

ELEMENTARY SCIENCE CURRICULUM | 2ND GRADE

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Course Information - K-12 Science

Second Grade Science

CURRICULUM/CONTENT AREA	COURSE LENGTH
Science	1 year
GRADE LEVEL	DATE LAST REVIEWED
2nd Grade	2023
PREREQUISITE(s) <i>if applicable</i>	BOARD APPROVAL DATE
NA	02/2024
PRIMARY RESOURCE <i>if applicable</i>	
Carolina Building Blocks of Science	

Desired Results

COURSE DESCRIPTION AND PURPOSE		
<p>Elmbrook's elementary science programming is designed to introduce students to the basic principles and concepts of science. It provides a foundation for scientific thinking and inquiry by exploring various scientific disciplines such as physical, life, and earth and space sciences. Overall, our elementary science programming aims to instill a love for science, nurture critical thinking skills, and lay the groundwork for further scientific study as students progress through their education. It provides a solid foundation for understanding the natural world and fosters a scientific mindset that can be applied to various aspects of life.</p>		
ENDURING UNDERSTANDINGS		ESSENTIAL QUESTIONS
CC1: Patterns	SCI.CC1.K-2 Students recognize that patterns in the natural and human-designed world can be observed, used to describe phenomena, and used as evidence.	<ul style="list-style-type: none"> How can we use small parts to make big things? What do living things need? What do we know about Earth's materials?
CC2: Cause and Effect	SCI.CC2.K-2 Students learn that events have causes that generate observable patterns. They design simple tests to gather evidence to support or refute their own ideas about causes.	

CC3: Scale, Proportion, and Quantity	SCI.CC3.K-2 Students use relative scales (e.g., bigger and smaller, hotter and colder, faster and slower) to describe objects. They use standard units to measure length.	
CC4: Systems and System Models	SCI.CC4.K-2 Students understand objects and organisms can be described in terms of their parts and that systems in the natural and designed world have parts that work together.	
CC5: Energy and Matter	SCI.CC5.K-2 Students observe objects may break into smaller pieces, be put together into larger pieces, or change shapes.	
CC6: Structure and Function	SCI.CC6.K-2 Students observe that the shape and stability of structures of natural and designed objects are related to their function(s).	
CC7: Stability and Change	SCI.CC7.K-2 Students observe that some things stay the same while other things change, and things may change slowly or rapidly.	

Kindergarten			First Grade			Second Grade			Third Grade			Fourth Grade			Fifth Grade		
UNIT 1 Push, Pull, Go	UNIT 2 Living Things and Their Needs	UNIT 3 Weather and Sky	UNIT 1 Light and Sound Waves	UNIT 2 Exploring Organisms	UNIT 3 Sky Watchers	UNIT 1 Matter	UNIT 2 Ecosystem Diversity	UNIT 3 Earth Materials	UNIT 1 Forces and Interactions	UNIT 2 Life and Ecosystems	UNIT 3 Weather and Climate Patterns	UNIT 1 Energy Works	UNIT 2 Plant and Animal Structures	UNIT 3 Changing Earth	UNIT 1 Structures and Properties of Matter	UNIT 2 Matter and Energy in Ecosystems	UNIT 3 Earth and Space Systems

Science Standards by Unit and Grade Level Band														Grade Band	Unit 1	Unit 2	Unit 3
Cross Cutting Concepts																	
Standard SCI.CC1 - Patterns														K-2	1, 2	K, 1	K-2
Students use science and engineering practices, disciplinary core ideas, and patterns to make sense of phenomena and solve problems														3-5	3, 4	3, 5	3-5
Standard SCI.CC2 - Cause and Effect														K-2	K-2	K, 2	K
Students use science and engineering practices, disciplinary core ideas, and cause and effect relationships to make sense of phenomena and solve problems.														3-5	3-5	3-5	3-5
Standard SCI.CC3 - Scale, Proportion, and Quantity														K-2			K, 1
Students use science and engineering practices, disciplinary core ideas, and an understanding of scale, proportion, and quantity to make sense of phenomena and solve problems.														3-5	5	3	5
Standard SCI.CC4 - Systems and System Models														K-2		K	
Students use science and engineering practices, disciplinary core ideas, and an understanding of systems and system models to make sense of phenomena and solve problems.														3-5		3-5	5
Standard SCI.CC5 - Energy and Matter														K-2	2		
Students use science and engineering practices, disciplinary core ideas, and an understanding of energy and matter to make sense of phenomena and solve problems.														3-5	4	5	
Standard SCI.CC6 - Structure and Function														K-2		1, 2	
Students use science and engineering practices, disciplinary core ideas, and an understanding of structure and function to make sense of phenomena and solve problems.														3-5		3	
Standard SCI.CC7 - Stability and Change														K-2			2
Students use science and engineering practices, disciplinary core ideas, and an understanding of stability and change to make sense of phenomena and solve problems.														3-5			3
Science and Engineering Practices																	
Standard SCI.SEP1 - Asking Questions and Defining Problems														K-2	K		K
Students ask questions and define problems, in conjunction with using crosscutting concepts and disciplinary core ideas, to make sense of phenomena and solve problems.														3-5	3-5	5	
Standard SCI.SEP2 - Developing and Using Models														K-2		K-2	K, 2
Students develop and use models, in conjunction with using crosscutting concepts and disciplinary core ideas, to make sense of phenomena and solve problems.														3-5	3-5	3-5	4, 5

Standard SCI.SEP3 - Planning and Conducting Investigations Students plan and conduct investigations, in conjunction with using crosscutting concepts and disciplinary core ideas, to make sense of phenomena and solve problems.	K-2	K-2	2	K-2
	3-5	3, 4	5	4
Standard SCI.SEP4 - Analyze and Interpret Data Students analyze and interpret data, in conjunction with using crosscutting concepts and disciplinary core ideas, to make sense of phenomena and solve problems.	K-2	K-2	K	K, 1
	3-5	5	3, 5	3-5
Standard SCI.SEP5 - Mathematics and Computational Thinking Students use mathematics and computational thinking, in conjunction with using crosscutting concepts and disciplinary core ideas, to make sense of phenomena and solve problems.	K-2		K	
	3-5	3, 5		5
Standard SCI.SEP6 - Construct Explanations and Design Solutions Students construct explanations and design solutions, in conjunction with using crosscutting concepts and disciplinary core ideas, to make sense of phenomena and solve problems.	K-2	1, 2	1	K, 2
	3-5	3, 4	3-5	3, 4, 5
Standard SCI.SEP7 - Engage in Arguments Students engage in argument from evidence, in conjunction with using crosscutting concepts and disciplinary core ideas, to make sense of phenomenon and solve problems.	K-2	2	K-2	
	3-5	5	3-5	3, 5
Standard SCI.SEP8 - Obtain, evaluate, and Communication Information Students obtain, evaluate, and communicate information, in conjunction with using cross cutting concepts and disciplinary core ideas, to make sense of phenomenon and solve problems.	K-2		K-2	1, 2
	3-5	3, 4		5
Disciplinary Core Ideas				
Life Science				
Standard SCI.LS1 Students use science and engineering practices, crosscutting concepts, and an understanding of structures and processes (on a scale from molecules to organisms) to make sense of phenomena and solve problems.	K-2		K-2	
	3-5		3-5	
Standard SCI.LS2 Students use science and engineering practices, crosscutting concepts, and an understanding of interactions, energy, and dynamics within ecosystems to make sense of phenomena and solve problems.	K-2		K, 2	
	3-5		3, 5	
Standard SCI.LS3 Students use science and engineering practices, crosscutting concepts, and an understanding of heredity to make sense of phenomena and solve problems.	K-2		1	
	3-5		3, 5	
Standard SCI.LS4 Students use science and engineering practices, crosscutting concepts, and an understanding of biological evolution to make sense of phenomena and solve problems.	K-2		K, 2	
	3-5		3	
Physical Science				
Standard SCI.PS1 Students use science and engineering practices, crosscutting concepts, and an understanding of matter and its interactions to make sense of phenomena and solve problems.	K-2	2		2
	3-5	5		
Standard SCI.PS2 Students use science and engineering practices, crosscutting concepts, and an understanding of forces, interactions, motion, and stability to make sense of phenomena and solve problems.	K-2	K		
	3-5	3		5

Standard SCI.PS3 Students use science and engineering practices, crosscutting concepts, and an understanding of energy to make sense of phenomena and solve problems.	K-2	K		
	3-5	3, 4		
Standard SCI.PS4 Students use science and engineering practices, crosscutting concepts, and an understanding of waves and their applications in technologies for information transfer to make sense of phenomena and solve problems.	K-2	1		
	3-5	4	4	
Earth and Space Science				
Standard SCI.ESS1 Students use science and engineering practices, crosscutting concepts, and an understanding of earth's place in the universe to make sense of phenomena and solve problems.	K-2			1, 2
	3-5			4, 5
Standard SCI.ESS2 Students use science and engineering practices, crosscutting concepts, and an understanding of earth's systems to make sense of phenomena and solve problems.	K-2		K	K, 2
	3-5		5	3-5
Standard SCI.ESS3 Students use science and engineering practices, crosscutting concepts, and an understanding of earth and human activity to make sense of phenomena and solve problems.	K-2		K	K
	3-5	4	5	3-5
Engineering and Technical Science				
Standard SCI.ETS1 Students use science and engineering practices, crosscutting concepts, and an understanding of engineering design to make sense of phenomena and solve problems.	K-2	K-2	K-2	K, 2
	3-5	3-5	3-5	3, 4
Standard SCI.ETS2 Students use science and engineering practices, crosscutting concepts, and an understanding of links among engineering, technology, science, and society to make sense of phenomena and solve problems.	K-2	K-2	K-2	K-2
	3-5	3-5	4, 5	3-5
Standard: SCI.ETS3: Students use science and engineering practices, crosscutting concepts, and an understanding of the nature of science and engineering to make sense of phenomena and solve problems.	K-2	K-2	K-2	K-2
	3-5	3-5	4, 5	4, 5

Physical Science: Matter

DESIRED RESULTS

Essential Questions

Students will keep considering...

How can we use small parts to make big things?

Unit Priority Standards and Learning Targets

Students will know and be able to...

Disciplinary Core Ideas

Learning Element	Performance Indicator	CBB Unit Connection	Learning Target
SCI.PS1.A: Structures and Properties of Matter	SCI.PS1.A.2 Objects can be built up from smaller parts.	Second Grade: Small Parts Make Big Things	I can explain that objects are made up of smaller parts. SCI.PS1.A.2
	Matter exists as different substances that have different observable properties.	Second Grade: What's the Matter?	I can identify the state of matter of different items. SCI.PS1.A.2
	Different properties are suited to different purposes.	Second Grade: Solids, Liquids and Mixtures	I can determine when objects with different properties are best used for different purposes. SCI.PS1.A.2
SCI.PS1.B: Chemical Reactions	SCI.PS1.B.2 Heating or cooling a substance may cause changes that can be observed. Sometimes these changes are reversible, and sometimes they are not.	Second Grade Matter: Heating Matter	I can identify which changes are reversible and which are not when heating or cooling a substance. SCI.PS1.B.2
SCI.ETS1.A: Defining and Delimiting Engineering Problems	SCI.ETS1.A.K-2 A situation that people want to change or create can be approached as a problem to be solved through engineering. Asking questions, making observations, and gathering information are helpful in thinking about problems.	Second Grade Matter	I can ask questions 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. SCI.ETS1.A.K-2

	Before beginning to design a solution, it is important to clearly understand the problem.		
SCI.ETS1.B: Developing Possible Solutions	SCI.ETS1.B.K-2 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.	Second Grade Matter	I can develop a simple sketch to illustrate how the shape of an object helps it function as needed to solve a given problem. SCI.ETS1.B.K-2
SCI.ETS2.A: Interdependence of Science, Engineering, and Technology	SCI.ETS2.A.K-2 Science and engineering involve the use of tools to observe and measure things.	Second Grade Matter	I can recognize that science and engineering use tools to observe and measure things. SCI.ETS2.A.K-2
SCI.ETS3.A: Science and Engineering Are Human Endeavors	SCI.ETS3.A.K-2 People of diverse backgrounds can become scientists and engineers. People have practiced science and engineering for a long time. Creativity and imagination are important to science engineering.	Second Grade Matter	I can observe that people of different backgrounds can become scientists and engineers. SCI.ETS3.A.K-2 I recognize that science and engineering have been practiced for a long time. SCI.ETS3.A.K-2 I can recognize that creativity and imagination are important to science and engineering. SCI.ETS3.A.K-2
SCI.ETS3.B: Science and Engineering Are Unique Ways of Thinking with Different Purposes	SCI.ETS3.B.K-2 Scientists use evidence to explain the natural world. Science assumes natural events happen today as they happened in the past. Engineers solve problems to meet the needs of people and communities.	Second Grade Matter	I can understand that scientists rely on evidence to explain the natural world. SCI.ETS3.B.K-2 I can recognize that engineers solve problems to help meet the needs of people and communities. SCI.ETS3.B.K-2
SCI.ETS3.C: Science and Engineering Use Multiple Approaches to Create New Knowledge and Solve Problems	SCI.ETS3.C.K-2 Science and engineers use many approaches to answer questions about the natural world and solve problems. Scientific explanations are strengthened by being supported with evidence. An engineering problem can have many solutions. The strength of a solution depends on how well it solves the problem.	Second Grade Matter	I can explain how scientists and engineers try different approaches to answer questions and that they use evidence to support their findings. SCI.ETS3.C.K-2 I can recognize that there can be many solutions to a problem. SCI.ETS3.C.K-2

Crosscutting Concepts

Learning Priority	Performance Indicators	CBB Unit Connections	Learning Target
CC1: Patterns	SCI.CC1.K-2 Students recognize that patterns in the natural and human-designed world can be observed, used to describe phenomena, and used as evidence.	Second Grade Matter	I can identify and use patterns. SCI.CC1.K-2
CC2: Cause and Effect	SCI.CC2.K-2 Students learn that events have causes that generate observable patterns. They design simple tests to gather evidence to support or refute their own ideas about causes.	Second Grade Matter	I can test and gather evidence about cause and effect relationships. SCI.CC2.K-2
CC5: Energy and Matter	SCI.CC5.K-2 Students observe objects may break into smaller pieces, be put together into larger pieces, or change shapes.	Second Grade Matter	I can demonstrate how smaller objects can build larger objects or take on new shapes. SCI.CC5.K-2

Science and Engineering Practices

Learning Priority	Performance Indicators	CBB Unit Connections	Learning Target
SEP3: Planning and Conducting Investigations	<p>SCI.SEP3.K-2 Students plan and carry out simple investigations, based on fair tests, which provide data to support explanations or design solutions. This includes the following:</p> <p>With guidance, plan and conduct an investigation in collaboration with peers (for K).</p> <p>Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence to answer a question. Evaluate different ways of observing and measuring a phenomenon to determine which way can answer the question being studied.</p> <p>Make observations (firsthand or from media) and measurements to collect data that can be used to make comparisons.</p> <p>Make observations (firsthand or from media) and measurements of a proposed object or tool or solution to determine if it solves a problem or meets a goal.</p>	Second Grade Matter	I can plan and carry out an investigation. SCI.SEP3.K-2
SEP4: Analyzing and Interpreting Data	<p>SCI.SEP4.K-2 Students collect, record, and share observations. This includes the following:</p> <p>Record information (observations, thoughts, and ideas).</p> <p>Use and share pictures, drawings, or writings of observations.</p> <p>Use observations (firsthand or from media) to describe patterns or relationships in the natural and designed worlds in order to answer scientific questions and solve problems.</p> <p>Compare predictions (based on prior experiences) to what occurred (observable events).</p> <p>Analyze data from tests of an object or tool to determine if the object or tool works as intended.</p>	Second Grade Matter	I can collect, record, and share data and observations from my investigation. SCI.SEP4.K-2

SEP6.A: Constructing an Explanation	SCI.SEP6.A.K-2 Students use evidence and ideas in constructing evidence-based accounts of natural phenomena. This includes the following: Use information from observations (firsthand and from media) to construct an evidence-based account for natural phenomena.	Second Grade Matter	I can use evidence to explain the results of my investigation. SCI.SEP6.A.K-2
SEP6.B: Designing Solutions	SCI.SEP6.B.K-2 Students use evidence and ideas in designing solutions. This includes the following: Use tools and materials to design and/or build a device that solves a specific problem or a solution to a specific problem. Generate and compare multiple solutions to a problem.	Second Grade Matter	I can develop more than one way to design and solve a problem. SCI.SEP6.B.K-2
SEP7: Arguing from Evidence	SCI.SEP7.K-2 Students compare ideas and representations about the natural and designed world. This includes the following: Identify arguments that are supported by evidence. Distinguish between explanations that account for all gathered evidence and those that do not. Analyze why some evidence is relevant to a scientific question and some is not. Distinguish between opinions and evidence in one's own explanations. Listen actively to arguments to indicate agreement or disagreement based on evidence, or to retell the main points of the argument. Construct an argument with evidence to support a claim. Make a claim about the effectiveness of an object, tool, or solution that is supported by relevant evidence.	Second Grade Matter	I can communicate and support with evidence my understanding of a solution to a design problem. SCI.SEP7.K-2

Anchoring Phenomenon

Making connections between a material and how it is used.

Assessment Evidence

Performance is evaluated in terms of...

Students will show their learning by...

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.
- **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.
- **K-2-ETS1-1:** 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.
- **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.

Key Feedback & Assessment Strategies:

- *Conferring/Strategy Groups: Using current evidence of standards & skills, feedback is scaffolded based on student strengths, needs & goals*
- *Assessment of Unit Skills - Examples for Targeted Data Collection*
 - ◆ *Assess unit vocabulary terms*
 - ◆ *Evaluate student investigation tasks*
 - ◆ *Assess key unit concepts (Unit summative assessment)*
- *Extensions may include:*
 - ◆

Life Science: Ecosystem Diversity

DESIRED RESULTS

Essential Questions

Students will keep considering...

What do living things need?

Unit Priority Standards and Learning Targets

Students will know and be able to...

Disciplinary Core Ideas

Learning Element	Performance Indicator	CBB Unit Connection	Learning Target
SCI.LS1.C: Organization for Matter and Energy Flow in Organisms	SCI.LS1.C.K Animals obtain food they need from plants or other animals. Plants need water and light.	Second Grade Ecosystem Diversity: Plant and Animal Interactions	I can explain the basic needs of plants and animals. SCI.LS1.C.K
SCI.LS2.A: Interdependent Relationships in Ecosystems	SCI.LS2.A.2 Plants depend on water and light to grow. Plants depend on animals for pollination or to move their seeds around.	Second Grade Ecosystem Diversity: Plant and Animal Interactions	I can explain how animals help pollinate flowers. I can explain how plants and animals interact. SCI.LS2.A.2
SCI.LS4.D: Biodiversity and Humans	SCI.LS4.D.2 There are many different kinds of living things in any area, and they exist in different places on land and in water.	Second Grade Ecosystem Diversity: Plant and Animal Interactions	I can identify the types of places that different plants and animals need to live. SCI.LS4.D.2
SCI.ETS1.B: Developing Possible Solutions	SCI.ETS1.B.K-2 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.	Second Grade Ecosystem Diversity	I can develop a simple sketch to illustrate how the shape of an object helps it function as needed to solve a given problem. SCI.ETS1.B.K-2
SCI.ETS1.C: Optimizing the Design Solution	SCI.ETS1.C.K-2 Because there is more than one possible solution to a problem, it is useful to compare and test designs.	Second Grade Ecosystem Diversity	I can analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of

			how each performs. SCI.ETS1.C.K-2
SCI.ETS2.B: Influence of Engineering, Technology, and Science on Society and the Natural World	SCI.ETS2.B.K-2 Every human-made product is designed by applying some knowledge of the natural world and is built by using natural materials. Taking natural materials to make things impacts the environment.	Second Grade Ecosystem Diversity	I can recognize that every human-made product uses natural materials to make it and that using natural materials impacts the environment. SCI.ETS2.B.K-2
SCI.ETS3.A: Science and Engineering Are Human Endeavors	SCI.ETS3.A.K-2 People of diverse backgrounds can become scientists and engineers. People have practiced science and engineering for a long time. Creativity and imagination are important to science engineering.	Second Grade Ecosystem Diversity	I can observe that people of different backgrounds can become scientists and engineers. I recognize that science and engineering have been practiced for a long time. I can recognize that creativity and imagination are important to science and engineering. SCI.ETS3.A.K-2
SCI.ETS3.B: Science and Engineering Are Unique Ways of Thinking with Different Purposes	SCI.ETS3.B.K-2 Scientists use evidence to explain the natural world. Science assumes natural events happen today as they happened in the past. Engineers solve problems to meet the needs of people and communities.	Second Grade Ecosystem Diversity	I can understand that scientists rely on evidence to explain the natural world. I can recognize that engineers solve problems to help meet the needs of people and communities. SCI.ETS3.B.K-2
SCI.ETS3.C: Science and Engineering Use Multiple Approaches to Create New Knowledge and Solve Problems	SCI.ETS3.C.K-2 Science and engineers use many approaches to answer questions about the natural world and solve problems. Scientific explanations are strengthened by being supported with evidence. An engineering problem can have many solutions. The strength of a solution depends on how well it solves the problem.	Second Grade Ecosystem Diversity	I can explain how scientists and engineers try different approaches to answer questions and that they use evidence to support their findings. I can recognize that there can be many solutions to a problem. SCI.ETS3.C.K-2
Crosscutting Concepts			
Learning Priority	Performance Indicators	CBB Unit Connections	Learning Target

CC2: Cause and Effect	SCI.CC2.K-2 Students learn that events have causes that generate observable patterns. They design simple tests to gather evidence to support or refute their own ideas about causes.	Second Grade Ecosystem Diversity	SCI.CC2.K-2 I can design a simple test to gather evidence to support or refute my ideas about causes of observable patterns.
CC6: Structure and Function	SCI.CC6.K-2 Students observe that the shape and stability of structures of natural and designed objects are related to their function(s).	Second Grade Ecosystem Diversity	SCI.CC6.K-2 "I can observe that the shape and stability of structures of natural and designed objects are related to their functions.

Science and Engineering Practices

Learning Priority	Performance Indicators	CBB Unit Connections	Learning Target
SEP2: Developing and Using Models	SCI.SEP2.K-2 Students use and develop models (i.e., diagrams, drawings, physical replicas, dioramas, dramatizations, or storyboards) that represent concrete events or design solutions. This includes the following: Distinguish between a model and the actual object, process, or events the model represents. Compare models to identify common features and differences. Develop or use models to represent amounts, relationships, relative scales (bigger, smaller), and patterns in the natural and designed world(s). Develop a simple model based on evidence to represent a proposed object or tool.	Second Grade Ecosystem Diversity	I can develop models that represent concrete events or design solutions. I can compare models to identify common features and differences. SCI.SEP2.K-2
SEP3: Planning and Conducting Investigations	SCI.SEP3.K-2 Students plan and carry out simple investigations, based on fair tests, which provide data to support explanations or design solutions. This includes the following: Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence to answer a question. Evaluate different ways of observing and measuring a phenomenon to determine which way can answer the question being studied. Make observations (firsthand or from media) and measurements to collect data that can be used to make comparisons. Make observations (firsthand or from media) and measurements of a proposed object or tool or solution to determine if it solves a problem or meets a goal.	Second Grade Ecosystem Diversity	SCI.SEP3.K-2 I can plan and carry out a simple investigation, gather data and support my explanations or design solutions.
SEP7: Arguing from Evidence	SCI.SEP7.K-2 Students compare ideas and representations about the natural and designed world. This includes the following: Identify arguments that are supported by evidence. Distinguish between explanations that account for all gathered evidence and those that do not. Analyze why some evidence is relevant to a scientific question and some is not. Distinguish between opinions and evidence in one's own explanations. Listen actively to arguments to indicate agreement or disagreement based on	Second Grade Ecosystem Diversity	I can compare ideas about the natural and designed world. SCI.SEP7.K-2

	evidence, or to retell the main points of the argument. Construct an argument with evidence to support a claim. Make a claim about the effectiveness of an object, tool, or solution that is supported by relevant evidence.		
SEP8: Obtaining, Evaluating, and Communicating Information	<p>SCI.SEP8.K-2 Students use observations and texts to communicate new information. This includes the following:</p> <p>Read developmentally appropriate texts or use media to obtain scientific and technical information.</p> <p>Use the information to determine patterns in or evidence about the natural and designed worlds.</p> <p>Describe how specific images (e.g., a diagram showing how a machine works) support a scientific or engineering idea. 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 scientific questions or supporting scientific claims.</p> <p>Communicate information or design ideas and solutions with others in oral or written forms.</p> <p>Use models, drawings, writing, or numbers that provide detail about scientific ideas, practices, or design ideas.</p>	Second Grade Ecosystem Diversity	I can use observations and texts to communicate new information. SCI.SEP8.K-2

Anchoring Phenomenon

The variety of habitats on Earth and observing the life within them.

Assessment Evidence

Performance is evaluated in terms of...

Students will show their learning by...

Performance Expectations

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

Key Feedback & Assessment Strategies:

- *Conferring/Strategy Groups: Using current evidence of standards & skills, feedback is scaffolded based on student strengths, needs & goals*
- *Assessment of Unit Skills - Examples for Targeted Data Collection*
 - ◆ *Assess unit vocabulary terms*
 - ◆ *Evaluate student investigation tasks*
 - ◆ *Assess key unit concepts (Unit summative assessment)*
- *Extensions may include:*
 - ◆

Earth and Space Science: Earth Materials

DESIRED RESULTS

Essential Questions

Students will keep considering...

What do we know about Earth's materials?

Unit Priority Standards and Learning Targets

Students will know and be able to...

Disciplinary Core Ideas

Learning Element	Performance Indicator	CBB Unit Connection	Learning Target
SCI.ESS1.C: The History of Planet Earth	SCI.ESS1.C.2 Some events on Earth occur very quickly; others can occur very slowly.	Grade 2: Rock Grade 2:: Changing Earth, Changing Land	I can explain that some events on Earth occur very quickly while others occur very slowly. SCI.ESS1.C.2
SCI.ESS2.A: Earth Materials and Systems	SCI.ESS2.A.2 Wind and water change the shape of the land.	Grade 2 : Water Grade 2: Sand Grade 2: Changing Earth, Changing Land	I can describe how wind and water change the shape of the land. SCI.ESS2.A.2
SCI.ESS2.B: Plate Tectonics and Large-Scale System Interactions	SCI.ESS2.B: Maps show where things are located. One can map the shapes and kinds of land and water in any area.	Grade 2: My Model Island	SCI.ESS2.B: I can map the shapes and kinds of land and water in any area.
SCI.ESS2.C: The Roles of Water in Earth's Surface Processes	SCI.ESS2.B.2 Maps show where things are located. One can map the shapes and kinds of land and water in any area.	Grade 2: Water	I can use a map to show the location of things. SCI.ESS2.B.2
SCI.PS1.A: Structures and Properties of Matter	SCI.PS1.A.2 Matter exists as different substances that have different observable properties.	Second Grade: Small Parts Make Big Things	I can explain that objects are made up of smaller parts. SCI.PS1.A.2

	<p>Different properties are suited to different purposes.</p> <p>Objects can be built up from smaller parts.</p>	<p>Second Grade: What's the Matter?</p> <p>Second Grade: Solids, Liquids and Mixtures</p>	<p>I can identify the state of matter of different items. SCI.PS1.A.2</p> <p>I can determine when objects with different properties are best used for different purposes. SCI.PS1.A.2</p>
SCI.ETS1.C: Optimizing the Design Solution	<p>SCI.ETS1.C.K-2</p> <p>Because there is more than one possible solution to a problem, it is useful to compare and test designs.</p>	Second Grade Earth Materials	I can analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs. SCI.ETS1.C.K-2
SCI.ETS2.A: Interdependence of Science, Engineering, and Technology	<p>SCI.ETS2.A.K-2</p> <p>Science and engineering involve the use of tools to observe and measure things.</p>	Second Grade Earth Materials	I can recognize that science and engineering use tools to observe and measure things. SCI.ETS2.A.K-2
SCI.ETS2.B: Influence of Engineering, Technology, and Science on Society and the Natural World	<p>SCI.ETS2.B.K-2</p> <p>Every human-made product is designed by applying some knowledge of the natural world and is built by using natural materials.</p> <p>Taking natural materials to make things impacts the environment.</p>	Second Grade Earth Materials	I can recognize that every human-made product uses natural materials to make it and that using natural materials impacts the environment. SCI.ETS2.B.K-2
SCI.ETS3.A: Science and Engineering Are Human Endeavors	<p>SCI.ETS3.A.K-2</p> <p>People of diverse backgrounds can become scientists and engineers.</p> <p>People have practiced science and engineering for a long time.</p> <p>Creativity and imagination are important to science engineering.</p>	Second Grade Earth Materials	<p>I can observe that people of different backgrounds can become scientists and engineers. SCI.ETS3.A.K-2</p> <p>I recognize that science and engineering have been practiced for a long time. SCI.ETS3.A.K-2</p> <p>I can recognize that creativity and imagination are important to science and engineering. SCI.ETS3.A.K-2</p>
SCI.ETS3.B: Science and Engineering Are Unique Ways of Thinking with	<p>SCI.ETS3.B.K-2</p> <p>Scientists use evidence to explain the natural world.</p> <p>Science assumes natural events happen today as they happened in the past.</p>	Second Grade Earth Materials	<p>I can understand that scientists rely on evidence to explain the natural world. SCI.ETS3.B.K-2</p> <p>I can recognize that engineers solve</p>

Different Purposes	Engineers solve problems to meet the needs of people and communities.		problems to help meet the needs of people and communities. SCI.ETS3.B.K-2
SCI.ETS3.C: Science and Engineering Use Multiple Approaches to Create New Knowledge and Solve Problems	<p>SCI.ETS3.C.K-2 Science and engineers use many approaches to answer questions about the natural world and solve problems.</p> <p>Scientific explanations are strengthened by being supported with evidence.</p> <p>An engineering problem can have many solutions. The strength of a solution depends on how well it solves the problem.</p>	Second Grade Earth Materials	<p>I can explain how scientists and engineers try different approaches to answer questions and that they use evidence to support their findings. SCI.ETS3.C.K-2</p> <p>I can recognize that there can be many solutions to a problem. SCI.ETS3.C.K-2</p>

Crosscutting Concepts

Learning Priority	Performance Indicators	CBB Unit Connections	Learning Target
CC1: Patterns	SCI.CC1.K-2 Students recognize that patterns in the natural and human-designed world can be observed, used to describe phenomena, and used as evidence.	Second Grade Earth Materials	I can recognize that patterns in the natural and human designed world can be observed. SCI.CC1.K-2
CC7: Stability and Change	SCI.CC7.K-2 Students observe that some things stay the same while other things change, and things may change slowly or rapidly.	Second Grade Earth Materials	I can observe that some things stay the same while other things change, and change may occur slowly or rapidly. SCI.CC7.K-2

Science and Engineering Practices

Learning Priority	Performance Indicators	CBB Unit Connections	Learning Target
SEP2: Developing and Using Models	<p>SCI.SEP2.K-2 Students use and develop models (i.e., diagrams, drawings, physical replicas, dioramas, dramatizations, or storyboards) that represent concrete events or design solutions. This includes the following: Distinguish between a model and the actual object, process, or events the model represents. Compare models to identify common features and differences. Develop or use models to represent amounts, relationships, relative scales (bigger, smaller), and patterns in the natural and designed world(s). Develop a simple model based on evidence to represent a proposed object or tool.</p>	Second Grade Earth Materials	I can develop models that represent concrete events or design solutions. I can compare models to identify common features and differences. SCI.SEP2.K-2
SEP3: Planning and	SCI.SEP3.K-2 Students plan and carry out simple investigations, based on fair tests, which provide data to support explanations or design solutions. This	Second Grade Earth Materials	I can plan and carry out a simple investigation, gather data and support my explanations or

Conducting Investigations	<p>includes the following:</p> <p>With guidance, plan and conduct an investigation in collaboration with peers (for K).</p> <p>Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence to answer a question. Evaluate different ways of observing and measuring a phenomenon to determine which way can answer the question being studied.</p> <p>Make observations (firsthand or from media) and measurements to collect data that can be used to make comparisons.</p> <p>Make observations (firsthand or from media) and measurements of a proposed object or tool or solution to determine if it solves a problem or meets a goal.</p>		design solutions. SCI.SEP3.K-2
SEP6.A: Constructing an Explanation	<p>SCI.SEP6.A.K-2 Students use evidence and ideas in constructing evidence-based accounts of natural phenomena. This includes the following:</p> <p>Use information from observations (firsthand and from media) to construct an evidence-based account for natural phenomena.</p>	Second Grade Earth Materials	I can compare ideas about the natural and designed world. SCI.SEP6.A.K-2
SEP6.B: Designing Solutions	<p>SCI.SEP6.B.K-2 Students use evidence and ideas in designing solutions. This includes the following:</p> <p>Use tools and materials to design and/or build a device that solves a specific problem or a solution to a specific problem.</p> <p>Generate and compare multiple solutions to a problem.</p>	Second Grade Earth Materials	I can compare ideas about the natural and designed world SCI.SEP6.B.K-2
SEP8: Obtaining, Evaluating, and Communicating Information	<p>SCI.SEP8.K-2 Students use observations and texts to communicate new information. This includes the following:</p> <p>Read developmentally appropriate texts or use media to obtain scientific and technical information.</p> <p>Use the information to determine patterns in or evidence about the natural and designed worlds.</p> <p>Describe how specific images (e.g., a diagram showing how a machine works) support a scientific or engineering idea. 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 scientific questions or supporting scientific claims.</p> <p>Communicate information or design ideas and solutions with others in oral or written forms.</p> <p>Use models, drawings, writing, or numbers that provide detail about scientific ideas, practices, or design ideas.</p>	Second Grade Earth Materials	SCI.SEP8.K-2 I can use observations and texts to communicate new information.

Anchoring Phenomenon

How natural materials are key parts of Earth's surface and landforms.

Assessment Evidence

Performance is evaluated in terms of...

Students will show their learning by...

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.
- **2-ESS2-2:** Develop a model to represent the shapes and kinds of land and bodies of water in an area.
- **2-ESS2-3:** Obtain information to identify where water is found on Earth and that it can be solid or liquid.
- **2-PS1-1:** Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties.
- **K-2-ETS1-1:** 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.
- **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.

Key Feedback & Assessment Strategies:

- *Conferring/Strategy Groups: Using current evidence of standards & skills, feedback is scaffolded based on student strengths, needs & goals*
- *Assessment of Unit Skills - Examples for Targeted Data Collection*
 - ◆ *Assess unit vocabulary terms*
 - ◆ *Evaluate student investigation tasks*
 - ◆ *Assess key unit concepts (Unit summative assessment)*
- *Extensions may include:*
 - ◆