

**COURSE/SUBJECT:** Science

**LEVEL/GRADE:** 2<sup>nd</sup>

**UNIT/FOCUS:** Solids and Liquids

**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.
- 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.
- Compare predictions (based on prior experiences) to what occurred (observable events).
- 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).
- 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.
- Generate and/or compare multiple solutions to a problem.
- Listen actively to arguments to indicate agreement or disagreement based on evidence, and/or to retell the main points of the argument.
- 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
- Obtain information using various texts, text features (e.g., headings, tables of contents, glossaries, electronic menus, icons), and other media that will be useful in answering a scientific question and/or supporting a scientific claim.
- 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.
- Relative scales allow objects and events to be compared and described (e.g., bigger and smaller; hotter and colder; faster and slower).
- Objects may break into smaller pieces, be put together into larger pieces, or change shapes.
- 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 particles combine to form the variety of matter one observes?
- How do substances combine or change (react) to make new substances? How does one characterize and explain these reactions and make predictions about them?
- 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**

*Students will know...*

- 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.
- Different properties are suited to different purposes.
- A great variety of objects can be built up from a small set of pieces.
- Heating or cooling a substance may cause changes that can be observed. Sometimes these changes are reversible, and sometimes they are not.
- 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.
- Asking questions, making observations, and gathering information are helpful in thinking about problems.
- Before beginning to design a solution, it is important to clearly understand the problem.
- 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.
- Because there is always more than one possible solution to a problem, it is useful to compare and test designs.

*Students will be able to...*

- Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties.
- Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose.
- Make observations to construct an evidence-based account of how an object made of a small set of pieces can be disassembled and made into a new object.
- Construct an argument with evidence that some changes caused by heating or cooling can be reversed and some cannot.
- 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.
- 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.
- Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.

<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>• Solid objects</li> <li>• Solid materials</li> <li>• Group solid objects</li> <li>• Construct with solids</li> <li>• Outdoor solids</li> <li>• Liquids in bottles</li> <li>• Properties of liquids</li> <li>• Liquid level</li> <li>• Puddles</li> <li>• Solids in containers</li> <li>• Separating soup mix</li> <li>• Solids in bottles</li> <li>• Beads and screens</li> <li>• Spills</li> <li>• Solids and water</li> <li>• Liquids and water</li> <li>• Toothpaste</li> <li>• Changing properties</li> <li>• Tea time</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 “My Book of Solids”</li> <li>• Make solid collages</li> <li>• Math problem of the week</li> <li>• Make bottle art</li> <li>• Describe oobleck</li> </ul>

Instructional Resources	Benchmark / Summative Assessments
<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>○ Solids</li> <li>○ Liquids</li> <li>○ Bits and Pieces</li> <li>○ Solids Liquids and Water</li> </ul> </li> <li>• I-Checks</li> <li>• Self-Assessments</li> <li>• FOSS Post Test</li> </ul>
Supports / Modifications for ELLs	Supports / Modifications for Students w/ 504s and or IEPs
<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>
Supports / Modifications for At Risk Students	Supports / Modifications for Gifted & Talented Students
<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:** 2<sup>nd</sup>

**UNIT/FOCUS:** Insects and Plants

**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).
- Define a simple problem that can be solved through the development of a new or improved object or tool.
- 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).
- Use information from observations (firsthand and from media) to construct an evidence-based account for natural phenomena.
- Generate and/or compare multiple solutions to a problem.
- Listen actively to arguments to indicate agreement or disagreement based on evidence, and/or to retell the main points of the argument.
- 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
- Obtain information using various texts, text features (e.g., headings, tables of contents, glossaries, electronic menus, icons), and other media that will be useful in answering a scientific question and/or supporting a scientific claim.
- 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.
- 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 interact with the living and nonliving environments to obtain matter and energy?
- What is biodiversity, how do humans affect it, and how does it affect humans?
- 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>• Plants depend on water and light to grow.</li> <li>• Plants depend on animals for pollination or to move their seeds around.</li> <li>• Plants need water and light to live and grow.</li> <li>• All animals need food in order to live and grow. They obtain their food from plants or from other animals.</li> <li>• There are many different kinds of living things in any area, and they exist in different places on land and in water.</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>• Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death.</li> <li>• Plan and conduct an investigation to determine if plants need sunlight and water to grow.</li> <li>• Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants.</li> <li>• Make observations of plants and animals to compare the diversity of life in different habitats.</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>• Mealworms</li> <li>• Larva, Pupa, Adult</li> <li>• Life Cycle</li> <li>• Planting Brassica</li> <li>• Observing Brassica</li> <li>• Plant Life Cycle</li> <li>• Planting Outdoors</li> <li>• Eggs</li> <li>• Habitats</li> <li>• Growing milkweed bugs</li> <li>• Insect search</li> <li>• Eggs and Larvae</li> <li>• Silkworm Structures</li> <li>• Pupae and adults</li> <li>• Plant eaters</li> <li>• Caterpillars</li> <li>• Chrysalises</li> <li>• Adult butterflies</li> <li>• Flower Powder</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>• Math problem of the week</li> <li>• Read: <i>Lifetimes</i></li> <li>• Make 3D beetles</li> <li>• Narrative about life of a seed</li> <li>• Draw and discuss insects</li> <li>• Graph variations in your class</li> <li>• Diagram life cycles</li> </ul>

Instructional Resources	Benchmark / Summative Assessments
<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>○ Mealworms</li> <li>○ Brassica Seeds</li> <li>○ Milkweed Bugs</li> <li>○ Silkworms</li> <li>○ Butterflies</li> </ul> </li> <li>• I-Checks</li> <li>• Self-Assessments</li> <li>• FOSS Post Test</li> </ul>
Supports / Modifications for ELLs	Supports / Modifications for Students w/ 504s and or IEPs
<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>
Supports / Modifications for At Risk Students	Supports / Modifications for Gifted & Talented Students
<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:** 2<sup>nd</sup>

**UNIT/FOCUS:** Pebbles, Sand, and Silt

**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).
- 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).
- Develop a simple model based on evidence to represent a proposed object or tool.
- 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 information from observations (firsthand and from media) to construct an evidence-based account for natural phenomena.
- Generate and/or compare multiple solutions to a problem.
- Construct an argument with evidence to support a claim.
- Make a claim about the effectiveness of an object, tool, or solution that is supported by relevant evidence.
- Read grade-appropriate texts and/or use media to obtain scientific and/or technical information to determine patterns in and/or evidence about the
- Obtain information using various texts, text features (e.g., headings, tables of contents, glossaries, electronic menus, icons), and other media that will be useful in answering a scientific question and/or supporting a scientific claim.
- 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.
- Relative scales allow objects and events to be compared and described (e.g., bigger and smaller; hotter and colder; faster and slower).
- Objects may break into smaller pieces, be put together into larger pieces, or change shapes.
- 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 people reconstruct and date events in Earth's planetary history?
- How do Earth's major systems interact?
- Why do the continents move, and what causes earthquakes and volcanoes?
- How do the properties and movements of water shape Earth's surface and affect its systems?
- 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>• Some events happen very quickly; others occur very slowly, over a time period much longer than one can observe.</li> <li>• Wind and water can change the shape of the land.</li> <li>• Maps show where things are located. One can map the shapes and kinds of land and water in any area.</li> <li>• Water is found in the ocean, rivers, lakes, and ponds. Water exists as solid ice and in liquid form.</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>• Different properties are suited to different purposes.</li> <li>• A great variety of objects can be built up from a small set of pieces.</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 information from several sources to provide evidence that Earth events can occur quickly or slowly.</li> <li>• Compare multiple solutions designed to slow or prevent wind or water from changing the shape of the land.</li> <li>• Develop a model to represent the shapes and kinds of land and bodies of water in an area.</li> <li>• Obtain information to identify where water is found on Earth and that it can be solid or liquid.</li> <li>• Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties.</li> <li>• Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose.</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>• Three rocks</li> <li>• Washing three rocks</li> <li>• First sorting</li> <li>• Start a rock collection</li> <li>• Sorting activities</li> <li>• Screening River Rocks</li> <li>• River rocks by size</li> <li>• Sand and Silt</li> <li>• Exploring clay and landforms</li> <li>• Rocks in use</li> <li>• Observing Sandpaper</li> <li>• Sand sculptures</li> <li>• Clay beads</li> <li>• Making bricks</li> <li>• Homemade soil</li> <li>• Local soil</li> <li>• Natural sources of water</li> <li>• Land and water</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>• Problem of the week</li> <li>• Write about magic pebbles</li> <li>• Build rock towers</li> <li>• Assemble a rock aquarium</li> <li>• Create rock music</li> <li>• Visit a quarry</li> <li>• Write rock story</li> <li>• Find out about pottery</li> <li>• Make sand paintings</li> <li>• Compare soil habitats</li> </ul>

Instructional Resources	Benchmark / Summative Assessments
<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>○ First Rocks</li> <li>○ River Rocks</li> <li>○ Using Rocks</li> <li>○ Soil and Water</li> </ul> </li> <li>• I-Checks</li> <li>• Self-Assessments</li> <li>• FOSS Post Test</li> </ul>
Supports / Modifications for ELLs	Supports / Modifications for Students w/ 504s and or IEPs
<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>
Supports / Modifications for At Risk Students	Supports / Modifications for Gifted & Talented Students
<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: 2<sup>nd</sup>