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LONG BEACH ISLAND CONSOLIDATED SCHOOL DISTRICT SCIENCE CURRICULUM	
<b>Content Area:</b> Science	
<b>Course Title:</b> Elementary	<b>Grade Level:</b> Grade 2
<b>Unit 1: Structure and Properties of Matter</b>	September, October, November
<b>Unit 2: Interdependent Relationships in Ecosystems</b>	December, January, February
<b>Unit 3: Earth's Systems: Processes that Shape the Earth</b>	March, April, May, June
<b>Unit 4: Engineering and Design</b>	Ongoing

**2015 Long Beach Island Consolidated School District Science Curriculum**

**Grade 2**

**Unit: Structure and Properties of Matter**

How can you describe and classify different kinds of materials?  
Which properties of different materials make them suitable for select functions?

How can an object made of a small set of pieces be disassembled and made into a new object?

How does heating and cooling a substance cause changes?

The performance expectations in second grade help students formulate answers to questions such as: “How does land change and what are some things that cause it to change? What are the different kinds of land and bodies of water? How are materials similar and different from one another, and how do the properties of the materials relate to their use? What do plants need to grow? How many types of living things live in a place?” Second grade performance expectations include PS1, LS2, LS4, ESS1, ESS2, and ETS1 Disciplinary Core Ideas from the NRC Framework. Students are expected to develop an understanding of what plants need to grow and how plants depend on animals for seed dispersal and pollination. Students are also expected to compare the diversity of life in different habitats. An understanding of observable properties of materials is developed by students at this level through analysis and classification of different materials. Students are able to apply their understanding of the idea that wind and water can change the shape of the land to compare design solutions to slow or prevent such change. Students are able to use information and models to identify and represent the shapes and kinds of land and bodies of water in an area and where water is found on Earth. The crosscutting concepts of patterns; cause and effect; energy and matter; structure and function; stability and change; and influence of engineering, technology, and science on society and the natural world are called out as organizing concepts for these disciplinary core ideas. In the second grade performance expectations, students are expected to demonstrate gradeappropriate proficiency in developing and using models, planning and carrying out investigations, analyzing and interpreting data, constructing explanations and designing solutions, engaging in argument from evidence, and obtaining, evaluating, and communicating information. Students are expected to use these practices to demonstrate understanding of the core ideas.

The [Grades k -2 Storyline](#) provides a summary of the understandings that students developed by the end of 2nd grade.

#	STUDENT LEARNING OBJECTIVES (SLOs)	Corresponding PEs and DCIs
1	<b>Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties.</b> [Clarification Statement: Observations could include color, texture, hardness, and flexibility. Patterns could include the similar properties that different materials share.]	2-PS1-1

2	Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose. <b>[Clarification Statement: Examples of properties could include, strength, flexibility, hardness, texture, and absorbency.] [Assessment Boundary: Assessment of quantitative measurements is limited to length.]</b>	2-PS1-2
3	Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs. 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. <b>[Clarification Statement: Examples of pieces could include blocks, building bricks, or other assorted small objects.]</b>	2-PS1-3
4	Construct an argument with evidence that some changes caused by heating or cooling can be reversed and some cannot. <b>[Clarification Statement: Examples of reversible changes could include materials such as water and butter at different temperatures. Examples of irreversible changes could include cooking an egg, freezing a plant leaf, and heating paper.]</b>	2-PS1-4

The SLOs were developed using the following elements from the NRC document *A Framework for K-12 Science Education*:

<b>Science and Engineering Practices</b>	<b>Disciplinary Core Ideas</b>	<b>Crosscutting Concepts</b>
<p><b>Planning and Carrying Out Investigations</b>            Planning and carrying out investigations to answer questions or test solutions to problems in K–2 builds on prior experiences and progresses to simple investigations, based on fair tests, which provide data to support explanations or design solutions.</p> <ul style="list-style-type: none"> <li>Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence to answer a question.(2-PS1-1)</li> </ul> <p><b>Analyzing and Interpreting Data</b>            Analyzing data in K–2 builds on prior experiences and progresses to collecting, recording, and sharing observations.</p>	<p><b>PS1.A: Structure and Properties of Matter</b></p> <ul style="list-style-type: none"> <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. (2-PS1-1)</li> <li>Different properties are suited to different purposes. (2-PS1-2),(2-PS1-3)</li> <li>A great variety of objects can be built up from a small set of pieces. (2-PS1-3)</li> </ul> <p><b>PS1.B: Chemical Reactions</b></p> <ul style="list-style-type: none"> <li>Heating or cooling a substance may cause changes that can be observed. Sometimes these changes are reversible, and sometimes they are not. (2-PS1-4)</li> </ul>	<p><b>Patterns</b></p> <ul style="list-style-type: none"> <li>Patterns in the natural and human designed world can be observed. (2-PS1-1)</li> </ul> <p><b>Cause and Effect</b></p> <ul style="list-style-type: none"> <li>Events have causes that generate observable patterns. (2-PS1-4)</li> <li>Simple tests can be designed to gather evidence to support or refute student ideas about causes. (2-PS1-2)</li> </ul> <p><b>Energy and Matter</b></p> <ul style="list-style-type: none"> <li>Objects may break into smaller pieces and be put together into larger pieces, or change shapes. (2-PS1-3)</li> </ul>

<ul style="list-style-type: none"> <li>Analyze data from tests of an object or tool to determine if it works as intended. (2-PS1-2)</li> </ul> <p><b>Constructing Explanations and Designing Solutions</b> Constructing explanations and designing solutions in K–2 builds on prior experiences and progresses to the use of evidence and ideas in constructing evidence-based accounts of natural phenomena and designing solutions.</p> <ul style="list-style-type: none"> <li>Make observations (firsthand or from media) to construct an evidence-based account for natural phenomena. (2-PS1-3)</li> </ul> <p><b>Engaging in Argument from Evidence</b> Engaging in argument from evidence in K–2 builds on prior experiences and progresses to comparing ideas and representations about the natural and designed world(s).</p> <ul style="list-style-type: none"> <li>Construct an argument with evidence to support a claim. (2-PS1-4)</li> </ul> <p>-----</p> <p><b>Connections to Nature of Science</b></p> <p><b>Science Models, Laws, Mechanisms, and Theories</b> <b>Explain Natural Phenomena</b></p> <ul style="list-style-type: none"> <li>Science searches for cause and effect relationships to explain natural events. (2-PS1-4)</li> </ul>		<p>-----</p> <p><b>Connections to Engineering, Technology, and Applications of Science</b></p> <p><b>Influence of Engineering, Technology, and Science, on Society and the Natural World</b></p> <ul style="list-style-type: none"> <li>Every human-made product is designed by applying some knowledge of the natural world and is built using materials derived from the natural world. (2-PS1-2)</li> </ul>
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<i>Connections to other DCIs in second grade: N/A</i>
<i>Articulation of DCIs across grade-levels:</i> <b>4.ESS2.A (2-PS1-3); 5.PS1.A (2-PS1-1),(2-PS1-2),(2-PS1-3); 5.PS1.B (2-PS1-4); 5.LS2.A (2-PS1-3)</b>
<b>21<sup>st</sup> Century Themes:</b> All students will develop an understanding of the nature and impact of technology, engineering, technological design, and the designed world, as they relate to the individual, global society and the universe.

**Common Core State Standards Connections:**

**ELA/Literacy —**

- RI.2.1** Ask and answer such questions as *who, what, where, when, why, and how* to demonstrate understanding of key details in a text. (2-PS1-4)
- RI.2.3** Describe the connection between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text. (2-PS1-4)
- RI.2.8** Describe how reasons support specific points the author makes in a text. (2-PS1-2),(2-PS1-4)
- W.2.1** Write opinion pieces in which they introduce the topic or book they are writing about, state an opinion, supply reasons that support the opinion, use linking words (e.g., *because, and, also*) to connect opinion and reasons, and provide a concluding statement or section. (2-PS1-4)
- W.2.7** Participate in shared research and writing projects (e.g., read a number of books on a single topic to produce a report; record science observations). (2-PS1-1),(2-PS1-2),(2-PS1-3)
- W.2.8** Recall information from experiences or gather information from provided sources to answer a question. (2-PS1-1),(2-PS1-2),(2-PS1-3)

**Mathematics —**

- MP.2** Reason abstractly and quantitatively. (2-PS1-2)
- MP.4** Model with mathematics. (2-PS1-1),(2-PS1-2).
- MP.5** Use appropriate tools strategically. (2-PS1-2)
- 2.MD.D.10** Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph. (2-PS1-1),(2-PS1-2)

<b>Grade Level: 2</b>	<b>Title of Unit: Structure and Properties of Matter</b>
<b>Stage 1 - Desired Results</b>	
<p><b>Understandings:</b></p> <p><i>Students will understand that...</i></p> <ol style="list-style-type: none"> <li>1. Patterns in the natural and human designed world can be observed.</li> <li>2. Events have causes that generate observable patterns.</li> <li>3. Simple tests can be designed to gather evidence to support or refute student ideas about causes.</li> <li>4. Objects may break into smaller pieces and be put together into larger pieces, or change shapes.</li> <li>5. Every human-made product is designed by applying some knowledge of the natural world and is built using materials derived from the natural world.</li> </ol>	<p><b>Essential Questions:</b></p> <ol style="list-style-type: none"> <li>1. How can you describe and classify different kinds of materials?</li> <li>2. Which properties of different materials make them suitable for select functions?</li> <li>3. How can an object made of a small set of pieces be disassembled and made into a new object?</li> <li>4. How does heating and cooling a substance cause changes?</li> </ol>
<p><b>Knowledge:</b></p> <p><i>Students will know...</i></p> <ul style="list-style-type: none"> <li>● different kinds of matter exist and many of them can be either solid or liquid, depending on temperature.</li> <li>● matter can be described and classified by its observable properties</li> <li>● different properties are suited to different purposes</li> </ul>	<p><b>Skills:</b></p> <p><i>Students will be able to...</i></p> <ul style="list-style-type: none"> <li>● Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence to answer a question</li> <li>● Analyze data from tests of an object or tool to determine if it works as intended.</li> <li>● Make observations (firsthand or from media) to construct an evidence-based account for natural phenomena.</li> <li>● Construct an argument with evidence to support a claim.</li> </ul>

<ul style="list-style-type: none"> <li>● a great variety of objects can be built up from a small set of pieces</li> <li>● heating or cooling a substance may cause changes that can be observed (sometimes these changes are reversible, and sometimes they are not)</li> </ul>	<ul style="list-style-type: none"> <li>● Search for cause and effect relationships to explain natural events.</li> </ul>
<b>Stage 2- Assessment Evidence</b>	
<p><b>Performance Tasks and other evidence:</b></p> <ul style="list-style-type: none"> <li>● Summative Assessments <ul style="list-style-type: none"> <li>○ RST- Research Simulation Task</li> <li>○ Associated Unit tests, quizzes</li> <li>○ labs and engineering based projects</li> </ul> </li> <li>● Formative Assessments</li> </ul>	<ul style="list-style-type: none"> <li>○ Graphic Organizers &amp; Guided Note Taking</li> <li>○ Directed Reading</li> <li>○ Cooperative Group Learning</li> <li>○ Homework</li> <li>○ Journal Entries</li> </ul>
<b>Stage 3 – Learning Plan</b>	
<p><b>Digital information and technology integration:</b> Indicate any special considerations as well as materials, resources (online, print, video, audio) or equipment.</p> <ul style="list-style-type: none"> <li>● <a href="http://spaceplace.nasa.gov/science-fair/en/">http://spaceplace.nasa.gov/science-fair/en/</a> (science method fair ideas)</li> <li>● <a href="https://www.opened.com/search?category=matter-and-its-interactions-k-5&amp;grade_group=elementary&amp;standard=2.PS1.2&amp;standard_group=next-generation-science-standards">https://www.opened.com/search?category=matter-and-its-interactions-k-5&amp;grade_group=elementary&amp;standard=2.PS1.2&amp;standard_group=next-generation-science-standards</a></li> <li>● <a href="http://ivdiscoveryzone.org/PrePostResources/Second%20Grade/2%20-%20lesson%20plans/2-PS1-2%20Lesson%20Plan%20%20Testing%20Materials%20to%20met%20an%20Intended%20Purpose.pdf">http://ivdiscoveryzone.org/PrePostResources/Second%20Grade/2%20-%20lesson%20plans/2-PS1-2%20Lesson%20Plan%20%20Testing%20Materials%20to%20met%20an%20Intended%20Purpose.pdf</a></li> <li>● <a href="http://thehappyscientist.com/next-generation-science-standards-second-grade">http://thehappyscientist.com/next-generation-science-standards-second-grade</a></li> <li>● <a href="http://www.hookedonscience.org/nextgenerationsciencestandards.html">http://www.hookedonscience.org/nextgenerationsciencestandards.html</a></li> <li>● <a href="https://www.teachingchannel.org/videos/next-generation-science-standards-achieve">https://www.teachingchannel.org/videos/next-generation-science-standards-achieve</a></li> <li>● <a href="http://www.earthsciweek.org/classroom-activities/ngss">http://www.earthsciweek.org/classroom-activities/ngss</a></li> <li>● <a href="http://betterlesson.com/next_gen_science/browse/2085/ngss-2-ps1-1-plan-and-conduct-an-investigation-to-describe-and-classify-different-kinds-of-materials-by-their-observable-propert/browse/2085/ngss-2-ps1-1-plan-and-conduct-an-investigation-to-describe-and-classify-different-kinds-of-materials-by-their-observable-propert">http://betterlesson.com/next_gen_science/browse/2085/ngss-2-ps1-1-plan-and-conduct-an-investigation-to-describe-and-classify-different-kinds-of-materials-by-their-observable-propert/browse/2085/ngss-2-ps1-1-plan-and-conduct-an-investigation-to-describe-and-classify-different-kinds-of-materials-by-their-observable-propert</a></li> </ul>	

- [http://betterlesson.com/common\\_core/browse/2087/ngss-2-ps1-3-make-observations-to-construct-an-evidence-based-account-of-how-an-object-made-of-a-small-set-of-pieces-can-be-disa](http://betterlesson.com/common_core/browse/2087/ngss-2-ps1-3-make-observations-to-construct-an-evidence-based-account-of-how-an-object-made-of-a-small-set-of-pieces-can-be-disa)
- [http://betterlesson.com/common\\_core/browse/2086/ngss-2-ps1-2-analyze-data-obtained-from-testing-different-materials-to-determine-which-materials-have-the-properties-that-are-be](http://betterlesson.com/common_core/browse/2086/ngss-2-ps1-2-analyze-data-obtained-from-testing-different-materials-to-determine-which-materials-have-the-properties-that-are-be)
- [https://www.opened.com/search?category=matter-and-its-interactions-k-5&grade\\_group=elementary&standard=2.PS1.2&standard\\_group=next-generation-science-standards](https://www.opened.com/search?category=matter-and-its-interactions-k-5&grade_group=elementary&standard=2.PS1.2&standard_group=next-generation-science-standards)
- <http://ivdiscoveryzone.org/PrePostResources/Second%20Grade/2%20-%20lesson%20plans/2-PS1-2%20Lesson%20Plan%20%20Testing%20Materials%20to%20met%20an%20Intended%20Purpose.pdf>
- <http://ivdiscoveryzone.org/PrePostResources/Second%20Grade/2%20-%20lesson%20plans/2-PS1-3%20Lesson%20Plan%20%20Make%20observations%20to%20constructing%20solutions%20using%20resources.pdf>
- [http://betterlesson.com/next\\_gen\\_science/browse/2088/ngss-2-ps1-4-construct-an-argument-with-evidence-that-some-changes-caused-by-heating-or-cooling-can-be-reversed-and-some-cannot](http://betterlesson.com/next_gen_science/browse/2088/ngss-2-ps1-4-construct-an-argument-with-evidence-that-some-changes-caused-by-heating-or-cooling-can-be-reversed-and-some-cannot)
- <http://ivdiscoveryzone.org/PrePostResources/Second%20Grade/2%20-%20lesson%20plans/2-PS1-4%20Lesson%20Plan%20Can%20changes%20be%20reversed%20-%20Chemical%20and%20Physical%20Changes.pdf>

**Modifications:** (ELLs, Special Education, Gifted and Talented)

- \* Follow all IEP modifications/504 plan
- \* Teacher tutoring
- \* Peer tutoring
- \* Cooperative learning groups
- \* Modified assignments
- \* Differentiated instruction

**Presentation accommodations allow a student to:**

- \* Listen to audio recordings instead of reading text
- \* Learn content from audiobooks, movies, videos and digital media instead of reading print versions
- \* Work with fewer items per page or line and/or materials in a larger print size
- \* Have a designated reader
- \* Hear instructions orally
- \* Record a lesson, instead of taking notes
- \* Have another student share class notes with him
- \* Be given an outline of a lesson
- \* Use visual presentations of verbal material, such as word webs and visual organizers
- \* Be given a written list of instructions



**Response accommodations allow a student to:**

- \* Give responses in a form (oral or written) that's easier for him
- \* Dictate answers to a scribe
- \* Capture responses on an audio recorder
- \* Use a spelling dictionary or electronic spell-checker
- \* Use a word processor to type notes or give responses in class
- \* Use a calculator or table of "math facts"

**Setting accommodations allow a student to:**

- \* Work or take a test in a different setting, such as a quiet room with few distractions
- \* Sit where he learns best (for example, near the teacher)
- \* Use special lighting or acoustics
- \* Take a test in small group setting
- \* Use sensory tools such as an exercise band that can be looped around a chair's legs (so fidgety kids can kick it and quietly get their energy out)

**Timing accommodations allow a student to:**

- \* Take more time to complete a task or a test
- \* Have extra time to process oral information and directions
- \* Take frequent breaks, such as after completing a task

**Scheduling accommodations allow a student to:**

- \* Take more time to complete a project
- \* Take a test in several timed sessions or over several days
- \* Take sections of a test in a different order
- \* Take a test at a specific time of day

**Organization skills accommodations allow a student to:**

- \* Use an alarm to help with time management
- \* Mark texts with a highlighter
- \* Have help coordinating assignments in a book or planner
- \* Receive study skills instruction

**Assignment modifications allow a student to:**

- \* Complete fewer or different homework problems than peers
- \* Write shorter papers
- \* Answer fewer or different test questions
- \* Create alternate projects or assignments

Curriculum modifications allow a student to:

- \* Learn different material (such as continuing to work on multiplication while classmates move on to fractions)
- \* Get graded or assessed using a different standard than the one for classmates

2015 Long Beach Island Consolidated School District Science Curriculum

**Grade 2**

**Unit: Interdependent Relationships in Ecosystems**

**Do plants and animals need sunlight and water to grow?**

**What are the steps that occur when animals help disperse seeds or aid in pollinating plants?**

**What are observations that can be made about the diversity of living things in different habitats?**

The performance expectations in second grade help students formulate answers to questions such as: “How does land change and what are some things that cause it to change? What are the different kinds of land and bodies of water? How are materials similar and different from one another, and how do the properties of the materials relate to their use? What do plants need to grow? How many types of living things live in a place?” Second grade performance expectations include PS1, LS2, LS4, ESS1, ESS2, and ETS1 Disciplinary Core Ideas from the NRC Framework. Students are expected to develop an understanding of what plants need to grow and how plants depend on animals for seed dispersal and pollination. Students are also expected to compare the diversity of life in different habitats. An understanding of observable properties of materials is developed by students at this level through analysis and classification of different materials. Students are able to apply their understanding of the idea that wind and water can change the shape of the land to compare design solutions to slow or prevent such change. Students are able to use information and models to identify and represent the shapes and kinds of land and bodies of water in an area and where water is found on Earth. The crosscutting concepts of patterns; cause and effect; energy and matter; structure and function; stability and change; and influence of engineering, technology, and science on society and the natural world are called out as organizing concepts for these disciplinary core ideas. In the second grade performance expectations, students are expected to demonstrate gradeappropriate proficiency in developing and using models, planning and carrying out investigations, analyzing and interpreting data, constructing explanations and designing solutions, engaging in argument from evidence, and obtaining, evaluating, and communicating information. Students are expected to use these practices to demonstrate understanding of the core ideas.

The [Grades k -2 Storyline](#) provides a summary of the understandings that students developed by the end of 2nd grade.

#	STUDENT LEARNING OBJECTIVES (SLOs)	Corresponding PEs and DCIs
1	<b>Plan and conduct an investigation to determine if plants need sunlight and water to grow.</b> <i>[Assessment Boundary: Assessment is limited to testing one variable at a time.]</i>	2-LS2-1

2	Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants.	2-LS2-2
3	Make observations of plants and animals to compare the diversity of life in different habitats. <b>[Clarification Statement: Emphasis is on the diversity of living things in each of a variety of different habitats.] [Assessment Boundary: Assessment does not include specific animal and plant names in specific habitats.]</b>	2-LS4-1

The SLOs were developed using the following elements from the NRC document *A Framework for K-12 Science Education*:

### Science and Engineering Practices

#### Developing and Using Models

Modeling in K–2 builds on prior experiences and progresses to include using and developing models (i.e., diagram, drawing, physical replica, diorama, dramatization, or storyboard) that represent concrete events or design solutions.

- Develop a simple model based on evidence to represent a proposed object or tool. (2-LS2-2)

#### Planning and Carrying Out Investigations

Planning and carrying out investigations to answer questions or test solutions to problems in K–2 builds on prior experiences and progresses to simple investigations, based on fair tests, which provide data to support explanations or design solutions.

- Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence to answer a question. (2-LS2-1)
- Make observations (firsthand or from media) to collect data which can be used to make comparisons. (2-LS4-1)

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*Connections to Nature of Science*

### Disciplinary Core Ideas

#### LS2.A: Interdependent Relationships in Ecosystems

- Plants depend on water and light to grow. (2-LS2-1)
- Plants depend on animals for pollination or to move their seeds around. (2-LS2-2)

#### LS4.D: Biodiversity and Humans

- There are many different kinds of living things in any area, and they exist in different places on land and in water. (2-LS4-1)

#### ETS1.B: Developing Possible Solutions

- 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. (secondary to 2-LS2-2)

### Crosscutting Concepts

#### Cause and Effect

- Events have causes that generate observable patterns. (2-LS2-1)

#### Structure and Function

- The shape and stability of structures of natural and designed objects are related to their function(s). (2-LS2-2)

**Scientific Knowledge is Based on Empirical Evidence**

- Scientists look for patterns and order when making observations about the world. (2-LS4-1)

*Connections to other DCIs in second grade: N/A*

*Articulation of DCIs across grade-levels:*

*K.LS1.C (2-LS2-1); K.ESS3.A (2-LS2-1); K.ETS1.A (2-LS2-2); 3.LS4.C (2-LS4-1); 3.LS4.D (2-LS4-1); 5.LS1.C (2-LS2-1); 5.LS2.A (2-LS2-2),(2-LS4-1)*

**21<sup>st</sup> Century Themes:** All students will develop an understanding of the nature and impact of technology, engineering, technological design, and the designed world, as they relate to the individual, global society and the universe.

*Common Core State Standards Connections:*

**ELA/Literacy —**

- W.2.7** *Participate in shared research and writing projects (e.g., read a number of books on a single topic to produce a report; record science observations). (2-LS2-1),(2-LS4-1)*
- W.2.8** *Recall information from experiences or gather information from provided sources to answer a question. (2-LS2-1),(2-LS4-1)*
- SL.2.5** *Create audio recordings of stories or poems; add drawings or other visual displays to stories or recounts of experiences when appropriate to clarify ideas, thoughts, and feelings. (2-LS2-2)*

**Mathematics —**

- MP.2** *Reason abstractly and quantitatively. (2-LS2-1),(2-LS4-1)*
- MP.4** *Model with mathematics. (2-LS2-1),(2-LS2-2),(2-LS4-1)*
- MP.5** *Use appropriate tools strategically. (2-LS2-1)*
- 2.MD.D.10** *Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph. (2-LS2-2),(2-LS4-1)*

<b>Grade Level: 2</b>	<b>Title of Unit: Interdependent Relationships in Ecosystems</b>
<b>Stage 1 - Desired Results</b>	
<p><b>Understandings:</b></p> <p><i>Students will understand that...</i></p> <ol style="list-style-type: none"> <li>1. Events have causes that generate observable patterns.</li> <li>2. The shape and stability of structures of natural and designed objects are related to their function(s).</li> </ol>	<p><b>Essential Questions:</b></p> <ol style="list-style-type: none"> <li>1. Do plants and animals need sunlight and water to grow?</li> <li>2. What are the steps that occur when animals help disperse seeds or aid in pollinating plants?</li> <li>3. What are observations that can be made about the diversity of living things in different habitats?</li> </ol>
<p><b>Knowledge:</b></p> <p><i>Students will know...</i></p> <ul style="list-style-type: none"> <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>● there are many different kinds of living things in any area, and they exist in different places on land and in water</li> </ul>	<p><b>Skills:</b></p> <p><i>Students will be able to...</i></p> <ul style="list-style-type: none"> <li>● Develop a simple model based on evidence to represent a proposed object or tool.</li> <li>● Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence to answer a question.</li> <li>● Make observations (firsthand or from media) to collect data which can be used to make comparisons.</li> <li>● Look for patterns and order when making observations about the world.</li> </ul>
<b>Stage 2- Assessment Evidence</b>	
<b>Performance Tasks and other evidence:</b>	

- Summative Assessments
  - RST- Research Simulation Task
  - Associated Unit tests, quizzes
  - labs and engineering based projects
- Formative Assessments
  - Graphic Organizers & Guided Note Taking
  - Directed Reading
  - Cooperative Group Learning
  - Homework
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### Stage 3 – Learning Plan

**Digital information and technology integration:** Indicate any special considerations as well as materials, resources (online, print, video, audio) or equipment.

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- <http://www.sciencecourseware.org/eec/GlobalWarming/Tutorials/Seasons/> (seasons)
- <http://spaceplace.nasa.gov/science-fair/en/> (science method fair ideas)
- <http://thehappyscientist.com/next-generation-science-standards-second-grade>
- <http://www.hookedonscience.org/nextgenerationsciencestandards.html>
- <https://www.teachingchannel.org/videos/next-generation-science-standards-achieve>
- <http://www.earthsciweek.org/classroom-activities/ngss>
- [http://betterlesson.com/next\\_gen\\_science/browse/2091/ngss-2-ls2-1-plan-and-conduct-an-investigation-to-determine-if-plants-need-sunlight-and-water-to-grow/browse/2091/ngss-2-ls2-1-plan-and-conduct-an-investigation-to-determine-if-plants-need-sunlight-and-water-to-grow?from=domain\\_core](http://betterlesson.com/next_gen_science/browse/2091/ngss-2-ls2-1-plan-and-conduct-an-investigation-to-determine-if-plants-need-sunlight-and-water-to-grow/browse/2091/ngss-2-ls2-1-plan-and-conduct-an-investigation-to-determine-if-plants-need-sunlight-and-water-to-grow?from=domain_core)
- <http://www.exploringnature.org/db/detail.php?dbID=93&detID=3684>
- [https://www.opened.com/search?category=ecosystems-interactions-energy-and-dynamics-k-5&grade=2&grade\\_group=elementary&standard=2.LS2.1&standard\\_group=next-generation-science-standards](https://www.opened.com/search?category=ecosystems-interactions-energy-and-dynamics-k-5&grade=2&grade_group=elementary&standard=2.LS2.1&standard_group=next-generation-science-standards)
- [http://betterlesson.com/next\\_gen\\_science/browse/2092/ngss-2-ls2-2-develop-a-simple-model-that-mimics-the-function-of-an-animal-in-dispersing-seeds-or-pollinating-plants](http://betterlesson.com/next_gen_science/browse/2092/ngss-2-ls2-2-develop-a-simple-model-that-mimics-the-function-of-an-animal-in-dispersing-seeds-or-pollinating-plants)
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- <http://www.exploringnature.org/db/detail.php?dbID=93&detID=3685>

- [https://www.opened.com/search?category=biological-evolution-unity-and-diversity-k-5&grade\\_group=elementary&standard=2.LS4.1&standard\\_group=next-generation-science-standards](https://www.opened.com/search?category=biological-evolution-unity-and-diversity-k-5&grade_group=elementary&standard=2.LS4.1&standard_group=next-generation-science-standards)

**Modifications:** (ELLs, Special Education, Gifted and Talented)

- \* Follow all IEP modifications/504 plan
- \* Teacher tutoring
- \* Peer tutoring
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**Presentation accommodations allow a student to:**

- \* Listen to audio recordings instead of reading text
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2015 Long Beach Island Consolidated School District Science Curriculum

**Grade 2**

**Unit: Earth’s Systems: Processes that Shape the Earth**

**Why do some Earth events happen very slowly or quickly ?**  
**What are different solutions designed to prevent wind or water changing the shape of land?**  
**How can a map represent the shape and kind of water in a specified area?**  
**Where and why is water on Earth found in both solid and liquid form?**

The performance expectations in second grade help students formulate answers to questions such as: “How does land change and what are some things that cause it to change? What are the different kinds of land and bodies of water? How are materials similar and different from one another, and how do the properties of the materials relate to their use? What do plants need to grow? How many types of living things live in a place?” Second grade performance expectations include PS1, LS2, LS4, ESS1, ESS2, and ETS1 Disciplinary Core Ideas from the NRC Framework. Students are expected to develop an understanding of what plants need to grow and how plants depend on animals for seed dispersal and pollination. Students are also expected to compare the diversity of life in different habitats. An understanding of observable properties of materials is developed by students at this level through analysis and classification of different materials. Students are able to apply their understanding of the idea that wind and water can change the shape of the land to compare design solutions to slow or prevent such change. Students are able to use information and models to identify and represent the shapes and kinds of land and bodies of water in an area and where water is found on Earth. The crosscutting concepts of patterns; cause and effect; energy and matter; structure and function; stability and change; and influence of engineering, technology, and science on society and the natural world are called out as organizing concepts for these disciplinary core ideas. In the second grade performance expectations, students are expected to demonstrate gradeappropriate proficiency in developing and using models, planning and carrying out investigations, analyzing and interpreting data, constructing explanations and designing solutions, engaging in argument from evidence, and obtaining, evaluating, and communicating information. Students are expected to use these practices to demonstrate understanding of the core ideas.

The [Grades k -2 Storyline](#) provides a summary of the understandings that students developed by the end of 2nd grade.

u	STUDENT LEARNING OBJECTIVES (SLOs)	Corresponding PEs and DCIs
1	<b>Use information from several sources to provide evidence that Earth events can occur quickly or slowly.</b> [Clarification Statement: Examples of events and timescales could include volcanic explosions and earthquakes, which happen quickly and erosion of rocks, which occurs	2-ESS1-1

	slowly.] [Assessment Boundary: Assessment does not include quantitative measurements of timescales.]	
2	Compare multiple solutions designed to slow or prevent wind or water from changing the shape of the land. [Clarification Statement: Examples of solutions could include different designs of dikes and windbreaks to hold back wind and water, and different designs for using shrubs, grass, and trees to hold back the land.]	2-ESS2-1
3	Develop a model to represent the shapes and kinds of land and bodies of water in an area. [Assessment Boundary: Assessment does not include quantitative scaling in models.]	2-ESS2-2
4	Obtain information to identify where water is found on Earth and that it can be solid or liquid.	2-ESS2-3

The SLOs were developed using the following elements from the NRC document *A Framework for K-12 Science Education*:

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p><b>Developing and Using Models</b> Modeling in K–2 builds on prior experiences and progresses to include using and developing models (i.e., diagram, drawing, physical replica, diorama, dramatization, or storyboard) that represent concrete events or design solutions.</p> <ul style="list-style-type: none"> <li>Develop a model to represent patterns in the natural world. (2-ESS2-2)</li> </ul> <p><b>Constructing Explanations and Designing Solutions</b> Constructing explanations and designing solutions in K–2 builds on prior experiences and progresses to the use of evidence and ideas in constructing evidence-based accounts of natural phenomena and designing solutions.</p> <ul style="list-style-type: none"> <li>Make observations from several sources to construct an evidence-based account for natural phenomena. (2-ESS1-1)</li> <li>Compare multiple solutions to a problem. (2-ESS2-1)</li> </ul> <p><b>Obtaining, Evaluating, and Communicating Information</b></p>	<p><b>ESS1.C: The History of Planet Earth</b></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. (2-ESS1-1)</li> </ul> <p><b>ESS2.A: Earth Materials and Systems</b></p> <ul style="list-style-type: none"> <li>Wind and water can change the shape of the land. (2-ESS2-1)</li> </ul> <p><b>ESS2.B: Plate Tectonics and Large-Scale System Interactions</b></p> <ul style="list-style-type: none"> <li>Maps show where things are located. One can map the shapes and kinds of land and water in any area. (2-ESS2-2)</li> </ul> <p><b>ESS2.C: The Roles of Water in Earth’s Surface Processes</b></p> <ul style="list-style-type: none"> <li>Water is found in the ocean, rivers, lakes, and ponds. Water exists as solid ice and in liquid form. (2-ESS2-3)</li> </ul> <p><b>ETS1.C: Optimizing the Design Solution</b></p>	<p><b>Patterns</b></p> <ul style="list-style-type: none"> <li>Patterns in the natural world can be observed. (2-ESS2-2),(2-ESS2-3)</li> </ul> <p><b>Stability and Change</b></p> <ul style="list-style-type: none"> <li>Things may change slowly or rapidly. (2-ESS2-1)</li> </ul> <p>-----</p> <p style="text-align: center;"><i>Connections to Engineering, Technology, and Applications of Science</i></p> <p><b>Influence of Engineering, Technology, and Science on Society and the Natural World</b></p> <ul style="list-style-type: none"> <li>Developing and using technology has impacts on the natural world. (2-ESS2-1)</li> </ul> <p>-----</p> <p style="text-align: center;"><i>Connections to Nature of Science</i></p>

<p>Obtaining, evaluating, and communicating information in K–2 builds on prior experiences and uses observations and texts to communicate new information.</p> <ul style="list-style-type: none"> <li>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. (2-ESS2-3)</li> </ul>	<ul style="list-style-type: none"> <li>Because there is always more than one possible solution to a problem, it is useful to compare and test designs. (secondary to 2-ESS2-1)</li> </ul>	<p><b>Science Addresses Questions About the Natural and Material World</b></p> <ul style="list-style-type: none"> <li>Scientists study the natural and material world. (2-ESS2-1)</li> </ul>
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<p><i>Connections to other DCIs in second grade:</i>  <b>2.PS1.A (2-ESS2-3)</b></p>
<p><i>Articulation of DCIs across grade-levels:</i>  <b>4.ESS2.A (2-PS1-3); 5.PS1.A (2-PS1-1),(2-PS1-2),(2-PS1-3); 5.PS1.B (2-PS1-4); 5.LS2.A (2-PS1-3)</b></p>
<p><b>21<sup>st</sup> Century Themes:</b> All students will develop an understanding of the nature and impact of technology, engineering, technological design, and the designed world, as they relate to the individual, global society and the universe.</p>
<p><i>Common Core State Standards Connections:</i>  <b>ELA/Literacy —</b></p> <p><b>RI.2.1</b> Ask and answer such questions as <i>who, what, where, when, why, and how</i> to demonstrate understanding of key details in a text. (2-ESS1-1)</p> <p><b>RI.2.3</b> Describe the connection between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text. (2-ESS1-1),(2-ESS2-1)</p> <p><b>RI.2.9</b> Compare and contrast the most important points presented by two texts on the same topic. (2-ESS2-1)</p> <p><b>W.2.6</b> With guidance and support from adults, use a variety of digital tools to produce and publish writing, including in collaboration with peers. (2-ESS1-1),(2-ESS2-3)</p> <p><b>W.2.7</b> Participate in shared research and writing projects (e.g., read a number of books on a single topic to produce a report; record science observations). (2-ESS1-1)</p> <p><b>W.2.8</b> Recall information from experiences or gather information from provided sources to answer a question. (2-ESS1-1),(2-ESS2-3)</p>

**SL.2.2** *Recount or describe key ideas or details from a text read aloud or information presented orally or through other media. (2-ESS1-1)*

**SL.2.5** *Create audio recordings of stories or poems; add drawings or other visual displays to stories or recounts of experiences when appropriate to clarify ideas, thoughts, and feelings. (2-ESS2-2)*

**Mathematics —**

**MP.2** *Reason abstractly and quantitatively. (2-ESS1-1),(2-ESS2-1),(2-ESS2-2)*

**MP.4** *Model with mathematics. (2-ESS1-1),(2-ESS2-1),(2-ESS2-2)*

**MP.5** *Use appropriate tools strategically. (2-ESS2-1)*

**2.NBT.A** *Understand place value. (2-ESS1-1)*

**2.NBT.A.3** *Read and write numbers to 1000 using base-ten numerals, number names, and expanded form. (2-ESS2-2)*

**2.MD.B.5** *Use addition and subtraction within 100 to solve word problems involving lengths that are given in the same units, e.g., by using drawings (such as drawings of rulers) and equations with a symbol for the unknown number to represent the problem. (2-ESS2-1)*

<b>Grade Level: 2</b>	<b>Title of Unit: Earth's Systems: Processes that Shape the Earth</b>
<b>Stage 1 - Desired Results</b>	
<p><b>Understandings:</b></p> <p><i>Students will understand that...</i></p> <ol style="list-style-type: none"> <li>1. Patterns in the natural world can be observed.</li> <li>2. Things may change slowly or rapidly.</li> <li>3. Developing and using technology has impacts on the natural world.</li> </ol>	<p><b>Essential Questions:</b></p> <ol style="list-style-type: none"> <li>1. Why do some Earth events happen very slowly or quickly ?</li> <li>2. What are different solutions designed to prevent wind or water changing the shape of land?</li> <li>3. How can a map represent the shape of land and kind of water in a specified area?</li> <li>4. Where and why is water on Earth found in both solid and liquid form?</li> </ol>
<p><b>Knowledge:</b></p> <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</li> <li>• 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</li> <li>• water exists as solid ice and in liquid form</li> <li>• it is useful to compare and test designs when there is more than one solution to a problem</li> </ul>	<p><b>Skills:</b></p> <p><i>Students will be able to...</i></p> <ul style="list-style-type: none"> <li>• Develop a model to represent patterns in the natural world.</li> <li>• Make observations from several sources to construct an evidence-based account for natural phenomena.</li> <li>• Compare multiple solutions to a problem.</li> <li>• 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.</li> </ul>

## Stage 2- Assessment Evidence

### Performance Tasks and other evidence:

- Summative Assessments
  - RST- Research Simulation Task
  - Associated Unit tests, quizzes
  - labs and engineering based projects
- Formative Assessments
  - Graphic Organizers & Guided Note Taking
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- <http://www.sciencecourseware.org/eec/GlobalWarming/Tutorials/Seasons/> (seasons)
- <http://spaceplace.nasa.gov/science-fair/en/> (science method fair ideas)
- <http://thehappyscientist.com/next-generation-science-standards-second-grade>
- <http://www.hookedonscience.org/nextgenerationsciencestandards.html>
- <https://www.teachingchannel.org/videos/next-generation-science-standards-achieve>
- <http://www.earthsciweek.org/classroom-activities/ngss>
- [http://betterlesson.com/next\\_gen\\_science/browse/2097/ngss-2-ess1-1-use-information-from-several-sources-to-provide-evidence-that-earth-events-can-occur-quickly-or-slowly](http://betterlesson.com/next_gen_science/browse/2097/ngss-2-ess1-1-use-information-from-several-sources-to-provide-evidence-that-earth-events-can-occur-quickly-or-slowly)
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**2015 Long Beach Island Consolidated School District Science Curriculum**

**Grade 2**

**Unit: Engineering and Design**

**How are asking questions, gathering information, and making observation helpful when thinking about problems?**

**How does sketching or creating a model to illustrate its shape help solve a given problem?**

**How does testing a model determine its strengths and weaknesses in solving a given problem?**

The performance expectations in second grade help students formulate answers to questions such as: “How does land change and what are some things that cause it to change? What are the different kinds of land and bodies of water? How are materials similar and different from one another, and how do the properties of the materials relate to their use? What do plants need to grow? How many types of living things live in a place?” Second grade performance expectations include PS1, LS2, LS4, ESS1, ESS2, and ETS1 Disciplinary Core Ideas from the NRC Framework. Students are expected to develop an understanding of what plants need to grow and how plants depend on animals for seed dispersal and pollination. Students are also expected to compare the diversity of life in different habitats. An understanding of observable properties of materials is developed by students at this level through analysis and classification of different materials. Students are able to apply their understanding of the idea that wind and water can change the shape of the land to compare design solutions to slow or prevent such change. Students are able to use information and models to identify and represent the shapes and kinds of land and bodies of water in an area and where water is found on Earth. The crosscutting concepts of patterns; cause and effect; energy and matter; structure and function; stability and change; and influence of engineering, technology, and science on society and the natural world are called out as organizing concepts for these disciplinary core ideas. In the second grade performance expectations, students are expected to demonstrate gradeappropriate proficiency in developing and using models, planning and carrying out investigations, analyzing and interpreting data, constructing explanations and designing solutions, engaging in argument from evidence, and obtaining, evaluating, and communicating information. Students are expected to use these practices to demonstrate understanding of the core ideas.

The [Grades k -2 Storyline](#) provides a summary of the understandings that students developed by the end of 2nd grade.

#	STUDENT LEARNING OBJECTIVES (SLOs)	Corresponding PEs and DCIs
1	<b>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.</b>	K-2-ETS-1-1

2	<b>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.</b>	K-2-ETS1-2
3	<b>Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.</b>	K-2-ETS1-3

The SLOs were developed using the following elements from the NRC document *A Framework for K-12 Science Education*:

<b>Science and Engineering Practices</b>	<b>Disciplinary Core Ideas</b>	<b>Crosscutting Concepts</b>
<p><b>Asking Questions and Defining Problems</b> Asking questions and defining problems in K–2 builds on prior experiences and progresses to simple descriptive questions.</p> <ul style="list-style-type: none"> <li>Ask questions based on observations to find more information about the natural and/or designed world(s). (K-2-ETS1-1)</li> <li>Define a simple problem that can be solved through the development of a new or improved object or tool. (K-2-ETS1-1)</li> </ul> <p><b>Developing and Using Models</b> Modeling in K–2 builds on prior experiences and progresses to include using and developing models (i.e., diagram, drawing, physical replica, diorama, dramatization, or storyboard) that represent concrete events or design solutions.</p> <ul style="list-style-type: none"> <li>Develop a simple model based on evidence to represent a proposed object or tool. (K-2-ETS1-2)</li> </ul> <p><b>Analyzing and Interpreting Data</b> Analyzing data in K–2 builds on prior experiences and progresses to collecting, recording, and sharing observations.</p> <ul style="list-style-type: none"> <li>Analyze data from tests of an object or tool to determine if it works as intended. (K-2-ETS1-3)</li> </ul>	<p><b>ETS1.A: Defining and Delimiting Engineering Problems</b></p> <ul style="list-style-type: none"> <li>A situation that people want to change or create can be approached as a problem to be solved through engineering. (K-2-ETS1-1)</li> <li>Asking questions, making observations, and gathering information are helpful in thinking about problems. (K-2-ETS1-1)</li> <li>Before beginning to design a solution, it is important to clearly understand the problem. (K-2-ETS1-1)</li> </ul> <p><b>ETS1.B: Developing Possible Solutions</b></p> <ul style="list-style-type: none"> <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. (K-2-ETS1-2)</li> </ul> <p><b>ETS1.C: Optimizing the Design Solution</b></p> <ul style="list-style-type: none"> <li>Because there is always more than one possible solution to a problem, it is useful to compare and test designs. (K-2-ETS1-3)</li> </ul>	<p><b>Structure and Function</b></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). (K-2-ETS1-2)</li> </ul>

**Connections to K-2-ETS1.B: Developing Possible Solutions to Problems include:**

**Second Grade: 2-LS2-2**

**Connections to K-2-ETS1.C: Optimizing the Design Solution include:**

**Second Grade: 2-ESS2-1**

**Articulation of DCIs across grade-levels:**

**3-5.ETS1.A (K-2-ETS1-1),(K-2-ETS1-2),(K-2-ETS1-3); 3-5.ETS1.B (K-2-ETS1-2),(K-2-ETS1-3); 3-5.ETS1.C (K-2-ETS1-1),(K-2-ETS1-2),(K-2-ETS1-3)**

**21<sup>st</sup> Century Themes:** All students will develop an understanding of the nature and impact of technology, engineering, technological design, and the designed world, as they relate to the individual, global society and the universe.

**Common Core State Standards Connections:**

**ELA/Literacy —**

- RI.2.1** Ask and answer such questions as *who, what, where, when, why, and how* to demonstrate understanding of key details in a text. (K-2-ETS1-1)
- W.2.6** With guidance and support from adults, use a variety of digital tools to produce and publish writing, including in collaboration with peers. (K-2-ETS1-1),(K-2-ETS1-3)
- W.2.8** Recall information from experiences or gather information from provided sources to answer a question. (K-2-ETS1-1),(K-2-ETS1-3)
- SL.2.5** Create audio recordings of stories or poems; add drawings or other visual displays to stories or recounts of experiences when appropriate to clarify ideas, thoughts, and feelings. (K-2-ETS1-2)

**Mathematics —**

- MP.2** Reason abstractly and quantitatively. (K-2-ETS1-1),(K-2-ETS1-3)
- MP.4** Model with mathematics. (K-2-ETS1-1),(K-2-ETS1-3)
- MP.5** Use appropriate tools strategically. (K-2-ETS1-1),(K-2-ETS1-3)
- 2.MD.D.10** Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph. (K-2-ETS1-1),(K-2-ETS1-3)

<b>Grade Level: 2</b>	<b>Title of Unit: Engineering and Design</b>
<b>Stage 1 - Desired Results</b>	
<p><b>Understandings:</b></p> <p><i>Students will understand that...</i></p> <ol style="list-style-type: none"> <li>1. The shape and stability of structures of natural and designed objects are related to their function(s).</li> </ol>	<p><b>Essential Questions:</b></p> <ol style="list-style-type: none"> <li>1. How are asking questions, gathering information, and making observation helpful when thinking about problems?</li> <li>2. How does sketching or creating a model to illustrate its shape help solve a given problem?</li> <li>3. How does testing a model determine its strengths and weaknesses in solving a given problem?</li> </ol>
<p><b>Knowledge:</b></p> <p><i>Students will know...</i></p> <ul style="list-style-type: none"> <li>• A situation that people want to change or create can be approached as a problem to be solved through engineering.</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><b>Skills:</b></p> <p><i>Students will be able to...</i></p> <ul style="list-style-type: none"> <li>• Ask questions based on observations to find more information about the natural and/or designed world(s).</li> <li>• Define a simple problem that can be solved through the development of a new or improved object or tool.</li> <li>• Develop a simple model based on evidence to represent a proposed object or tool.</li> <li>• Analyze data from tests of an object or tool to determine if it works as intended.</li> </ul>
<b>Stage 2- Assessment Evidence</b>	
<p><b>Performance Tasks and other evidence:</b></p> <ul style="list-style-type: none"> <li>• Summative Assessments <ul style="list-style-type: none"> <li>o RST- Research Simulation Task</li> </ul> </li> </ul>	

- o Associated Unit tests, quizzes
- o labs and engineering based projects
- Formative Assessments
  - o Graphic Organizers & Guided Note Taking
  - o Directed Reading
  - o Cooperative Group Learning
  - o Homework
  - o Journal Entries

### Stage 3 – Learning Plan

**Digital information and technology integration:** Indicate any special considerations as well as materials, resources (online, print, video, audio) or equipment.

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- [http://betterlesson.com/common\\_core/browse/2105/ngss-k-2-ets1-1-ask-questions-make-observations-and-gather-information-about-a-situation-people-want-to-change-to-define-a-simpl](http://betterlesson.com/common_core/browse/2105/ngss-k-2-ets1-1-ask-questions-make-observations-and-gather-information-about-a-situation-people-want-to-change-to-define-a-simpl)
- [http://betterlesson.com/next\\_gen\\_science/browse/2107/ngss-k-2-ets1-3-analyze-data-from-tests-of-two-objects-designed-to-solve-the-same-problem-to-compare-the-strengths-and-weaknesse](http://betterlesson.com/next_gen_science/browse/2107/ngss-k-2-ets1-3-analyze-data-from-tests-of-two-objects-designed-to-solve-the-same-problem-to-compare-the-strengths-and-weaknesse)
- <http://www.asee.org/documents/conferences/k12/2011/07/17-Ready-for-Primary-Time.pdf>
- <http://teachers.egfi-k12.org/>
- <http://www.maryville-schools.org/site/Default.aspx?PageID=4713>
- <https://www.teachengineering.org/>
- <http://app15c.aws.livebinders.com/play/play?id=137603>
- <http://www.hookedonscience.org/nextgenerationssciencestandards.html>
- <http://www.propertiesofmatter.si.edu/>
- <http://www.resa.net/curriculum/curriculum/science/professionaldevelopment/ngss-pd/lesson-plans-exploring-ngss/>
- <http://moodle.tbaisd.org/course/view.php?id=1021>
- <https://www.sciencea-z.com/scienceweb/nationalstandards.do>
- <http://www.science4us.com/k-2-science-lesson-plans/>
- <http://www.calacademy.org/educators/science-lesson-plans-for-kindergarten-and-1st-grade>
- <http://climatekids.nasa.gov/science-standards/>
- <https://www.teachingchannel.org/videos/next-generation-science-standards-achieve>

- <http://www.earthsciweek.org/classroom-activities/ngss>

**Modifications:** (ELLs, Special Education, Gifted and Talented)

- \* Follow all IEP modifications/504 plan
- \* Teacher tutoring
- \* Peer tutoring
- \* Cooperative learning groups
- \* Modified assignments
- \* Differentiated instruction

**Presentation accommodations allow a student to:**

- \* Listen to audio recordings instead of reading text
- \* Learn content from audiobooks, movies, videos and digital media instead of reading print versions
- \* Work with fewer items per page or line and/or materials in a larger print size
- \* Have a designated reader
- \* Hear instructions orally
- \* Record a lesson, instead of taking notes
- \* Have another student share class notes with him
- \* Be given an outline of a lesson
- \* Use visual presentations of verbal material, such as word webs and visual organizers
- \* Be given a written list of instructions

**Response accommodations allow a student to:**

- \* Give responses in a form (oral or written) that's easier for him
- \* Dictate answers to a scribe
- \* Capture responses on an audio recorder
- \* Use a word processor to type notes or give responses in class
- \* Use a calculator or table of "math facts"

**Setting accommodations allow a student to:**

- \* Work or take a test in a different setting, such as a quiet room with few distractions
- \* Sit where he learns best (for example, near the teacher)
- \* Use special lighting or acoustics
- \* Take a test in small group setting
- \* Use sensory tools such as an exercise band that can be looped around a chair's legs (so fidgety kids can kick it and quietly get their energy out)

**Timing accommodations allow a student to:**

- \* Take more time to complete a task or a test
- \* Have extra time to process oral information and directions
- \* Take frequent breaks, such as after completing a task

**Scheduling accommodations allow a student to:**

- \* Take more time to complete a project
- \* Take a test in several timed sessions or over several days
- \* Take sections of a test in a different order
- \* Take a test at a specific time of day

**Organization skills accommodations allow a student to:**

- \* Mark texts with a highlighter
- \* Have help coordinating assignments in a book or planner
- \* Receive study skills instruction

**Assignment modifications allow a student to:**

- \* Complete fewer or different homework problems than peers
- \* Write shorter papers
- \* Answer fewer or different test questions
- \* Create alternate projects or assignments

**Curriculum modifications allow a student to:**

- \* Learn different material (such as continuing to work on multiplication while classmates move on to fractions)
- \* Get graded or assessed using a different standard than the one for classmates