ELEMENTARY SCIENCE CURRICULUM | 3RD GRADE

Course Information - K-12 Science

Third Grade Science

CURRICULUM/CONTENT AREA	COURSE LENGTH
Science	1 year
GRADE LEVEL	**DATE LAST REVIEWED**
3rd	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.CC1.3-5 Students identify similarities and differences in order to sort and classify natural objects and designed products. They identify patterns related to time, including simple rates of change and cycles, and use these patterns to make predictions.	• How do things become balanced? • How do we categorize an ecosystem? • What do we know about
CC2: Cause and	SCI.CC2.3-5 Students routinely identify and test causal relationships and use these relationships to explain change. They understand events that occur together with regularity may or may not signify a	

Effect	cause-and-effect relationship.
CC3: Scale, Proportion, and Quantity	SCI.CC3.3-5 Students recognize natural objects and observable phenomena exist from the very small to the immensely large. They use standard units to measure and describe physical quantities such as mass, time, temperature, and volume
CC4: Systems and System Models	SCI.CC4.3-5 Students understand a system is a group of related parts that make up a whole and can carry out functions its individual parts cannot. They also describe a system in terms of its components and their interactions.
CC5: Energy and Matter	SCI.CC5.3-5 Students understand matter is made of particles and energy can be transferred in various ways and between objects. Students observe the conservation of matter by tracking matter flows and cycles before and after processes, recognizing the total mass of substances does not change. Note: In this grade band, students are not expected to be able to differentiate between mass and weight.
CC6: Structure and Function	SCI.CC6.3-5 Students understand different materials have different substructures, which can sometimes be observed, and substructures have shapes and parts that serve functions.
CC7: Stability and Change	SCI.CC7.3-5 Students measure change in terms of differences over time and observe that change may occur at different rates. They understand some systems appear stable, but over long periods of time they will eventually change.

weather?

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: Forces and Interactions

DESIRED RESULTS
Essential Questions *Students will keep considering...*
How do things become balanced?

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.3 Qualities of motion and changes in motion require description of both size and direction. The effect of unbalanced forces on an object results in a change of motion. Patterns of motion can be used to predict future motion.	Grade 3: Unbalanced Forces	I can describe the size and direction of a motion, recognize the effect of unbalanced forces on an object, and use patterns of motion to predict future motion. SCI.PS2.A.3
SCI.PS2.B: Types of Interactions	SCI.PS2.B.3 Some forces act through contact, some forces (e.g. magnetic, electrostatic) act even when the objects are not in contact.	Grade 3: Changes in Motion Grade 3: Magnetism and Electricity	I can explain the difference between contact and non-contact forces, and provide examples of each. SCI.PS2.B.3
SCI.PS3.B: Conservation of Energy and Energy Transfer	SCI.PS3.B.4 Energy can be moved from place to place by moving objects, or through sound, light, or electrical currents. Energy can be converted from one form to another form.	Grade 3: Magnetism and Electricity	I can demonstrate how energy is converted from one form to another. SCI.PS3.B.4
SCI.PS3.C: Relationships Between Energy and Forces	SCI.PS3.C.4 When objects collide, contact forces transfer energy so as to change objects' motions.	Grade 3: Changes in Motion	I can explain how contact forces transfer energy when two objects collide, resulting in a change in the objects' motions. SCI.PS3.C.4
SCI.ETS1.A: Defining and Delimiting Engineering Problems	SCI.ETS1.A.3-5 Possible solutions to a problem are limited by available materials and resources (constraints). The success of a designed solution is determined by considering the desired features of a solution (criteria). Different proposals for solutions can be compared on the basis of how well each one meets the specified criteria for success or how well each takes the constraints into account.	Grade 3: Magnetic Solutions	I can think up an engineering "problem" that needs to be fixed; I can list rules for possible solutions. SCI.ETS1.A.3-5
SCI.ETS1.B: Developing Possible Solutions	SCI.ETS1.B.3-5 Research on a problem should be carried out before beginning to design a solution. Testing a solution involves investigating how well it performs under a range of likely conditions. At whatever stage, communicating with peers about proposed solutions is an important part of the design process, and shared ideas can lead to improved designs.	Grade 3	I can test different solutions for an engineering problem; I can tell you if an idea will work, fail, or just needs improvement. SCI.ETS1.B.3-5

	Tests are often designed to identify failure points or difficulties, which suggest the elements of the design that need to be improved.		
SCI.ETS2.B: Influence of Engineering, Technology, and Science on Society and the Natural World	SCI.ETS2.B.3-5 People's needs and wants change over time, as do their demands for new and improved technologies. Engineers improve existing technologies or develop new ones to increase their benefits, decrease known risks, and meet societal demands. When new technologies become available, they can bring about changes in the way people live and interact with one another.	Grade 3: Magnetic Solutions	I can define a simple design problem reflecting a need or a want that includes specific criteria for success. SCI.ETS2.B.3-5
SCI.ETS3.B: Science and Engineering Are Unique Ways of Thinking with Different Purposes	SCI.ETS3.B.3-5 Science and engineering are both bodies of knowledge and processes that add new knowledge to our understanding. Scientific findings are limited to what can be supported with evidence from the natural world. Basic laws of nature are the same everywhere in the universe (e.g. gravity, conservation of matter, energy transfer, etc.). Engineering solutions often have drawbacks as well as benefits	Grade 3	I can explain that scientific findings need to be supported with evidence from the natural world. SCI.ETS3.B.3-5 I can recognize that basic laws of nature are the same everywhere in the universe. SCI.ETS3.B.3-5 I can understand that engineering solutions can have drawbacks and benefits. SCI.ETS3.B.3-5

Crosscutting Concepts

Learning Element	Performance Indicator	CBB Unit Connection	Learning Target
CC1: Patterns	SCI.CC1.3-5 Students identify similarities and differences in order to sort and classify natural objects and designed products. They identify patterns related to time, including simple rates of change and cycles, and use these patterns to make predictions.	Grade 3: Forces and Interactions	I can make observations and/or measurements of an object's motion to provide evidence that a pattern can be used to predict future motion. SCI.CC1.3-5
CC2: Cause and Effect	SCI.CC2.3-5 Students routinely identify and test causal relationships and use these relationships to explain change. They understand events that occur together with regularity may or may not signify a cause-and-effect relationship.	Grade 3: Forces and Interactions	I can provide evidence of the effects of balanced and unbalanced forces on the motion of an object. SCI.CC2.3-5

Science and Engineering Practices

Learning Element	Performance Indicator	CBB Unit Connection	Learning Target
SEP1.A: Asking Questions	SCI.SEP1.A.3-5 Students ask questions that specify qualitative relationships. This includes the following: Ask questions about what would happen if a variable is changed. Identify scientific (testable) and non-scientific (non testable) questions. Ask questions that can be investigated and predict reasonable outcomes based on patterns such as cause and effect relationships.	Grade 3: Forces and Interactions	I can ask questions about what would happen in a particular situation (problem) and make predictions about the results. SCI.SEP1.A.3-5
SEP1.B: Defining Problems	SCI.SEP1.B.3-5 Students use prior knowledge to describe and define simple design problems that can be solved through the development of an object, tool, process, or system. They include several criteria for success and constraints on materials, time, or cost.	Grade 3: Forces and Interactions	I can define problems that can be solved by applying scientific ideas about forces and magnets. SCI.SEP1.B.3-5
SEP2: Developing and Using Models	SCI.SEP2.3-5 Students build and revise simple models and use models to represent events and design solutions. This includes the following: Identify limitations of models. Collaboratively develop and/or revise a model based on evidence that shows the relationships among variables for frequent and regular occurring events. Develop a model using an analogy, example, or abstract representation to describe a scientific principle or design solution. Develop and/or use models to describe or predict phenomena. Develop a diagram or simple physical prototype to convey a proposed object, tool, or process. Use a model to test cause and effect relationships or interactions concerning the functioning of a natural or designed system.	Grade 3: Forces and Interactions	I can develop and use a model to carry out an investigation. SCI.SEP2.3-5
SEP3: Planning and Conducting Investigations	SCI.SEP3.3-5 Students plan and carry out investigations that control variables and provide evidence to support explanations or design solutions. This includes the following: Collaboratively plan and conduct an investigation to produce data to serve as the basis for evidence, using fair tests in which variables are controlled and the number of trials considered. Evaluate appropriate methods and tools for collecting data. Make observations and measurements to produce data to serve as the basis for evidence for an explanation of a phenomenon or test a design solution. Make predictions about what would happen if a variable changes. Test two different models of the same proposed object, tool, or process to determine which better meets criteria for success.	Grade 3: Forces and Interactions	I can plan and carry out an investigation by making predictions, testing and recording observations, collecting data, and providing evidence to explain a phenomena. SCI.SEP3.3-5
SEP5: Using Mathematics and Computational Thinking	SCI.SEP5.3-5 Students extend quantitative measurements to a variety of physical properties, using computation and mathematics to analyze data and compare alternative design solutions. This includes the following: Organize simple data sets to reveal patterns that suggest relationships. Describe, measure, estimate, and/or graph quantities such as area, volume, weight, and time to address scientific and engineering questions and problems. Create and use graphs or charts generated from simple	Grade 3: Forces and Interactions	I can solve problems involving measurement and estimations. SCI.SEP5.3-5 I can perform multi-digit arithmetic using all operations. SCI.SEP5.3-5 I can represent and interpret data. SCI.SEP5.3-5

	algorithms to compare alternative solutions to an engineering problem.		
SEP6.A: Constructing an Explanation	SCI.SEP6.A.3-5 Students use evidence to construct explanations that specify variables that describe and predict phenomena. This includes the following: Construct an explanation of observed relationships (e.g., the distribution of plants in the back yard). Use evidence (e.g., measurements, observations, patterns) to construct or support an explanation. Identify the evidence that supports particular points in an explanation.	Grade 3: Forces and Interactions	I can use evidence to explain phenomena. SCI.SEP6.A.3-5
SEP6.B: Designing Solutions	SCI.SEP6.B.3-5 Students use evidence to create multiple solutions to design problems. This includes the following: Apply scientific ideas to solve design problems. Generate multiple solutions to a problem and compare how well they meet the criteria and constraints.	Grade 3: Forces and Interactions	I can generate multiple solutions to a problem. SCI.SEP6.B.3-5
SEP8: Obtaining, Evaluating, and Communicating Information	SCI.SEP8.3-5 Students evaluate the merit and accuracy of ideas and methods. This includes the following: Read and comprehend grade-appropriate complex texts and other reliable media to summarize and obtain scientific and technical ideas, and describe how they are supported by evidence. Compare and/or combine information across complex texts and other reliable media to support the engagement in scientific and engineering practices. Combine information in written text with that contained in corresponding tables, diagrams, or charts to support the engagement in other scientific and engineering practices. Obtain and combine information from books or other reliable media to explain phenomena or solutions to a design problem. Communicate scientific and technical information orally or in written formats, including various forms of media, which may include tables, diagrams, and charts.	Grade 3: Forces and Interactions	I can synthesize information and communicate my understanding of phenomena or solutions to a design problem. SCI.SEP8.3-5

Anchoring Phenomenon

Recognizing the interactions between forces at an amusement park.

Assessment Evidence

Performance is evaluated in terms of…
Students will show their learning by…

Performance Expectations

- ***3-PS2-1:*** *Plan and conduct an investigation to provide evidence of the effects of balanced and unbalanced forces on the motion of an object.*
- ***3-PS2-2:*** *Make observations and/or measurements of an object's motion to provide evidence that a pattern can be used to predict future motion.*
- ***3-PS2-3:*** *Ask questions to determine cause and effect relationships of electric or magnetic interactions between two objects not in contact with each other.*
- ***3-PS2-4:*** *Define a simple design problem that can be solved by applying scientific ideas about magnets.*
- ***3-5-ETS1-1:*** *Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or*

cost.

- ***3-5-ETS1-2:*** *Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the 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: Life in Ecosystems

DESIRED RESULTS

Essential Questions
Students will keep considering...

How do we categorize an ecosystem?

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.B: Growth and Development of Organisms	SCI.LS1.B.3 Reproduction is essential to every kind of organism. Organisms have unique and diverse life cycles.	Grade 3 Life in Ecosystems	I can identify the structures in plants and animals that allow for growth, survival, behavior and reproduction. SCI.LS1.B.3
SCI.LS2.C: Ecosystem Dynamics, Functioning, and Resilience	SCI.LS2.C.3 When the environment changes, some organisms survive and reproduce, some move to new locations, some move into transformed environments, and some die.	Grade 3 Life in Ecosystems	I can explain how different organisms respond to environmental changes. SCI.LS2.C.3
SCI.LS2.D: Social Interactions and Group Behavior	SCI.LS2.D.3 Being part of a group helps animals obtain food, defend themselves, and cope with changes.	Grade 3 Life in Ecosystems	I can explain how being part of a group helps animals survive. SCI.LS2.D.3
SCI.LS3.A: Inheritance of Traits	SCI.LS3.A.3 Many characteristics of organisms are inherited from their parents. Other characteristics result from individuals' interactions with the environment. Many characteristics involve both inheritance and environment.	Grade 3 Life in Ecosystems	I can explain how genetic (inherited) and environmental factors interact to influence the characteristics of an organism. SCI.LS3.A.3
SCI.LS3.B: Variation of Traits	SCI.LS3.B.3 Different organisms vary in how they look and function because they have different inherited information; the environment also affects the traits that an organism develops.	Grade 3 Life in Ecosystems	I can explain how different organisms look and function differently due to inherited information and environmental factors. SCI.LS3.B.3

SCI.LS4.A: Evidence of Common Ancestry and Diversity	SCI.LS4.A.3 Some living organisms resemble organisms that once lived on Earth. Fossils provide evidence about the types of organisms and environments that existed long ago.	Grade 3 Life in Ecosystems	I can analyze fossil evidence to infer information about extinct organisms and environments. SCI.LS4.A.3
SCI.LS4.B: Natural Selection	SCI.LS4.B.3 Differences in characteristics between individuals of the same species provide advantages in surviving and reproducing.	Grade 3 Life in Ecosystems	I can explain how every living thing has differences in their physical and behavioral traits which helps them survive and how their young also have these traits. SCI.LS4.B.3
SCI.LS4.C: Adaptation	SCI.LS4.C.3 Particular organisms can only survive in particular environments.	Grade 3 Life in Ecosystems	I can explain that in a particular habitat some plants and animals grow strong, some struggle, and others die. SCI.LS4.C.3
SCI.LS4.D: Biodiversity and Humans	SCI.LS4.D.3 Populations of organisms live in a variety of habitats. Change in those habitats affects the organisms living there.	Grade 3 Life in Ecosystems	I can describe how different types of animals and plants live in different places, and how changes in their habitats can affect how they grow and survive. SCI.LS4.D.3
SCI.ETS1.B: Developing Possible Solutions	SCI.ETS1.B.3-5 Research on a problem should be carried out before beginning to design a solution. Testing a solution involves investigating how well it performs under a range of likely conditions. At whatever stage, communicating with peers about proposed solutions is an important part of the design process, and shared ideas can lead to improved designs. Tests are often designed to identify failure points or difficulties, which suggest the elements of the design that need to be improved.	Grade 3 Life in Ecosystems	I can test different solutions for an engineering problem; I can tell you if an idea will work, fail, or just needs improvement. SCI.ETS1.B.3-5

Crosscutting Concepts

Learning Element	Performance Indicator	CBB Unit Connection	Learning Target
CC1: Patterns	SCI.CC1.3-5 Students identify similarities and differences in order to sort and classify natural objects and designed products. They identify patterns related to time, including simple rates of change and cycles, and use these patterns to make predictions.	Grade 3 Life in Ecosystems	I can identify similarities and differences in order to sort and classify objects. SCI.CC1.3-5 I can identify patterns and make predictions related to time and rates of change.SCI.CC1.3-5
CC2: Cause and Effect	SCI.CC2.3-5 Students routinely identify and test causal relationships and use these relationships to explain change. They understand events that occur together with regularity may	Grade 3 Life in Ecosystems	I can identify and test relationships and use these relationships to explain change. SCI.CC2.3-5

	or may not signify a cause-and-effect relationship.		
CC3: Scale, Proportion, and Quantity	SCI.CC3.3-5 Students recognize natural objects and observable phenomena exist from the very small to the immensely large. They use standard units to measure and describe physical quantities such as mass, time, temperature, and volume	Grade 3 Life in Ecosystems	I can use standard units to measure and describe physical quantities. SCI.CC3.3-5
CC4: Systems and System Models	SCI.CC4.3-5 Students understand a system is a group of related parts that make up a whole and can carry out functions its individual parts cannot. They also describe a system in terms of its components and their interactions.	Grade 3 Life in Ecosystems	I can understand and describe a system in terms of its components and interactions. SCI.CC4.3-5
CC6: Structure and Function	SCI.CC6.3-5 Students understand different materials have different substructures, which can sometimes be observed, and substructures have shapes and parts that serve functions.	Grade 3 Life in Ecosystems	I can understand that different materials have different substructures.SCI.CC6.3-5

Science and Engineering Practices

Learning Element	Performance Indicator	CBB Unit Connection	Learning Target
SEP2: Developing and Using Models	SCI.SEP2.3-5 Students build and revise simple models and use models to represent events and design solutions. This includes the following: Identify limitations of models. Collaboratively develop and/or revise a model based on evidence that shows the relationships among variables for frequent and regular occurring events. Develop a model using an analogy, example, or abstract representation to describe a scientific principle or design solution. Develop and/or use models to describe or predict phenomena. Develop a diagram or simple physical prototype to convey a proposed object, tool, or process. Use a model to test cause and effect relationships or interactions concerning the functioning of a natural or designed system.	Grade 3 Life in Ecosystems	I can build, test and revise simple models and use these models to describe or predict phenomena. SCI.SEP2.3-5
SEP4: Analyzing and Interpreting Data	SCI.SEP4.3-5 Students begin to use quantitative approaches to collect data and conduct multiple trials of qualitative observations. (When possible, digital tools should be used.) This includes the following: Represent data in tables or various graphical displays (bar graphs, pictographs, and pie charts) to reveal patterns that indicate relationships. Analyze and interpret data to make sense of phenomena, using logical reasoning, mathematics, or computation. Compare and contrast data collected by different groups in order to discuss similarities and differences in their findings. Analyze data to refine a problem statement or the design of a proposed object, tool, or process. Use data to evaluate and refine design solutions.	Grade 3 Life in Ecosystems	I can collect, compare and contrast data and conduct multiple trials of qualitative observations. SCI.SEP4.3-5

SEP6.A: Constructing an Explanation	SCI.SEP6.A.3-5 Students use evidence to construct explanations that specify variables that describe and predict phenomena. This includes the following: Construct an explanation of observed relationships (e.g., the distribution of plants in the back yard). Use evidence (e.g., measurements, observations, patterns) to construct or support an explanation. Identify the evidence that supports particular points in an explanation.	Grade 3 Life in Ecosystems	I can use evidence to construct explanations to describe and predict phenomena. SCI.SEP6.3-5
SEP6.B: Designing Solutions	SCI.SEP6.B.3-5 Students use evidence to create multiple solutions to design problems. This includes the following: Apply scientific ideas to solve design problems. Generate multiple solutions to a problem and compare how well they meet the criteria and constraints.	Grade 3 Life in Ecosystems	I can use evidence to create multiple solutions to a problem. SCI.SEP6.B.3-5
SEP7: Arguing from Evidence	SCI.SEP7.3-5 Students critique the scientific explanations or solutions proposed by peers by citing relevant evidence about the natural and designed world. This includes the following: Compare and refine arguments based on an evaluation of the evidence presented. Distinguish among facts, reasoned judgment based on research findings, and speculation in an explanation. Respectfully provide and receive critiques from peers about a proposed procedure, explanation, or model by citing relevant evidence and posing specific questions. Construct and/or support an argument with evidence, data, or a model. Use data to evaluate claims about cause and effect. Make a claim about the merit of a solution to a problem by citing relevant evidence about how it meets the criteria and constraints of the problem.	Grade 3 Life in Ecosystems	I can construct and/or support an argument with evidence and respectfully provide and receive criticism from peers. SCI.SEP7.3-5

Anchoring Phenomenon

Recognizing the amazing diversity of life in the ecosystems we live in.

Assessment Evidence

Performance is evaluated in terms of…
Students will show their learning by…

Performance Expectations

- ***3-LS1-1:*** *Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death.*
- ***3-LS2-1:*** *Construct an argument that some animals form groups that help members survive.*
- ***3-LS3-1:*** *Analyze and interpret data to provide evidence that plants and animals have traits inherited from parents and that variation of these traits exists in a group of similar organisms.*
- ***3-LS3-2:*** *Use evidence to support the explanation that traits can be influenced by the environment.*
- ***3-LS4-1:*** *Analyze and interpret data from fossils to provide evidence of the organisms and the environments in which they lived long ago.*
- ***3-LS4-2:*** *Use evidence to construct an explanation for how the variations in characteristics among individuals of the same species may provide advantages*

in surviving, finding mates and reproducing.

- ***3-LS4-3:*** *Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all.*
- ***3-LS4-4:*** *Make a claim about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change.*
- ***3-5-ETS1-2:*** *Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the 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: Weather and Climate Patterns

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.3 Climate describes patterns of typical weather conditions over different scales and variations. Historical weather patterns can be analyzed.	Third Grade Weather and Climate Patterns	I can describe how climate refers to the typical weather patterns in a place over a long time, and how scientists can study these patterns to understand how the weather and temperature have changed over many years. SCI.ESS2.D.3
SCI.ESS3.B: Natural Hazards	SCI.ESS3.B.3,4 A variety of hazards result from natural processes; humans cannot eliminate hazards but can reduce their impacts.	Third Grade Weather and Climate Patterns	I can explain how to prevent and minimize damage from weather disasters. SCI.ESS3.B.3,4
SCI.ETS1.B: Developing Possible Solutions	SCI.ETS1.B.3-5 Research on a problem should be carried out before beginning to design a solution. Testing a solution involves investigating how well it performs under a range of likely conditions. At whatever stage, communicating with peers about proposed solutions is an important part of the design process, and shared ideas can lead to improved designs. Tests are often designed to identify failure points or difficulties, which suggest the elements of the design that need to be improved.	Third Grade Weather and Climate Patterns: Lesson 5	I can test different solutions for an engineering problem; I can tell you if an idea will work, fail, or just needs improvement SCI.ETS1.B.3-5

SCI.ETS2.A: Interdependence of Science, Engineering, and Technology	SCI.ETS2.A.3-5 Science and technology support each other. Tools and instruments are used to answer scientific questions, while scientific discoveries lead to the development of new technologies.	Third Grade Weather and Climate Patterns: Lesson 2	I can explain how science and technology support each other. SCI.ETS2.A.3-5

Crosscutting Concepts

Learning Element	Performance Indicator	CBB Unit Connection	Learning Target
CC1: Patterns	SCI.CC1.3-5 Students identify similarities and differences in order to sort and classify natural objects and designed products. They identify patterns related to time, including simple rates of change and cycles, and use these patterns to make predictions.	Third Grade ALL Weather and Climate Patterns Lessons	I can identify patterns and make predictions. SCI.CC1.3-5
CC2: Cause and Effect	SCI.CC2.3-5 Students routinely identify and test causal relationships and use these relationships to explain change. They understand events that occur together with regularity may or may not signify a cause-and-effect relationship.	Third Grade Weather and Climate Patterns	I can identify and test relationships and explain change. SCI.CC2.3-5
CC7: Stability and Change	SCI.CC7.3-5 Students measure change in terms of differences over time and observe that change may occur at different rates. They understand some systems appear stable, but over long periods of time they will eventually change.	Third Grade Weather and Climate Patterns	I can measure change over time and can observe that change may occur at different rates. SCI.CC7.3-5

Science and Engineering Practices

Learning Element	Performance Indicator	CBB Unit Connection	Learning Target
SEP4: Analyzing and Interpreting Data	SCI.SEP4.3-5 Students begin to use quantitative approaches to collect data and conduct multiple trials of qualitative observations. (When possible, digital tools should be used.) This includes the following: Represent data in tables or various graphical displays (bar graphs, pictographs, and pie charts) to reveal patterns that indicate relationships. Analyze and interpret data to make sense of phenomena, using logical reasoning, mathematics, or computation. Compare and contrast data collected by different groups in order to discuss similarities and differences in their findings. Analyze data to refine a problem statement or the design of a proposed object, tool, or process. Use data to evaluate and refine design solutions.	Third Grade Weather and Climate Patterns	I can collect data and conduct multiple trials. SCI.SEP4.3-5 I can represent data in tables and graphs. SCI.SEP4.3-5 I can compare and contrast data. SCI.SEP4.3-5 I can analyze data to refine a problem and evaluate a solution. SCI.SEP4.3-5

SEP6.A: Constructing an Explanation	SCI.SEP6.A.3-5 Students use evidence to construct explanations that specify variables that describe and predict phenomena. This includes the following: Construct an explanation of observed relationships (e.g., the distribution of plants in the back yard). Use evidence (e.g., measurements, observations, patterns) to construct or support an explanation. Identify the evidence that supports particular points in an explanation.	Third Grade Weather and Climate Patterns	I can use evidence to explain or support and explanation. SCI.SEP6.A.3-5
SEP6.B: Designing Solutions	SCI.SEP6.B.3-5 Students use evidence to create multiple solutions to design problems. This includes the following: Apply scientific ideas to solve design problems. Generate multiple solutions to a problem and compare how well they meet the criteria and constraints.	Third Grade Weather and Climate Patterns	I can use evidence to solve and design problems. SCI.SEP6.A.3-5
SEP7: Arguing from Evidence	SCI.SEP7.3-5 Students critique the scientific explanations or solutions proposed by peers by citing relevant evidence about the natural and designed world. This includes the following: Compare and refine arguments based on an evaluation of the evidence presented. Distinguish among facts, reasoned judgment based on research findings, and speculation in an explanation. Respectfully provide and receive critiques from peers about a proposed procedure, explanation, or model by citing relevant evidence and posing specific questions. Construct and/or support an argument with evidence, data, or a model. Use data to evaluate claims about cause and effect. Make a claim about the merit of a solution to a problem by citing relevant evidence about how it meets the criteria and constraints of the problem.	Third Grade Weather and Climate Patterns	I can critique the explanations or solutions proposed by peers by using evidence. SCI.SEP7.3-5

Anchoring Phenomenon

Recognizing that weather and climate are connected.

Assessment Evidence

Performance is evaluated in terms of…
Students will show their learning by…

Performance Expectations

- ***3-ESS2-1:*** *Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season.*
- ***3-ESS2-2:*** *Obtain and combine information to describe climates in different regions of the world.*
- ***3-ESS3-1:*** *Make a claim about the merit of a design solution that reduces the impacts of a weather-related hazard.*
- ***3-5-ETS1-2:*** *Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the 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*
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