

Moonachie School District Science Curriculum: Grade 2

New Jersey Student Learning Standards for Science

Born On: August 23, 2022
Re-Adopted: August 26, 2025

Unit 1 Overview

Relationships in Habitats

Grade: 2

Content Area: Life Science

Pacing: 15 days

Essential Question

Why do we see different living things in different habitats?

Student Learning Objectives (Performance Expectations)

[2-LS4-1: Make observations of plants and animals to compare the diversity of life in different habitats.](#)

[2-LS2-1: Plan and conduct an investigation to determine if plants need sunlight and water to grow.](#)

[2-LS2-2: Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants.](#)

Unit Summary

In this unit of study, students develop an understanding of what plants need to grow and how plants depend on animals for seed dispersal and pollination. Students also compare the diversity of life in different habitats. The crosscutting concepts of cause and effect and structure and function are called out as organizing concepts for these disciplinary core ideas. Students demonstrate grade-appropriate proficiency in planning and carrying out investigations and developing and using models. Students are also expected to use these practices to demonstrate understanding of the core ideas.

Technical Terms

Organisms, Ecology, Molecules, Structures, Processes, Ecosystems, Heredity, Inheritance, Traits, Biological Evolution, Unity, Diversity, Roots, Stem, Leaves, Flowers, Fruits, Habitat, Environment, Reproduce, Cells, Bio-mimicry, Pollination

Formative Assessment Measures

Part A: How does the diversity of plants and animals compare among different habitats?

Students who understand the concepts can:

- Look for patterns and order when making observations about the world.
- Make observations (firsthand or from media) to collect data that can be used to make comparisons
- Make observations of plants and animals to compare the diversity of life in different habitats. (Note: The emphasis is on the diversity of living things in each of a variety of different habitats; assessment does not include specific animal and plant names in specific habitats.)

Part B: What do plants need to live and grow?

Students who understand the concepts can:

- Observe patterns in events generated by cause-and-effect relationships.
- Plan and conduct an investigation collaboratively to produce data to serve as a basis for evidence to answer a question.
- Plan and conduct an investigation to determine whether plants need sunlight and water to grow. (Note: Assessment is limited to one variable at a time.)

Part C: Why do some plants rely on animals for reproduction?

Students who understand the concepts can:

- Describe how the shape and stability of structures are related to their function.
- Develop a simple model based on evidence to represent a proposed object or tool.
- Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants.

- *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.*

Interdisciplinary Connections

NJSL- ELA	NJSL- Mathematics
W.WR.2.5. Generate questions about a topic and locate related information from a reference source to obtain information on that topic through shared and independent research.	MP.2: Reason abstractly and quantitatively. MP.4: Model with mathematics. MP.5: Use appropriate tools strategically. 2.DL.B.4: 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
W.SE.2.6. Prioritize information provided by different sources on the same topic while gathering ideas and planning to write about a topic.	
W.RW.2.7. Engage in both collaborative and independent writing tasks regularly, including extended and shorter time frames	
SL.UM.2.5. Use multimedia; add drawings or other visual displays to stories or recounts of experiences when appropriate to clarify ideas, thoughts, and feelings	
SL.PE.2.1. Participate in collaborative conversations with diverse partners about grade 2 topics and texts with peers and adults in small and larger groups	
RI.CR.2.1. Ask and answer questions to demonstrate understanding of key details in an informational text, referring explicitly to the text as the basis for the answers	

Core Instructional Materials	SAVVAS K-12 Experience Science and Lab Materials
-------------------------------------	--

Career Readiness, Life Literacies and Key Skills	9.4.2.CT.3: Use a variety of types of thinking to solve problems (e.g., inductive, deductive). 9.4.2.IML.2: Represent data in a visual format to tell a story about the data (e.g., 2.MD.D.10). 9.4.2.DC.7: Describe actions peers can take to positively impact climate change (e.g., 6.3.2.CivicsPD.1).
---	---

Computer Science and Design Thinking	8.1.2.DA.1: Collect and present data, including climate change data, in various visual formats. 8.2.2.ITH.3: Identify how technology impacts or improves life. 8.2.2.ETW.2: Identify the natural resources needed to create a product.
---	--

Modifications

Multilingual Learners	Special Education	At Risk for School Failure	Gifted and Talented	504
------------------------------	--------------------------	-----------------------------------	----------------------------	------------

Scaffolding	Word walls	Teacher tutoring	Curriculum compacting	Word walls
Word walls	Visual aides	Peer tutoring	Challenge assignments	Visual aides
Sentence/paragraph frames	Graphic organizers	Study guides	Enrichment activities	Graphic organizers
Bilingual dictionaries/translation	Multimedia	Graphic organizers	Tiered activities	Multimedia
Think alouds	Leveled readers	Extended time	Independent research/inquiry	Leveled readers
Read alouds	Assistive technology	Parent communication	Collaborative teamwork	Assistive technology
Highlight key vocabulary	Notes/summaries	Modified assignments	Higher level questioning	Notes/summaries
Annotation guides	Extended time	Counseling	Critical/Analytical thinking tasks	Extended time
Think-pair- share	Answer masking		Self-directed activities	Answer masking
Visual aides	Answer eliminator			Answer eliminator
Modeling	Highlighter			Highlighter
Cognates	Color contrast			Color contrast
				Parent communication
				Modified assignments
				Counseling

Grade 2 Unit 1: Relationships in Habitats

2-LS4-1: Biological Evolution: Unity and Diversity

2-LS4-1: Make observations of plants and animals to compare the diversity of life in different habitats.

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.

Evidence Statement: 1-LS4-1

Science & Engineering Practices	Disciplinary Core Ideas	Cross-Cutting Concepts
<p><u>Planning and Carrying Out Investigations</u> <u>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.</u></p> <p><u>Make observations (firsthand or from media) to collect data which can be used to make comparisons.</u></p> <p>Connections to Nature of Science Scientific Knowledge is Based on Empirical Evidence Scientists look for patterns and order when making observations about the world.</p>	<p><u>LS4.D: Biodiversity and Humans</u> <u>There are many different kinds of living things in any area, and they exist in different places on land and in water.</u></p>	

Connections to other DCIs in this grade-band: N/A

Articulation of DCIs across grade-bands: 3.LS4.C ; 3.LS4.D ; 5.LS2.A

2-LS4-1: Make observations of plants and animals to compare the diversity of life in different habitats.

Engage Anticipatory Set	<p><u>What Is a Habitat: Video</u> https://www.youtube.com/watch?v=CxrlEajA398</p> <p><u>BrainPOP: Habitats</u> https://jr.brainpop.com/search/?keyword=habitats</p> <p><u>Habitat Song</u> https://www.youtube.com/watch?v=VVPyjukPxFA</p> <p><u>What is a Habitat: Lesson</u> In this introductory lesson, students will determine a definition for the word "habitat". http://betterlesson.com/lesson/636582/what-is-a-habitat?from=search_lesson_title</p>
Exploration Student Inquiry	<p><u>What is Your Habitat</u> In this lesson, students will write a paragraph to explain the characteristics of a habitat. http://betterlesson.com/lesson/605235/what-is-your-habitat?from=search_lesson_title *Prior to beginning this lesson, students should either pick or be assigned an animal to research.</p> <p><u>Habitat Hunt</u> In this lesson, students will actively collect data from observations of plant and animal life in a simulated environment. http://betterlesson.com/lesson/630104/habitat-hunt *Lesson can be altered by centering the classroom into four different habits instead of using four classrooms.</p> <p><u>Who Lives Where? What Grows Where?</u> In this lesson, students become animal and plant experts as they explore and compare plant and animal life near water with that in the desert. http://clearintotheclassroom.com/wp-content/uploads/2013/12/CITC_LessonsWhoLivesWhereWhatGrowsWhere.pdf</p>
Explanation Concepts and Practices	<p><u>In these lessons:</u> Teachers should: Introduce formal labels, definitions, and explanations for concepts, practices, skills or abilities. Students should: Verbalize conceptual understandings and demonstrate scientific and engineering practices. Topics to Be Discussed in Teacher Directed Lessons (Disciplinary Core Ideas): 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.</p>
Elaboration Extension Activity	<p><u>Adapting to the Rainforest</u> In this lesson, students choose an animal and portray their adaptation to the rainforest http://betterlesson.com/lesson/636109/adapting-to-the-rainforest</p>
Evaluation Assessment Tasks	<p><u>Assessment Task A: Lesson, Who Lives Where? What Grows Where?</u> Make observations (firsthand or from media) to collect data which can be used to make comparisons.</p>

	<p>1. Students will create collages or murals representing both environments. Students may caption their work.</p> <p>2. For a differentiated assessment, provide various images from both habitats and have students sort and label.</p> <p>Benchmark Assessment: SAVVAS</p> <p>Formative Assessment: Entrance Slip, Exit Slip, Student Reflection, Math Accountable Talk, Whiteboard Work, Drawing Journal</p> <p>Summative Assessment: Topic Review, Topic Test, Quick Check, Performance Task</p> <p>Alternate Assessment: Manipulative Based Task, Open Ended Project, Choice Board, Turn and Talk, Sorting Activity, Picture based assessment</p>
--	---

Grade 2 Unit 1: Relationships in Habitats

2-LS2-1: Ecosystems: Interactions, Energy and Dynamics

2-LS2-1: Plan and conduct an investigation to determine if plants need sunlight and water to grow.

Clarification Statement: N/A

Assessment Boundary: Assessment is limited to testing one variable at a time.

Evidence Statements: 2-LS2-1

Science & Engineering Practices	Disciplinary Core Ideas	Cross-Cutting Concepts
<p><u>Planning and Carrying Out Investigations</u> <u>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.</u></p> <p><u>Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence to answer a question.</u></p>	<p><u>LS2.A: Interdependent Relationships in Ecosystems</u> <u>Plants depend on water and light to grow.</u></p>	<p><u>Cause and Effect</u> <u>Events have causes that generate observable patterns.</u></p>

Connections to other DCIs in this grade-band: N/A

Articulation of DCIs across grade-bands: K.LS1.C ; K.ESS3.A ; 5.LS1.C

5E Model

2-LS2-1: Plan and conduct an investigation to determine if plants need sunlight and water to grow.

Engage Anticipatory Set	<p>BrainPOP: Plant Life Cycle https://jr.brainpop.com/science/plants/plantlifecycle/</p> <p>The Needs of a Plant: Song https://www.youtube.com/watch?v=dUBIQ1fTRzI</p>
Exploration Student Inquiry	<p>Survival of a Plant</p> <p>In this lesson, students will recognize that plants need sunlight and water to grow.</p>

	<p>http://betterlesson.com/lesson/626914/survival-of-a-plant?from=search_lesson_title</p> <p><u>Photosynthesis...How It All Works</u> In this lesson, students will explore the concept of photosynthesis and plant survival. https://betterlesson.com/lesson/642400/photosynthesis-how-it-all-works</p> <p><u>Do Plants Need Sunlight?</u> Students will explore the importance of sunlight for a plant's survival by covering a plant's leaves with black construction paper and making observations of the plant's leaves over the next several days. http://ngss.nsta.org/Resource.aspx?ResourceID=217</p>
Explanation Concepts and Practices	<p>In these lessons: Teachers should: Introduce formal labels, definitions, and explanations for concepts, practices, skills or abilities. Students should: Verbalize conceptual understandings and demonstrate scientific and engineering practices. Topics to Be Discussed in Teacher Directed Lessons (Disciplinary Core Ideas): LS2.A: Interdependent Relationships in Ecosystems Plants depend on water and light to grow.</p>
Elaboration Extension Activity	<p><u>Plants Drink Water</u> In this lesson, students will conduct an experiment to visualize how plants absorb the water in the ground around them. http://betterlesson.com/lesson/639594/plants-drink-water?from=search_lesson_title</p> <p><u>Will My Carrot Top Grow Plants?</u> Students will investigate the process of growing plants in sand, gravel, or liquid, with added nutrients but without soil (hydroponics). http://betterlesson.com/lesson/630172/will-my-carrot-top-grow-plants?from=search_lesson_title</p>
Evaluation Assessment Tasks	<p><u>Assessment Task A: Survival of a Plant</u> Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence to answer a question. Students will complete the Lab Sheet before, during, and after the investigation. (Plant lab sheet) Benchmark Assessment: SAVVAS Formative Assessment: Entrance Slip, Exit Slip, Student Reflection, Math Accountable Talk, Whiteboard Work, Drawing Journal Summative Assessment: Topic Review, Topic Test, Quick Check, Performance Task Alternate Assessment: Manipulative Based Task, Open Ended Project, Choice Board, Turn and Talk, Sorting Activity, Picture based assessment</p>

Grade 2 Unit 1: Relationships in Habitats

2-LS2-2: Ecosystems: Interactions, Energy and Dynamics

[2-LS2-2: Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants.](#)

Clarification Statement: N/A

Assessment Boundary: N/A

Evidence Statements: 2-LS2-2

Science & Engineering Practices	Disciplinary Core Ideas	Cross-Cutting Concepts
<p>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.</p> <p><u>Develop a simple model based on evidence to represent a proposed object or tool.</u></p>	<p>LS2.A: Interdependent Relationships in Ecosystems Plants depend on animals for pollination or to move their seeds around.</p> <p>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)</p>	<p>Structure and Function The shape and stability of structures of natural and designed objects are related to their function(s).</p>

Connections to other DCIs in this grade-band: N/A

Articulation of DCIs across grade-bands: K.ETS1.A ; 5.LS2.A

5E Model

2-LS2-2: Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants.

<p>Engage Anticipatory Set</p>	<p><u>Read Aloud: The Tiny Seed by Eric Carle</u> https://www.youtube.com/watch?v=ls6wTeT2cKA</p> <p><u>How Do Seeds Travel?</u> In this introductory lesson, students will ask and answer questions to understand key details in an informational text. http://betterlesson.com/lesson/593776/how-do-seeds-travel?from=search_lesson_title</p>
<p>Exploration Student Inquiry</p>	<p><u>We Are Going On a Walk! A Seed Walk!</u> In this lesson, students will explain and understand the five different types of seed dispersal. http://betterlesson.com/lesson/639267/we-are-going-on-a-walk-a-seed-walk?from=search_lesson_title</p> <p><u>Seeds on the Move: Interactions and Energy</u> In this lesson, students will explain and diagram how animals help with seed dispersal and how a disruption in this symbiotic relationship could impact plants and/or animals. http://betterlesson.com/lesson/621839/seeds-on-the-move-interactions-and-energy?from=search_lesson_title</p> <p><u>Creating a Model for Seed Dispersion</u> In this lesson, students will design a system to spread seeds around the classroom http://betterlesson.com/lesson/637814/creating-a-model-for-seed-dispersal?from=search_lesson_title</p>
<p>Explanation Concepts and Practices</p>	<p><u>In these lessons:</u> Teachers should: Introduce formal labels, definitions, and explanations for concepts, practices, skills or abilities. Students should: Verbalize conceptual understandings and demonstrate scientific and engineering practices. Topics to Be Discussed in Teacher Directed Lessons (Disciplinary Core Ideas): <u>LS2.A: Interdependent Relationships in Ecosystems</u></p>

	<p>Plants depend on animals for pollination or to move their seeds around.</p> <p>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)</p>
Elaboration Extension Activity	<p><u>Create Animals that Disperse Seeds</u> In this lesson, students will create a model of an animal that helps disperse seeds. http://betterlesson.com/lesson/634057/creating-animals-that-disperse-seeds?from=search_lesson_title</p>
Evaluation Assessment Tasks	<p><u>Assessment Task A: We Are Going On a Walk! A Seed Walk!</u> Develop a simple model based on evidence to represent a proposed object or tool. "Following the Seed Walk lesson, teams will take turns and share with the class how their method of seed dispersal helps plants to continue to grow." "</p> <p><u>Assessment Task B: Create Animals that Disperse Seeds</u> Students will complete Seed Dispersal Storyboard.</p> <p><u>Assessment Task C: Creating a Model for Seed Dispersion</u> Students will build models that mimic the function of an animal in dispersing seeds or pollinating plants. Benchmark Assessment: SAVVAS Formative Assessment: Entrance Slip, Exit Slip, Student Reflection, Math Accountable Talk, Whiteboard Work, Drawing Journal Summative Assessment: Topic Review, Topic Test, Quick Check, Performance Task Alternate Assessment: Manipulative Based Task, Open Ended Project, Choice Board, Turn and Talk, Sorting Activity, Picture based assessment</p>

Grade 2 Unit 1: Relationships in Habitats

K-2-ETS1-1: Engineering Design

K-2-ETS1-1: Ask questions, make observations, and gather information about a situation people want to change (e.g., climate change) to define a simple problem that can be solved through the development of a new or improved object or tool.

Clarification Statement: N/A

Assessment Boundary: N/A

Evidence Statements: K-2-ETS1-1

Science & Engineering Practices	Disciplinary Core Ideas	Cross-Cutting Concepts
<p>Asking Questions and Defining Problems Asking questions and defining problems in K-2 builds on prior experiences and progresses to simple descriptive questions. Ask questions based on observations to find more</p>	<p>ETS1.A: Defining and Delimiting Engineering Problems A situation that people want to change or create can be approached as a problem to be solved through engineering. (K-2- ETS1-1) Ask questions, make observations, and gather information about a</p>	

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.	situation people want to change (e.g., climate change) to define a simple problem that can be solved through the development of a new or improved object or tool. (K-2- ETS1-1) Before beginning to design a solution, it is important to clearly understand the problem. (K-2- ETS1-1)	
Connections to other DCIs in this grade-band: Kindergarten- K-PS2-2, K-ESS3-2		
Articulation of DCIs across grade-bands: 3-5.ETS1.A ; 3-5.ETS1.C		

Unit 2 Overview
Properties of Matter
Grade: 2
Content Area: Physical Science
Pacing: 20 days
Essential Question
How do the properties of materials determine their use?
Student Learning Objectives (Performance Expectations)
2-PS1-1: Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties.
2-PS1-2: Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose.*
Unit Summary
In this unit of study, students demonstrate an understanding of observable properties of materials through analysis and classification of different materials. The crosscutting concepts of patterns, cause and effect, and the influence of engineering, technology, and science on society and the natural world are called out as organizing concepts for these disciplinary core ideas. Students demonstrate grade-appropriate proficiency in planning and carrying out investigations and analyzing and interpreting data. Students are also expected to use these practices to demonstrate understanding of the core ideas.
Technical Terms
Properties, Matter, Solid, Liquid, Gas, Plasma, Mass, Hardness, Conductivity, Reaction, Mixture, Temperature, Weight, Volume, Size, Description, Characteristics, Shape, Space, Density
Formative Assessment Measures
<i>Part A: How can we sort objects into groups that have similar patterns? Can some materials be a solid or a liquid?</i>
Students who understand the concepts can: <ul style="list-style-type: none"> • Observe patterns in the natural and human-designed world. • Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence to answer a question. • Plan and conduct an investigation to describe and classify different kinds of material by their observable properties. • Observations could include color, texture, hardness, and flexibility. Patterns could include the similar properties that different materials share.
<i>Part B: What should the three little pigs have used to build their houses?</i>
Students who understand the concepts can: <ul style="list-style-type: none"> • Observe patterns in the natural and human-designed world.

- Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence to answer a question.
- Plan and conduct an investigation to describe and classify different kinds of material by their observable properties.
- Observations could include color, texture, hardness, and flexibility. Patterns could include the similar properties that different materials share.

Interdisciplinary Connections

NJSL- ELA	NJSL- Mathematics
RI.CT.2.8. Compare and contrast two informational versions of the same idea or topic by different authors or authors from different cultures	MP.2 Reason abstractly and quantitatively. MP.4 Model with mathematics.
W.WR.2.5. Generate questions about a topic and locate related information from a reference source to obtain information on that topic through shared and independent research	MP.5 Use appropriate tools strategically.
W.RW.2.7. Engage in both collaborative and independent writing tasks regularly, including extended and shorter time frames.	2.DL.B.4: 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
SL.PE.2.1. Participate in collaborative conversations with diverse partners about grade 2 topics and texts with peers and adults in small and larger groups	

Core Instructional Materials	SAVVAS K-12 Experience Science and Lab Materials
Career Readiness, Life Literacies and Key Skills	9.4.2.CT.2: Identify possible approaches and resources to execute a plan (e.g., 1.2.2.CR1b, 8.2.2.ED.3). 9.4.2.TL.6: Illustrate and communicate ideas and stories using multiple digital tools (e.g., SL.2.5.). 9.4.2.CT.3: Use a variety of types of thinking to solve problems (e.g., inductive, deductive).
Computer Science and Design Thinking	8.1.2.DA.3: Identify and describe patterns in data visualizations. 8.2.2.ITH.1: Identify products that are designed to meet human wants or needs. 8.1.2.DA.4: Make predictions based on data using charts or graphs.

Modifications

Multilingual Learners	Special Education	At Risk for School Failure	Gifted and Talented	504
------------------------------	--------------------------	-----------------------------------	----------------------------	------------

Scaffolding	Word walls	Teacher tutoring	Curriculum compacting	Word walls
Word walls	Visual aides	Peer tutoring	Challenge assignments	Visual aides
Sentence/paragraph frames	Graphic organizers	Study guides	Enrichment activities	Graphic organizers
Bilingual dictionaries/translation	Multimedia	Graphic organizers	Tiered activities	Multimedia
Think alouds	Leveled readers	Extended time	Independent research/inquiry	Leveled readers
Read alouds	Assistive technology	Parent communication	Collaborative teamwork	Assistive technology
Highlight key vocabulary	Notes/summaries	Modified assignments	Higher level questioning	Notes/summaries
Annotation guides	Extended time	Counseling	Critical/Analytical thinking tasks	Extended time
Think-pair-share	Answer masking		Self-directed activities	Answer masking
Visual aides	Answer eliminator			Answer eliminator
Modeling	Highlighter			Highlighter
Cognates	Color contrast			Color contrast
				Parent communication
				Modified assignments
				Counseling

Grade 2 Unit 2: Properties of Matter

2-PS1-1: Matter and Its Interactions

2-PS1-1: Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties.

Clarification Statement: Observations could include color, texture, hardness, and flexibility. Patterns could include the similar properties that different materials share.

Assessment Boundary: N/A

Evidence Statements: [2-PS1-1](#)

Science & Engineering Practices	Disciplinary Core Ideas	Cross-Cutting Concepts
<p>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.</p> <p>Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence to answer a question.</p>	<p>PS1.A: Structure and Properties of Matter 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.</p>	<p>Patterns Patterns in the natural and human designed world can be observed.</p>

Connections to other DCIs in this grade-band: N/A

Articulation of DCIs across grade-bands: 5.PS1.A

5E Model

2-PS1-1: Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties.

Engage	Crash Course Kids: What's Matter?
--------	-----------------------------------

Anticipatory Set	<p>In this episode of Crash Course Kids, Sabrina talks about what matter is and the three states of matter: Solid, Liquid, and Gas. She also does a quick experiment that you can do at home to prove that air is matter. https://www.youtube.com/watch?v=ELchwUllWa8</p> <p><u>Study Jams: Matter (Scroll to Matter Tab)</u> http://studyjams.scholastic.com/studyjams/jams/science/index.htm</p> <p><u>The Matter Song</u> https://www.youtube.com/watch?v=jQ5VbjWetUE</p>
Exploration Student Inquiry	<p><u>Ways to Classify Objects</u> Students often classify objects by size and shape. In this lesson, students will look more at other properties of objects including hardness, flexibility and texture. http://betterlesson.com/lesson/634510/ways-to-classify-objects</p> <p><u>Material Engineers</u> In this two part lesson, students will sort materials based on given properties (flexibility, hardness and absorbency), establish testing criteria and discuss procedures to test materials for these specific properties. http://betterlesson.com/lesson/639141/materials-engineers-part-1?from=search_lesson_title http://betterlesson.com/lesson/639173/material-engineers-part-2</p>
Explanation Concepts and Practices	<p><u>In these lessons:</u> Teachers should: Introduce formal labels, definitions, and explanations for concepts, practices, skills or abilities. Students should: Verbalize conceptual understandings and demonstrate scientific and engineering practices. Topics to Be Discussed in Teacher Directed Lessons (Disciplinary Core Ideas): <u>PS1.A: Structure and Properties of Matter</u> <u>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.</u></p>
Elaboration Extension Activity	<p><u>Additional Related Activities</u> http://ngss.nsta.org/DisplayStandard.aspx?view=topic&id=7</p>
Evaluation Assessment Tasks	<p><u>Assessment Task A: Ways to Classify Objects</u> Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence to answer a question. Students will participate in the investigation and complete the Classifying Journal.</p> <p><u>Assessment Task B: Material Engineers</u> Students will complete the investigation and complete the Lab Booklet. Benchmark Assessment: SAVVAS Formative Assessment: Entrance Slip, Exit Slip, Student Reflection, Math Accountable Talk, Whiteboard Work, Drawing Journal Summative Assessment: Topic Review, Topic Test, Quick Check, Performance Task Alternate Assessment: Manipulative Based Task, Open Ended Project, Choice Board, Turn and Talk, Sorting</p>

Grade 2 Unit 2: Properties of Matter

2-PS1-2: Matter and Its Interactions

2-PS1-2: Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose.*

Clarification Statement: Examples of properties could include, strength, flexibility, hardness, texture, and absorbency.

Assessment Boundary: Assessment of quantitative measurements is limited to length.

Evidence Statements: 2-PS1-2

Science & Engineering Practices	Disciplinary Core Ideas	Cross-Cutting Concepts
<p>Analyzing and Interpreting Data <u>Analyzing data in K–2 builds on prior experiences and progresses to collecting, recording, and sharing observations.</u></p> <p><u>Analyze data from tests of an object or tool to determine if it works as intended.</u></p>	<p>PS1.A: Structure and Properties of Matter <u>Different properties are suited to different purposes.</u></p>	<p>Cause and Effect <u>Simple tests can be designed to gather evidence to support or refute student ideas about causes.</u></p> <p>Connections to Engineering, Technology, and Applications of Science Influence of Engineering, Technology, and Science, on Society and the Natural World <u>Every human-made product is designed by applying some knowledge of the natural world and is built using materials derived from the natural world.</u></p>

Connections to other DCIs in this grade-band: N/A

Articulation of DCIs across grade-bands: 5.PS1.A

5E Model

2-PS1-2: Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose.*

Engage Anticipatory Set	<p><u>What Makes a Bridge So Strong?</u> https://www.youtube.com/watch?v=oVOnRPefcno</p> <p>Following this video, teacher can ask students questions about the materials used and how building with different materials would work or not work.</p>
Exploration Student Inquiry	<p><u>What Is It Used For?</u> Some materials are better suited to a job than others. In this lesson, students will design ways to test the materials to see how they can best be used. http://betterlesson.com/lesson/635422/what-is-it-used-for</p> <p><u>Testing Tower Materials</u> In this two part lesson, students will create a tower and test its strength to analyze how well a material is suited for building. Student will learn how scientists choose materials for certain jobs based on the properties of those materials and will explore why properties</p>

	<p>of matter are important. http://betterlesson.com/lesson/635162/testing-tower-materials-part-1?from=search_lesson_title http://betterlesson.com/lesson/635163/testing-tower-materials-part-2</p> <p><u>Building a Model Roller Coaster</u> In this lesson, students will choose the best materials to create a model roller coaster. In doing so, students will learn that some materials are better suited to a job than others. http://betterlesson.com/lesson/635419/building-a-model-roller-coaster?from=search_lesson_title</p> <p><u>Understanding Materials, Shapes and Changes</u> This lesson will provide an assessment of student understanding of the importance of how shape and materials make a difference to the function of an object. http://betterlesson.com/lesson/636571/understanding-materials-shapes-and-changes?from=search_lesson_title</p>
<p>Explanation Concepts and Practices</p>	<p><u>In these lessons:</u> Teachers should: Introduce formal labels, definitions, and explanations for concepts, practices, skills or abilities. Students should: Verbalize conceptual understandings and demonstrate scientific and engineering practices. Topics to Be Discussed in Teacher Directed Lessons (Disciplinary Core Ideas): PS1.A: Structure and Properties of Matter Different properties are suited to different purposes.</p>
<p>Elaboration Extension Activity</p>	<p><u>Additional Related Activities</u> http://ngss.nsta.org/DisplayStandard.aspx?view=pe&id=60</p>
<p>Evaluation Assessment Tasks</p>	<p><u>Assessment Task A: Testing Towers (part 2)</u> Analyze data from tests of an object or tool to determine if it works as intended. Students will complete the investigation and record predictions and observations on the journal page. Following the investigation, students will write in their own journals about why one of their towers might have been stronger than another.</p> <p><u>Assessment Task B: Building a Model Roller Coaster</u> Students will engage in the design process to create a Model Roller Coaster.</p> <p><u>Assessment Task C: Understanding Materials, Shapes and Changes</u> Students will complete the flying toy journal throughout the investigation. Benchmark Assessment: SAVVAS Formative Assessment: Entrance Slip, Exit Slip, Student Reflection, Math Accountable Talk, Whiteboard Work, Drawing Journal Summative Assessment: Topic Review, Topic Test, Quick Check, Performance Task Alternate Assessment: Manipulative Based Task, Open Ended Project, Choice Board, Turn and Talk, Sorting Activity, Picture based assessment</p>

Grade 2 Unit 2: Properties of Matter

K-2-ETS1-3: Engineering Design

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

Clarification Statement: N/A

Assessment Boundary: N/A

Evidence Statement: K-2-ETS1-3

Science & Engineering Practices	Disciplinary Core Ideas	Cross-Cutting Concepts
<p><u>Analyzing and Interpreting Data</u> <u>Analyzing data in K–2 builds on prior experiences and progresses to collecting, recording, and sharing observations.</u> <u>Analyze data from tests of an object or tool to determine if it works as intended.</u></p>	<p><u>ETS1.C: Optimizing the Design Solution</u> <u>Because there is always more than one possible solution to a problem, it is useful to compare and test designs.</u></p>	

Connections to other DCIs in this grade-band: Second Grade- 2-ESS2-1

Articulation of DCIs across grade-bands: 3-5.ETS1.A ; 3-5.ETS1.C

Unit 3 Overview

Changes to Matter

Grade: 2

Content Area: Physical Science

Pacing: 15 days

Essential Questions

How can objects change? Are all changes reversible?

Student Learning Objectives (Performance Expectations)

2-PS1-3: 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.

2-PS1-4: Construct an argument with evidence that some changes caused by heating or cooling can be reversed and some cannot.

Unit Summary

In this unit of study, students continue to develop an understanding of observable properties of materials through analysis and classification of different materials. The crosscutting concepts of cause and effect and energy and matter are called out as organizing concepts for these disciplinary core ideas. Students are expected to demonstrate grade-appropriate proficiency in constructing explanations, designing solutions, and engaging in argument from evidence. Students are also expected to use these practices to demonstrate understanding of the core ideas

Technical Terms

Separate, Dissolve, Physical Change, Chemical Change, Heating, Cooling, Reversible Change, Irreversible Change

Formative Assessment Measures

Part A: In what ways can an object made of a small set of pieces be disassembled and made into a new object?

Students who understand the concepts are able to:

- Break objects into smaller pieces and put them together into larger pieces or change shapes.
- Make observations (firsthand or from media) to construct an evidence-based account for natural phenomena.
- 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.

Part B: Can all changes caused by heating or cooling be reversed?

- Observe patterns in events generated due to cause-and-effect relationships.
- Construct an argument with evidence to support a claim.
- Construct an argument with evidence that some changes caused by heating or cooling can be reversed, and some cannot.
- 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, Heating paper

Interdisciplinary Connections

NJSL- ELA	NJSL- Mathematics
<p>RI.CR.2.1. Ask and answer questions to demonstrate understanding of key details in an informational text, referring explicitly to the text as the basis for the answers.</p> <p>RI.IT.2.3. Describe the connection between a series of historical events, scientific ideas or concepts, or steps in a sequence within a text.</p> <p>RI.AA.2.7. Describe and identify the logical connections of how reasons support specific points the author makes in a text.</p> <p>W.AW.2.1. With prompts and support, write opinion pieces to present an idea with reasons or information</p> <p>W.RW.2.7. Engage in both collaborative and independent writing tasks regularly, including extended and shorter time frames.</p> <p>SL.PE.2.1. Participate in collaborative conversations with diverse partners about grade 2 topics and texts with peers and adults in small and larger groups</p>	<p>N/A</p>

Core Instructional Materials SAVVAS K-12 Experience Science and Lab Materials

Career Readiness, Life Literacies and Key Skills 9.4.2.IML.1: Identify a simple search term to find information in a search engine or digital resource.
 9.4.2.TL.7: Describe the benefits of collaborating with others to complete digital tasks or develop digital artifacts (e.g., W.2.6., 8.2.2.ED.2).
 9.4.2.TL.7: Describe the benefits of collaborating with others to complete digital tasks or develop digital artifacts (e.g., W.2.6., 8.2.2.ED.2).

Computer Science and Design 8.2.2.ITH.2: Explain the purpose of a product and its value.

Thinking	8.2.2.ETW.2: Identify the natural resources needed to create a product. 8.2.2.ETW.4: Explain how the disposal of or reusing a product affects the local and global environment.			
Modifications				
Multilingual Learners	Special Education	At Risk of School Failure	Gifted and Talented	504
Scaffolding Word walls Sentence/paragraph frames Bilingual dictionaries/translation Think alouds Read alouds Highlight key vocabulary Annotation guides Think-pair- share Visual aides Modeling Cognates	Word walls Visual aides Graphic organizers Multimedia Leveled readers Assistive technology Notes/summaries Extended time Answer masking Answer eliminator Highlighter Color contrast	Teacher tutoring Peer tutoring Study guides Graphic organizers Extended time Parent communication Modified assignments Counseling	Curriculum compacting Challenge assignments Enrichment activities Tiered activities Independent research/inquiry Collaborative teamwork Higher level questioning Critical/Analytical thinking tasks Self-directed activities	Word walls Visual aides Graphic organizers Multimedia Leveled readers Assistive technology Notes/summaries Extended time Answer masking Answer eliminator Highlighter Color contrast Parent communication Modified assignments Counseling

Grade 2 Unit 3: Changes to Matter

2-PS1-3: Matter and Its Interactions

[2-PS1-3: 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.](#)

Clarification Statement: Examples of pieces could include blocks, building bricks, or other assorted small objects.

Assessment Boundary: N/A

Evidence Statements: 2-PS1-3

Science & Engineering Practices	Disciplinary Core Ideas	Cross-Cutting Concepts
<p>Constructing Explanations and Designing Solutions 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> <p>Make observations (firsthand or from media) to construct an evidence-based account for natural phenomena.</p>	<p>PS1.A: Structure and Properties of Matter Different properties are suited to different purposes. A great variety of objects can be built up from a small set of pieces.</p>	<p>Energy and Matter Objects may break into smaller pieces and be put together into larger pieces, or change shapes</p>

Connections to other DCIs in this grade-band: N/A	
Articulation of DCIs across grade-bands: 4.ESS2.A ; 5.PS1.A ; 5.LS2.A	
5E Model	
2-PS1-3: 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.	
Engage Anticipatory Set	<p><u>Building Things in Different Ways</u> Objects that are made of small pieces can be taken apart and reassembled another way. In this lesson, students will build different designs using the same materials. http://betterlesson.com/lesson/635840/building-things-in-different-ways</p> <p><u>Take it Apart, Put It Together</u> In this lesson, students will reinforce their understanding that things can be taken apart and recombined in novel ways. http://betterlesson.com/lesson/636201/take-it-apart-put-it-together</p>
Exploration Student Inquiry	<p><u>Thousands of Tiny Pieces Can Make Something Big!</u> In this lesson, students will learn that a larger item can be built from small pieces and that it can then be disassembled and made into something new. http://betterlesson.com/lesson/636230/thousands-of-tiny-pieces-can-create-something-big</p> <p><u>We Can Create From Tiny Pieces, Too!</u> In this lesson, students will build a tower from smaller pieces. http://betterlesson.com/lesson/636252/we-can-create-from-tiny-pieces-too</p>
Explanation Concepts and Practices	<p><u>In these lessons:</u> Teachers should: Introduce formal labels, definitions, and explanations for concepts, practices, skills or abilities. Students should: Verbalize conceptual understandings and demonstrate scientific and engineering practices. Topics to Be Discussed in Teacher Directed Lessons (Disciplinary Core Ideas): PS1.A: Structure and Properties of Matter Different properties are suited to different purposes. A great variety of objects can be built up from a small set of pieces.</p>
Elaboration Extension Activity	<p><u>Let Go of my Lego</u> In this lesson, students use their imagination to create a Lego car. This investigation allows students to see that they can put items together to create some new product. http://betterlesson.com/lesson/640432/let-go-of-my-lego</p>
Evaluation Assessment Tasks	<p><u>Assessment Task A: Take It Apart, Put It Together: Journal Entry</u> Make observations (firsthand or from media) to construct an evidence-based account for natural phenomena.</p> <p><u>Assessment Task B: We Can Create From Tiny Pieces Too!: Tower Presentation</u> Benchmark Assessment: SAVVAS Formative Assessment: Entrance Slip, Exit Slip, Student Reflection, Math Accountable Talk, Whiteboard Work, Drawing Journal</p>

Summative Assessment: Topic Review, Topic Test, Quick Check, Performance Task
Alternate Assessment: Manipulative Based Task, Open Ended Project, Choice Board, Turn and Talk, Sorting Activity, Picture based assessment

Grade 2 Unit 3: Changes to Matter

2-PS1-4: Matter and Its Interactions

[2-PS1-4: Construct an argument with evidence that some changes caused by heating or cooling can be reversed and some cannot.](#)

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.

Assessment Boundary: N/A

[Evidence Statements: 2-PS1-4](#)

Science & Engineering Practices	Disciplinary Core Ideas	Cross-Cutting Concepts
<p><u>Engaging in Argument from Evidence</u> <u>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).</u> <u>Construct an argument with evidence to support a claim.</u></p> <p>Connections to Nature of Science Science Models, Laws, Mechanisms, and Theories Explain Natural Phenomena Science searches for cause and effect relationships to explain natural events.</p>	<p><u>PS1.B: Chemical Reactions</u> <u>Heating or cooling a substance may cause changes that can be observed. Sometimes these changes are reversible, and sometimes they are not.</u></p>	<p><u>Cause and Effect</u> <u>Events have causes that generate observable patterns.</u></p>

Connections to other DCIs in this grade-band: N/A

Articulation of DCIs across grade-bands: 5.PS1.B

5E Model

[2-PS1-4: Construct an argument with evidence that some changes caused by heating or cooling can be reversed and some cannot.](#)

<p>Engage Anticipatory Set</p>	<p>Changing States: Heating and Cooling _____ Using this interactive activity, students will explore the effect of heating and cooling and whether or not these effects can be reversed. http://www.bbc.co.uk/schools/scienceclips/ages/9_10/changing_state.shtml</p> <p>Reversible and Irreversible Changes http://www.bbc.co.uk/bitesize/ks2/science/materials/reversible_irreversible_changes/read/1/</p>
<p>Exploration</p>	<p><u>Matter and Heat: Reversible Changes</u></p>

Student Inquiry	<p>In this lesson, students will learn that adding or removing heat to material can be reversible. Students will make claims as to whether the materials tested changed properties when heat was added and will support their claim with observations. http://betterlesson.com/lesson/639235/matter-and-heat-reversible-changes</p> <p><u>Matter and Heat: Irreversible Changes</u> In this lesson, students will learn that adding or removing heat to material can be irreversible. Students will make claims as to whether the materials tested changed properties when heat was added and will support their claim with observations. http://betterlesson.com/lesson/639234/matter-and-heat-irreversible-changes</p> <p><u>Hot and Cold</u> In this lesson, students will collect data on how some changes caused by cold or heat are irreversible and some are not. http://betterlesson.com/lesson/636315/hot-and-cold</p> <p><u>Heat It Up, Cool it Down</u> In this two-day lesson, students will demonstrate the effect of temperature on changes in matter caused by heating and cooling. https://www.wardsci.com/www.wardsci.com/images/Gr_2_temp_probe.pdf</p>
Explanation Concepts and Practices	<p><u>In these lessons:</u> Teachers should: Introduce formal labels, definitions, and explanations for concepts, practices, skills or abilities. Students should: Verbalize conceptual understandings and demonstrate scientific and engineering practices. Topics to Be Discussed in Teacher Directed Lessons (Disciplinary Core Ideas): PS1.B: Chemical Reactions Heating or cooling a substance may cause changes that can be observed. Sometimes these changes are reversible, and sometimes they are not.</p>
Elaboration Extension Activity	<p><u>Chemical Reaction: Reversible or Irreversible (Shutterfly Photo Story Lesson Plan)</u> https://cdn.staticfly.com/i/photostoryclassroom/lessonplans/2_Science_Reversible_or_Irreversible.pdf</p>
Evaluation Assessment Tasks	<p><u>Assessment Task A: Matter and Heat: Reversible & Irreversible Changes- Observation Sheets</u> Construct an argument with evidence to support a claim.</p> <p><u>Assessment Task B: Hot and Cold: Chart of Results and Concluding Statement</u></p> <p><u>Assessment Task C: Heat It Up, Cool It Down- Temperature Probe Data Collection & Graph</u> Benchmark Assessment: SAVVAS Formative Assessment: Entrance Slip, Exit Slip, Student Reflection, Math Accountable Talk, Whiteboard Work, Drawing Journal Summative Assessment: Topic Review, Topic Test, Quick Check, Performance Task Alternate Assessment: Manipulative Based Task, Open Ended Project, Choice Board, Turn and Talk, Sorting</p>

Unit 4 Overview**The Earth's Land and Water****Grade: 2****Content Area: Earth and Space Science****Pacing: 15 days****Essential Question**

Where do we find water?

Student Learning Objectives (Performance Expectations)**2-ESS2-3: Obtain information to identify where water is found on Earth and that it can be solid or liquid.****2-ESS2-2: Develop a model to represent the shapes and kinds of land and bodies of water in an area.****Unit Summary**

In this unit of study, students 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 concept of patterns is called out as an organizing concept for these disciplinary core ideas. Students demonstrate grade-appropriate proficiency in developing and using models and obtaining, evaluating, and communicating information. Students are also expected to use these practices to demonstrate understanding of the core ideas.

Technical Terms

Continents (North, South, Africa, Europe, Asia, Australia, Antarctica), Oceans (Atlantic, Pacific, Indian, Arctic, Southern), Mountain, Fjord, Island, Plain, Peninsula, Glaciers, Icebergs, Ice Caps, Outback, Freshwater, Saltwater, Lakes, Ponds, Rivers, Streams, Reservoir

Formative Assessment Measures***Part A: How can we identify where water is found on Earth and if it is solid or liquid?***

Students who understand the concepts are able to:

- *Observe patterns in the natural world.*
- *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.*
- *Obtain information to identify where water is found on Earth and to communicate that it can be a solid or liquid.*

Part B: In what ways can you represent the shapes and kinds of land and bodies of water in an area?

Students who understand the concepts are able to:

- *Observe patterns in the natural world.*
- *Develop a model to represent patterns in the natural world.*
- *Develop a model to represent the shapes and kinds of land and bodies of water in an area. (Assessment does not include quantitative scaling in models.)*

Interdisciplinary Connections**NJSLS- ELA****NJSLS- Mathematics**

W.RW.2.7. Engage in both collaborative and independent writing tasks regularly, including extended and shorter time frames	MP.2 Reason abstractly and quantitatively. MP.4 Model with mathematics.
SL.PE.2.1. Participate in collaborative conversations with diverse partners about grade 2 topics and texts with peers and adults in small and larger groups	2.NBT.A.2: Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.
SL.UM.2.5. Use multimedia; add drawings or other visual displays to stories or recounts of experiences when appropriate to clarify ideas, thoughts, and feelings	2.M.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.

Core Instructional Materials	SAVVAS K-12 Experience Science and Lab Materials
-------------------------------------	--

Career Readiness, Life Literacies and Key Skills	9.4.2.CT.1: Gather information about an issue, such as climate change, and collaboratively brainstorm ways to solve the problem (e.g., K-2-ETS1-1, 6.3.2.GeoGI.2). 9.4.2.CT.2: Identify possible approaches and resources to execute a plan (e.g., 1.2.2.CR1b, 8.2.2.ED.3). 9.4.2.DC.7: Describe actions peers can take to positively impact climate change (e.g., 6.3.2.CivicsPD.1). 9.4.2.IML.3: Use a variety of sources including multimedia sources to find information about topics such as climate change, with guidance and support from adults (e.g., 6.3.2.GeoGI.2, 6.1.2.HistorySE.3, W.2.6, 1-LSI-2).
---	--

Computer Science and Design Thinking	8.1.2.DA.4: Make predictions based on data using charts or graphs. 8.2.2.ITH.5: Design a solution to a problem affecting the community in a collaborative team and explain the intended impact of the solution. 8.2.2.ETW.4: Explain how the disposal of or reusing a product affects the local and global environment.
---	---

Modifications				
----------------------	--	--	--	--

Multilingual Learners	Special Education	At Risk for School Failure	Gifted and Talented	504
Scaffolding	Word walls	Teacher tutoring	Curriculum compacting	Word walls
Word walls	Visual aides	Peer tutoring	Challenge assignments	Visual aides
Sentence/paragraph frames	Graphic organizers	Study guides	Enrichment activities	Graphic organizers
Bilingual dictionaries/translation	Multimedia	Graphic organizers	Tiered activities	Multimedia
Think alouds	Leveled readers	Extended time	Independent research/inquiry	Leveled readers
Read alouds	Assistive technology	Parent communication	Collaborative teamwork	Assistive technology
Highlight key vocabulary	Notes/summaries	Modified assignments	Higher level questioning	Notes/summaries
Annotation guides	Extended time	Counseling	Critical/Analytical thinking tasks	Extended time
Think-pair- share	Answer masking		Self-directed activities	Answer masking
Visual aides	Answer eliminator			Answer eliminator
Modeling	Highlighter			Highlighter
Cognates	Color contrast			Color contrast
				Parent communication

				Modified assignments Counseling
--	--	--	--	------------------------------------

Grade 2 Unit 4: The Earth's Land and Water

2-ESS2-3: Earth's Systems

2-ESS2-3: Obtain information to identify where water is found on Earth and that it can be solid or liquid.

Clarification Statement: N/A

Assessment Boundary: N/A

Evidence Statements: 2-ESS2-3

Science & Engineering Practices	Disciplinary Core Ideas	Cross-Cutting Concepts
<p>Obtaining, Evaluating, and Communicating Information Obtaining, evaluating, and communicating information in K–2 builds on prior experiences and uses observations and texts to communicate new information.</p> <p>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.</p>	<p>ESS2.C: The Roles of Water in Earth’s Surface Processes Water is found in the ocean, rivers, lakes, and ponds. Water exists as solid ice and in liquid form.</p>	

Connections to other DCIs in this grade-band: 2.PS1.A

Articulation of DCIs across grade-bands: 5.ESS2.C

5E Model

2-ESS2-3: Obtain information to identify where water is found on Earth and that it can be solid or liquid.

Engage Anticipatory Set	<p>BrainPOP: Continents and Oceans https://jr.brainpop.com/science/land/continentsandoceans/</p> <p>Crash Course Kids Videos: The Basics of Freshwater and Water, Water Everywhere https://www.youtube.com/watch?v=oaQCiwzjnCM https://www.youtube.com/watch?v=SkAhB-8CtZg</p> <p>Bodies of Water https://www.youtube.com/watch?v=bNWuQD7QHbc</p> <p>Informational Text: A World of Ice and Water & Distribution of Water http://www.ck12.org/na/A-World-of-Ice-and-Water-2-1/lesson/A-World-of-Ice-and-Water-SCIGR2/ http://www.ck12.org/user%3Aa2VuLmphY29iQGJpc2VkdS5vci5pZA../book/G6-Earth-Science-Topics-at-BIS/section/2.70/</p> <p>What Are Glaciers? http://study.com/academy/lesson/what-are-glaciers-types-facts-pictures.html</p>
--------------------------------	--

<p>Exploration Student Inquiry</p>	<p><u>The Earth is Mostly Water</u> In this lesson, students will define several types of bodies of water found on earth. http://betterlesson.com/lesson/631459/the-earth-is-mostly-water</p> <p><u>What Is The Difference Between Bodies of Water</u> In this lesson, students will differentiate between different forms of bodies of water. http://betterlesson.com/lesson/632255/what-is-the-difference-between-bodies-of-water</p> <p><u>Where is Water Found on Earth?</u> In this lesson, students will collaborate as a team to locate forms of water on Earth. http://betterlesson.com/lesson/635801/where-is-water-found-on-earth</p> <p><u>Scientists Share Information</u> In this lesson, students will share information gathered from research by creating a booklet about the forms of water. http://betterlesson.com/lesson/635823/scientists-share-information</p> <p><u>Water on Earth: Liquid or Solid?</u> In this lesson, students will identify where they might find liquid or solid water on earth and explain why. http://betterlesson.com/lesson/633683/water-on-earth-liquid-or-solid</p>
<p>Explanation Concepts and Practices</p>	<p><u>In these lessons:</u> Teachers should: Introduce formal labels, definitions, and explanations for concepts, practices, skills or abilities. Students should: Verbalize conceptual understandings and demonstrate scientific and engineering practices. Topics to Be Discussed in Teacher Directed Lessons (Disciplinary Core Ideas): ESS2.C: The Roles of Water in Earth’s Surface Processes Water is found in the ocean, rivers, lakes, and ponds. Water exists as solid ice and in liquid form.</p>
<p>Elaboration Extension Activity</p>	<p><u>Locating Examples of Rivers, Lakes and Glaciers on a World Map</u> In this lesson, students discover that water can be found as a liquid or solid on all the continents, and indicate the location of some of these water features on a world map. http://betterlesson.com/lesson/636124/locating-examples-of-rivers-lakes-and-glaciers-on-a-world-map</p> <p><u>Additional Related Activities</u> http://www.earthsciweek.org/ngss-performance-expectations/2-ess2-3 https://www.opened.com/search?standard=2.ESS2.3</p>
<p>Evaluation Assessment Tasks</p>	<p><u>Assessment Task A</u> 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.</p> <ul style="list-style-type: none"> - Student Facts and Resources Sharing - Comparison Poem - Forms of Water Booklet - Solid and Liquid Water on Earth: Drawings

Benchmark Assessment: SAVVAS
Formative Assessment: Entrance Slip, Exit Slip, Student Reflection, Math Accountable Talk, Whiteboard Work, Drawing Journal
Summative Assessment: Topic Review, Topic Test, Quick Check, Performance Task
Alternate Assessment: Manipulative Based Task, Open Ended Project, Choice Board, Turn and Talk, Sorting Activity, Picture based assessment

Grade 2 Unit 4: The Earth's Land and Water

2-ESS2-2: Earth's Systems

2-ESS2-2: Develop a model to represent the shapes and kinds of land and bodies of water in an area.

Clarification Statement: N/A

Assessment Boundary: Assessment does not include quantitative scaling in models.

Evidence Statements: 2-ESS2-2

Science & Engineering Practices	Disciplinary Core Ideas	Cross-Cutting Concepts
<p>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. <u>Develop a model to represent patterns in the natural world.</u></p>	<p>ESS2.B: Plate Tectonics and Large-Scale System Interactions Maps show where things are located. One can map the shapes and kinds of land and water in any area.</p>	<p>Patterns <u>Patterns in the natural world can be observed.</u></p>

Connections to other DCIs in this grade-band: N/A

Articulation of DCIs across grade-bands: 4.ESS2.B ; 5.ESS2.C

5E Model

2-ESS2-2: Develop a model to represent the shapes and kinds of land and bodies of water in an area.

<p>Engage Anticipatory Set</p>	<p>BrainPOP: Landforms https://jr.brainpop.com/science/land/landforms/ Exploring Landforms and Bodies of Water https://www.youtube.com/watch?v=BsqKTJtK_vw</p>
<p>Exploration Student Inquiry</p>	<p>Shapes of the Land In this lesson, students will identify at least three different landforms. http://betterlesson.com/lesson/631670/shapes-of-the-land Creating Models of Landforms and Water</p>

	<p>In this lesson, students will</p> <ul style="list-style-type: none"> - Increase their understanding of the use of models in science - Identify the patterns that scientists use to classify landforms and bodies of water - Create models of landforms and bodies of water <p>https://pmm.nasa.gov/education/sites/default/files/lesson_plan_files/Models%20of%20Land%20and%20Water%20TG.pdf</p> <p><u>Making a Landform Model</u></p> <p>In this lesson, students will develop a model to represent shapes of landforms and bodies of water.</p> <p>http://betterlesson.com/lesson/635819/making-a-landform-model</p> <p><u>Landform Review</u></p> <p>In this lesson, students will define and create a simple model of given landform vocabulary terms.</p> <p>http://betterlesson.com/lesson/635821/landform-review</p>
<p>Explanation Concepts and Practices</p>	<p><u>In these lessons:</u></p> <p>Teachers should: Introduce formal labels, definitions, and explanations for concepts, practices, skills or abilities. Students should: Verbalize conceptual understandings and demonstrate scientific and engineering practices.</p> <p><u>Topics to Be Discussed in Teacher Directed Lessons (Disciplinary Core Ideas):</u></p> <p>ESS2.B: Plate Tectonics and Large-Scale System Interactions</p> <p>Maps show where things are located. One can map the shapes and kinds of land and water in any area.</p>
<p>Elaboration Extension Activity</p>	<p><u>Glacier Maker: Model</u></p> <p>http://www.pbs.org/edens/patagonia/tglacier.htm</p> <p><u>Planning a Landform Model & Making a Map from Our Own Model Islands</u></p> <p>In this lesson, students will create their own model island by first sketching a diagram.</p> <p>http://betterlesson.com/lesson/635822/planning-a-landform-model</p> <p>http://betterlesson.com/lesson/638316/making-a-map-from-our-own-model-islands</p> <p><u>Landforms Expert Research</u></p> <p>SWBAT navigate websites to research an assigned landform</p> <p>http://betterlesson.com/lesson/637660/landform-experts-research</p>
<p>Evaluation Assessment Tasks</p>	<p><u>Assessment Task A</u></p> <p>Develop a model to represent patterns in the natural world.</p> <ul style="list-style-type: none"> - Shapes of the Land: 3D Map - Creating Models of Landforms and Water: 3D Model- Regions - Making a Landform Model: Model and Presentation

	<p>Benchmark Assessment: SAVVAS</p> <p>Formative Assessment: Entrance Slip, Exit Slip, Student Reflection, Math Accountable Talk, Whiteboard Work, Drawing Journal</p> <p>Summative Assessment: Topic Review, Topic Test, Quick Check, Performance Task</p> <p>Alternate Assessment: Manipulative Based Task, Open Ended Project, Choice Board, Turn and Talk, Sorting Activity, Picture based assessment</p>
--	---

Unit 5 Overview	
Changes to Earth's Land	
Grade: 2	
Content: Earth and Space Science	
Pacing: 20 days	
Essential Question	
In what ways do humans slow or prevent wind or water from changing the shape of the land?	
Student Learning Objectives (Performance Expectations)	
2-ESS1-1: Use information from several sources to provide evidence that Earth events can occur quickly or slowly.	
2-ESS2-1: Compare multiple solutions designed to slow or prevent wind or water from changing the shape of the land.*	
Unit Summary	
In this unit of study, students apply their understanding of the idea that wind and water can change the shape of land to compare design solutions to slow or prevent such change. The crosscutting concepts of stability and change; structure and function; and the influence of engineering, technology, and science on society and the natural world are called out as organizing concepts for these disciplinary core ideas. Students demonstrate grade-appropriate proficiency in asking questions and defining problems, developing and using models, and constructing explanations and designing solutions. Students are also expected to use these practices to demonstrate understanding of the core ideas.	
Technical Terms	
Eruption, Magma, Lava, Earthquake, Layers of the Earth (Core, Mantle, Crust), Tectonic Plate, Landslides, Tsunamis, Flood, Hurricane, Wildfire, Weathering, Erosion (i.e. Wind, Water, Soil, etc.), Acid Rain	
Formative Assessment Measures	
<i>Part A: What evidence can we find to prove that Earth events can occur quickly or slowly?</i>	
<i>Students who understand the concepts are able to:</i>	
<ul style="list-style-type: none"> • Make observations from several sources to construct an evidence-based account for natural phenomena. • Use information from several sources to provide evidence that Earth events can occur quickly or slowly. (Assessment does not include quantitative measurements of timescales.) Some examples of these events include: Volcanic explosions, Earthquakes, Erosion of rocks. 	
<i>Part B: In what ways do humans slow or prevent wind or water from changing the shape of the land?</i>	

Students who understand the concepts are able to:

- Compare multiple solutions to a problem.
- Compare multiple solutions designed to slow or prevent wind or water from changing the shape of the land. Examples of solutions could include: Different designs of dikes and windbreaks to hold back wind and water, Different designs for using shrubs, grass, and trees to hold back the land.
- Ask questions based on observations to find more information about the natural and/or designed world.
- 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.
- Define a simple problem that can be solved through the development of a new or improved object or tool.
- Develop a simple model based on evidence to represent a proposed 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.

Interdisciplinary Connections

NJSL- ELA	NJSL- Mathematics
<p>RI.CR.2.1. Ask and answer questions to demonstrate understanding of key details in an informational text, referring explicitly to the text as the basis for the answers</p> <p>RI.IT.2.3. Describe the connection between a series of historical events, scientific ideas or concepts, or steps in a sequence within a text</p> <p>W.SE.2.6. Prioritize information provided by different sources on the same topic while gathering ideas and planning to write about a topic.</p> <p>W.RW.2.7. Engage in both collaborative and independent writing tasks regularly, including extended and shorter time frames</p> <p>SL.PE.2.1. Participate in collaborative conversations with diverse partners about grade 2 topics and texts with peers and adults in small and larger groups</p> <p>SL.II.2.2. Recount or describe key ideas or details from a text read aloud or information presented orally or through other media</p> <p>SL.UM.2.5. Use multimedia; add drawings or other visual displays to stories or recounts of experiences when appropriate to clarify ideas, thoughts, and feelings</p> <p>SL.AS.2.6. Produce complete sentences when appropriate to task and situation in order to provide requested detail or clarification</p>	<p>MP.2 Reason abstractly and quantitatively.</p> <p>MP.4 Model with mathematics.</p> <p>MP.5 Use appropriate tools strategically.</p> <p>2.NBT.A: Understand place value.</p> <p>1. Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones; e.g., 706 equals 7 hundreds, 0 tens, and 6 ones. Understand the following as special cases:</p> <p style="padding-left: 40px;">a. 100 can be thought of as a bundle of ten tens — called a “hundred.”</p> <p style="padding-left: 40px;">b. The numbers 100, 200, 300, 400, 500, 600, 700, 800, 900 refer to one, two, three, four, five, six, seven, eight, or nine hundreds (and 0 tens and 0 ones).</p> <p>2. Count within 1000; skip-count by 5s, 10s, and 100s.</p> <p>3. Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.</p>

<p>RI.CT.2.8. Compare and contrast two informational versions of the same idea or topic by different authors or authors from different cultures.</p>	<p>4. Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using $>$, $=$, and $<$ symbols to record the results of comparisons.</p> <p>2.M.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.</p> <p>2.DL.B.4: 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.</p>			
<p>Core Instructional Materials</p>	<p>SAVVAS K-12 Experience Science and Lab Materials</p>			
<p>Career Readiness, Life Literacies and Key Skills</p>	<p>9.4.2.CT.1: Gather information about an issue, such as climate change, and collaboratively brainstorm ways to solve the problem (e.g., K-2-ETS1-1, 6.3.2.GeoGI.2).</p> <p>9.4.2.IML.2: Represent data in a visual format to tell a story about the data (e.g., 2.MD.D.10).</p> <p>9.4.2.CT.2: Identify possible approaches and resources to execute a plan (e.g., 1.2.2.CR1b, 8.2.2.ED.3).</p>			
<p>Computer Science and Design Thinking</p>	<p>8.1.2.DA.3: Identify and describe patterns in data visualizations.</p> <p>8.2.2.ITH.1: Identify products that are designed to meet human wants or needs.</p> <p>8.2.2.ETW.4: Explain how the disposal of or reusing a product affects the local and global environment.</p> <p>8.1.2.DA.1: Collect and present data, including climate change data, in various visual formats.</p>			
<p>Modifications</p>				
<p>Multilingual Learners</p>	<p>Special Education</p>	<p>At Risk for School Failure</p>	<p>Gifted and Talented</p>	<p>504</p>
<p>Scaffolding Word walls Sentence/paragraph frames Bilingual dictionaries/translation Think alouds Read alouds Highlight key vocabulary Annotation guides Think-pair- share Visual aides Modeling Cognates</p>	<p>Word walls Visual aides Graphic organizers Multimedia Leveled readers Assistive technology Notes/summaries Extended time Answer masking Answer eliminator Highlighter Color contrast</p>	<p>Teacher tutoring Peer tutoring Study guides Graphic organizers Extended time Parent communication Modified assignments Counseling</p>	<p>Curriculum compacting Challenge assignments Enrichment activities Tiered activities Independent research/inquiry Collaborative teamwork Higher level questioning Critical/Analytical thinking tasks Self-directed activities</p>	<p>Word walls Visual aides Graphic organizers Multimedia Leveled readers Assistive technology Notes/summaries Extended time Answer masking Answer eliminator Highlighter Color contrast Parent communication Modified assignments Counseling</p>

Grade 2 Unit 5: Changes to Earth's Land

2-ESS1-1: Earth's Place in the Universe

2-ESS1-1: Use information from several sources to provide evidence that Earth events can occur quickly or slowly.

Clarification Statement: Examples of events and timescales could include volcanic explosions and earthquakes, which happen quickly and erosion of rocks, which occurs slowly.

Assessment Boundary: Assessment does not include quantitative measurements of timescales.

Evidence Statements: 2-ESS1-1

Science & Engineering Practices	Disciplinary Core Ideas	Cross-Cutting Concepts
<p>Constructing Explanations and Designing Solutions 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> <p>Make observations from several sources to construct an evidence-based account for natural phenomena.</p>	<p>ESS1.C: The History of Planet Earth Some events happen very quickly; others occur very slowly, over a time period much longer than one can observe.</p>	<p>Stability and Change Things may change slowly or rapidly.</p>

Connections to other DCIs in this grade-band: N/A

Articulation of DCIs across grade-bands: 3.LS2.C ; 4.ESS1.C ; 4.ESS2.A

5E Model

2-ESS1-1: Use information from several sources to provide evidence that Earth events can occur quickly or slowly.

Engage Anticipatory Set	<p>BrainPOP: Slow Land Changes & Fast Land Changes https://jr.brainpop.com/science/land/slowlandchanges/ https://jr.brainpop.com/science/land/fastlandchanges/</p>
Exploration Student Inquiry	<p>Using Skittles to Learn About Weathering and Erosion In this lesson, students will distinguish between erosion and weathering utilizing skittles. http://betterlesson.com/lesson/637182/using-skittles-to-learn-about-weathering-and-erosion</p> <p>How Can Water Change the Shape of the Land? In this lesson, students will observe and take notes on how water changes the shape of the land. http://betterlesson.com/lesson/639991/how-can-water-change-the-shape-of-the-land</p> <p>How Can Wind Change the Shape of the Land? In this lesson, students will take observational notes on the effects of wind erosion. http://betterlesson.com/lesson/632923/how-can-wind-change-the-shape-of-the-land</p> <p>How Can Glaciers Change the Shape of the Land? In this lesson, students will observe, diagram and take notes on how glaciers can change the land using a model. http://betterlesson.com/lesson/635810/how-do-glaciers-change-the-shape-of-the-land</p>

	<p><u>How Are Mountains Made?</u> In this lesson, students will model and then explain the formation of a mountain. http://betterlesson.com/lesson/635808/how-are-mountains-made</p> <p><u>Earthquakes: There's a Whole Lotta Shakin' Going On!</u> In this lesson, students will ask their own questions about earthquakes and then find the answer by researching. http://betterlesson.com/lesson/632305/earthquake-inquiry-there-s-a-whole-lotta-shakin-goin-on</p> <p><u>Volcanoes - Helpful or Harmful? Prove it!</u> In this lesson, students will state a claim, locate evidence by researching and then write a reasoning statement. http://betterlesson.com/lesson/635805/volcanoes-helpful-or-harmful-prove-it</p> <p><u>Quick or Slow? I've Got To Know!</u> In this lesson, students will use information from several sources to provide evidence that Earth events can occur quickly or slowly. http://betterlesson.com/lesson/635811/quick-or-slow-i-ve-got-to-know</p>
<p>Explanation Concepts and Practices</p>	<p><u>In these lessons:</u> Teachers should: Introduce formal labels, definitions, and explanations for concepts, practices, skills or abilities. Students should: Verbalize conceptual understandings and demonstrate scientific and engineering practices. Topics to Be Discussed in Teacher Directed Lessons (Disciplinary Core Ideas): ESS1.C: The History of Planet Earth Some events happen very quickly; others occur very slowly, over a time period much longer than one can observe.</p>
<p>Elaboration Extension Activity</p>	<p><u>Earth's Changes: Multimedia Project</u> http://betterlesson.com/lesson/640186/earth-s-changes-multimedia-project-part-1 http://betterlesson.com/lesson/640448/earth-s-changes-multimedia-project-part-2 http://betterlesson.com/lesson/640357/earth-s-changes-creating-a-multimedia-presentation-part-3</p> <p><u>Additional Related Activities</u> http://ngss.nsta.org/DisplayStandard.aspx?view=pe&id=30</p>
<p>Evaluation Assessment Tasks</p>	<p><u>Assessment Task A</u> Make observations from several sources to construct an evidence-based account for natural phenomena. - Fast or Slow, I've Got to Know: Evidence Sheet Benchmark Assessment: SAVVAS Formative Assessment: Entrance Slip, Exit Slip, Student Reflection, Math Accountable Talk, Whiteboard Work, Drawing Journal Summative Assessment: Topic Review, Topic Test, Quick Check, Performance Task Alternate Assessment: Manipulative Based Task, Open Ended Project, Choice Board, Turn and Talk, Sorting Activity, Picture based assessment</p>

Grade 2 Unit 5: Changes to Earth's Land

2-ESS2-1: Earth's Systems

2-ESS2-1: 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.

Assessment Boundary: N/A

Evidence Statements: 2-ESS2-1

Science & Engineering Practices	Disciplinary Core Ideas	Cross-Cutting Concepts
<p><u>Constructing Explanations and Designing Solutions</u> 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> <p><u>Compare multiple solutions to a problem.</u></p>	<p><u>ESS2.A: Earth Materials and Systems</u> Wind and water can change the shape of the land.</p> <p><u>ETS1.C: Optimizing the Design Solution</u> Because there is always more than one possible solution to a problem, it is useful to compare and test designs. (secondary)</p>	<p><u>Stability and Change</u> Things may change slowly or rapidly.</p> <p><u>Connections to Engineering, Technology, and Applications of Science</u> <u>Influence of Engineering, Technology, and Science on Society and the Natural World</u> Developing and using technology has impacts on the natural world.</p> <p><u>Connections to Nature of Science</u> Science Addresses Questions About the Natural and Material World Scientists study the natural and material world.</p>

Connections to other DCIs in this grade-band: N/A

Articulation of DCIs across grade-bands: K.ETS1.A ; 4.ESS2.A ; 4.ETS1.A ; 4.ETS1.B ; 4.ETS1.C ; 5.ESS2.A

5E Model

2-ESS2-1: Compare multiple solutions designed to slow or prevent wind or water from changing the shape of the land.*

Engage Anticipatory Set	<p><u>Crash Course Kids: Weather and Erosion</u> https://www.youtube.com/watch?v=R-lak3Wvh9c</p> <p><u>Soil Erosion: Effects and Prevention</u> http://study.com/academy/lesson/soil-erosion-effects-prevention.html</p>
Exploration Student Inquiry	<p><u>Exploring Erosion by Wind, Rain, and Waves</u> In this lesson, students will make observations of erosion processes caused by slope, waves or wind. http://betterlesson.com/lesson/637181/exploring-erosion-by-wind-rain-and-waves</p> <p><u>Erosion Expert Panels</u> In this lesson, students will present their results and conclusions about erosion. http://betterlesson.com/lesson/637410/erosion-expert-panels</p> <p><u>Erosion Webquest</u> In this lesson, students identify causes of erosion and research possible erosion solutions</p>

	<p>http://betterlesson.com/lesson/637561/erosion-webquest</p> <p><u>Finding Erosion At Our School</u> In this lesson, students will find evidence of erosion at their school, then create their own erosion solution based on the problems that they witnessed. http://betterlesson.com/lesson/640745/finding-erosion-at-our-school</p> <p><u>Let's Compare Erosion Design Solutions</u> Erosion can be very destructive, so people create solutions to try to stop it from changing the land. In this lesson, students will compare real-life solutions and determine if these solutions are effective. http://betterlesson.com/lesson/635874/let-s-compare-erosion-design-solutions</p> <p><u>Preventing Changes from Wind and Water</u> In this lesson, students will design a system to prevent changes to a landform by wind and water and write about why their idea will work. http://betterlesson.com/lesson/633960/preventing-changes-from-wind-and-water</p>
<p>Explanation Concepts and Practices</p>	<p><u>In these lessons:</u> Teachers should: Introduce formal labels, definitions, and explanations for concepts, practices, skills or abilities. Students should: Verbalize conceptual understandings and demonstrate scientific and engineering practices. Topics to Be Discussed in Teacher Directed Lessons (Disciplinary Core Ideas): ESS2.A: Earth Materials and Systems Wind and water can change the shape of the land. ETS1.C: Optimizing the Design Solution Because there is always more than one possible solution to a problem, it is useful to compare and test designs. (secondary)</p>
<p>Elaboration Extension Activity</p>	<p>In this series of three lessons, students will:</p> <ul style="list-style-type: none"> - Make a diagram to show how to slow or stop erosion on a slope. - Build and and make observations on two different solutions to stop or slow down erosion. - Present a summary of their erosion solutions and provide reasons based on observations why their design should be chosen. <p>http://betterlesson.com/lesson/637817/company-plans-to-slow-or-stop-erosion http://betterlesson.com/lesson/637826/company-erosion-solutions http://betterlesson.com/lesson/635892/preparing-for-the-rock-away-town-council-presentations</p>
<p>Evaluation Assessment Tasks</p>	<p><u>Assessment Task A</u> Compare multiple solutions to a problem. Let's Compare Erosion Design Solutions: Comparing Erosion Solutions Worksheet</p> <p><u>Assessment Task B</u> Preventing Changes from Wind and Water: Engineering Design Persuasive Writing Benchmark Assessment: SAVVAS</p>

<p>Formative Assessment: Entrance Slip, Exit Slip, Student Reflection, Math Accountable Talk, Whiteboard Work, Drawing Journal</p> <p>Summative Assessment: Topic Review, Topic Test, Quick Check, Performance Task</p> <p>Alternate Assessment: Manipulative Based Task, Open Ended Project, Choice Board, Turn and Talk, Sorting Activity, Picture based assessment</p>
--

Grade 2 Unit 5: Changes to Earth's Land

K-2-ETS1-1: Engineering Design

K-2-ETS1-1: Ask questions, make observations, and gather information about a situation people want to change (e.g., climate change) to define a simple problem that can be solved through the development of a new or improved object or tool.

Clarification Statement: N/A

Assessment Boundary: N/A

Evidence Statements: [K-2-ETS1-1](#)

Science & Engineering Practices	Disciplinary Core Ideas	Cross-Cutting Concepts
<p>Asking Questions and Defining Problems Asking questions and defining problems in K–2 builds on prior experiences and progresses to simple descriptive questions 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.</p>	<p>ETS1.A: Defining and Delimiting Engineering Problems</p> <p>A situation that people want to change or create can be approached as a problem to be solved through engineering. (K-2-ETS1-1)</p> <p>Ask questions, make observations, and gather information about a situation people want to change (e.g., climate change) to define a simple problem that can be solved through the development of a new or improved object or tool. (K-2-ETS1-1)</p> <p>Before beginning to design a solution, it is important to clearly understand the problem. (K-2-ETS1-1)</p>	

Connections to other DCIs in this grade-band: Kindergarten- K-PS2-2, K-ESS3-2

Articulation of DCIs across grade-bands: 3-5.ETS1.A ; 3-5.ETS1.C

Grade 2 Unit 5: Changes to Earth's Land

K-2-ETS1-2 Engineering Design

K-2-ETS1-2. 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.

Clarification Statement: Examples of devices could include a light source to send signals, paper cup and string “telephones,” and a pattern of drum beats.

Assessment Boundary: Assessment does not include technological details for how communication devices work.

Evidence Statements: [K-2-ETS1-2](#)

Science & Engineering Practices	Disciplinary Core Ideas	Cross-Cutting Concepts

<p><u>Developing and Using Models</u> <u>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.</u></p> <p><u>Develop a simple model based on evidence to represent a proposed object or tool. (K-2-ETS1-2)</u></p>	<p>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, such as climate change, to other people. (K-2-ETS1-2)</p>	<p><u>Structure and Function</u> <u>The shape and stability of structures of natural and designed objects are related to their function(s). (K-2-ETS1-2)</u></p>
<p>Connections to K-2-ETS1.B: Kindergarten K-ESS3-3; First Grade 1-PS4-4; Second Grade 2-LS2-2</p>		
<p>Articulation of DCIs across grade-bands: 3-5.ETS1.A; 3-5.ETS1.B; 3-5.ETS1.C</p>		