

# ELEMENTARY SCIENCE CURRICULUM | 1st Grade

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## Course Information - K-12 Science

### First Grade Science

CURRICULUM/CONTENT AREA	COURSE LENGTH
Science	1 year
GRADE LEVEL	DATE LAST REVIEWED
1st 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"> <li>What do we know about light and sound?</li> <li>How can you tell if something is living or nonliving?</li> <li>What do we know about objects in the</li> </ul>
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.	sky?
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
<b>Cross Cutting Concepts</b>																	
<b>Standard SCI.CC1 - Patterns</b>														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
<b>Standard SCI.CC2 - Cause and Effect</b>														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
<b>Standard SCI.CC3 - Scale, Proportion, and Quantity</b>														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
<b>Standard SCI.CC4 - Systems and System Models</b>														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
<b>Standard SCI.CC5 - Energy and Matter</b>														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	
<b>Standard SCI.CC6 - Structure and Function</b>														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	
<b>Standard SCI.CC7 - Stability and Change</b>														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
<b>Science and Engineering Practices</b>																	
<b>Standard SCI.SEP1 - Asking Questions and Defining Problems</b>														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	
<b>Standard SCI.SEP2 - Developing and Using Models</b>														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

<b>Standard SCI.SEP3 - Planning and Conducting Investigations</b> 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
<b>Standard SCI.SEP4 - Analyze and Interpret Data</b> 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
<b>Standard SCI.SEP5 - Mathematics and Computational Thinking</b> 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
<b>Standard SCI.SEP6 - Construct Explanations and Design Solutions</b> 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
<b>Standard SCI.SEP7 - Engage in Arguments</b> 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
<b>Standard SCI.SEP8 - Obtain, evaluate, and Communication Information</b> 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
<b>Disciplinary Core Ideas</b>				
<b>Life Science</b>				
<b>Standard SCI.LS1</b> 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	
<b>Standard SCI.LS2</b> 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	
<b>Standard SCI.LS3</b> 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	
<b>Standard SCI.LS4</b> 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	
<b>Physical Science</b>				
<b>Standard SCI.PS1</b> 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		
<b>Standard SCI.PS2</b> 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

<b>Standard SCI.PS3</b> 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		
<b>Standard SCI.PS4</b> 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	
<b>Earth and Space Science</b>				
<b>Standard SCI.ESS1</b> 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
<b>Standard SCI.ESS2</b> 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
<b>Standard SCI.ESS3</b> 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
<b>Engineering and Technical Science</b>				
<b>Standard SCI.ETS1</b> 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
<b>Standard SCI.ETS2</b> 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
<b>Standard: SCI.ETS3:</b> 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: Light and Sound Waves

## DESIRED RESULTS

### Essential Questions

*Students will keep considering...*

What do we know about light and sound?

### 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.PS4.A: Wave Properties	SCI.PS4.A.1 Sound can make matter vibrate, and vibrating matter can make sound.	First Grade: Sound Off	I can explain what makes sound.
SCI.PS4.B: Electromagnetic Radiation	SCI.PS4.B.1 Objects can be seen only when light is available to illuminate them.	First Grade: Light it Up  First Grade: Light on the Move	I can tell how light helps us see objects.
SCI.PS4.C: Information Technologies and Instrumentation	SCI.PS4.C.1 People use devices to send and receive information.	First Grade: Traveling Sound	I can state how people use devices to communicate.
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.  Before beginning to design a solution, it is important to clearly understand the problem.	First Grade: Light and Sound Waves Unit	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. K-2-ETS
SCI.ETS1.B:	SCI.ETS1.B.K-2	First Grade: Light	I can develop a simple sketch to illustrate

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.	and Sound Waves	how the shape of an object helps it function as needed to solve a given problem.
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.	First Grade: Light and Sound Waves	I can recognize that science and engineering use tools to observe and measure things.
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.	First Grade: Light and Sound Waves	I can recognize that every human-made product uses natural materials to make it and that using natural materials impacts the environment.
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.	First Grade: Light and Sound Waves	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.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.	First Grade: Light and Sound Waves	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.

### 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	First Grade: Light and Sound Waves	I can recognize that patterns in the world can be used as evidence to describe

	phenomena, and used as evidence.		phenomena.
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.	First Grade: Light and Sound Waves	I can understand cause and effect relationships by conducting design tests and reflecting on results.

### 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>	First Grade: Light and Sound Waves	<p>I can plan and conduct an investigation.</p> <p>I can collaborate with others.</p> <p>I can make observations and collect data to make comparisons or solve a problem.</p>
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>	First Grade: Light and Sound Waves	<p>I can collect and record data.</p> <p>I can share and compare observations and results.</p> <p>I can analyze data.</p>
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>	First Grade: Light and Sound Waves	I can construct an explanation for scientific phenomena using scientific evidence.
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>	First Grade: Light and Sound Waves	I can design solutions using materials to build a device that solves a problem and compare multiple solutions.

## Anchoring Phenomenon

Understand concepts of light and sound and how they are used to communicate.

## Assessment Evidence

*Performance is evaluated in terms of...*

*Students will show their learning by...*

### Performance Expectations

- **1-PS4-1:** Plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate.
- **1-PS4-2:** Make observations to construct an evidence-based account that objects can be seen only when illuminated.
- **1-PS4-3:** Plan and conduct an investigation to determine the effect of placing objects made with different materials in the path of a beam of light.
- **1-PS4-4:** Use tools and materials to design and build a device that uses light or sound to solve the problem of communicating over a distance.
- **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: Exploring Organisms

## DESIRED RESULTS

### Essential Questions

*Students will keep considering...*

How can you tell if something is living or nonliving?

### 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.A: Structure and Function	SCI.LS1.A.1 All organisms have external parts that they use to perform daily functions.	First Grade: Structures and Functions for Survival	I can explain that all organisms have external parts and tell what they do.
SCI.LS1.B: Growth and Development of Organisms	SCI.LS1.B.1 Parents and offspring often engage in behaviors that help the offspring survive.	First Grade: Raising Young	I can tell how parents take care of their young to help them survive.
SCI.LS1.D: Information Processing	SCI.LS1.D.1 Animals sense and communicate information and respond to inputs with behaviors that help them grow and survive.	First Grade Exploring Organisms	I can explain how animals grow and survive.  I can tell ways that plants and animals dig, build, grow, and adapt to survive.
SCI.LS3.A: Inheritance of Traits	SCI.LS3.A.1 Young organisms are very much, but not exactly, like their parents, and also resemble other organisms of the same kind.	First Grade: Comparing Parents and their Young	I can communicate observations about plants and animals, including humans, and how they resemble their parents.
SCI.LS3.B: Variation of Traits	SCI.LS3.B.1 Individuals of the same kind of plant or animal are recognizable as similar, but can also vary in many ways.	First Grade: Comparing Parents and their Young	I can analyze the individual similarities and differences within and across larger groups.
SCI.ETS1.B:	SCI.ETS1.B.K-2	First Grade	I can develop a simple sketch to illustrate

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.	Exploring Organisms	how the shape of an object helps it function as needed to solve a given problem.
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.	First Grade Exploring Organisms	I can recognize that science and engineering uses tools to observe and measure things.
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.	First Grade Exploring Organisms	I can recognize that every human-made product uses natural materials to make it and that using natural materials impacts the environment.
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.	First Grade Exploring Organisms	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.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.	First Grade Exploring Organisms	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.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	First Grade Exploring Organisms	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.

	solution depends on how well it solves the problem.		
<b>Crosscutting Concepts</b>			
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.	First Grade Exploring Organisms	I can recognize that patterns in the world can be used as evidence to describe phenomena.
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).	First Grade Exploring Organisms	I can understand cause and effect relationships by conducting design tests and reflecting on results.
<b>Science and Engineering Practices</b>			
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.	First Grade Exploring Organisms	I can plan and conduct an investigation.  I can collaborate with others.  I can make observations and collect data to make comparisons or solve a problem.
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.	First Grade Exploring Organisms	I can construct an explanation for scientific phenomena using scientific evidence.
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.	First Grade Exploring Organisms	I can design solutions using materials to build a device that solves a problem and compare multiple 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.	First Grade Exploring Organisms	I can compare ideas about the natural and designed world.

	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.		
SEP8: Obtaining, Evaluating, and Communicating Information	SCI.SEP8.K-2 Students use observations and texts to communicate new information. This includes the following: Read developmentally appropriate texts or use media to obtain scientific and technical information. Use the information to determine patterns in or evidence about the natural and designed worlds. 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. Communicate information or design ideas and solutions with others in oral or written forms. Use models, drawings, writing, or numbers that provide detail about scientific ideas, practices, or design ideas.	First Grade Exploring Organisms	I can communicate learned information (in oral or written forms) using various resources including texts, media, models, and drawings.

## Anchoring Phenomenon

Living things interact within their habitat and meet their needs for survival.

## Assessment Evidence

*Performance is evaluated in terms of...*

*Students will show their learning by...*

### Performance Expectations

- **1-LS1-1:** Use materials to design a solution to a human problem by mimicking how plants and/ or animals use their external parts to help them survive, grow, and meet their needs.
- **1-LS1-2:** Read texts and use media to determine patterns in behavior of parents and offspring that help offspring survive.
- **1-LS3-1:** Make observations to construct an evidence-based account that young plants and animals are like, but not exactly like, their parents.
- **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:*



# Earth and Space Science: Sky Watchers

## DESIRED RESULTS

### Essential Questions

*Students will keep considering...*

What do we know about objects in the sky?

### 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.A: The Universe and Its Stars	SCI.ESS1.A.1 Patterns of movement of the sun, moon, and stars, as seen from Earth, can be observed, described, and predicted.	First Grade: Day and Night	I can understand through observation that objects in the sky have patterns of movement.
SCI.ESS1.B: Earth and the Solar System	SCI.ESS1.B.1 Seasonal patterns of sunrise and sunset can be observed, described, and predicted.	First Grade: Day and Night	I can observe the sun at different times during the day and report observations.
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.	First Grade Unit: Sky Watchers	I can recognize that science and engineering use tools to observe and measure things.
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.	First Grade Unit: Sky Watchers	I can recognize that every human-made product uses natural materials to make it and that using natural materials impacts the environment.
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.	First Grade Unit: Sky Watchers	I can observe that people of different backgrounds can become scientists and engineers.  I recognize that science and engineering

	Creativity and imagination are important to science engineering.		have been practiced for a long time.  I can recognize that creativity and imagination are important to science and engineering.
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.	First Grade Unit: Sky Watchers	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.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.	First Grade Unit: Sky Watchers	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.

### 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.	First Grade Sky Watchers	I can recognize that patterns in the world can be used as evidence to describe phenomena.
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.	First Grade Sky Watchers	I can describe and compare objects using relative scales.  I can use standard units to measure length.

### Science and Engineering Practices

Learning Priority	Performance Indicators	CBB Unit Connections	Learning Target
SEP3:	SCI.SEP3.K-2 Students plan and carry out simple investigations, based on fair	First Grade Sky	I can plan and conduct an investigation.

Planning and Conducting Investigations	<p>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>	Watchers	<p>I can collaborate with others.</p> <p>I can make observations and collect data to make comparisons or solve a problem.</p>
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>	First Grade Sky Watchers	<p>I can collect and record data.</p> <p>I can share and compare observations and results.</p> <p>I can analyze data.</p>
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>	First Grade Sky Watchers	I can communicate learned information (in oral or written forms) using various resources including texts, media, models, and drawings.

## Anchoring Phenomenon

Observe, collect and analyze data to understand patterns in the earth, sun, and moon.

## Assessment Evidence

*Performance is evaluated in terms of...*

*Students will show their learning by...*

***Performance Expectations***

- ***1-ESS1-1:*** Use observations of the sun, moon, and stars to describe patterns that can be predicted.
- ***1-ESS1-2:*** Make observations at different times of year to relate the amount of daylight to the time of year.

***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:*
  - ◆