ELEMENTARY SCIENCE CURRICULUM | 5K

Course Information - K-12 Science

Kindergarten Science

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

Desired Results

COURSE DESCRIPTION AND PURPOSE

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.

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.	• What do we know about force and motion? • Is this thing living or nonliving? • What do we know about weather?
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 Students use science and engineering practices, disciplinary core ideas, and patterns to make sense of phenomena and solve problems	K-2	1, 2	K, 1	K-2
	3-5	3, 4	3, 5	3-5
Standard SCI.CC2 - Cause and Effect Students use science and engineering practices, disciplinary core ideas, and cause and effect relationships to make sense of phenomena and solve problems.	K-2	K-2	K, 2	K
	3-5	3-5	3-5	3-5
Standard SCI.CC3 - Scale, Proportion, and Quantity 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.	K-2			K, 1
	3-5	5	3	5
Standard SCI.CC4 - Systems and System Models 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.	K-2		K	
	3-5		3-5	5
Standard SCI.CC5 - Energy and Matter Students use science and engineering practices, disciplinary core ideas, and an understanding of energy and matter to make sense of phenomena and solve problems.	K-2	2		
	3-5	4	5	
Standard SCI.CC6 - Structure and Function Students use science and engineering practices, disciplinary core ideas, and an understanding of structure and function to make sense of phenomena and solve problems.	K-2		1, 2	
	3-5		3	
Standard SCI.CC7 - Stability and Change Students use science and engineering practices, disciplinary core ideas, and an understanding of stability and change to make sense of phenomena and solve problems.	K-2			2
	3-5			3
Science and Engineering Practices				
Standard SCI.SEP1 - Asking Questions and Defining Problems Students ask questions and define problems, in conjunction with using crosscutting concepts and disciplinary core ideas, to make sense of phenomena and solve problems.	K-2	K		K
	3-5	3-5	5	
Standard SCI.SEP2 - Developing and Using Models Students develop and use models, in conjunction with using crosscutting concepts and disciplinary core ideas, to make sense of phenomena and solve problems.	K-2		K-2	K, 2
	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: Push, Pull, Go!

DESIRED RESULTS

Essential Questions
Students will keep considering…

What do we know about force and motion?

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.PS2.A: Forces and Motion	SCI.PS2.A.K Pushes and pulls can have different strengths and directions, and can change the speed or direction of an object's motion, or start or stop it. A bigger push or pull makes things speed up or slow down more quickly.	Kindergarten: Push, Pull, Roll and Push, Pull, Swing	I can explain how a push or pull can affect how an object moves I can tell how hard I push or pull something makes it go faster or slower.
SCI.PS2.B: Types of Interactions	SCI.PS2.B.K When objects touch or collide, they push on one another and can result in a change of motion.	Kindergarten: Push, Pull, Tumble	I can investigate how pushing or pulling on something makes it move in different ways.
SCI.PS3.C: Relationships Between Energy and Forces	SCI.PS3.C.K Bigger pushes and pulls cause bigger changes in an object's motion or shape	Kindergarten: Push, Pull, Roll and Push, Pull, Swing	I can explain how a push or pull can affect how an object moves or changes shape.
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	K Push, Pull, Go	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

	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.	K Push, Pull, Go	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.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.	K Push, Pull, Go	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.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.	K Push, Pull, Go	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.	K Push, Pull, Go	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.	K Push, Pull, Go	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.	K Push, Pull, Go	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:	SCI.ETS3.C.K-2	K Push, Pull, Go	I can explain how scientists and engineers

Science and Engineering Use Multiple Approaches to Create New Knowledge and Solve Problems	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.		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
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.	Kindergarten Push, Pull, Go	I can observe cause and effect patterns. I can design simple tests to support or refute my ideas.

Science and Engineering Practices

Learning Priority	Performance Indicators	CBB Unit Connections	Learning Target
SEP1.A: Asking Questions	SCI.SEP1.A.K-2 Students ask simple descriptive questions that can be tested. This includes the following: Ask questions based on observations to find more information about the natural world. Ask or identify questions that can be answered by an investigation.	Kindergarten Push, Pull, Go	I can ask questions based on observations and investigations.
SEP1.B: Defining Problems	SCI.SEP1.B.K-2 Students define simple problems that can be solved through the development of a new or improved object or tool.	Kindergarten Push, Pull, Go	I can define simple problems that can be solved through the development of a new or improved object or tool.
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: With guidance, plan and conduct an investigation in collaboration with peers (for K). 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	Kindergarten Push, Pull, Go	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.

	proposed object or tool or solution to determine if it solves a problem or meets a goal.		
SEP4: Analyzing and Interpreting Data	SCI.SEP4.K-2 Students collect, record, and share observations. This includes the following: Record information (observations, thoughts, and ideas). Use and share pictures, drawings, or writings of observations. 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. Compare predictions (based on prior experiences) to what occurred (observable events). Analyze data from tests of an object or tool to determine if the object or tool works as intended.	Kindergarten Push, Pull, Go	I can collect, record, and share observations in various ways.

Anchoring Phenomenon

Recognizing forces and their resulting motions on the playground.

Assessment Evidence

Performance is evaluated in terms of student observations, use of tools and class discussions.
Students will show their learning by asking questions, making observations, drawing sketches, developing models and designing solutions.

Performance Expectations

- ***K-PS2-1:*** *Plan and conduct an investigation to compare the effects of different strengths or different directions of pushes and pulls on the motion of an object.*
- ***K-PS2-2:*** *Analyze data to determine if a design solution works as intended to change the speed or direction of an object with a push or a pull.*
- ***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*
    - Investigation 5D - Can I Show Force & Motion? - Students can draw and label one example of things that roll, spin, push and pull.

- ➔ *Extensions may include:*
  - ◆ Investigation 5D - Can I Show Force & Motion - use this as a quick, easy assessment. Students can draw and label one example of things that roll, spin, push and pull.
  - ◆ Student challenge: come up with a way to knock down dominoes with a ball, not allowing the ball to touch the dominoes. (Use questions on p. 93 for guidance)
  - ◆ Take different size/types of balls outside to the playground slide. Predict and check which ball will roll the farthest after rolling down the slide. Use different amounts of force to make balls more or less.

- *Brain Pop, Jr. “Pushes & Pulls”
- *Sesame Street Force & Motion video: Grover Shows Force (2 minutes) and Use the Force, Luke (18 seconds) - very brief clip from Star Wars- kids might be aware of the way Luke uses the “force”

Life Science: Living Things and Their Needs

DESIRED RESULTS

Essential Questions
Students will keep considering…

Is this thing 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.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.	Kindergarten:: Needs of Living Things	I can tell how animals and plants get food and water.
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.	Kindergarten: Needs of Living Things	I can tell what plants need to grow.
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.	Kindergarten: Living Things and their Environment	I can identify the types of places that different plants and animals need to live.
SCI.ESS2.E: Biogeology	SCI.ESS2.E.K Plants and animals can change their local environment.	Kindergarten (Life Science): Living Things and Their Needs	I can explain how plants and animals can change their local environment
SCI.ESS3.A: Natural Resources	SCI.ESS3.A.K Living things need water, air, and resources from the land, and they live in places that have the things they need. Humans use natural resources for everything they do.	Kindergarten Living Things and Their Needs	I can explain that living things need water, air, and resources from the land and that they live in places that have the things they need.
SCI.ESS3.C: Human Impacts on	SCI.ESS3.C.K Things people do can affect the environment but they can make choices to reduce their impacts.	Kindergarten: Living Things and	I can explain that things people do affect the environment and they can make

Earth Systems		Their Needs	choices to reduce their impacts.
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.	Kindergarten Living Things and Their Needs	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.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.	Kindergarten Living Things and Their Needs	I can recognize that science and engineering use tools to observe and measure things.
SCI.ETS3.A: Science and Engineering Are Human Endeavors	SCI.ETS3.A.K-2 People have practiced science and engineering for a long time. Creativity and imagination are important to science engineering.	Kindergarten Living Things and Their Needs	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.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.	Kindergarten Living Things and Their Needs	I can explain how scientists and engineers try different approaches to answer questions and that they use evidence to support their findings.

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.	Kindergarten Living Things and Their Needs	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.	Kindergarten Living Things and Their Needs	I can observe cause and effect patterns. I can design simple tests to support or refute my ideas.
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.	Kindergarten Living Things and Their Needs	I can describe the parts of an object or organism and know that the parts work together.

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.	Kindergarten Living Things and Their Needs	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
SEP4: Analyzing and Interpreting Data	SCI.SEP4.K-2 Students collect, record, and share observations. This includes the following: Record information (observations, thoughts, and ideas). Use and share pictures, drawings, or writings of observations. 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. Compare predictions (based on prior experiences) to what occurred (observable events). Analyze data from tests of an object or tool to determine if the object or tool works as intended.	Kindergarten Living Things and Their Needs	I can collect, record, and share observations in various ways.
SEP5: Using Mathematics and Computational Thinking	SCI.SEP5.K-2 Students recognize that mathematics can be used to describe the natural and designed world. This includes the following: Use counting and numbers to identify and describe patterns in the natural and designed worlds. Describe, measure, or compare quantitative attributes of different objects and display the data using simple graphs. Use qualitative and/or quantitative data to compare two alternative solutions to a problem.	Kindergarten Living Things and Their Needs	I understand that math can be used to describe the world (patterns, measurements, data comparison).
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.	Kindergarten Living Things and Their Needs	I can compare ideas about the natural and designed world. SCI.SEP7.K-2

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.	Kindergarten Living Things and Their Needs	I can use observations and texts to communicate new information. SCI.SEP8.K-2

Anchoring Phenomenon

Recognizing the needs of living things and their behaviors to obtain them.

Assessment Evidence

Performance is evaluated in terms of observations, models, & simple sketches.
Students will show their learning by making observations, & constructing arguments.

Performance Expectations

- ***K-LS1-1:*** *Use observations to describe patterns of what plants and animals (including humans) need to survive.*
- ***K-ESS2-2:*** *Construct an argument supported by evidence for how plants and animals (including humans) can change the environment to meet their needs.*
- ***K-ESS3-1:*** *Use a model to represent the relationship between the needs of different plants or animals (including humans) and the places they live.*
- ***K-ESS3-3:*** *Communicate solutions that will reduce the impact of humans on the land, water, air, and/or living things in the local environment.*
- ***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)*
    - *At the end of the unit, students will draw 4 things that living things need to survive.*
- ➔ *Extensions may include:*
  - ◆ *Visit the school garden to dig for worms, isopods, etc.*
  - ◆ *Free play with the Bessbugs; observe how humans should treat living things*
  - ◆ Dirt sensory table and with various types of seeds to “plant”
  - ◆ *Nature Walk Field Trip*

- *Zoo Field Trip*
- *Discuss Recycling Programs at the school/community*

Earth and Space Science: Weather and Sky

DESIRED RESULTS

Essential Questions
Students will keep considering…

What do we know about weather?

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.ESS2.D: Weather and Climate	SCI.ESS2.D.K Weather is the combination of sunlight, wind, snow or rain, and temperature in a particular region and time. People record weather patterns over time.	Kindergarten: Observing the Sky	I can observe, measure and record weather data throughout the year.
SCI.ESS3.B: Natural Hazards	SCI.ESS3.B.K In a region, some kinds of severe weather are more likely than others. Forecasts allow communities to prepare for severe weather.	Kindergarten: Weather and Sky	I can identify that types of severe weather are more likely in some regions than others. I can use forecasts to help prepare for severe weather.
SCI.PS3.D: Energy in Chemical Process and Everyday Life	SCI.PS3.D.K Sunlight warms Earth's surface	Kindergarten: Weather and Sky	I can describe how the sun's rays affect sand, soil, rocks, and water.
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.	Kindergarten Weather and Sky	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	Kindergarten	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.	Weather and Sky	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.	Kindergarten Weather and Sky	I can recognize that science and engineering use tools to observe and measure things.
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.	Kindergarten Weather and Sky	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.	Kindergarten Weather and Sky	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.	Kindergarten Weather and Sky	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.	Kindergarten Weather and Sky	I can test and gather evidence about cause and effect relationships. SCI.CC2.K-2
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.	Kindergarten Weather and Sky	I can use descriptions of scale to describe objects. SCI.CC3.K-2

Science and Engineering Practices

Learning Priority	Performance Indicators	CBB Unit Connections	Learning Target
SEP1.A: Asking Questions	SCI.SEP1.A.K-2 Students ask simple descriptive questions that can be tested. This includes the following: Ask questions based on observations to find more information about the natural world. Ask or identify questions that can be answered by an investigation.	Kindergarten Weather and Sky	I can ask questions based on observations and investigations.
SEP1.B: Defining Problems	SCI.SEP1.B.K-2 Students define simple problems that can be solved through the development of a new or improved object or tool.	Kindergarten Weather and Sky	I can define simple problems that can be solved through the development of a new or improved object or tool.
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.	Kindergarten Weather and Sky	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: With guidance, plan and conduct an investigation in collaboration with peers (for K). 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.	Kindergarten Weather and Sky	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.
SEP4: Analyzing and Interpreting Data	SCI.SEP4.K-2 Students collect, record, and share observations. This includes the following: Record information (observations, thoughts, and ideas). Use and share pictures, drawings, or writings of observations. 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. Compare predictions (based on prior experiences) to what occurred (observable events).	Kindergarten Weather and Sky	I can collect, record, and share observations in various ways.

	Analyze data from tests of an object or tool to determine if the object or tool works as intended.		
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.	Kindergarten Weather and Sky	I can compare ideas about the natural and designed world. 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.	Kindergarten Weather and Sky	I can compare ideas about the natural and designed world SCI.SEP6.B.K-2

Anchoring Phenomenon

Recognizing how weather affects our daily lives.

Assessment Evidence

Performance is evaluated in terms of student observation, use of tools & class discussions.
Students will show their learning by asking questions, making observations, & gathering information

Performance Expectations

- ***K-ESS2-1:*** *Use and share observations of local weather conditions to describe patterns over time.*
- ***K-ESS3-2:*** *Ask questions to obtain information about the purpose of weather forecasting to prepare for, and respond to, severe weather.*
- ***K-PS3-1:*** *Make observations to determine the effect of sunlight on Earth's surface.*
- ***K-PS3-2:*** *Use tools and materials provided to design and build a structure that will reduce the warming effect of sunlight on Earth's surface.*
- ***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)*
    - *At the end of the unit, students will draw four things they learned about weather throughout the unit.*

- ➔ *Extensions may include:*
  - NASA's Earth Observatory: Earth at Night from Space
  - Print or display the weekly weather forecast and compare it with the actual weather at the end of each day
  - Visit Police & Fire Station to learn about Community Helpers. (Free)
  - Owlie Skywarn website