

**COURSE/SUBJECT:** Science

**LEVEL/GRADE:** 1<sup>st</sup>

**UNIT/FOCUS:** Sound and Light

**TIMEFRAME:** 12 Weeks

### Transfer

*Students will be able to independently use their learning to...*

- Define a simple problem that can be solved through the development of a new or improved object or tool.
- Compare models to identify common features and differences.
- Develop and/or use a model to represent amounts, relationships, relative scales (bigger, smaller), and/or patterns in the natural and designed world(s).
- Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence to answer a question.
- Make observations (firsthand or from media) and/or measurements to collect data that can be used to make comparisons.
- Make predictions based on prior experiences.
- Record information (observations, thoughts, and ideas).
- Use and share pictures, drawings, and/or writings of observations.
- Use observations (firsthand or from media) to describe patterns and/or relationships in the natural and designed world(s) in order to answer scientific questions and solve problems.
- Use information from observations (firsthand and from media) to construct an evidence-based account for natural phenomena.
- Use tools and/or materials to design and/or build a device that solves a specific problem or a solution to a specific problem.
- Read grade-appropriate texts and/or use media to obtain scientific and/or technical information to determine patterns in and/or evidence about the natural and designed world.
- Communicate information or design ideas and/or solutions with others in oral and/or written forms using models, drawings, writing, or numbers that provide detail about scientific ideas, practices, and/or design ideas.

### Meaning

#### Enduring Understandings (EUs)

*Students will understand that...*

- Patterns in the natural and human designed world can be observed, used to describe phenomena, and used as evidence.
- Events have causes that generate observable patterns.
- Simple tests can be designed to gather evidence to support or refute student ideas about causes.
- Systems in the natural and designed world have parts that work together.

#### Essential Questions (EQs)

*Students will keep considering...*

- What are the characteristic properties and behaviors of waves?
- What is light?
- How can one explain the varied effects that involve light?
- What other forms of electromagnetic radiation are there?
- How are instruments that transmit and detect waves used to extend human senses?
- How do organisms detect, process, and use information about the environment?
- What is a design for?
- What are the criteria and constraints of a successful solution?
- What is the process for developing potential design solutions?
- How can the various proposed design solutions be compared and improved?
- What are the relationships among science, engineering, and technology?
- How do science, engineering, and the technologies that result from them affect the ways in which people live? How do they affect the natural world?

**Acquisition**

Knowledge	Skills
<p><i>Students will know...</i></p> <ul style="list-style-type: none"> <li>• Sound can make matter vibrate, and vibrating matter can make sound.</li> <li>• Objects can be seen only when light is available to illuminate them. Some objects give off their own light.</li> <li>• Some materials allow light to pass through them, others allow only some light through and others block all the light and create a dark shadow on any surface beyond them, where the light cannot reach. Mirrors can be used to redirect a light beam.</li> <li>• People also use a variety of devices to communicate (send and receive information) over long distances.</li> <li>• Animals have body parts that capture and convey different kinds of information needed for growth and survival. Animals respond to these inputs with behaviors that help them survive. Plants also respond to some external inputs.</li> <li>• A situation that people want to change or create can be approached as a problem to be solved through engineering. Such problems may have many acceptable solutions.</li> <li>• Asking questions, making observations, and gathering information are helpful in thinking about problems.</li> <li>• Before beginning to design a solution, it is important to clearly understand the problem.</li> <li>• Designs can be conveyed through sketches, drawings, or physical models. These representations are useful in communicating ideas for a problem's solutions to other people.</li> <li>• Because there is always more than one possible solution to a problem, it is useful to compare and test designs.</li> </ul>	<p><i>Students will be able to...</i></p> <ul style="list-style-type: none"> <li>• Plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate.</li> <li>• Make observations to construct an evidence-based account that objects can be seen only when illuminated.</li> <li>• Plan and conduct an investigation to determine the effect of placing objects made with different materials in the path of a beam of light.</li> <li>• Use tools and materials to design and build a device that uses light or sound to solve the problem of communicating over a distance.</li> <li>• Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts to help them survive, grow, and meet their needs.</li> <li>• Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.</li> <li>• Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.</li> <li>• Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.</li> </ul>

<p align="center"><b>Aligned Concepts, Topics, and Skills</b></p>	<p align="center"><b>Pacing Guide</b></p>
<p>Topics:</p> <ul style="list-style-type: none"> <li>• Making Sounds</li> <li>• Hearing Sounds</li> <li>• Outdoor Sounds</li> <li>• Changing Volume</li> <li>• Changing Pitch</li> <li>• Spoon-Gong Systems</li> <li>• Sound Challenges</li> <li>• Making Shadows</li> <li>• Sun and Shadows</li> <li>• Light and Materials</li> <li>• Mirrors and Light Beams</li> <li>• Reflections</li> <li>• Eyes and Seeing</li> <li>• Designing with Light</li> </ul>	<ul style="list-style-type: none"> <li>• Approximately 2 weeks per investigation</li> </ul>
<p align="center"><b>21<sup>st</sup> Century Life and Career Ready Practices</b></p>	<p align="center"><b>Interdisciplinary Connections</b></p>
<ul style="list-style-type: none"> <li>• CRP1. Act as a responsible and contributing citizen and employee.</li> <li>• CRP2. Apply appropriate academic and technical skills.</li> <li>• CRP3. Attend to personal health and financial well-being.</li> <li>• CRP4. Communicate clearly and effectively and with reason.</li> <li>• CRP5. Consider the environmental, social and economic impacts of decisions.</li> <li>• CRP6. Demonstrate creativity and innovation.</li> <li>• CRP7. Employ valid and reliable research strategies.</li> <li>• CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.</li> <li>• CRP9. Model integrity, ethical leadership and effective management.</li> <li>• CRP10. Plan education and career paths aligned to personal goals.</li> <li>• CRP11. Use technology to enhance productivity.</li> <li>• CRP12. Work productively in teams while using cultural global competence.</li> </ul>	<ul style="list-style-type: none"> <li>• Science and Engineering Practices</li> <li>• Cross-Cutting Concepts</li> <li>• Make a list of sound words</li> <li>• Math problem of the week</li> <li>• Show and tell about musical instruments</li> <li>• Read books about light and shadows</li> <li>• Shadow Puppets</li> <li>• Observe Symmetry</li> <li>• Hold a fabulous eye contest</li> </ul>
<p align="center"><b>Instructional Resources</b></p>	<p align="center"><b>Benchmark / Summative Assessments</b></p>
<ul style="list-style-type: none"> <li>• FOSS Kits</li> <li>• FOSS Science Resource Books</li> <li>• FOSS Online Activities</li> </ul>	<ul style="list-style-type: none"> <li>• Investigations               <ul style="list-style-type: none"> <li>○ Sound and Vibrations</li> <li>○ Changing Sound</li> <li>○ Light and Shadows</li> <li>○ Light and Mirrors</li> </ul> </li> <li>• I-Checks</li> <li>• Self-Assessments</li> <li>• FOSS Post Test</li> </ul>

<p align="center"><b>Supports / Modifications for ELLs</b></p>	<p align="center"><b>Supports / Modifications for Students w/ 504s and or IEPs</b></p>
<ul style="list-style-type: none"> <li>• Preview content</li> <li>• Utilize visuals, images, actions, and talk</li> <li>• Scaffold development of comprehension process vocabulary AND content-specific vocabulary</li> <li>• Display anchor charts for language structures</li> <li>• Provide assessments with graphic supports</li> <li>• Utilize prepared sentence stems</li> <li>• Graphic organizers</li> <li>• Flexible grouping</li> <li>• Additional time for processing and assessment</li> </ul>	<ul style="list-style-type: none"> <li>• Differentiate content, process, product, and learning environment</li> <li>• Provide alternative or high interest text at student’s reading level.</li> <li>• Provide summaries of materials for student.</li> <li>• Shorten assignments and assessments to focus on mastery of key concepts.</li> <li>• Substitute alternatives for written assignments.</li> <li>• Specify and review often exactly what the student will need to learn to pass.</li> <li>• Modify expectations based on student needs.</li> <li>• Provide a “designated notetaker” or photocopy of other student or teacher notes.</li> <li>• Provide a print copy of assignments or notes.</li> <li>• Go over directions orally.</li> <li>• Provide additional time on tests.</li> <li>• Read test materials to the student, and allow oral responses.</li> <li>• Use enlarged graph paper to write problems to help the student keep numbers in columns.</li> <li>• Break long-term assignments into small steps, with daily monitoring and frequent grading.</li> <li>• Use both oral and printed directions.</li> </ul>
<p align="center"><b>Supports / Modifications for At Risk Students</b></p>	<p align="center"><b>Supports / Modifications for Gifted &amp; Talented Students</b></p>
<ul style="list-style-type: none"> <li>• Review the classroom rules frequently.</li> <li>• Evaluate classroom structure against the student’s needs (flexible structure, firm limits, etc.).</li> <li>• Keep workspace clear of unrelated materials.</li> <li>• Keep classroom quiet during intense learning times.</li> <li>• Reduce visual distractions in the classroom (mobiles, etc.).</li> <li>• Seat the student close to the teacher / instruction, and away from distractions.</li> <li>• Keep extra supplies of classroom materials (pencils, books) on hand.</li> <li>• Alert student several minutes before a transition from one activity to another is planned; give several reminders.</li> <li>• Reinforce (often) when a student displays positive behavior.</li> <li>• Develop an individualized behavior intervention plan that consistent with the student’s ability and skills.</li> <li>• Arrange for a student to leave the classroom for a designated “safe place” when highly stressed.</li> <li>• Develop a system or a code word to let a student know when behavior is not appropriate.</li> <li>• Ignore behaviors that are not seriously disruptive.</li> </ul>	<ul style="list-style-type: none"> <li>• Provide opportunities to pursue advanced level work</li> <li>• Expose students to higher level thinking skills</li> <li>• Provide enrichment centers</li> <li>• pursue a self-selected interest</li> <li>• work in groups with students having common interests</li> <li>• move to a higher grade for specific subject area instruction</li> <li>• work with students of comparable ability across classrooms at the same grade level</li> <li>• work on an advanced curriculum unit on a teacher-selected topic</li> <li>• participate in competitive programs focusing on thinking skills/problem solving</li> <li>• receive concentrated instruction in critical thinking and creative problem solving</li> </ul>

**COURSE/SUBJECT:** Science

**LEVEL/GRADE:** 1<sup>st</sup>

**UNIT/FOCUS:** Air and Weather

**TIMEFRAME:** 12 Weeks

### Transfer

*Students will be able to independently use their learning to...*

- Ask questions based on observations to find more information about the natural and/or designed world(s).
- Ask and/or identify questions that can be answered by an investigation.
- Define a simple problem that can be solved through the development of a new or improved object or tool.
- Distinguish between a model and the actual object, process, and/or events the model represents.
- Compare models to identify common features and differences.
- Develop and/or use a model to represent amounts, relationships, relative scales (bigger, smaller), and/or patterns in the natural and designed world(s).
- Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence to answer a question.
- Make observations (firsthand or from media) and/or measurements to collect data that can be used to make comparisons.
- Make predictions based on prior experiences.
- Record information (observations, thoughts, and ideas).
- Use and share pictures, drawings, and/or writings of observations.
- Use observations (firsthand or from media) to describe patterns and/or relationships in the natural and designed world(s) in order to answer scientific questions and solve problems.
- Analyze data from tests of an object or tool to determine if it works as intended.
- Use counting and numbers to identify and describe patterns in the natural and designed world(s).
- Describe, measure, and/or compare quantitative attributes of different objects and display the data using simple graphs.
- Use information from observations (firsthand and from media) to construct an evidence-based account for natural phenomena.
- Read grade-appropriate texts and/or use media to obtain scientific and/or technical information to determine patterns in and/or evidence about the natural and designed world.
- Communicate information or design ideas and/or solutions with others in oral and/or written forms using models, drawings, writing, or numbers that provide detail about scientific ideas, practices, and/or design ideas.

### Meaning

#### Enduring Understandings (EUs)

*Students will understand that...*

- Patterns in the natural and human designed world can be observed, used to describe phenomena, and used as evidence.
- Events have causes that generate observable patterns.
- Simple tests can be designed to gather evidence to support or refute student ideas about causes.
- Relative scales allow objects and events to be compared and described (e.g., bigger and smaller; hotter and colder; faster and slower).
- Systems in the natural and designed world have parts that work together.
- The shape and stability of structures of natural and designed objects are related to their function(s).
- Some things stay the same while other things change.

#### Essential Questions (EQs)

*Students will keep considering...*

- What is the universe, and what goes on in stars?
- What are the predictable patterns caused by Earth's movement in the solar system?
- What regulates weather and climate?
- How do humans depend on Earth's resources?
- How do particles combine to form the variety of matter one observes?
- What is a design for?
- What are the criteria and constraints of a successful solution?
- What is the process for developing potential design solutions?
- How can the various proposed design solutions be compared and improved?
- What are the relationships among science, engineering, and technology?
- How do science, engineering, and the technologies that result from them affect the ways in which people live? How do they affect the natural world?

**Acquisition**

Knowledge	Skills
<p><i>Students will know...</i></p> <ul style="list-style-type: none"> <li>• Patterns of the motion of the sun, moon, and stars in the sky can be observed, described, and predicted.</li> <li>• Seasonal patterns of sunrise and sunset can be observed, described, and predicted.</li> <li>• Weather is the combination of sunlight, wind, snow or rain, and temperature in a particular region at a particular time. People measure these conditions to describe and record the weather and to notice patterns over time.</li> <li>• Living things need water, air, and resources from the land, and they live in places that have the things they need. Humans use natural resources for everything they do.</li> <li>• Different kinds of matter exist and many of them can be either solid or liquid, depending on temperature. Matter can be described and classified by its observable properties.</li> <li>• A situation that people want to change or create can be approached as a problem to be solved through engineering. Such problems may have many acceptable solutions.</li> <li>• Asking questions, making observations, and gathering information are helpful in thinking about problems.</li> <li>• Before beginning to design a solution, it is important to clearly understand the problem.</li> <li>• Designs can be conveyed through sketches, drawings, or physical models. These representations are useful in communicating ideas for a problem's solutions to other people.</li> <li>• Because there is always more than one possible solution to a problem, it is useful to compare and test designs.</li> </ul>	<p><i>Students will be able to...</i></p> <ul style="list-style-type: none"> <li>• Use observations of the sun, moon, and stars to describe patterns that can be predicted.</li> <li>• Make observations at different times of year to relate the amount of daylight to the time of year.</li> <li>• Use and share observations of local weather conditions to describe patterns over time.</li> <li>• Communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living things in the local environment.</li> <li>• Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties.</li> <li>• Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.</li> <li>• Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.</li> <li>• Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.</li> </ul>

<p align="center"><b>Aligned Concepts, Topics, and Skills</b></p>	<p align="center"><b>Pacing Guide</b></p>
<p>Topics:</p> <ul style="list-style-type: none"> <li>• Air Is There</li> <li>• Parachutes</li> <li>• Pushing the Air</li> <li>• Air and Water</li> <li>• Balloon Rockets</li> <li>• Weather Calendars</li> <li>• Measuring Temperature and Daylight</li> <li>• Watching Clouds</li> <li>• Observing the Moon</li> <li>• Bubbles in the Wind</li> <li>• Wind Speed</li> <li>• Pinwheels</li> <li>• Wind Vanes</li> <li>• Kites</li> <li>• Changes over a month</li> <li>• Daylight through the Year</li> <li>• Comparing the Seasons</li> </ul>	<ul style="list-style-type: none"> <li>• Approximately 2 weeks per investigation</li> </ul>
<p align="center"><b>21<sup>st</sup> Century Life and Career Ready Practices</b></p>	<p align="center"><b>Interdisciplinary Connections</b></p>
<ul style="list-style-type: none"> <li>• CRP1. Act as a responsible and contributing citizen and employee.</li> <li>• CRP2. Apply appropriate academic and technical skills.</li> <li>• CRP3. Attend to personal health and financial well-being.</li> <li>• CRP4. Communicate clearly and effectively and with reason.</li> <li>• CRP5. Consider the environmental, social and economic impacts of decisions.</li> <li>• CRP6. Demonstrate creativity and innovation.</li> <li>• CRP7. Employ valid and reliable research strategies.</li> <li>• CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.</li> <li>• CRP9. Model integrity, ethical leadership and effective management.</li> <li>• CRP10. Plan education and career paths aligned to personal goals.</li> <li>• CRP11. Use technology to enhance productivity.</li> <li>• CRP12. Work productively in teams while using cultural global competence.</li> </ul>	<ul style="list-style-type: none"> <li>• Science and Engineering Practices</li> <li>• Cross-Cutting Concepts</li> <li>• Problem of the week</li> <li>• Explore weather lore</li> <li>• Create foggy day pictures</li> <li>• Listen to weather music</li> <li>• Read wind and poetry stories</li> <li>• Research kite culture</li> <li>• Create seasonal acrostic poems</li> </ul>
<p align="center"><b>Instructional Resources</b></p>	<p align="center"><b>Benchmark / Summative Assessments</b></p>
<ul style="list-style-type: none"> <li>• FOSS Kits</li> <li>• FOSS Science Resource Books</li> <li>• FOSS Online Activities</li> </ul>	<ul style="list-style-type: none"> <li>• Investigations             <ul style="list-style-type: none"> <li>○ Exploring Air</li> <li>○ Observing the Sky</li> <li>○ Wind Explorations</li> <li>○ Looking for Change</li> </ul> </li> <li>• I-Checks</li> <li>• Self-Assessments</li> <li>• FOSS Post Test</li> </ul>

<p align="center"><b>Supports / Modifications for ELLs</b></p>	<p align="center"><b>Supports / Modifications for Students w/ 504s and or IEPs</b></p>
<ul style="list-style-type: none"> <li>• Preview content</li> <li>• Utilize visuals, images, actions, and talk</li> <li>• Scaffold development of comprehension process vocabulary AND content-specific vocabulary</li> <li>• Display anchor charts for language structures</li> <li>• Provide assessments with graphic supports</li> <li>• Utilize prepared sentence stems</li> <li>• Graphic organizers</li> <li>• Flexible grouping</li> <li>• Additional time for processing and assessment</li> </ul>	<ul style="list-style-type: none"> <li>• Differentiate content, process, product, and learning environment</li> <li>• Provide alternative or high interest text at student’s reading level.</li> <li>• Provide summaries of materials for student.</li> <li>• Shorten assignments and assessments to focus on mastery of key concepts.</li> <li>• Substitute alternatives for written assignments.</li> <li>• Specify and review often exactly what the student will need to learn to pass.</li> <li>• Modify expectations based on student needs.</li> <li>• Provide a “designated notetaker” or photocopy of other student or teacher notes.</li> <li>• Provide a print copy of assignments or notes.</li> <li>• Go over directions orally.</li> <li>• Provide additional time on tests.</li> <li>• Read test materials to the student, and allow oral responses.</li> <li>• Use enlarged graph paper to write problems to help the student keep numbers in columns.</li> <li>• Break long-term assignments into small steps, with daily monitoring and frequent grading.</li> <li>• Use both oral and printed directions.</li> </ul>
<p align="center"><b>Supports / Modifications for At Risk Students</b></p>	<p align="center"><b>Supports / Modifications for Gifted &amp; Talented Students</b></p>
<ul style="list-style-type: none"> <li>• Review the classroom rules frequently.</li> <li>• Evaluate classroom structure against the student’s needs (flexible structure, firm limits, etc.).</li> <li>• Keep workspace clear of unrelated materials.</li> <li>• Keep classroom quiet during intense learning times.</li> <li>• Reduce visual distractions in the classroom (mobiles, etc.).</li> <li>• Seat the student close to the teacher / instruction, and away from distractions.</li> <li>• Keep extra supplies of classroom materials (pencils, books) on hand.</li> <li>• Alert student several minutes before a transition from one activity to another is planned; give several reminders.</li> <li>• Reinforce (often) when a student displays positive behavior.</li> <li>• Develop an individualized behavior intervention plan that consistent with the student’s ability and skills.</li> <li>• Arrange for a student to leave the classroom for a designated “safe place” when highly stressed.</li> <li>• Develop a system or a code word to let a student know when behavior is not appropriate.</li> <li>• Ignore behaviors that are not seriously disruptive.</li> </ul>	<ul style="list-style-type: none"> <li>• Provide opportunities to pursue advanced level work</li> <li>• Expose students to higher level thinking skills</li> <li>• Provide enrichment centers</li> <li>• pursue a self-selected interest</li> <li>• work in groups with students having common interests</li> <li>• move to a higher grade for specific subject area instruction</li> <li>• work with students of comparable ability across classrooms at the same grade level</li> <li>• work on an advanced curriculum unit on a teacher-selected topic</li> <li>• participate in competitive programs focusing on thinking skills/problem solving</li> <li>• receive concentrated instruction in critical thinking and creative problem solving</li> </ul>

**COURSE/SUBJECT:** Science

**LEVEL/GRADE:** 1<sup>st</sup>

**UNIT/FOCUS:** Plants and Animals

**TIMEFRAME:** 12 Weeks

**Transfer**

*Students will be able to independently use their learning to...*

- Ask questions based on observations to find more information about the natural and/or designed world(s).
- Develop and/or use a model to represent amounts, relationships, relative scales (bigger, smaller), and/or patterns in the natural and designed world(s).
- Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence to answer a question.
- Make observations (firsthand or from media) and/or measurements to collect data that can be used to make comparisons.
- Make predictions based on prior experiences.
- Record information (observations, thoughts, and ideas).
- Use and share pictures, drawings, and/or writings of observations.
- Use observations (firsthand or from media) to describe patterns and/or relationships in the natural and designed world(s) in order to answer scientific questions and solve problems.
- Compare predictions (based on prior experiences) to what occurred (observable events).
- Use counting and numbers to identify and describe patterns in the natural and designed world(s).
- Describe, measure, and/or compare quantitative attributes of different objects and display the data using simple graphs.
- Use information from observations (firsthand and from media) to construct an evidence-based account for natural phenomena.
- Construct an argument with evidence to support a claim.
- Read grade-appropriate texts and/or use media to obtain scientific and/or technical information to determine patterns in and/or evidence about the natural and designed world.
- Communicate information or design ideas and/or solutions with others in oral and/or written forms using models, drawings, writing, or numbers that provide detail about scientific ideas, practices, and/or design ideas.

**Meaning**

**Enduring Understandings (EUs)**

*Students will understand that...*

- Patterns in the natural and human designed world can be observed, used to describe phenomena, and used as evidence.
- Events have causes that generate observable patterns.
- Systems in the natural and designed world have parts that work together.
- The shape and stability of structures of natural and designed objects are related to their function(s).

**Essential Questions (EQs)**

*Students will keep considering...*

- How do the structures of organisms enable life's functions?
- How do organisms grow and develop?
- How do organisms detect, processes, and use information about the environment?
- How are the characteristics of one generation related to the previous generation?
- Why do individuals of the same species vary in how they look, function, and behave?
- What is a design for?
- What are the criteria and constraints of a successful solution?
- What is the process for developing potential design solutions?
- How can the various proposed design solutions be compared and improved?
- What are the relationships among science, engineering, and technology?
- How do science, engineering, and the technologies that result from them affect the ways in which people live? How do they affect the natural world?

**Acquisition**

Knowledge	Skills
<p><i>Students will know...</i></p> <ul style="list-style-type: none"> <li>• All organisms have external parts. Different animals use their body parts in different ways to see, hear, grasp objects, protect themselves, move from place to place, and seek, find, and take in food, water and air. Plants also have different parts (roots, stems, leaves, flowers, fruits) that help them survive and grow.</li> <li>• Adult plants and animals can have young. In many kinds of animals, parents and the offspring themselves engage in behaviors that help the offspring to survive.</li> <li>• Animals have body parts that capture and convey different kinds of information needed for growth and survival. Animals respond to these inputs with behaviors that help them survive. Plants also respond to some external inputs.</li> <li>• Young animals are very much, but not exactly, like their parents. Plants also are very much, but not exactly, like their parents.</li> <li>• Individuals of the same kind of plant or animal are recognizable as similar but can also vary in many ways.</li> <li>• A situation that people want to change or create can be approached as a problem to be solved through engineering. Such problems may have many acceptable solutions.</li> <li>• Asking questions, making observations, and gathering information are helpful in thinking about problems.</li> <li>• Before beginning to design a solution, it is important to clearly understand the problem.</li> <li>• Designs can be conveyed through sketches, drawings, or physical models. These representations are useful in communicating ideas for a problem's solutions to other people.</li> <li>• Because there is always more than one possible solution to a problem, it is useful to compare and test designs.</li> </ul>	<p><i>Students will be able to...</i></p> <ul style="list-style-type: none"> <li>• Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts to help them survive, grow, and meet their needs.</li> <li>• Read texts and use media to determine patterns in behavior of parents and offspring that help offspring survive.</li> <li>• Make observations to construct an evidence-based account that young plants and animals are like, but not exactly like, their parents.</li> <li>• Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.</li> <li>• Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.</li> <li>• Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.</li> </ul>

<p align="center"><b>Aligned Concepts, Topics, and Skills</b></p>	<p align="center"><b>Pacing Guide</b></p>
<p>Topics:</p> <ul style="list-style-type: none"> <li>• Lawns</li> <li>• Mowing the Lawn</li> <li>• Wheat</li> <li>• Variation in Plants and Animals</li> <li>• Root Stem Cuttings</li> <li>• Spuds</li> <li>• New Plants from Cuttings</li> <li>• Setting up Terrariums</li> <li>• Animals in the Terrariums</li> <li>• Habitat Match</li> <li>• Squirrel Behavior</li> <li>• Planting Bulbs</li> <li>• Planting Roots</li> <li>• Plant and Animal Growth</li> </ul>	<p>Approximately 3 weeks per investigation</p>
<p align="center"><b>21<sup>st</sup> Century Life and Career Ready Practices</b></p>	<p align="center"><b>Interdisciplinary Connections</b></p>
<ul style="list-style-type: none"> <li>• CRP1. Act as a responsible and contributing citizen and employee.</li> <li>• CRP2. Apply appropriate academic and technical skills.</li> <li>• CRP3. Attend to personal health and financial well-being.</li> <li>• CRP4. Communicate clearly and effectively and with reason.</li> <li>• CRP5. Consider the environmental, social and economic impacts of decisions.</li> <li>• CRP6. Demonstrate creativity and innovation.</li> <li>• CRP7. Employ valid and reliable research strategies.</li> <li>• CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.</li> <li>• CRP9. Model integrity, ethical leadership and effective management.</li> <li>• CRP10. Plan education and career paths aligned to personal goals.</li> <li>• CRP11. Use technology to enhance productivity.</li> <li>• CRP12. Work productively in teams while using cultural global competence.</li> </ul>	<ul style="list-style-type: none"> <li>• Science and Engineering Practices</li> <li>• Cross-Cutting Concepts</li> <li>• Write how-to guide for growing plants</li> <li>• Math problem of the week</li> <li>• Write about life in a terrarium</li> <li>• Illustrate Homonyms</li> </ul>
<p align="center"><b>Instructional Resources</b></p>	<p align="center"><b>Benchmark / Summative Assessments</b></p>
<ul style="list-style-type: none"> <li>• FOSS Kits</li> <li>• FOSS Science Resource Books</li> <li>• FOSS Online Activities</li> </ul>	<ul style="list-style-type: none"> <li>• Investigations             <ul style="list-style-type: none"> <li>○ Grass and Grain Seeds</li> <li>○ Stems</li> <li>○ Terrariums</li> <li>○ Growth and Change</li> </ul> </li> <li>• I-Checks</li> <li>• Self-Assessments</li> <li>• FOSS Post Test</li> </ul>

<p align="center"><b>Supports / Modifications for ELLs</b></p>	<p align="center"><b>Supports / Modifications for Students w/ 504s and or IEPs</b></p>
<ul style="list-style-type: none"> <li>• Preview content</li> <li>• Utilize visuals, images, actions, and talk</li> <li>• Scaffold development of comprehension process vocabulary AND content-specific vocabulary</li> <li>• Display anchor charts for language structures</li> <li>• Provide assessments with graphic supports</li> <li>• Utilize prepared sentence stems</li> <li>• Graphic organizers</li> <li>• Flexible grouping</li> <li>• Additional time for processing and assessment</li> </ul>	<ul style="list-style-type: none"> <li>• Differentiate content, process, product, and learning environment</li> <li>• Provide alternative or high interest text at student’s reading level.</li> <li>• Provide summaries of materials for student.</li> <li>• Shorten assignments and assessments to focus on mastery of key concepts.</li> <li>• Substitute alternatives for written assignments.</li> <li>• Specify and review often exactly what the student will need to learn to pass.</li> <li>• Modify expectations based on student needs.</li> <li>• Provide a “designated notetaker” or photocopy of other student or teacher notes.</li> <li>• Provide a print copy of assignments or notes.</li> <li>• Go over directions orally.</li> <li>• Provide additional time on tests.</li> <li>• Read test materials to the student, and allow oral responses.</li> <li>• Use enlarged graph paper to write problems to help the student keep numbers in columns.</li> <li>• Break long-term assignments into small steps, with daily monitoring and frequent grading.</li> <li>• Use both oral and printed directions.</li> </ul>
<p align="center"><b>Supports / Modifications for At Risk Students</b></p>	<p align="center"><b>Supports / Modifications for Gifted &amp; Talented Students</b></p>
<ul style="list-style-type: none"> <li>• Review the classroom rules frequently.</li> <li>• Evaluate classroom structure against the student’s needs (flexible structure, firm limits, etc.).</li> <li>• Keep workspace clear of unrelated materials.</li> <li>• Keep classroom quiet during intense learning times.</li> <li>• Reduce visual distractions in the classroom (mobiles, etc.).</li> <li>• Seat the student close to the teacher / instruction, and away from distractions.</li> <li>• Keep extra supplies of classroom materials (pencils, books) on hand.</li> <li>• Alert student several minutes before a transition from one activity to another is planned; give several reminders.</li> <li>• Reinforce (often) when a student displays positive behavior.</li> <li>• Develop an individualized behavior intervention plan that consistent with the student’s ability and skills.</li> <li>• Arrange for a student to leave the classroom for a designated “safe place” when highly stressed.</li> <li>• Develop a system or a code word to let a student know when behavior is not appropriate.</li> <li>• Ignore behaviors that are not seriously disruptive.</li> </ul>	<ul style="list-style-type: none"> <li>• Provide opportunities to pursue advanced level work</li> <li>• Expose students to higher level thinking skills</li> <li>• Provide enrichment centers</li> <li>• pursue a self-selected interest</li> <li>• work in groups with students having common interests</li> <li>• move to a higher grade for specific subject area instruction</li> <li>• work with students of comparable ability across classrooms at the same grade level</li> <li>• work on an advanced curriculum unit on a teacher-selected topic</li> <li>• participate in competitive programs focusing on thinking skills/problem solving</li> <li>• receive concentrated instruction in critical thinking and creative problem solving</li> </ul>