS Next Generation Materials and Motion</b> Investigations Guide</p> <p>Investigation 1: Parts 6-7 Investigation 2: Parts 2, 5 Investigation 3: Parts 4, 6 Investigation 4: Parts 2-3</p>
<p><b>Stability and Change:</b> For both designed and natural systems, conditions that affect stability and factors that control rates of change are critical elements to consider and understand.</p> <ul style="list-style-type: none"> <li>- Some things stay the same while other things change.</li> <li>- Things may change slowly or rapidly.</li> </ul>	<p><i>Foundational experiences and connections to this Cross-Cutting Concept are found in <b>FOSS Next Generation Materials and Motion</b>. However the conceptual design of the investigations does not include direct correlations to this CCC.</i></p>



Grade K  
Unit 3: Animals

NYS Science Standard	FOSS Alignment
<b>Major Understandings</b>	
<p><b>LE 1.1a.</b> Animals need air, water, and food in order to live and thrive.</p>	<p><b>FOSS Next Generation Animals Two by Two</b> Investigations Guide Investigation 1: Parts 1, 3, 5 Investigation 2: Parts 1, 3 Investigation 3: Parts 1-2 Investigation 4: Parts 1, 4</p>
<p><b>LE 1.1c.</b> Nonliving things do not live and thrive.</p>	<p><b>FOSS Next Generation Animals Two by Two</b> Investigations Guide Investigation 4: Part 4</p>
<p><b>LE 1.1d.</b> Nonliving things can be human-created or naturally occurring.</p>	<p><b>FOSS Next Generation Animals Two by Two</b> Investigations Guide Investigation 4: Part 4</p>
<p><b>LE 1.2a.</b> Living things grow, take in nutrients, breathe, reproduce, eliminate waste, and die.</p>	<p><b>FOSS Next Generation Animals Two by Two</b> Investigations Guide Investigation 1: Part 2-3 Investigation 2: Parts 1 Investigation 3: Parts 1-2 Investigation 4: Parts 1-2, 4</p>
<p><b>LE 2.2a.</b> Plants and animals closely resemble their parents and other individuals in their species.</p>	<p><b>FOSS Next Generation Animals Two by Two</b> Investigations Guide Investigation 4: Part 4 (Multimedia Activity)</p>
<p><b>LE 3.1a.</b> Each animal has different structures that serve different functions in growth, survival, and reproduction.</p> <ul style="list-style-type: none"> <li>- wings, legs, or fins enable some animals to seek shelter and escape predators</li> <li>- the mouth, including teeth, jaws, and tongue, enables some animals to eat and drink</li> <li>- eyes, nose, ears, tongue, and skin of some animals enable the animals to sense their surroundings</li> <li>- claws, shells, spines, feathers, fur, scales, and color of body covering enable some animals to protect themselves from predators and other environmental conditions, or enable them to obtain food</li> <li>- some animals have parts that are used to produce sounds and smells to help the animal meet its needs</li> <li>- the characteristics of some animals change as seasonal conditions change (e.g., fur grows and is shed to help regulate body heat; body fat is</li> <li>- a form of stored energy and it changes as the seasons change)</li> </ul>	<p><b>FOSS Next Generation Animals Two by Two</b> Investigations Guide Investigation 1: Parts 1-5 Investigation 2: Parts 1-3 Investigation 3: Parts 1, 3 Investigation 4: Parts 1-4</p>
<p><b>LE 4.1g.</b> The length of time from an animal's birth to its death is called its life span. Life spans of different animals vary.</p>	
<p><b>LE 4.2a.</b> Growth is the process by which plants and animals increase in size.</p>	
<p><b>LE 5.1a.</b> All living things grow, take in nutrients, breathe, reproduce, and eliminate waste.</p>	<p><b>FOSS Next Generation Animals Two by Two</b> Investigations Guide Investigation 1: Part 4 Investigation 2: Part 3 Investigation 3: Part 3 Investigation 4: Parts 2, 4</p>

**New York City 2015-2016  
K-5 Science Scope & Sequence Alignment**



*Grade K*  
**Unit 3: Animals**

NYS Science Standard	FOSS Alignment
<b>Major Understandings (cont.)</b>	
<p><b>LE 5.2e.</b> Particular animal characteristics are influenced by changing environmental conditions including: fat storage in winter, coat thickness in winter, camouflage, shedding of fur.</p>	
<p><b>LE 5.2f.</b> Some animal behaviors are influenced by environmental conditions. These behaviors may include: nestbuilding, hibernating, hunting, migrating, and communicating.</p>	<p><b>FOSS Next Generation Animals Two by Two</b> Investigations Guide Investigation 1: Part 5 Investigation 3: Part 2 Investigation 4: Part 3</p>





Grade K  
Unit 3: Animals

MST Standard	FOSS Alignment
<p><b>Standard 2: Information Systems</b></p> <p><b>Key Idea 2:</b> Knowledge of the impacts and limitations of information systems is essential to its effective and ethical use.</p>	<p><b>FOSS Next Generation Animals Two by Two Investigations Guide</b> Investigation 1: Parts 4-5 Investigation 2: Part 3 Investigation 3: Part 3 Investigation 4: Parts 2-4</p>
<p><b>Standard 6: Interconnectedness: Common Themes</b></p> <p><b>Key Idea 1:</b> Through systems thinking, people can recognize the commonalities that exist among all systems and how parts of a system interrelate and combine to perform specific functions.</p> <p><b>Key Idea 2:</b> Models are simplified representations of objects, structures, or systems used in analysis, explanation, interpretation, or design.</p>	<p><b>FOSS Next Generation Animals Two by Two Investigations Guide</b> Investigation 1: Parts 1, 3, 5 Investigation 2: Part 1 Investigation 3: Parts 1-2 Investigation 4: Parts 1, 3-4</p> <p><b>FOSS Next Generation Animals Two by Two Investigations Guide</b> Investigation 1: Part 3 Investigation 3: Part 2</p>
<p><b>Key Idea 3:</b> The grouping of magnitudes of size, time, frequency, and pressures or other units of measurement into a series of relative order provides a useful way to deal with the immense range and the changes in scale that affect the behavior and design of systems.</p>	<p><i>Foundational experiences and connections to this Key Idea are found in <b>FOSS Next Generation Animals Two by Two</b>. However the conceptual design of the investigations does not include direct correlations to this Key Idea.</i></p>
<p><b>Key Idea 5:</b> Identifying patterns of change is necessary for making predictions about future behavior and conditions.</p>	<p><b>FOSS Next Generation Animals Two by Two Investigations Guide</b> Investigation 1: Parts 4-5 Investigation 2: Parts 2-3 Investigation 3: Part 3 Investigation 4: Parts 2-4</p>



Grade K  
Unit 3: Animals

NGSS Cross-Cutting Concepts	FOSS Alignment
<p><b>Patterns:</b> Observed patterns in nature guide organization and classification and prompt questions about relationships and causes underlying them.</p> <ul style="list-style-type: none"> <li>- Patterns in the natural and human designed world can be observed, used to describe phenomena, and used as evidence.</li> </ul>	<p><b>FOSS Next Generation Animals Two by Two</b> Investigations Guide</p> <p>Investigation 1: Parts 4-5 Investigation 2: Parts 2-3 Investigation 3: Part 3 Investigation 4: Parts 2-4</p>
<p><b>Cause and Effect: Mechanism and Prediction:</b> Events have causes, sometimes simple, sometimes multifaceted. Deciphering causal relationships, and the mechanisms by which they are mediated, is a major activity of science and engineering.</p> <ul style="list-style-type: none"> <li>- Events have causes that generate observable patterns.</li> <li>- Simple tests can be designed to gather evidence to support or refute student ideas about causes.</li> </ul>	<p><b>FOSS Next Generation Animals Two by Two</b> Investigations Guide</p> <p>Investigation 1: Parts 2-3 Investigation 2: Part 3 Investigation 3: Parts 2-3 Investigation 4: Part 3</p>
<p><b>Scale, Proportion and Quantity:</b> In considering phenomena, it is critical to recognize what is relevant at different size, time, and energy scales, and to recognize proportional relationships between different quantities as scales change.</p> <ul style="list-style-type: none"> <li>- Relative scales allow objects and events to be compared and described (e.g., bigger and smaller; hotter and colder; faster and slower).</li> <li>- Standard units are used to measure length.</li> </ul>	<p><i>Foundational experiences and connections to this Cross-Cutting Concept are found in <b>FOSS Next Generation Animals Two by Two</b>. However the conceptual design of the investigations does not include direct correlations to this CCC.</i></p>
<p><b>Systems and System Models:</b> A system is an organized group of related objects or components; models can be used for understanding and predicting the behavior of systems.</p> <ul style="list-style-type: none"> <li>- Objects and organisms can be described in terms of their parts.</li> <li>- Systems in the natural and designed world have parts that work together.</li> </ul>	<p><b>FOSS Next Generation Animals Two by Two</b> Investigations Guide</p> <p>Investigation 1: Parts 1, 3, 5 Investigation 2: Parts 1 Investigation 3: Parts 1-2 Investigation 4: Parts 1, 3-4</p>
<p><b>Structure and Function:</b> The way an object is shaped or structured determines many of its properties and functions.</p> <ul style="list-style-type: none"> <li>- The shape and stability of structures of natural and designed objects are related to their function(s).</li> </ul>	<p><b>FOSS Next Generation Animals Two by Two</b> Investigations Guide</p> <p>Investigation 1: Parts 1-2, 4-5 Investigation 2: Parts 1 Investigation 3: Parts 1, 3 Investigation 4: Parts 2-3</p>
<p><b>Stability and Change:</b> For both designed and natural systems, conditions that affect stability and factors that control rates of change are critical elements to consider and understand.</p> <ul style="list-style-type: none"> <li>- Some things stay the same while other things change.</li> <li>- Things may change slowly or rapidly.</li> </ul>	<p><i>Foundational experiences and connections to this Cross-Cutting Concept are found in <b>FOSS Next Generation Animals Two by Two</b>. However the conceptual design of the investigations does not include direct correlations to this CCC.</i></p>



Grade 1

Unit 1: Animal Diversity

NYS Science Standard	FOSS Alignment
<p><b>Major Understandings</b></p> <p><b>LE 3.1a.</b> Each animal has different structures that serve different functions in growth, survival, and reproduction.</p> <ul style="list-style-type: none"> <li>- Wings, legs, or fins enable some animals to seek shelter and escape predators.</li> <li>- The mouth, including teeth, jaws, and tongue, enables some animals to eat and drink.</li> <li>- Eyes, ears, tongue, and skin of some animals enable the animals to sense their surroundings.</li> <li>- Claws, shells, spines, feathers, fur, scales, and color of body covering enable some animals to protect themselves from predators and other environmental conditions, or enable them to obtain food.</li> <li>- Some animals have parts that are used to produce sounds and smells to help the animal meet its needs.</li> <li>- The characteristics of some animals change as seasonal conditions change (e.g., fur grows and is shed to help regulate body heat; body fat is a form of stored energy and it changes as the seasons change).</li> </ul>	<p><b>FOSS Next Generation Plants and Animals Investigations Guide</b> Investigation 1: Part 4 Investigation 3: Parts 2-4 Investigation 4: Part 3</p> <p><b>FOSS Next Generation Insects and Plants Investigations Guide</b> Investigation 1: Parts 1-3 Investigation 3: Parts 1-3 Investigation 4: Parts 2-3 Investigation 5: Parts 1-3</p>
<p><b>LE 1.1a.</b> Animals need air, water, and food in order to live and thrive.</p>	<p><b>FOSS Next Generation Plants and Animals Investigations Guide</b> Investigation 3: Parts 1-4 Investigation 4: Part 3</p> <p><b>FOSS Next Generation Insects and Plants Investigations Guide</b> Investigation 1: Parts 1-3 Investigation 3: Parts 1-4 Investigation 4: Parts 1-4 Investigation 5: Part 3</p>
<p><b>LE 3.1c.</b> In order to survive in their environment, plants and animals must be adapted to that environment.</p> <ul style="list-style-type: none"> <li>- Seeds disperse by a plant's own mechanism and/or in a variety of ways that can include wind, water, and animals.</li> <li>- Animal adaptations include coloration for warning or attraction, camouflage, defense mechanisms, movement, hibernation, and migration.</li> </ul>	<p><b>FOSS Next Generation Plants and Animals Investigations Guide</b> Investigation 1: Part 4 Investigation 3: Parts 1-4</p> <p><b>FOSS Next Generation Insects and Plants Investigations Guide</b> Investigation 2: Part 4 Investigation 5: Part 4</p>
<p><b>LE 2.2a.</b> Plants and animals closely resemble their parents and other individuals in their species.</p>	<p><b>FOSS Next Generation Plants and Animals Investigations Guide</b> Investigation 4: Part 3</p> <p><b>FOSS Next Generation Insects and Plants Investigations Guide</b> Investigation 1: Part 2 Investigation 2: Parts 1-2 Investigation 3: Parts 1-3 Investigation 4: Parts 1-3 Investigation 5: Parts 1-3</p>



Grade 1

Unit 1: Animal Diversity

NYS Science Standard	FOSS Alignment
<b>Major Understandings</b>	
<p><b>LE 2.1a.</b> Some traits of living things have been inherited (e.g., color of flowers and number of limbs of animals).</p>	<p><b>FOSS Next Generation Plants and Animals</b> Investigations Guide Not specifically addressed but term may be introduced in Investigation 4: Part 3</p> <p><b>FOSS Next Generation Insects and Plants</b> Investigations Guide Observational opportunities within investigations and Science Resources Book. However the term “inherited” is not used. Investigation 1: Part 2 Investigation 2: Parts 1-2 Investigation 3: Parts 1-3 Investigation 4: Parts 1-3 Investigation 5: Parts 1-3</p>
<p><b>LE 2.2b.</b> Plants and animals can transfer specific traits to their offspring when they reproduce.</p>	<p><b>FOSS Next Generation Plants and Animals</b> Investigations Guide Not specifically addressed but term may be introduced in Investigation 4: Part 3</p> <p><b>FOSS Next Generation Insects and Plants</b> Investigations Guide Observational opportunities within investigations and Science Resources Book. However the term “trait” is not used. Investigation 1: Part 2 Investigation 2: Parts 1-2 Investigation 3: Parts 1-3 Investigation 4: Parts 1-3 Investigation 5: Parts 1-3</p>
<p><b>LE 4.1a.</b> Plants and animals have life cycles. These may include beginning of a life, development into an adult, reproduction as an adult, and eventually death.</p>	<p><b>FOSS Next Generation Plants and Animals</b> Investigations Guide Not specifically addressed but term may be introduced in Investigation 4: Part 3</p> <p><b>FOSS Next Generation Insects and Plants</b> Investigations Guide Investigation 1: Parts 1-3 Investigation 2: Parts 1-4 Investigation 3: Parts 1-4 Investigation 4: Parts 1-4 Investigation 5: Parts 1-4</p>
<p><b>LE 4.1e.</b> Each generation of animals goes through changes in form from youth to adult. This completed sequence of changes in form is called a life cycle. Some insects change from egg to larva to pupa to adult.</p>	<p><b>FOSS Next Generation Plants and Animals</b> Investigations Guide Not specifically addressed but term may be introduced in Investigation 4: Part 3</p> <p><b>FOSS Next Generation Insects and Plants</b> Investigations Guide Investigation 1: Parts 1-3 Investigation 4: Parts 1-4 Investigation 5: Parts 1-4</p>
<p><b>LE 4.1f.</b> Each kind of animal goes through its own stages of growth and development during its life span.</p>	<p><b>FOSS Next Generation Plants and Animals</b> Investigations Guide Investigation 4: Part 3</p> <p><b>FOSS Next Generation Insects and Plants</b> Investigations Guide Investigation 1: Parts 1-3 Investigation 3: Parts 1-4 Investigation 4: Parts 1-4 Investigation 5: Parts 1-4</p>



Grade 1

**Unit 1: Animal Diversity**

NYS Science Standard	FOSS Alignment
<p><b>Major Understandings</b></p> <p><b>LE 4.1g.</b> The length of time from an animal's birth to its death is called its life span. Life spans of different animals vary.</p>	<p><b>FOSS Next Generation Plants and Animals</b> Investigations Guide Not specifically addressed but term may be introduced in Investigation 4: Part 3</p> <p><b>FOSS Next Generation Insects and Plants</b> Investigations Guide Length of stages of life cycles are observed and recorded in investigations. Students read about length of life cycle stages in Student Resources Book. Cumulative life span can be calculated from student data.</p> <ul style="list-style-type: none"> <li>Investigation 1: Parts 1-3</li> <li>Investigation 3: Parts 1-4</li> <li>Investigation 4: Parts 1-4</li> <li>Investigation 5: Parts 1-5</li> </ul>



Grade 1

Unit 1: Animal Diversity

MST Standard	FOSS Alignment
<p><b>Standard 2: Information Systems</b></p> <p><b>Key Idea 1:</b> Information technology is used to retrieve, process, and communicate information as a tool to enhance learning.</p>	<p><b>FOSS Next Generation Plants and Animals Investigations Guide</b> Investigation 1: Parts 1, 3-4 Investigation 2: Parts 1, 2 Investigation 3: Parts 1-4 Investigation 4: Part 3</p> <p><b>FOSS Next Generation Insects and Plants Investigations Guide</b> Investigation 1: Part 2 Investigation 2: Parts 2-4 Investigation 3: Parts 2, 4 Investigation 4: Parts 2-3 Investigation 5: Part 3</p>
<p><b>Standard 6: Interconnectedness: Common Themes</b></p> <p><b>Key Idea 1:</b> Through systems thinking, people can recognize the commonalities that exist among all systems and how parts of a system interrelate and combine to perform specific functions.</p> <p><b>Key Idea 2:</b> Models are simplified representations of objects, structures, or systems used in analysis, explanation, interpretation, or design.</p> <p><b>Key Idea 4:</b> Equilibrium is a state of stability due either to a lack of change (static equilibrium) or a balance between opposing forces (dynamic equilibrium).</p>	<p><b>FOSS Next Generation Plants and Animals Investigations Guide</b> Investigation 3: Parts 1</p> <p><b>FOSS Next Generation Plants and Animals Investigations Guide</b> Investigation 1: Part 3 Investigation 3: Parts 1, 2</p> <p><b>FOSS Next Generation Insects and Plants Investigations Guide</b> Investigation 2: Part 4 Investigation 3: Part 4 Investigation 5: Part 4</p> <p><i>Foundational experiences and connections to this Key Idea are found in <b>FOSS Next Generation Plants and Animals and FOSS Next Generation Insects and Plants</b>. However the conceptual design of the investigations does not include direct correlations to this Key Idea.</i></p>
<p><b>Key Idea 5:</b> Identifying patterns of change is necessary for making predictions about future behavior and conditions.</p>	<p><b>FOSS Next Generation Plants and Animals Investigations Guide</b> Investigation 1: Parts 3-4 Investigation 2: Part 2 Investigation 4: Part 2</p> <p><b>FOSS Next Generation Insects and Plants Investigations Guide</b> Investigation 1: Part 3 Investigation 2: Part 3 Investigation 3: Part 3 Investigation 4: Part 2 Investigation 5: Part 1</p>
<p><b>Key Idea 6:</b> In order to arrive at the best solution that meets criteria within constraints, it is often necessary to make trade-offs.</p>	<p><b>FOSS Next Generation Plants and Animals Investigations Guide</b> Investigation 3: Parts 3-4</p> <p><b>FOSS Next Generation Insects and Plants Investigations Guide</b> Investigation 3: Part 4 Investigation 5: Part 2</p>



Grade 1

Unit 1: Animal Diversity

NGSS Cross-Cutting Concepts	FOSS Alignment
<p><b>Patterns:</b> Observed patterns in nature guide organization and classification and prompt questions about relationships and causes underlying them.</p> <ul style="list-style-type: none"> <li>- Patterns in the natural and human designed world can be observed, used to describe phenomena, and used as evidence.</li> </ul>	<p><b>FOSS Next Generation Plants and Animals Investigations Guide</b> Investigation 1: Parts 3-4 Investigation 2: Part 2 Investigation 4: Part 2</p> <p><b>FOSS Next Generation Insects and Plants Investigations Guide</b> Investigation 1: Part 3 Investigation 2: Part 3 Investigation 3: Part 3 Investigation 4: Part 2 Investigation 5: Part 1</p>
<p><b>Cause and Effect: Mechanism and Prediction.</b> Events have causes, sometimes simple, sometimes multifaceted. Deciphering causal relationships, and the mechanisms by which they are mediated, is a major activity of science and engineering.</p> <ul style="list-style-type: none"> <li>- Events have causes that generate observable patterns.</li> <li>- Simple tests can be designed to gather evidence to support or refute student ideas about causes.</li> </ul>	<p><b>FOSS Next Generation Plants and Animals Investigations Guide</b> Investigation 1: Parts 1, 3 Investigation 2: Part 2 Investigation 4: Parts 1-2</p> <p><b>FOSS Next Generation Insects and Plants Investigations Guide</b> Investigation 2: Parts 1-2</p>
<p><b>Systems and System Models:</b> A system is an organized group of related objects or components; models can be used for understanding and predicting the behavior of systems.</p> <ul style="list-style-type: none"> <li>- Objects and organisms can be described in terms of their parts.</li> <li>- Systems in the natural and designed world have parts that work together.</li> </ul>	<p><b>FOSS Next Generation Plants and Animals Investigations Guide</b> Investigation 3: Part 1</p>
<p><b>Structure and Function:</b> The way an object is shaped or structured determines many of its properties and functions.</p> <ul style="list-style-type: none"> <li>- The shape and stability of structures of natural and designed objects are related to their function(s).</li> </ul>	<p><b>FOSS Next Generation Plants and Animals Investigations Guide</b> Investigation 1: Parts 2-3 Investigation 2: Parts 1-2 Investigation 3: Parts 2-3 Investigation 4: Part 2</p> <p><b>FOSS Next Generation Insects and Plants Investigations Guide</b> Investigation 1: Parts 1-2 Investigation 2: Part 3 Investigation 3: Parts 3-4 Investigation 4: Part 2 Investigation 5: Part 1</p>
<p><b>Stability and Change:</b> For both designed and natural systems, conditions that affect stability and factors that control rates of change are critical elements to consider and understand.</p> <ul style="list-style-type: none"> <li>- Some things stay the same while other things change.</li> <li>- Things may change slowly or rapidly.</li> </ul>	<p><i>Foundational experiences and connections to this Cross-Cutting Concept are found in <b>FOSS Next Generation Plants and Animals and FOSS Next Generation Insects and Plants</b>. However the conceptual design of the investigations does not include direct correlations to this CCC.</i></p>



Grade 1

Unit 2: Properties of Matter

NYS Science Standard	FOSS Alignment
<b>Major Understandings</b>	
<p><b>PS 3.2a.</b> Matter exists in three states: solid, liquid, gas.</p> <ul style="list-style-type: none"> <li>- Solids have a definite shape and volume.</li> <li>- Liquids do not have a definite shape but have a definite volume.</li> <li>- Gases do not hold their shape or volume.</li> </ul>	<p><b>FOSS Next Generation Solids and Liquids</b> Investigations Guide</p> <p>Investigation 1: Parts 1-5 Investigation 2: Parts 1-4 Investigation 3: Parts 1-5</p>
<p><b>PS 2.1c.</b> Water is recycled by natural processes on Earth.</p> <ul style="list-style-type: none"> <li>- evaporation: changing of water (liquid) into water vapor (gas)</li> <li>- condensation: changing of water vapor (gas) into water (liquid)</li> <li>- precipitation: rain, sleet, snow, hail</li> <li>- runoff: water flowing on Earth's surface</li> <li>- groundwater: water that moves downward into the ground</li> </ul>	<p><b>FOSS Next Generation Pebbles, Sand and Silt</b> Investigations Guide</p> <p>Investigation 4: Parts 3-4</p> <p><b>FOSS Next Generation Air and Weather</b> Investigations Guide</p> <p>Investigation 2: Part 3</p>
<p><b>PS 3.2c.</b> Changes in the properties or materials of objects can be observed and described.</p>	<p><b>FOSS Next Generation Solids and Liquids</b> Investigations Guide</p> <p>Investigation 1: Parts 1-5 Investigation 2: Parts 1-4 Investigation 3: Parts 1-5</p>
<p><b>PS 3.1e.</b> The material(s) an object is made up of determine some specific properties of the object (sink/float, conductivity, magnetism). Properties can be observed or measured with tools such as hand lenses, metric rulers, thermometers, balances, magnets, circuit testers, and graduated cylinders.</p>	<p><b>FOSS Next Generation Solids and Liquids</b> Investigations Guide</p> <p>Investigation 1: Parts 2-4 Investigation 2: Parts 2-3 Investigation 3: Part 2</p>
<p><b>PS 3.1f.</b> Objects and/or materials can be sorted or classified according to their properties.</p>	<p><b>FOSS Next Generation Solids and Liquids</b> Investigations Guide</p> <p>Investigation 1: Parts 2-3 Investigation 2: Part 2 Investigation 3: Part 2</p>
<p><b>PS 3.1c.</b> Objects have properties that can be observed, described, and/or measured: length, width, volume, size, shape, mass or weight, temperature, texture, flexibility, reflectiveness of light.</p>	<p><b>FOSS Next Generation Solids and Liquids</b> Investigations Guide</p> <p>Investigation 1: Parts 1-3 Investigation 2: Parts 1-2 Investigation 3: Parts 1-2, 4 Investigation 4: Parts 1-5</p>
<p><b>PS 3.1d.</b> Measurements can be made with standard metric units and nonstandard units. <i>(Note: Exceptions to the metric system usage are found in meteorology.)</i></p>	<p><b>FOSS Next Generation Solids and Liquids</b> Investigations Guide</p> <p>Investigation 1: Part 4 Investigation 2: Part 3 Investigation 3: Parts 2, 4</p>
<p><b>PS 3.1g.</b> Some properties of an object are dependent on the conditions of the present surroundings in which the object exists.</p> <ul style="list-style-type: none"> <li>- temperature: hot or cold</li> <li>- lighting: shadows, color</li> <li>- moisture: wet or dry</li> </ul>	<p><b>FOSS Next Generation Solids and Liquids</b> Investigations Guide</p> <p>Investigation 1: Part 5 Investigation 2: Part 4 Investigation 3: Part 5 Investigation 4: Parts 1-5</p>





Grade 1

Unit 2: Properties of Matter

MST Standard	FOSS Alignment
<b>Standard 2: Information Systems</b>	
<p><b>Key Idea 1:</b> Information technology is used to retrieve, process, and communicate information as a tool to enhance learning.</p>	<p><b>FOSS Next Generation Solids and Liquids</b> Investigations Guide Investigation 1: Part 1 Investigation 2: Parts 1, 3 Investigation 3: Parts 2, 4 Investigation 4: Parts 3, 4</p>
<b>Standard 6: Interconnectedness: Common Themes</b>	
<p><b>Key Idea 1:</b> Through systems thinking, people can recognize the commonalities that exist among all systems and how parts of a system interrelate and combine to perform specific functions.</p>	<p><b>FOSS Next Generation Solids and Liquids</b> Investigations Guide Investigation 1: Part 4</p>
<p><b>Key Idea 2:</b> Models are simplified representations of objects, structures, or systems used in analysis, explanation, interpretation, or design.</p>	<p><b>FOSS Next Generation Solids and Liquids</b> Investigations Guide Investigation 1: Part 4 Investigation 2: Part 3 Investigation 3: Parts 2, 4</p>
<p><b>Key Idea 3:</b> The grouping of magnitudes of size, time, frequency, and pressures or other units of measurement into a series of relative order provides a useful way to deal with the immense range and the changes in scale that affect the behavior and design of systems.</p>	<p><b>FOSS Next Generation Solids and Liquids</b> Investigations Guide Investigation 2: Part 3</p>
<p><b>Key Idea 4:</b> Equilibrium is a state of stability due either to a lack of change (static equilibrium) or a balance between opposing forces (dynamic equilibrium).</p>	<p><b>FOSS Next Generation Solids and Liquids</b> Investigations Guide Investigation 4: Part 4</p>
<p><b>Key Idea 5:</b> Identifying patterns of change is necessary for making predictions about future behavior and conditions.</p>	<p><b>FOSS Next Generation Solids and Liquids</b> Investigations Guide Investigation 1: Part 3 Investigation 2: Part 3 Investigation 3: Part 4</p>
<p><b>Key Idea 6:</b> In order to arrive at the best solution that meets criteria within constraints, it is often necessary to make trade-offs.</p>	<p><b>FOSS Next Generation Solids and Liquids</b> Investigations Guide Investigation 1: Part 4</p>
<b>Standard 7: Interdisciplinary Problem Solving</b>	
<p><b>Key Idea 1:</b> The knowledge and skills of mathematics, science, and technology are used together to make informed decisions and solve problems, especially those relating to issues of science/technology/society, consumer decision making, design, and inquiry into phenomena.</p>	<p><b>FOSS Next Generation Solids and Liquids</b> Investigations Guide Investigation 2: Part 3</p>
<p><b>Key Idea 2:</b> Solving interdisciplinary problems involves a variety of skills and strategies, including effective work habits; gathering and processing information; generating and analyzing ideas; realizing ideas; making connections among the common themes of mathematics, science, and technology; and presenting results.</p>	<p><b>FOSS Next Generation Solids and Liquids</b> Investigations Guide Investigation 1: Parts 1-5 Investigation 2: Parts 1, 3-4 Investigation 3: Parts 1-5 Investigation 4: Parts 1-5</p>



Grade 1

Unit 2: Properties of Matter

NGSS Cross-Cutting Concepts	FOSS Alignment
<p><b>Patterns:</b> Observed patterns in nature guide organization and classification and prompt questions about relationships and causes underlying them.</p> <ul style="list-style-type: none"> <li>- Patterns in the natural and human designed world can be observed, used to describe phenomena, and used as evidence.</li> </ul>	<p><b>FOSS Next Generation Solids and Liquids</b> Investigations Guide</p> <p>Investigation 1: Part 3 Investigation 2: Part 3 Investigation 3: Part 4</p>
<p><b>Cause and Effect: Mechanism and Prediction:</b> Events have causes, sometimes simple, sometimes multifaceted. Deciphering causal relationships, and the mechanisms by which they are mediated, is a major activity of science and engineering.</p> <ul style="list-style-type: none"> <li>- Events have causes that generate observable patterns.</li> <li>- Simple tests can be designed to gather evidence to support or refute student ideas about causes.</li> </ul>	<p><b>FOSS Next Generation Solids and Liquids</b> Investigations Guide</p> <p>Investigation 2: Part 3 Investigation 3: Parts 2, 4 Investigation 4: Parts 1, 3, 4</p>
<p><b>Scale, Proportion and Quantity:</b> In considering phenomena, it is critical to recognize what is relevant at different size, time, and energy scales, and to recognize proportional relationships between different quantities as scales change.</p> <ul style="list-style-type: none"> <li>- Relative scales allow objects and events to be compared and described (e.g., bigger and smaller; hotter and colder; faster and slower).</li> <li>- Standard units are used to measure length.</li> </ul>	<p><b>FOSS Next Generation Solids and Liquids</b> Investigations Guide</p> <p>Investigation 2: Part 3</p>
<p><b>Systems and System Models:</b> A system is an organized group of related objects or components; models can be used for understanding and predicting the behavior of systems.</p> <ul style="list-style-type: none"> <li>- Objects and organisms can be described in terms of their parts.</li> <li>- Systems in the natural and designed world have parts that work together.</li> </ul>	<p><b>FOSS Next Generation Solids and Liquids</b> Investigations Guide</p> <p>Investigation 1: Part 4</p>
<p><b>Energy and Matter: Flows, Cycles, and Conservation:</b> Tracking energy and matter flows into, out of, and within systems helps one understand their system's behavior.</p> <ul style="list-style-type: none"> <li>- Objects may break into smaller pieces, be put together into larger pieces, or change shapes.</li> </ul>	<p><b>FOSS Next Generation Solids and Liquids</b> Investigations Guide</p> <p>Investigation 4: Part 4</p>
<p><b>Structure and Function:</b> The way an object is shaped or structured determines many of its properties and functions.</p> <ul style="list-style-type: none"> <li>- The shape and stability of structures of natural and designed objects are related to their function(s).</li> </ul>	<p><b>FOSS Next Generation Solids and Liquids</b> Investigations Guide</p> <p>Investigation 1: Part 4</p>
<p><b>Stability and Change:</b> For both designed and natural systems, conditions that affect stability and factors that control rates of change are critical elements to consider and understand.</p> <ul style="list-style-type: none"> <li>- Some things stay the same while other things change.</li> <li>- Things may change slowly or rapidly.</li> </ul>	<p><b>FOSS Next Generation Solids and Liquids</b> Investigations Guide</p> <p>Investigation 4: Part 4</p>



*Grade 1*

**Unit 3: Weather and Seasons**

NYS Science Standard	FOSS Alignment
<b>Major Understandings</b>	
<p><b>PS 1.1a.</b> Natural cycles and patterns include:</p> <ul style="list-style-type: none"> <li>- Earth spinning around once every 24 hours (rotation), resulting in day and night</li> <li>- Earth moving in a path around the Sun (revolution), resulting in one Earth year</li> <li>- the length of daylight and darkness varying with the seasons</li> <li>- weather changing from day to day and through the seasons</li> <li>- the appearance of the Moon changing as it moves in a path around Earth to complete a single cycle</li> </ul>	<p><b>FOSS Next Generation Air and Weather Investigations Guide</b> Investigation 2: Parts 2, 4 Investigation 4: Parts 1-3</p>
<p><b>PS 2.1a.</b> Weather is the condition of the outside air at a particular moment.</p>	<p><b>FOSS Next Generation Air and Weather Investigations Guide</b> Investigation 2: Part 1</p>
<p><b>PS 2.1b.</b> Weather can be described and measured by:</p> <ul style="list-style-type: none"> <li>- temperature</li> <li>- wind speed and direction</li> <li>- form and amount of precipitation</li> <li>- general sky conditions (cloudy, sunny, partly cloudy)</li> </ul>	<p><b>FOSS Next Generation Air and Weather Investigations Guide</b> Investigation 2: Parts 1-3 Investigation 3: Parts 1-5 Investigation 4: Part 1</p>
<p><b>PS 3.1g.</b> Some properties of an object are dependent on the conditions of the present surroundings in which the object exists.</p> <ul style="list-style-type: none"> <li>- temperature: hot or cold</li> <li>- lighting: shadows, color</li> <li>- moisture: wet or dry</li> </ul>	<p><b>FOSS Next Generation Air and Weather Investigations Guide</b> Investigation 2: Parts 2-3</p>
<p><b>PS 1.1b.</b> Humans organize time into units based on natural motions of Earth:</p> <ul style="list-style-type: none"> <li>- second, minute, hour</li> <li>- week, month</li> </ul>	<p><b>FOSS Next Generation Air and Weather Investigations Guide</b> Investigation 2: Part 4</p>
<p><b>PS 1.1c.</b> The Sun and other stars appear to move in a recognizable pattern both daily and seasonally</p>	<p><b>FOSS Next Generation Air and Weather Investigations Guide</b> Investigation 2: Part 4</p>
<p><b>PS 4.2a.</b> Everyday events involve one form of energy being changed to another.</p>	<p><b>FOSS Next Generation Air and Weather Investigations Guide</b> Investigation 3: Parts 2, 3, 5</p>



Grade 1

Unit 3: Weather and Seasons

MST Standard	FOSS Alignment
<b>Standard 2: Information Systems</b>	
<p><b>Key Idea 1:</b> Information technology is used to retrieve, process, and communicate information as a tool to enhance learning.</p>	<p><b>FOSS Next Generation Air and Weather</b> Investigations Guide Investigation 1: Part 2 Investigation 2: Part 3 Investigation 3: Part 2 Investigation 4: Part 1</p>
<b>Standard 6: Interconnectedness: Common Themes</b>	
<p><b>Key Idea 1:</b> Through systems thinking, people can recognize the commonalities that exist among all systems and how parts of a system interrelate and combine to perform specific functions.</p>	<p><b>FOSS Next Generation Air and Weather</b> Investigations Guide Investigation 1: Part 4</p>
<p><b>Key Idea 2:</b> Models are simplified representations of objects, structures, or systems used in analysis, explanation, interpretation, or design.</p>	<p><b>FOSS Next Generation Air and Weather</b> Investigations Guide Investigation 1: Part 4 Investigation 2: Part 2 Investigation 3: Part 2</p>
<p><b>Key Idea 3:</b> The grouping of magnitudes of size, time, frequency, and pressures or other units of measurement into a series of relative order provides a useful way to deal with the immense range and the changes in scale that affect the behavior and design of systems.</p>	<p><b>FOSS Next Generation Air and Weather</b> Investigations Guide Investigation 3: Part 2</p>
<p><b>Key Idea 4:</b> Equilibrium is a state of stability due either to a lack of change (static equilibrium) or a balance between opposing forces (dynamic equilibrium).</p>	<p><b>FOSS Next Generation Air and Weather</b> Investigations Guide Investigation 2: Part 2 Investigation 4: Part 2</p>
<p><b>Key Idea 5:</b> Identifying patterns of change is necessary for making predictions about future behavior and conditions.</p>	<p><b>FOSS Next Generation Air and Weather</b> Investigations Guide Investigation 2: Part 4 Investigation 3: Parts 3-4 Investigation 4: Parts 1-3</p>
<p><b>Key Idea 6:</b> In order to arrive at the best solution that meets criteria within constraints, it is often necessary to make trade-offs.</p>	<p><b>FOSS Next Generation Air and Weather</b> Investigations Guide Investigation 1: Part 2 Investigation 3: Part 5</p>
<b>Standard 7: Interdisciplinary Problem Solving</b>	
<p><b>Key Idea 1:</b> The knowledge and skills of mathematics, science, and technology are used together to make informed decisions and solve problems, especially those relating to issues of science/technology/society, consumer decision making, design, and inquiry into phenomena.</p>	<p><b>FOSS Next Generation Air and Weather</b> Investigations Guide Investigation 2: Part 4 Investigation 4: Parts 1-3</p>
<p><b>Key Idea 2:</b> Solving interdisciplinary problems involves a variety of skills and strategies, including effective work habits; gathering and processing information; generating and analyzing ideas; realizing ideas; making connections among the common themes of mathematics, science, and technology; and presenting results.</p>	<p><b>FOSS Next Generation Air and Weather</b> Investigations Guide Investigation 1: Parts 1-4 Investigation 2: Parts 1-4 Investigation 3: Parts 1-5 Investigation 4: Parts 1-3</p>



Grade 1

Unit 3: Weather and Seasons

NGSS Cross-Cutting Concepts	FOSS Alignment
<p><b>Patterns:</b> Observed patterns in nature guide organization and classification and prompt questions about relationships and causes underlying them.</p> <ul style="list-style-type: none"> <li>- Patterns in the natural and human designed world can be observed, used to describe phenomena, and used as evidence.</li> </ul>	<p><b>FOSS Next Generation Air and Weather Investigations Guide</b> Investigation 2: Part 4 Investigation 3: Parts 3-4 Investigation 4: Parts 1-3</p>
<p><b>Cause and Effect: Mechanism and Prediction:</b> Events have causes, sometimes simple, sometimes multifaceted. Deciphering causal relationships, and the mechanisms by which they are mediated, is a major activity of science and engineering.</p> <ul style="list-style-type: none"> <li>- Events have causes that generate observable patterns.</li> <li>- Simple tests can be designed to gather evidence to support or refute student ideas about causes.</li> </ul>	<p><b>FOSS Next Generation Air and Weather Investigations Guide</b> Investigation 1: Parts 1, 3-5 Investigation 2: Part 2 Investigation 3: Part 3</p>
<p><b>Scale, Proportion and Quantity:</b> In considering phenomena, it is critical to recognize what is relevant at different size, time, and energy scales, and to recognize proportional relationships between different quantities as scales change.</p> <ul style="list-style-type: none"> <li>- Relative scales allow objects and events to be compared and described (e.g., bigger and smaller; hotter and colder; faster and slower).</li> <li>- Standard units are used to measure length.</li> </ul>	<p><b>FOSS Next Generation Air and Weather Investigations Guide</b> Investigation 3: Part 2</p>
<p><b>Systems and System Models:</b> A system is an organized group of related objects or components; models can be used for understanding and predicting the behavior of systems.</p> <ul style="list-style-type: none"> <li>- Objects and organisms can be described in terms of their parts.</li> <li>- Systems in the natural and designed world have parts that work together.</li> </ul>	<p><b>FOSS Next Generation Air and Weather Investigations Guide</b> Investigation 1: Part 4</p>
<p><b>Energy and Matter: Flows, Cycles, and Conservation:</b> Tracking energy and matter flows into, out of, and within systems helps one understand their system's behavior.</p> <ul style="list-style-type: none"> <li>- Objects may break into smaller pieces, be put together into larger pieces, or change shapes.</li> </ul>	<p><i>Foundational experiences and connections to this Cross-Cutting Concept are found in <b>FOSS Next Generation Air and Weather</b>. However the conceptual design of the investigations does not include direct correlations to this CCC.</i></p>
<p><b>Structure and Function:</b> The way an object is shaped or structured determines many of its properties and functions.</p> <ul style="list-style-type: none"> <li>- The shape and stability of structures of natural and designed objects are related to their function(s).</li> </ul>	<p><b>FOSS Next Generation Air and Weather Investigations Guide</b> Investigation 1: Part 2 Investigation 3: Part 5</p>
<p><b>Stability and Change:</b> For both designed and natural systems, conditions that affect stability and factors that control rates of change are critical elements to consider and understand.</p> <ul style="list-style-type: none"> <li>- Some things stay the same while other things change.</li> <li>- Things may change slowly or rapidly.</li> </ul>	<p><b>FOSS Next Generation Air and Weather Investigations Guide</b> Investigation 2: Part 2 Investigation 4: Part 2</p>



Grade 2

Unit 1: Earth Materials

NYS Science Standard	FOSS Alignment
<b>Major Understandings</b>	
<p><b>PS 2.1d.</b> Erosion and deposition result from the interaction among air, water, and land.</p> <ul style="list-style-type: none"> <li>- Interaction between air and water breaks down Earth materials.</li> <li>- Pieces of Earth material may be moved by air, water, wind, and gravity.</li> <li>- Pieces of Earth material will settle or deposit on land or in the water in different places.</li> <li>- Soil is composed of broken-down pieces of living and nonliving Earth material.</li> </ul>	<p><b>FOSS Next Generation Pebbles, Sand and Silt</b> Investigations Guide</p> <p>Investigation 1: Parts 1-2 Investigation 2: Parts, 1-4 Investigation 4: Parts 1-2, 4</p>
<p><b>PS 3.1b.</b> Matter has properties (color, hardness, odor, sound, taste, etc.) that can be observed through the senses.</p>	<p><b>FOSS Next Generation Pebbles, Sand and Silt</b> Investigations Guide</p> <p>Investigation 1: Parts 1-5 Investigation 2: Parts 1-4 Investigation 3: Parts 1-5 Investigation 4: Parts 2-3</p>
<p><b>PS 3.1c.</b> Objects have properties that can be observed, described, and/or measured: length, width, volume, size, shape, mass or weight, temperature, texture, flexibility, reflectiveness of light.</p>	<p><b>FOSS Next Generation Pebbles, Sand and Silt</b> Investigations Guide</p> <p>Investigation 1: Parts 1-5 Investigation 2: Parts 1-4 Investigation 3: Parts 1-5 Investigation 4: Parts 2-3</p>
<p><b>PS 3.1d.</b> Measurements can be made with standard metric units and nonstandard units (Note: Exceptions to the metric system usage are found in meteorology.)</p>	<p><b>FOSS Next Generation Pebbles, Sand and Silt</b> Investigations Guide</p> <p>Investigation 1: Parts 3, 5 Investigation 2: Parts 1-4</p>
<p><b>PS 3.1e.</b> The material(s) an object is made up of determine some specific properties of the object (sink/float, conductivity, magnetism). Properties can be observed or measured with tools such as hand lenses, metric rulers, thermometers, balances, magnets, circuit testers, and graduated cylinders.</p>	<p><b>FOSS Next Generation Pebbles, Sand and Silt</b> Investigations Guide</p> <p>Investigation 1: Parts 1-5 Investigation 2: Part 3 Investigation 3: Part 2 Investigation 4: Parts 1-2</p>
<p><b>PS 3.1f.</b> Objects and/or materials can be sorted or classified according to their properties.</p>	<p><b>FOSS Next Generation Pebbles, Sand and Silt</b> Investigations Guide</p> <p>Investigation 1: Parts 1-5 Investigation 2: Parts 1-2 Investigation 3: Parts 1-5 Investigation 4: Parts 1, 3</p>
<p><b>PS 3.1g.</b> Some properties of an object are dependent on the conditions of the present surroundings in which the object exists. For Example:</p> <ul style="list-style-type: none"> <li>- temperature: hot or cold</li> <li>- lighting: shadows, color</li> <li>- moisture: wet or dry</li> </ul>	<p><b>FOSS Next Generation Pebbles, Sand and Silt</b> Investigations Guide</p> <p>Investigation 1: Parts 2-3, 5 Investigation 2: Parts 1-3 Investigation 3: Parts 1-5</p>
<p><b>LE 1.1d.</b> Nonliving things can be human-created or naturally occurring.</p>	<p><b>FOSS Next Generation Pebbles, Sand and Silt</b> Investigations Guide</p> <p>Investigation 3: Parts 1-5</p>



Grade 2

Unit 1: Earth Materials

MST Standard	FOSS Alignment
<b>Standard 2: Information Systems</b>	
<p><b>Key Idea 1:</b> Information technology is used to retrieve, process, and communicate information as a tool to enhance learning.</p>	<p><b>FOSS Next Generation Pebbles, Sand and Silt</b> Investigations Guide Investigation 1: Parts 2, 5 Investigation 2: Part 4 Investigation 3: Part 4 Investigation 4: Part 3</p>
<b>Standard 6: Interconnectedness: Common Themes</b>	
<p><b>Key Idea 1:</b> Through systems thinking, people can recognize the commonalities that exist among all systems and how parts of a system interrelate and combine to perform specific functions.</p>	<p><i>Foundational experiences and connections to this Key Idea are found in <b>FOSS Next Generation Pebbles, Sand and Silt</b>. However the conceptual design of the investigations does not include direct correlations to this Key Idea.</i></p>
<p><b>Key Idea 2:</b> Models are simplified representations of objects, structures, or systems used in analysis, explanation, interpretation, or design.</p>	<p><b>FOSS Next Generation Pebbles, Sand and Silt</b> Investigations Guide Investigation 2: Parts 2, 4 Investigation 4: Part 4</p>
<p><b>Key Idea 3:</b> The grouping of magnitudes of size, time, frequency, and pressures or other units of measurement into a series of relative order provides a useful way to deal with the immense range and the changes in scale that affect the behavior and design of systems.</p>	<p><b>FOSS Next Generation Pebbles, Sand and Silt</b> Investigations Guide Investigation 2: Part 3 Investigation 3: Part 3 Investigation 4: Part 4</p>
<p><b>Key Idea 4:</b> Equilibrium is a state of stability due either to a lack of change (static equilibrium) or a balance between opposing forces (dynamic equilibrium).</p>	<p><b>FOSS Next Generation Pebbles, Sand and Silt</b> Investigations Guide Investigation 1: Parts 1-2 Investigation 2: Part 4 Investigation 4: Parts 1, 4</p>
<p><b>Key Idea 5:</b> Identifying patterns of change is necessary for making predictions about future behavior and conditions.</p>	<p><i>Foundational experiences and connections to this Key Idea are found in <b>FOSS Next Generation Pebbles, Sand and Silt</b>. However the conceptual design of the investigations does not include direct correlations to this Key Idea.</i></p>
<p><b>Key Idea 6:</b> In order to arrive at the best solution that meets criteria within constraints, it is often necessary to make trade-offs.</p>	<p><b>FOSS Next Generation Pebbles, Sand and Silt</b> Investigations Guide Investigation 3: Part 2 Investigation 4: Part 2</p>
<b>Standard 7: Interdisciplinary Problem Solving</b>	
<p><b>Key Idea 1:</b> The knowledge and skills of mathematics, science, and technology are used together to make informed decisions and solve problems, especially those relating to issues of science/technology/society, consumer decision making, design, and inquiry into phenomena.</p>	<p><b>FOSS Next Generation Pebbles, Sand and Silt</b> Investigations Guide Investigation 2: Part 1 Investigation 3: Parts 1-5</p>
<p><b>Key Idea 2:</b> Solving interdisciplinary problems involves a variety of skills and strategies, including effective work habits; gathering and processing information; generating and analyzing ideas; realizing ideas; making connections among the common themes of mathematics, science, and technology; and presenting results.</p>	<p><b>FOSS Next Generation Pebbles, Sand and Silt</b> Investigations Guide Investigation 1: Parts 1-5 Investigation 2: Parts 1-4 Investigation 3: Parts 1-5 Investigation 4: Parts 1-2, 4</p>



Grade 2

Unit 1: Earth Materials

NGSS Cross-Cutting Concepts	FOSS Alignment
<p><b>Patterns:</b> Observed patterns in nature guide organization and classification and prompt questions about relationships and causes underlying them.</p> <ul style="list-style-type: none"> <li>- Patterns in the natural and human designed world can be observed, used to describe phenomena, and used as evidence.</li> </ul>	<p><i>Foundational experiences and connections to this Cross-Cutting Concept are found in <b>FOSS Next Generation Pebbles, Sand and Silt</b>. However the conceptual design of the investigations does not include direct correlations to this CCC.</i></p>
<p><b>Cause and Effect: Mechanism and Prediction:</b> Events have causes, sometimes simple, sometimes multifaceted. Deciphering causal relationships, and the mechanisms by which they are mediated, is a major activity of science and engineering.</p> <ul style="list-style-type: none"> <li>- Events have causes that generate observable patterns.</li> </ul>	<p><b>FOSS Next Generation Pebbles, Sand and Silt</b> Investigations Guide Investigation 1: Parts 1-2 Investigation 2: Part 2 Investigation 3: Parts 2-3 Investigation 4: Parts 2, 4</p>
<p><b>Scale, Proportion, and Quantity:</b> In considering phenomena, it is critical to recognize what is relevant at different size, time, and energy scales, and to recognize proportional relationships between different quantities as scales change.</p> <ul style="list-style-type: none"> <li>- Relative scales allow objects and events to be compared and described (e.g., bigger and smaller; hotter and colder; faster and slower).</li> <li>- Standard units are used to measure length.</li> </ul>	<p><b>FOSS Next Generation Pebbles, Sand and Silt</b> Investigations Guide Investigation 2: Part 3 Investigation 3: Part 3 Investigation 4: Part 4</p>
<p><b>Systems and System Models:</b> A system is an organized group of related objects or components; models can be used for understanding and predicting the behavior of systems.</p> <ul style="list-style-type: none"> <li>- Objects and organisms can be described in terms of their parts.</li> <li>- Systems in the natural and designed world have parts that work together.</li> </ul>	<p><i>Foundational experiences and connections to this Cross-Cutting Concept are found in <b>FOSS Next Generation Pebbles, Sand and Silt</b>. However the conceptual design of the investigations does not include direct correlations to this CCC.</i></p>
<p><b>Energy and Matter: Flows, Cycles, and Conservation:</b> Tracking energy and matter flows into, out of, and within systems helps one understand their system's behavior.</p> <ul style="list-style-type: none"> <li>- Objects may break into smaller pieces, be put together into larger pieces, or change shapes.</li> </ul>	<p><b>FOSS Next Generation Pebbles, Sand and Silt</b> Investigations Guide Investigation 3: Part 5</p>
<p><b>Stability and Change:</b> For both designed and natural systems, conditions that affect stability and factors that control rates of change are critical elements to consider and understand.</p> <ul style="list-style-type: none"> <li>- Some things stay the same while other things change.</li> <li>- Things may change slowly or rapidly.</li> </ul>	<p><b>FOSS Next Generation Pebbles, Sand and Silt</b> Investigations Guide Investigation 1: Parts 1-2 Investigation 2: Part 4 Investigation 4: Parts 1, 4</p>





Grade 2

Unit 2: Forces and Motion

NYS Science Standard	FOSS Alignment
<b>Major Understandings</b>	
<b>PS 5.1a.</b> The position of an object can be described by locating it relative to another object or the background.	<b>FOSS 3<sup>rd</sup> Edition Balance and Motion</b> Investigations Guide Investigation 1: Part 3
<b>PS 5.1.</b> Describe the effects of common forces (pushes and pulls) of objects, such as those caused by gravity, magnetism and mechanical forces.	<b>FOSS 3<sup>rd</sup> Edition Balance and Motion</b> Investigations Guide Investigation 3: Parts 1-4 Investigation 5: Part 1
<b>PS 5.1b.</b> The position or direction of motion of an object can be changed by pushing or pulling.	<b>FOSS 3<sup>rd</sup> Edition Balance and Motion</b> Investigations Guide Investigation 3: Parts 1-4 Investigation 5: Part 1
<b>PS 5.1c.</b> The force of gravity pulls objects toward the center of Earth.	<b>FOSS 3<sup>rd</sup> Edition Balance and Motion</b> Investigations Guide Investigation 1: Parts 1-4 Investigation 5: Part 1
<b>PS 5.2a.</b> The forces of gravity and magnetism can affect objects through gases, liquids, and solids.	<b>FOSS 3<sup>rd</sup> Edition Balance and Motion</b> Investigations Guide Investigation 5: Part 1



Grade 2

**Unit 2: Forces and Motion**

MST Standard	FOSS Alignment
<b>Standard 2: Information Systems</b>	
<b>Key Idea 1:</b> Information technology is used to retrieve, process, and communicate information as a tool to enhance learning.	<b>FOSS 3<sup>rd</sup> Edition Balance and Motion</b> Investigations Guide Investigation 3: Parts 2-3 Investigation 4: Part 2 Investigation 5: Part 1
<b>Standard 6: Interconnectedness: Common Themes</b>	
<b>Key Idea 2:</b> Models are simplified representations of objects, structures, or systems used in analysis, explanation, interpretation, or design.	<b>FOSS 3<sup>rd</sup> Edition Balance and Motion</b> Investigations Guide Investigation 1: Parts 2-4
<b>Key Idea 4:</b> Equilibrium is a state of stability due either to a lack of change (static equilibrium) or a balance between opposing forces (dynamic equilibrium).	<b>FOSS 3<sup>rd</sup> Edition Balance and Motion</b> Investigations Guide Investigation 1: Parts 1-4 Investigation 2: Part 1 Investigation 5: Part 1
<b>Key Idea 5:</b> Identifying patterns of change is necessary for making predictions about future behavior and conditions.	<b>FOSS 3<sup>rd</sup> Edition Balance and Motion</b> Investigations Guide Investigation 3: Parts 1-4



Grade 2

Unit 2: Forces and Motion

NGSS Cross-Cutting Concepts	FOSS Alignment
<p><b>Patterns:</b> Observed patterns in nature guide organization and classification and prompt questions about relationships and causes underlying them.</p> <ul style="list-style-type: none"> <li>- Patterns in the natural and human designed world can be observed, used to describe phenomena, and used as evidence.</li> </ul>	<p><b>FOSS 3<sup>rd</sup> Edition Balance and Motion</b> Investigations Guide Investigation 2: Part 2 Investigation 3: Parts 1-2</p>
<p><b>Cause and Effect: Mechanism and Prediction:</b> Events have causes, sometimes simple, sometimes multifaceted. Deciphering causal relationships, and the mechanisms by which they are mediated, is a major activity of science and engineering.</p> <ul style="list-style-type: none"> <li>- Events have causes that generate observable patterns.</li> <li>- Simple tests can be designed to gather evidence to support or refute student ideas about causes.</li> </ul>	<p><b>FOSS 3<sup>rd</sup> Edition Balance and Motion</b> Investigations Guide Investigation 1: Parts 1-4 Investigation 2: Part 2 Investigation 3: Parts 1-4 Investigation 4: Part 1</p>
<p><b>Systems and System Models:</b> A system is an organized group of related objects or components; models can be used for understanding and predicting the behavior of systems.</p> <ul style="list-style-type: none"> <li>- Objects and organisms can be described in terms of their parts.</li> <li>- Systems in the natural and designed world have parts that work together.</li> </ul>	<p><b>FOSS 3<sup>rd</sup> Edition Balance and Motion</b> Investigations Guide Investigation 1: Parts 2-4 Investigation 3: Parts 1-4</p>
<p><b>Stability and Change:</b> For both designed and natural systems, conditions that affect stability and factors that control rates of change are critical elements to consider and understand.</p> <ul style="list-style-type: none"> <li>- Some things stay the same while other things change.</li> <li>- Things may change slowly or rapidly.</li> </ul>	<p><b>FOSS 3<sup>rd</sup> Edition Balance and Motion</b> Investigations Guide Investigation 1: Parts 1-4</p>



Grade 2

Unit 3: Plant Diversity

NYS Science Standard	FOSS Alignment
<p><b>Major Understandings</b></p> <p><b>LE 3.1b.</b> Each plant has different structures that serve different functions in growth, survival, and reproduction.</p> <ul style="list-style-type: none"> <li>- Roots help support the plant and take in water and nutrients.</li> <li>- Leaves help plants utilize sunlight to make food for the plant.</li> <li>- Stems, stalks, trunks, and other similar structures provide support for the plant.</li> <li>- Some plants have flowers.</li> <li>- Flowers are reproductive structures of plants that produce fruit which contain seeds.</li> <li>- Seeds contain stored food that aids in germination and the growth of young plants.</li> </ul>	<p><b>FOSS Next Generation Plants and Animals Investigations Guide</b> Investigation 1: Part 3 Investigation 2: Parts 1-3 Investigation 3: Part 3 Investigation 4: Part 1</p> <p><b>FOSS Next Generation Insects and Plants Investigations Guide</b> Investigation 2: Parts 1-4</p>
<p><b>LE 2.1a.</b> Some traits of living things have been inherited.</p>	<p><b>FOSS Next Generation Plants and Animals Investigations Guide</b> Not specifically addressed but term <i>inherited</i> may be introduced in Investigation 4: Part 3</p> <p><b>FOSS Next Generation Insects and Plants Investigations Guide</b> Observational opportunities within investigations and Science Resources Book. However the term <i>inherited</i> is not used. Investigation 1: Part 2 Investigation 2: Parts 1-2 Investigation 3: Parts 1-3 Investigation 4: Parts 1-3 Investigation 5: Parts 1-3</p>
<p><b>LE 2.1b.</b> Plants and animals closely resemble their parents and other individuals in the species.</p>	<p><b>FOSS Next Generation Plants and Animals Investigations Guide</b> Investigations 1-4</p> <p><b>FOSS Next Generation Insects and Plants Investigations Guide</b> Investigation 1: Part 2 Investigation 2: Parts 1-2 Investigation 3: Parts 1-3 Investigation 4: Parts 1-3 Investigation 5: Parts 1-3</p>
<p><b>LE 2.2b.</b> Plants and animals can transfer species traits to their offspring when they reproduce.</p>	<p><b>FOSS Next Generation Plants and Animals Investigations Guide</b> Not specifically addressed but the term <i>trait</i> may be introduced in Investigation 4: Part 3</p> <p><b>FOSS Next Generation Insects and Plants Investigations Guide</b> Observational opportunities within investigations and Science Resources Book. However the term <i>trait</i> is not used. Investigation 1: Part 2 Investigation 2: Parts 1-2 Investigation 3: Parts 1-3 Investigation 4: Parts 1-3 Investigation 5: Parts 1-3</p>



Grade 2

Unit 3: Plant Diversity

NYS Science Standard	FOSS Alignment
<b>Major Understandings</b>	
<p><b>LE 4.1a.</b> Plants and animals have life cycles. These may include beginning of a life, development into an adult, reproduction as an adult, and eventually death.</p>	<p><b>FOSS Next Generation Plants and Animals</b> Investigations Guide Not specifically addressed but term, <i>life cycle</i> may be introduced in Investigation 4: Part 3</p> <p><b>FOSS Next Generation Insects and Plants</b> Investigations Guide Investigation 2: Parts 2-3</p>
<p><b>LE 4.1b.</b> Each kind of plant goes through its own stages of growth and development that may include seed, young plant and mature plant.</p>	<p><b>FOSS Next Generation Insects and Plants</b> Investigations Guide Investigation 2: Parts 1-3</p>
<p><b>LE 4.1c.</b> The length of time from beginning of development to death of the plant is called its life span.</p>	<p><b>FOSS Next Generation Plants and Animals</b> Investigations Guide Not specifically addressed but term <i>life span</i> may be introduced in Investigation 4: Part 3</p> <p><b>FOSS Next Generation Insects and Plants</b> Investigations Guide Investigation 2: Part 3 The term <i>life span</i> is not used but may be introduced in Step 8 where students chart brassica growth after seeds are harvested from the dried plants.</p>
<p><b>LE 4.1d.</b> Life cycles of some plants include changes from seed to mature plant.</p>	<p><b>FOSS Next Generation Insects and Plants</b> Investigations Guide Investigation 2: Parts 1-3</p>
<p><b>LE 1.1b.</b> Plants require air, water and food in order to live and thrive.</p>	<p><b>FOSS Next Generation Insects and Plants</b> Investigations Guide Investigation 2: Parts 1-4</p>
<p><b>LE 1.2a.</b> Living things grow, take in nutrients, breathe, reproduce, eliminate waste, and die.</p>	<p><b>FOSS Next Generation Plants and Animals</b> Investigations Guide Investigations 1-2, 4</p> <p><b>FOSS Next Generation Insects and Plants</b> Investigations Guide Investigations 1-5</p>
<p><b>LE 5.1a.</b> All living things grow, take in nutrients, breathe, reproduce and eliminate waste.</p>	<p><b>FOSS Next Generation Plants and Animals</b> Investigations Guide Investigations 1-2, 4</p> <p><b>FOSS Next Generation Insects and Plants</b> Investigations Guide Investigations 1-5</p>



Grade 2

Unit 3: Plant Diversity

MST Standard	FOSS Alignment
<b>Standard 6: Interconnectedness: Common Themes</b>	
<p><b>Key Idea 1:</b> Through systems thinking, people can recognize the commonalities that exist among all systems and how parts of a system interrelate and combine to perform specific functions.</p>	<p><b>FOSS Next Generation Plants and Animals Investigations Guide</b> Investigation 3: Parts 1</p>
<p><b>Key Idea 2:</b> Models are simplified representations of objects, structures, or systems used in analysis, explanation, interpretation, or design.</p>	<p><b>FOSS Next Generation Plants and Animals Investigations Guide</b> Investigation 1: Part 3 Investigation 3: Parts 1-2</p> <p><b>FOSS Next Generation Insects and Plants Investigations Guide</b> Investigation 2: Part 4 Investigation 3: Part 4 Investigation 5: Part 4</p>
<p><b>Key Idea 3:</b> The grouping of magnitudes of size, time, frequency, and pressures or other units of measurement into a series of relative order provides a useful way to deal with the immense range and the changes in scale that affect the behavior and design of systems.</p>	<p><b>FOSS Next Generation Plants and Animals Investigations Guide</b> Investigation 1: Part 3</p>
<p><b>Key Idea 4:</b> Equilibrium is a state of stability due either to a lack of change (static equilibrium) or a balance between opposing forces (dynamic equilibrium).</p>	<p><i>Foundational experiences and connections to this Key Idea are found in <b>FOSS Next Generation Plants and Animals and FOSS Next Generation Insects and Plants</b>. However the conceptual design of the investigations does not include direct correlations to this Key Idea.</i></p>
<p><b>Key Idea 5:</b> Identifying patterns of change is necessary for making predictions about future behavior and conditions.</p>	<p><b>FOSS Next Generation Plants and Animals Investigations Guide</b> Investigation 1: Parts 3-4 Investigation 2: Part 2 Investigation 4: Part 2</p> <p><b>FOSS Next Generation Insects and Plants Investigations Guide</b> Investigation 1: Part 3 Investigation 2: Part 3 Investigation 3: Part 3 Investigation 4: Part 2 Investigation 5: Part 1</p>
<p><b>Key Idea 6:</b> In order to arrive at the best solution that meets criteria within constraints, it is often necessary to make trade-offs.</p>	<p><b>FOSS Next Generation Plants and Animals Investigations Guide</b> Investigation 3: Parts 3-4</p> <p><b>FOSS Next Generation Insects and Plants Investigations Guide</b> Investigation 3: Part 4 Investigation 5: Part 2</p>
<b>Standard 7: Interdisciplinary Problem Solving</b>	
<p><b>Key Idea 1:</b> The knowledge and skills of mathematics, science, and technology are used together to make informed decisions and solve problems, especially those relating to issues of science/technology/society, consumer decision making, design, and inquiry into phenomena.</p>	<p><b>FOSS Next Generation Plants and Animals Investigations Guide</b> Investigation 1: Part 3 Investigation 3: Part 4</p> <p><b>FOSS Next Generation Insects and Plants Investigations Guide</b> Investigation 3: Part 4 Investigation 5: Part 2</p>



Grade 2

**Unit 3: Plant Diversity**

MST Standard	FOSS Alignment
<p><b>Standard 7: Interdisciplinary Problem Solving</b></p>	
<p><b>Key Idea 2:</b> Solving interdisciplinary problems involves a variety of skills and strategies, including effective work habits; gathering and processing information; generating and analyzing ideas; realizing ideas; making connections among the common themes of mathematics, science, and technology; and presenting results.</p>	<p><b>FOSS Next Generation Plants and Animals</b> Investigations Guide                      Investigation 1: Parts 1-4                      Investigation 2: Parts 1-3                      Investigation 3: Parts 1-2                      Investigation 4: Parts 1-3</p> <p><b>FOSS Next Generation Insects and Plants</b> Investigations Guide                      Investigation 1: Parts 1-3                      Investigation 2: Parts 1-4                      Investigation 3: Parts 1-4                      Investigation 4: Parts 1-4                      Investigation 5: Parts 1-4</p>



Grade 2

Unit 3: Plant Diversity

NGSS Cross-Cutting Concepts	FOSS Alignment
<p><b>Patterns:</b> Observed patterns in nature guide organization and classification and prompt questions about relationships and causes underlying them.</p> <ul style="list-style-type: none"> <li>- Patterns in the natural and human designed world can be observed, used to describe phenomena, and used as evidence.</li> </ul>	<p><b>FOSS Next Generation Plants and Animals Investigations Guide</b> Investigation 1: Parts 3-4 Investigation 2: Part 2 Investigation 4: Part 2</p> <p><b>FOSS Next Generation Insects and Plants Investigations Guide</b> Investigation 1: Part 3 Investigation 2: Part 3 Investigation 3: Part 3 Investigation 4: Part 2 Investigation 5: Part 1</p>
<p><b>Cause and Effect: Mechanism and Prediction:</b> Events have causes, sometimes simple, sometimes multifaceted. Deciphering causal relationships, and the mechanisms by which they are mediated, is a major activity of science and engineering.</p> <ul style="list-style-type: none"> <li>- Events have causes that generate observable patterns.</li> <li>- Simple tests can be designed to gather evidence to support or refute student ideas about causes.</li> </ul>	<p><b>FOSS Next Generation Plants and Animals Investigations Guide</b> Investigation 1: Parts 1, 3 Investigation 2: Part 2 Investigation 4: Parts 1-2</p> <p><b>FOSS Next Generation Insects and Plants Investigations Guide</b> Investigation 2: Parts 1-2</p>
<p><b>Scale, Proportion and Quantity:</b> In considering phenomena, it is critical to recognize what is relevant at different size, time, and energy scales, and to recognize proportional relationships between different quantities as scales change.</p> <ul style="list-style-type: none"> <li>- Relative scales allow objects and events to be compared and described (e.g., bigger and smaller; hotter and colder; faster and slower).</li> <li>- Standard units are used to measure length.</li> </ul>	<p><b>FOSS Next Generation Plants and Animals Investigations Guide</b> Investigation 1: Part 3</p>
<p><b>Systems and System Models:</b> A system is an organized group of related objects or components; models can be used for understanding and predicting the behavior of systems.</p> <ul style="list-style-type: none"> <li>- Objects and organisms can be described in terms of their parts.</li> <li>- Systems in the natural and designed world have parts that work together.</li> </ul>	<p><b>FOSS Next Generation Plants and Animals Investigations Guide</b> Investigation 3: Part 1</p>
<p><b>Energy and Matter: Flows, Cycles, and Conservation:</b> Tracking energy and matter flows into, out of, and within systems helps one understand their system's behavior.</p> <ul style="list-style-type: none"> <li>- Objects may break into smaller pieces, be put together into larger pieces, or change shapes.</li> </ul>	<p><i>Foundational experiences and connections to this Cross-Cutting Concept are found in <b>FOSS Next Generation Plants and Animals</b> and <b>FOSS Next Generation Insects and Plants</b>. However the conceptual design of the investigations does not include direct correlations to this CCC.</i></p>
<p><b>Structure and Function:</b> The way an object is shaped or structured determines many of its properties and functions.</p> <ul style="list-style-type: none"> <li>- The shape and stability of structures of natural and designed objects are related to their function(s).</li> </ul>	<p><b>FOSS Next Generation Plants and Animals Investigations Guide</b> Investigation 1: Parts 2-3 Investigation 2: Parts 1-2 Investigation 3: Parts 2-3 Investigation 4: Part 2</p> <p><b>FOSS Next Generation Insects and Plants Investigations Guide</b> Investigation 1: Parts 1-2 Investigation 2: Part 3 Investigation 3: Parts 3-4 Investigation 4: Part 2 Investigation 5: Part 1</p>





Grade 2

**Unit 3: Plant Diversity**

NGSS Cross-Cutting Concepts	FOSS Alignment
<p><b>Stability and Change:</b> For both designed and natural systems, conditions that affect stability and factors that control rates of change are critical elements to consider and understand.</p> <ul style="list-style-type: none"> <li>- Some things stay the same while other things change.</li> <li>- Things may change slowly or rapidly.</li> </ul>	<p><i>Foundational experiences and connections to this Cross-Cutting Concept are found in <b>FOSS Next Generation Plants and Animals and FOSS Next Generation Insects and Plants</b>. However the conceptual design of the investigations does not include direct correlations to this CCC.</i></p>



Grade 3

Unit 1: Matter

NYS Science Standard	FOSS Alignment
<p><b>Major Understandings</b></p> <p><b>PS 3.1b.</b> Matter has properties (color, hardness, odor, sound, taste, etc.) that can be observed through the senses.</p>	<p><b>FOSS 3<sup>rd</sup> Edition Measuring Matter</b> Investigations Guide Investigation 2: Parts 1-5 Investigation 3: Parts 1-4 Investigation 4: Parts 1-3</p> <p><b>FOSS Next Generation Motion and Matter</b> Investigations Guide Investigation 1: Parts 1-3 Investigation 4: Parts 1-2</p>
<p><b>PS 3.1c.</b> Objects have properties that can be observed, described, and/or measured: length, width, volume, size, shape, mass or weight, temperature, texture, flexibility, reflectiveness of light.</p>	<p><b>FOSS 3<sup>rd</sup> Edition Measuring Matter</b> Investigations Guide Investigation 1: Parts 1-4 Investigation 2: Parts 1-5 Investigation 3: Parts 1-4 Investigation 4: Parts 1-4</p> <p><b>FOSS Next Generation Motion and Matter</b> Investigations Guide Investigation 1: Parts 1-3</p>
<p><b>PS 3.1d.</b> Measurements can be made with standard metric units and nonstandard units (Note: Exceptions to the metric system usage are found in meteorology.)</p>	<p><b>FOSS 3<sup>rd</sup> Edition Measuring Matter</b> Investigations Guide Investigation 1: Parts 1-4 Investigation 2: Parts 1-5 Investigation 3: Parts 1-4 Investigation 4: Parts 1-4</p> <p><b>FOSS Next Generation Motion and Matter</b> Investigations Guide Investigation 1: Part 2 Investigation 3: Parts 2-3</p>
<p><b>PS 3.1e.</b> The material(s) an object is made up of determine some specific properties of the object (sink/float, conductivity, magnetism). Properties can be observed or measured with tools such as hand lenses, metric rulers, thermometers, balances, magnets, circuit testers, and graduated cylinders.</p>	<p><b>FOSS 3<sup>rd</sup> Edition Measuring Matter</b> Investigations Guide Investigation 1: Parts 1-4 Investigation 2: Parts 1-5 Investigation 3: Parts 1-4 Investigation 4: Parts 1-4</p> <p><b>FOSS Next Generation Motion and Matter</b> Investigations Guide Investigation 1: Parts 1-2 Investigation 4: Parts 1-2</p>



Grade 3

**Unit 1: Matter**

MST Standard	FOSS Alignment
<p><b>Standard 6: Interconnectedness: Common Themes</b></p>	
<p><b>Key Idea 3:</b> The grouping of magnitudes of size, time, frequency, and pressures or other units of measurement into a series of relative order provides a useful way to deal with the immense range and the changes in scale that affect the behavior and design of systems.</p>	<p><b>FOSS 3<sup>rd</sup> Edition Measuring Matter</b> Investigations Guide                      Investigation 1: Parts 1-4                      Investigation 2: Parts 1-5                      Investigation 3: Parts 1-4                      Investigation 4: Part 4</p> <p><b>FOSS Next Generation Motion and Matter</b> Investigations Guide                      Investigation 3: Parts 2-3</p>



Grade 3

Unit 1: Matter

NGSS Cross-Cutting Concepts	FOSS Alignment
<p><b>Subheader (as needed)</b></p> <p><b>Patterns:</b> Observed patterns in nature guide organization and classification and prompt questions about relationships and causes underlying them.</p> <ul style="list-style-type: none"> <li>- Patterns in the natural and human designed world can be observed, used to describe phenomena, and used as evidence.</li> </ul>	<p><b>FOSS Next Generation Motion and Matter Investigations Guide</b> Investigation 1: Part 2</p>
<p><b>Cause and Effect: Mechanism and Prediction:</b> Events have causes, sometimes simple, sometimes multifaceted. Deciphering causal relationships, and the mechanisms by which they are mediated, is a major activity of science and engineering.</p> <ul style="list-style-type: none"> <li>- Events have causes that generate observable patterns.</li> </ul>	<p><b>FOSS 3<sup>rd</sup> Edition Measuring Matter Investigations Guide</b> Investigation 3: Parts 2-4 Investigation 4: Parts 1-3</p> <p><b>FOSS Next Generation Motion and Matter Investigations Guide</b> Investigation 1: Parts 1-3 Investigation 3: Part 3 Investigation 4: Parts 1-2</p>
<p><b>Scale, Proportion, and Quantity:</b> In considering phenomena, it is critical to recognize what is relevant at different size, time, and energy scales, and to recognize proportional relationships between different quantities as scales change.</p> <ul style="list-style-type: none"> <li>- Relative scales allow objects and events to be compared and described (e.g., bigger and smaller; hotter and colder; faster and slower).</li> <li>- Standard units are used to measure length.</li> </ul>	<p><b>FOSS 3<sup>rd</sup> Edition Measuring Matter Investigations Guide</b> Investigation 1: Parts 1-4 Investigation 2: Parts 1-5 Investigation 3: Parts 1-4 Investigation 4: Parts 1-4</p> <p><b>FOSS Next Generation Motion and Matter Investigations Guide</b> Investigation 3: Part 3 Investigation 4: Part 3</p>
<p><b>Energy and Matter: Flows, Cycles, and Conservation:</b> Tracking energy and matter flows into, out of, and within systems helps one understand their system's behavior.</p> <ul style="list-style-type: none"> <li>- Objects may break into smaller pieces, be put together into larger pieces, or change shapes.</li> </ul>	<p><b>FOSS 3<sup>rd</sup> Edition Measuring Matter Investigations Guide</b> Investigation 3: Parts 1-4 Investigation 4: Parts 2-3</p> <p><b>FOSS Next Generation Motion and Matter Investigations Guide</b> Investigation 4: Parts 1-2</p>
<p><b>Structure and Function:</b> The way an object is shaped or structured determines many of its properties and functions.</p> <ul style="list-style-type: none"> <li>- Different materials have different substructures, which can sometimes be observed.</li> <li>- Substructures have shapes and parts that serve functions.</li> </ul>	<p><b>FOSS 3<sup>rd</sup> Edition Measuring Matter Investigations Guide</b> Investigation 4: Parts 1-2</p> <p><b>FOSS Next Generation Motion and Matter Investigations Guide</b> Investigation 3: Parts 1-4</p>



Grade 3

Unit 2: Energy

NYS Science Standard	FOSS Alignment
<b>Major Understandings</b>	
<p><b>PS 4.1a.</b> Energy exists in various forms: heat, electric, sound, chemical, mechanical, light.</p>	<p><b>FOSS Next Generation Sound and Light</b> Investigations Guide Investigation 1: Parts 1-3 Investigation 2: Parts 1-4 Investigation 3: Parts 1-3 Investigation 4: Parts 1-4</p> <p><b>FOSS 3<sup>rd</sup> Edition Measuring Matter</b> Investigations Guide Investigation 3: Parts 2-4</p> <p><b>FOSS Next Generation Energy</b> Investigations Guide</p>
<p><b>PS 4.2a.</b> Everyday events involve one form of energy being changed to another.</p> <ul style="list-style-type: none"> <li>- Animals convert food to heat and motion.</li> <li>- The Sun's energy warms the air and water.</li> </ul>	<p><b>FOSS Next Generation Sound and Light</b> Investigations Guide Investigation 1: Parts 1-3 Investigation 2: Parts 1-4 Investigation 3: Parts 1-3 Investigation 4: Parts 1-4</p> <p><b>FOSS 3<sup>rd</sup> Edition Measuring Matter</b> Investigations Guide Investigation 3: Parts 2-4</p>
<p><b>PS 4.2b.</b> Humans utilize interactions between matter and energy.</p> <ul style="list-style-type: none"> <li>- Chemical to electrical, light, and heat: battery and bulb.</li> <li>- Electrical to sound (e.g., doorbell buzzer).</li> <li>- Mechanical to sound (e.g., musical instruments, clapping)</li> <li>- Light to electrical (e.g., solar-powered calculator).</li> </ul>	<p><b>FOSS Next Generation Sound and Light</b> Investigations Guide Investigation 1: Parts 1-3 Investigation 2: Parts 1-4 Investigation 3: Parts 1-3 Investigation 4: Parts 1-4</p>
<p><b>PS 4.1b.</b> Energy can be transferred from one place to another.</p>	<p><b>FOSS Next Generation Sound and Light</b> Investigations Guide Investigation 1: Parts 1-3 Investigation 2: Parts 1-4 Investigation 3: Parts 1-3 Investigation 4: Parts 1-4</p> <p><b>FOSS 3<sup>rd</sup> Edition Measuring Matter</b> Investigations Guide Investigation 3: Parts 2-4</p>
<p><b>PS 4.1c.</b> Some materials transfer energy better than others (heat and electricity).</p>	<p><b>FOSS Next Generation Sound and Light</b> Investigations Guide Investigation 2: Part 4 Investigation 4: Part 4</p> <p><b>FOSS 3<sup>rd</sup> Edition Measuring Matter</b> Investigations Guide Investigation 3: Parts 2-4</p>
<p><b>PS 4.1d.</b> Energy and matter interact: water is evaporated by the Sun's heat; a bulb is lighted by means of electrical current; a musical instrument is played to produce sound; dark colors may absorb light, light colors may reflect light.</p>	<p><b>FOSS Next Generation Sound and Light</b> Investigations Guide Investigation 1: Parts 1-3 Investigation 2: Parts 1-4 Investigation 3: Parts 1-3 Investigation 4: Parts 1-4</p> <p><b>FOSS 3<sup>rd</sup> Edition Measuring Matter</b> Investigations Guide Investigation 3: Parts 2-4</p>

New York City 2015-2016  
K-5 Science Scope & Sequence Alignment



Grade 3

Unit 2: Energy

NYS Science Standard	FOSS Alignment
<b>Major Understandings</b>	
<p><b>PS 4.1f.</b> Heat can be released in many ways, for example, by burning, rubbing (friction) or combining one substance with another.</p>	<p><b>FOSS Next Generation Motion and Matter</b> Investigations Guide Investigation 3: Part 2</p> <p><i>Note: Friction is encountered in a design challenge in <b>Motion and Matter</b>. All chemical reactions used at Grade 3 (<b>Measuring Matter, Motion and Matter</b>) are endothermic. FOSS Next Generation <b>Energy</b> Investigation 4: Energy Transfer addresses standard PS 4.1f.</i></p>
<p><b>PS 4.1g.</b> Interactions with forms of energy can be either helpful or harmful.</p>	<p><b>FOSS Next Generation Sound and Light</b> Investigations Guide Investigation 2: Parts 1-4 Investigation 4: Parts 1-4</p>

**New York City 2015-2016  
K-5 Science Scope & Sequence Alignment**



*Grade 3*  
**Unit 2: Energy**

MST Standard	FOSS Alignment
<b>Standard 6: Interconnectedness: Common Themes</b>	
<b>Key Idea 1:</b> Through systems thinking, people can recognize the commonalities that exist among all systems and how parts of a system interrelate and combine to perform specific functions.	<b>FOSS Next Generation Sound and Light</b> Investigations Guide Investigation 2: Parts 2-4 Investigation 4: Part 4
<b>Key Idea 2:</b> Models are simplified representations of objects, structures, or systems used in analysis, explanation, interpretation, or design.	<b>FOSS Next Generation Sound and Light</b> Investigations Guide Investigation 2: Parts 2-4 Investigation 4: Part 4
<b>Key Idea 3:</b> The grouping of magnitudes of size, time, frequency, and pressures or other units of measurement into a series of relative order provides a useful way to deal with the immense range and the changes in scale that affect the behavior and design of systems.	<i>Foundational experiences and connections to this Key Idea are found in <b>FOSS Next Generation Sound and Light</b>. However the conceptual design of the investigations does not include direct correlations to this Key Idea.</i>
<b>Key Idea 4:</b> Equilibrium is a state of stability due either to a lack of change (static equilibrium) or a balance between opposing forces (dynamic equilibrium).	<i>Foundational experiences and connections to this Key Idea are found in <b>FOSS Next Generation Sound and Light</b>. However the conceptual design of the investigations does not include direct correlations to this Key Idea.</i>
<b>Key Idea 5:</b> Identifying patterns of change is necessary for making predictions about future behavior and conditions.	<b>FOSS Next Generation Sound and Light</b> Investigations Guide Investigation 2: Part 1 Investigation 3: Parts 1-2 Investigation 4: Parts 3-4
<b>Key Idea 6:</b> In order to arrive at the best solution that meets the criteria within constraints, it is often necessary to make tradeoffs.	<b>FOSS Next Generation Sound and Light</b> Investigations Guide Investigation 2: Part 4 Investigation 4: Part 4



Grade 3

Unit 2: Energy

NGSS Cross-Cutting Concepts	FOSS Alignment
<p><b>Patterns:</b> Observed patterns in nature guide organization and classification and prompt questions about relationships and causes underlying them.</p> <ul style="list-style-type: none"> <li>- Similarities and differences in patterns can be used to sort, classify, communicate and analyze simple rates of change for natural phenomena and designed products.</li> <li>- Patterns of change can be used to make predictions.</li> <li>- Patterns can be used as evidence to support an explanation.</li> </ul>	<p><b>FOSS Next Generation Sound and Light</b> Investigations Guide</p> <p>Investigation 2: Part 1 Investigation 3: Parts 1-2 Investigation 4: Parts 3-4</p>
<p><b>Cause and Effect: Mechanism and Prediction:</b> Events have causes, sometimes simple, sometimes multifaceted. Deciphering causal relationships, and the mechanisms by which they are mediated, is a major activity of science and engineering.</p> <ul style="list-style-type: none"> <li>- Cause and effect relationships are routinely identified, tested, and used to explain change.</li> <li>- Events that occur together with regularity might or might not be a cause and effect relationship.</li> </ul>	<p><b>FOSS Next Generation Sound and Light</b> Investigations Guide</p> <p>Investigation 1: Parts 1-2 Investigation 2: Parts 1-3 Investigation 3: Parts 1-3 Investigation 4: Parts 3-4</p>
<p><b>Scale, Proportion, and Quantity:</b> In considering phenomena, it is critical to recognize what is relevant at different size, time, and energy scales, and to recognize proportional relationships between different quantities as scales change.</p> <ul style="list-style-type: none"> <li>- Natural objects and/or observable phenomena exist from the very small to the immensely large or from very short to very long time periods.</li> <li>- Standard units are used to measure and describe physical quantities such as weight, time, temperature, and volume.</li> </ul>	<p><i>Foundational experiences and connections to this Cross-Cutting Concept are found in <b>FOSS Next Generation Sound and Light</b>. However the conceptual design of the investigations does not include direct correlations to this CCC.</i></p>
<p><b>Systems and System Models:</b> A system is an organized group of related objects or components; models can be used for understanding and predicting the behavior of systems.</p> <ul style="list-style-type: none"> <li>- A system is a group of related parts that make up a whole and can carry out functions its individual parts cannot.</li> <li>- A system can be described in terms of its components and their interactions.</li> </ul>	<p><b>FOSS Next Generation Sound and Light</b> Investigations Guide</p> <p>Investigation 2: Parts 2-4 Investigation 4: Part 4</p>
<p><b>Energy and Matter: Flows, Cycles, and Conservation:</b> Tracking energy and matter flows into, out of, and within systems helps one understand their system's behavior.</p> <ul style="list-style-type: none"> <li>- Matter is made of particles.</li> <li>- Matter flows and cycles can be tracked in terms of the weight of the substances before and after a process occurs. The total weight of the substances does not change. This is what is meant by conservation of matter. Matter is transported into, out of, and within systems.</li> <li>- Energy can be transferred in various ways and between objects.</li> </ul>	<p><i>Foundational experiences and connections to this Cross-Cutting Concept are found in <b>FOSS Next Generation Sound and Light</b>. However the conceptual design of the investigations does not include direct correlations to this CCC.</i></p>
<p><b>Structure and Function:</b> The way an object is shaped or structured determines many of its properties and functions.</p> <ul style="list-style-type: none"> <li>- Different materials have different substructures, which can sometimes be observed.</li> <li>- Substructures have shapes and parts that serve functions.</li> </ul>	<p><i>Foundational experiences and connections to this Cross-Cutting Concept are found in <b>FOSS Next Generation Sound and Light</b>. However the conceptual design of the investigations does not include direct correlations to this CCC.</i></p>





Grade 3

**Unit 2: Energy**

NGSS Cross-Cutting Concepts	FOSS Alignment
<p><b>Stability and Change:</b> For both designed and natural systems, conditions that affect stability and factors that control rates of change are critical elements to consider and understand.</p> <ul style="list-style-type: none"><li>- Change is measured in terms of differences over time and may occur at different rates.</li><li>- Some systems appear stable, but over long periods of time will eventually change.</li></ul>	<p><i>Foundational experiences and connections to this Cross-Cutting Concept are found in <b>FOSS Next Generation Sound and Light</b>. However the conceptual design of the investigations does not include direct correlations to this CCC.</i></p>

**New York City 2015-2016  
K-5 Science Scope & Sequence Alignment**



Grade 3

**Unit 3: Simple Machines**

NYS Science Standard	FOSS Alignment
<b>Major Understandings</b>	
<b>PS 5.1f.</b> Mechanical energy may cause change in motion through the application of force and through the use of simple machines such as pulleys, levers, and inclined planes.	<b>FOSS Next Generation Motion and Matter</b> Investigations Guide Investigation 2: Parts 1-2 Investigation 3: Parts 2-4
<b>PS 5.1d.</b> The amount of change in the motion of an object is affected by friction.	<b>FOSS Next Generation Motion and Matter</b> Investigations Guide Investigation 3: Part 2
<b>PS 5.1b.</b> The position or direction of motion of an object can be changed by pushing or pulling.	<b>FOSS Next Generation Motion and Matter</b> Investigations Guide Investigation 1: Parts 1-3 Investigation 3: Parts 1-4
<b>PS 5.1c.</b> The force of gravity pulls objects toward the center of Earth.	<b>FOSS Next Generation Motion and Matter</b> Investigations Guide Investigation 1: Parts 1-3



Grade 3

Unit 3: Simple Machines

MST Standard	FOSS Alignment
<b>Standard 6: Interconnectedness: Common Themes</b>	
<b>Key Idea 1:</b> Through systems thinking, people can recognize the commonalities that exist among all systems and how parts of a system interrelate and combine to perform specific functions.	<b>FOSS Next Generation Motion and Matter</b> Investigations Guide Investigation 2: Part 1
<b>Key Idea 2:</b> Models are simplified representations of objects, structures, or systems used in analysis, explanation, interpretation, or design.	<b>FOSS Next Generation Motion and Matter</b> Investigations Guide Investigation 1: Part 1 Investigation 2: Part 1
<b>Key Idea 3:</b> The grouping of magnitudes of size, time, frequency, and pressures or other units of measurement into a series of relative order provides a useful way to deal with the immense range and the changes in scale that affect the behavior and design of systems.	<b>FOSS Next Generation Motion and Matter</b> Investigations Guide Investigation 4: Part 3
<b>Key Idea 4:</b> Equilibrium is a state of stability due either to a lack of change (static equilibrium) or a balance between opposing forces (dynamic equilibrium).	<i>Foundational experiences and connections to this Key Idea are found in <b>FOSS Next Generation Motion and Matter</b>. However the conceptual design of the investigations does not include direct correlations to this Key Idea.</i>
<b>Key Idea 5:</b> Identifying patterns of change is necessary for making predictions about future behavior and conditions.	<b>FOSS Next Generation Motion and Matter</b> Investigations Guide Investigation 1: Part 2 Investigation 2: Parts 1-3 Investigation 3: Part 4
<b>Key Idea 6:</b> In order to arrive at the best solution that meets criteria within constraints, it is often necessary to make trade-offs.	<b>FOSS Next Generation Motion and Matter</b> Investigations Guide Investigation 3: Parts 1-2, 4
<b>Standard 7: Interdisciplinary Problem Solving</b>	
<b>Key Idea 1:</b> The knowledge and skills of mathematics, science, and technology are used together to make informed decisions and solve problems, especially those relating to issues of science/technology/society, consumer decision making, design, and inquiry into phenomena.	<b>FOSS Next Generation Motion and Matter</b> Investigations Guide Investigation 1: Part 2
<b>Key Idea 2:</b> Solving interdisciplinary problems involves a variety of skills and strategies, including effective work habits; gathering and processing information; generating and analyzing ideas; realizing ideas; making connections among the common themes of mathematics, science, and technology; and presenting results.	<b>FOSS Next Generation Motion and Matter</b> Investigations Guide Investigation 1: Parts 1-3 Investigation 2: Parts 1-4 Investigation 3: Parts 1-4 Investigation 4: Parts 1-3



Grade 3

Unit 3: Simple Machines

NGSS Cross-Cutting Concepts	FOSS Alignment
<p><b>Patterns:</b> Observed patterns in nature guide organization and classification and prompt questions about relationships and causes underlying them.</p> <ul style="list-style-type: none"> <li>- Similarities and differences in patterns can be used to sort, classify, communicate and analyze simple rates of change for natural phenomena and designed products.</li> <li>- Patterns of change can be used to make predictions.</li> <li>- Patterns can be used as evidence to support an explanation.</li> </ul>	<p><b>FOSS Next Generation Motion and Matter</b> Investigations Guide</p> <p>Investigation 1: Part 2 Investigation 2: Parts 1-3 Investigation 3: Part 4</p>
<p><b>Cause and Effect: Mechanism and Prediction:</b> Events have causes, sometimes simple, sometimes multifaceted. Deciphering causal relationships, and the mechanisms by which they are mediated, is a major activity of science and engineering.</p> <ul style="list-style-type: none"> <li>- Cause and effect relationships are routinely identified, tested, and used to explain change.</li> <li>- Events that occur together with regularity might or might not be a cause and effect relationship.</li> </ul>	<p><b>FOSS Next Generation Motion and Matter</b> Investigations Guide</p> <p>Investigation 1: Parts 1-3 Investigation 2: Parts 1-4 Investigation 3: Part 3 Investigation 4: Parts 1-2</p>
<p><b>Scale, Proportion, and Quantity:</b> In considering phenomena, it is critical to recognize what is relevant at different size, time, and energy scales, and to recognize proportional relationships between different quantities as scales change.</p> <ul style="list-style-type: none"> <li>- Natural objects and/or observable phenomena exist from the very small to the immensely large or from very short to very long time periods.</li> <li>- Standard units are used to measure and describe physical quantities such as weight, time, temperature, and volume.</li> </ul>	<p><b>FOSS Next Generation Motion and Matter</b> Investigations Guide</p> <p>Investigation 4: Part 3</p>
<p><b>Systems and System Models:</b> A system is an organized group of related objects or components; models can be used for understanding and predicting the behavior of systems.</p> <ul style="list-style-type: none"> <li>- A system is a group of related parts that make up a whole and can carry out functions its individual parts cannot.</li> <li>- A system can be described in terms of its components and their interactions.</li> </ul>	<p><b>FOSS Next Generation Motion and Matter</b> Investigations Guide</p> <p>Investigation 2: Part 1</p>
<p><b>Energy and Matter: Flows, Cycles, and Conservation:</b> Tracking energy and matter flows into, out of, and within systems helps one understand their system's behavior.</p> <ul style="list-style-type: none"> <li>- Matter is made of particles.</li> <li>- Matter flows and cycles can be tracked in terms of the weight of the substances before and after a process occurs. The total weight of the substances does not change. This is what is meant by conservation of matter. Matter is transported into, out of, and within systems.</li> <li>- Energy can be transferred in various ways and between objects.</li> </ul>	<p><b>FOSS Next Generation Motion and Matter</b> Investigations Guide</p> <p>Investigation 4: Parts 1, 2</p>
<p><b>Structure and Function:</b> The way an object is shaped or structured determines many of its properties and functions.</p> <ul style="list-style-type: none"> <li>- Different materials have different substructures, which can sometimes be observed.</li> <li>- Substructures have shapes and parts that serve functions.</li> </ul>	<p><i>Foundational experiences and connections to this Cross-Cutting Concept are found in <b>FOSS Next Generation Motion and Matter</b>. However the conceptual design of the investigations does not include direct correlations to this CCC.</i></p>



Grade 3

**Unit 3: Simple Machines**

NGSS Cross-Cutting Concepts	FOSS Alignment
<p><b>Stability and Change:</b> For both designed and natural systems, conditions that affect stability and factors that control rates of change are critical elements to consider and understand.</p> <ul style="list-style-type: none"><li>- Change is measured in terms of differences over time and may occur at different rates.</li><li>- Some systems appear stable, but over long periods of time will eventually change.</li></ul>	<p><i>Foundational experiences and connections to this Cross-Cutting Concept are found in <b>FOSS Next Generation Motion and Matter</b>. However the conceptual design of the investigations does not include direct correlations to this CCC.</i></p>



Grade 3

Unit 4: Plant and Animal Adaptations

NYS Science Standard	FOSS Alignment
<b>Major Understandings</b>	
<p><b>LE 5.1a.</b> All living things grow, take in nutrients, breathe, reproduce, and eliminate waste.</p>	<p><b>FOSS Next Generation Structure of Life</b> Investigations Guide Investigation 1: Part 3 Investigation 2: Parts 1-3 Investigation 3: Parts 1-5</p>
<p><b>LE 5.1b.</b> An organism’s external physical features can enable it to carry out life functions in its particular environment.</p>	<p><b>FOSS Next Generation Structure of Life</b> Investigations Guide Investigation 2: Parts 1-3 Investigation 3: Parts 1-5</p>
<p><b>LE 3.1b.</b> Each plant has different structures that serve different functions in growth, survival, and reproduction.</p> <ul style="list-style-type: none"> <li>- Roots help support the plant and take in water and nutrients.</li> <li>- Leaves help plants utilize sunlight to make food for the plant.</li> <li>- Stems, stalks, trunks, and other similar structures that provide support for the plant.</li> <li>- Some plants have flowers.</li> <li>- Flowers are reproductive structures of plants that produce fruit which contains seeds.</li> <li>- Seeds contain stored food that aids in germination and the growth of young plants.</li> </ul>	<p><b>FOSS Next Generation Structure of Life</b> Investigations Guide Investigation 1: Parts 1-4 Investigation 2: Parts 1-3</p>
<p><b>LE 3.1c.</b> In order to survive in their environment, plants and animals must be adapted to that environment.</p> <ul style="list-style-type: none"> <li>- Seeds disperse by a plant’s own mechanism and/or in a variety of ways that can include wind, water, and animals.</li> <li>- Leaf, flower, stem and root adaptations may include variations in size, shape, thickness, color, smell, and texture.</li> <li>- Animal adaptations include coloration for warning or attraction, camouflage, defense mechanisms, movement, hibernation, and migration.</li> </ul>	<p><b>FOSS Next Generation Structure of Life</b> Investigations Guide Investigation 1: Part 4 Investigation 2: Parts 1-3 Investigation 3: Parts 1-5</p>
<p><b>LE 5.2a.</b> Plants respond to changes in their environment. For example, the leaves of some green plants change position as the direction of light changes; the parts of some plants undergo seasonal changes that enable the plant to grow; seeds germinate, and leaves form and grow.</p>	<p><b>FOSS Next Generation Structure of Life</b> Investigations Guide Investigation 2: Parts 1-3</p>
<p><b>LE 6.1f.</b> When the environment changes, some plants and animals survive and reproduce, and others die or move to new locations</p>	<p><b>FOSS Next Generation Structure of Life</b> Investigations Guide Investigation 2: Parts 2-3 Investigation 3: Parts 2-4 Investigation 4: Part 2</p>



Grade 3

Unit 4: Plant and Animal Adaptations

NYS Science Standard	FOSS Alignment
<b>Major Understandings</b>	
<p><b>LE 3.1a.</b> Each animal has different structures that serve different functions in growth, survival, and reproduction.</p> <ul style="list-style-type: none"> <li>- Wings, legs or fins enable some animals to seek shelter and escape predators.</li> <li>- The mouth, including teeth, jaws, and tongue, enables some animals to eat and drink.</li> <li>- Eyes, nose, ears, tongue, and skin of some animals enable the animals to sense their surroundings.</li> <li>- Claws, shells, spines, feathers, fur, scales, and color of body covering enable some animals to protect themselves from predators and other environmental conditions, or enable them to obtain food.</li> <li>- Some animals have parts that are used to produce sounds and smells to help the animal meet its needs.</li> <li>- The characteristics of some animals change as seasonal conditions change (e.g., fur grows and is shed to help regulate body heat; body fat is a form of stored energy and it changes as the seasons change).</li> </ul>	<p><b>FOSS Next Generation Structure of Life</b> Investigations Guide Investigation 3: Parts 1-5</p>
<p><b>LE 5.2b.</b> Animals respond to change in their environment, (e.g., perspiration, heart rate, breathing rate, eye blinking, shivering, and salivating).</p>	<p><b>FOSS Next Generation Structure of Life</b> Investigations Guide Investigation 3: Parts 1-4</p>
<p><b>LE 5.2d.</b> Some animals, including humans, move from place to place to meet their needs.</p>	<p><b>FOSS Next Generation Structure of Life</b> Investigations Guide Investigation 3: Parts 1-4</p>
<p><b>LE 5.2e.</b> Particular animal characteristics are influenced by changing environmental conditions including: fat storage in winter, coat thickness in winter, camouflage, shedding of fur.</p>	<p><b>FOSS Next Generation Structure of Life</b> Investigations Guide Investigation 3: Parts 1-4</p>
<p><b>LE 5.2f.</b> Some animal behaviors are influenced by environmental conditions. These behaviors may include: nest building, hibernating, hunting, migrating, and communicating.</p>	<p><b>FOSS Next Generation Structure of Life</b> Investigations Guide Investigation 3: Parts 1-4</p>
<p><b>LE 2.1a.</b> Some traits of living things have been inherited (e.g., color of flowers and number of limbs of animals).</p>	<p><b>FOSS Next Generation Structure of Life</b> Investigations Guide Investigation 1: Parts 1-3 Investigation 2: Parts 1-3 Investigation 3: Parts 1-5 Investigation 4: Parts 1-4</p>
<p><b>LE 2.1b.</b> Some characteristics result from an individual's interactions with the environment and cannot be inherited by the next generation (e.g., having scars; riding a bicycle).</p>	<p><b>FOSS Next Generation Structure of Life</b> Investigations Guide Investigation 3: Parts 1-4</p>



Grade 3

Unit 4: Plant and Animal Adaptations

MST Standard	FOSS Alignment
<b>Standard 2: Information Systems</b>	
<b>Key Idea 1:</b> Information technology is used to retrieve, process, and communicate information as a tool to enhance learning.	<b>FOSS Next Generation Structure of Life Investigations Guide</b> Investigation 1: Parts 1, 3-4 Investigation 2: Parts 1-2 Investigation 3: Parts 1-4 Investigation 4: Parts 1-3
<b>Key Idea 2:</b> Knowledge of the impacts and limitations of information systems is essential to its effective and ethical use.	<b>FOSS Next Generation Structure of Life Investigations Guide</b> Investigation 1: Parts 1, 3-4 Investigation 2: Parts 1-2 Investigation 3: Parts 1-4 Investigation 4: Parts 1-3
<b>Standard 6: Interconnectedness: Common Themes</b>	
<b>Key Idea 1:</b> Through systems thinking, people can recognize the commonalities that exist among all systems and how parts of a system interrelate and combine to perform specific functions.	<b>FOSS Next Generation Structure of Life Investigations Guide</b> Investigation 3: Parts 2, 5 Investigation 4: Parts 2-3
<b>Key Idea 2:</b> Models are simplified representations of objects, structures, or systems used in analysis, explanation, interpretation, or design.	<b>FOSS Next Generation Structure of Life Investigations Guide</b> Investigation 1: Part 4 Investigation 3: Parts 2-5 Investigation 4: Parts 1, 3
<b>Key Idea 3:</b> The grouping of magnitudes of size, time, frequency, and pressures or other units of measurement into a series of relative order provides a useful way to deal with the immense range and the changes in scale that affect the behavior and design of systems.	<b>FOSS Next Generation Structure of Life Investigations Guide</b> Investigation 4: Part 2
<b>Key Idea 4:</b> Equilibrium is a state of stability due either to a lack of change (static equilibrium) or a balance between opposing forces (dynamic equilibrium).	<b>FOSS Next Generation Structure of Life Investigations Guide</b> Investigation 3: Parts 2, 4-5
<b>Key Idea 5:</b> Identifying patterns of change is necessary for making predictions about future behavior and conditions.	<b>FOSS Next Generation Structure of Life Investigations Guide</b> Investigation 1: Parts 1-2 Investigation 2: Parts 2-3 Investigation 3: Part 3
<b>Key Idea 6:</b> In order to arrive at the best solution that meets criteria within constraints, it is often necessary to make trade-offs.	<b>FOSS Next Generation Structure of Life Investigations Guide</b> Investigation 4: Part 3
<b>Standard 7: Interdisciplinary Problem Solving</b>	
<b>Key Idea 1:</b> The knowledge and skills of mathematics, science, and technology are used together to make informed decisions and solve problems, especially those relating to issues of science/technology/society, consumer decision making, design, and inquiry into phenomena.	<b>FOSS Next Generation Structure of Life Investigations Guide</b> Investigation 1: Part 3 Investigation 3: Part 2
<b>Key Idea 2:</b> Solving interdisciplinary problems involves a variety of skills and strategies, including effective work habits; gathering and processing information; generating and analyzing ideas; realizing ideas; making connections among the common themes of mathematics, science, and technology; and presenting results.	<b>FOSS Next Generation Structure of Life Investigations Guide</b> Investigation 1: Parts 1-4 Investigation 2: Parts 1-3 Investigation 3: Parts 1-5 Investigation 4: Parts 1-4





Grade 3

Unit 4: Plant and Animal Adaptations

NGSS Cross-Cutting Concepts	FOSS Alignment
<p><b>Patterns:</b> Observed patterns in nature guide organization and classification and prompt questions about relationships and causes underlying them.</p> <ul style="list-style-type: none"> <li>- Similarities and differences in patterns can be used to sort, classify, communicate and analyze simple rates of change for natural phenomena and designed products.</li> <li>- Patterns of change can be used to make predictions.</li> <li>- Patterns can be used as evidence to support an explanation.</li> </ul>	<p><b>FOSS Next Generation Structure of Life</b> Investigations Guide</p> <p>Investigation 1: Parts 1-2 Investigation 2: Parts 2-3 Investigation 3: Part 3</p>
<p><b>Cause and Effect: Mechanism and Prediction:</b> Events have causes, sometimes simple, sometimes multifaceted. Deciphering causal relationships, and the mechanisms by which they are mediated, is a major activity of science and engineering.</p> <ul style="list-style-type: none"> <li>- Cause and effect relationships are routinely identified, tested, and used to explain change.</li> <li>- Events that occur together with regularity might or might not be a cause and effect relationship.</li> </ul>	<p><b>FOSS Next Generation Structure of Life</b> Investigations Guide</p> <p>Investigation 1: Parts 2-3 Investigation 2: Parts 2-3 Investigation 3: Parts 3-4</p>
<p><b>Scale, Proportion, and Quantity:</b> In considering phenomena, it is critical to recognize what is relevant at different size, time, and energy scales, and to recognize proportional relationships between different quantities as scales change.</p> <ul style="list-style-type: none"> <li>- Natural objects and/or observable phenomena exist from the very small to the immensely large or from very short to very long time periods.</li> <li>- Standard units are used to measure and describe physical quantities such as weight, time, temperature, and volume.</li> </ul>	<p><b>FOSS Next Generation Structure of Life</b> Investigations Guide</p> <p>Investigation 4: Part 2</p>
<p><b>Systems and System Models:</b> A system is an organized group of related objects or components; models can be used for understanding and predicting the behavior of systems.</p> <ul style="list-style-type: none"> <li>- A system is a group of related parts that make up a whole and can carry out functions its individual parts cannot.</li> <li>- A system can be described in terms of its components and their interactions.</li> </ul>	<p><b>FOSS Next Generation Structure of Life</b> Investigations Guide</p> <p>Investigation 3: Parts 2, 5 Investigation 4: Parts 2-3</p>
<p><b>Energy and Matter: Flows, Cycles, and Conservation:</b> Tracking energy and matter flows into, out of, and within systems helps one understand their system's behavior.</p> <ul style="list-style-type: none"> <li>- Matter is made of particles.</li> <li>- Matter flows and cycles can be tracked in terms of the weight of the substances before and after a process occurs. The total weight of the substances does not change. This is what is meant by conservation of matter. Matter is transported into, out of, and within systems.</li> <li>- Energy can be transferred in various ways and between objects.</li> </ul>	<p><i>Foundational experiences and connections to this Cross-Cutting Concept are found in <b>FOSS Next Generation Structures of Life</b>. However the conceptual design of the investigations does not include direct correlations to this CCC.</i></p>
<p><b>Structure and Function:</b> The way an object is shaped or structured determines many of its properties and functions.</p> <ul style="list-style-type: none"> <li>- Different materials have different substructures, which can sometimes be observed.</li> <li>- Substructures have shapes and parts that serve functions.</li> </ul>	<p><b>FOSS Next Generation Structure of Life</b> Investigations Guide</p> <p>Investigation 1: Part 3 Investigation 2: Part 1 Investigation 4: Parts 1-2</p>



Grade 3

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<p><b>Stability and Change:</b> For both designed and natural systems, conditions that affect stability and factors that control rates of change are critical elements to consider and understand.</p> <ul style="list-style-type: none"><li>- Change is measured in terms of differences over time and may occur at different rates.</li><li>- Some systems appear stable, but over long periods of time will eventually change.</li></ul>	<p><b>FOSS Next Generation Structure of Life</b> Investigations Guide Investigation 3: Parts 2, 4-5</p>