Grade 3

Third grade students have a growing capacity to process information. They are increasingly aware of their environment and have already developed an understanding of many patterns and processes in nature. This awareness makes them eager to participate in scientific and engineering practices. Students use writing and mathematics skills to communicate scientific information during varied instructional activities. Explicit science instruction is critical for applying scientific literacy to make connections between academic content and the world around them.

Students in Grade 3 will learn disciplinary core ideas from the scientific domains of physical, life, and Earth and space sciences. The physical sciences domain addresses the core idea "Motion and Stability," in which students will investigate, measure, and predict the motion of an object and test the cause and effect relationship of electrostatic and magnetic interactions. Life sciences encompasses "Structures and Processes," "Inheritance and Variation of Traits," and "Unity and Diversity." Students use evidence to interpret fossil data and construct explanations of an organism's ability to survive when environmental changes occur. Students examine organisms' life cycles and traits and the influence of the environment on these traits. Earth and space sciences core ideas are "Earth's Systems" and "Earth and Human Activity." Students represent data and communicate solutions to problems that exist in typical weather conditions expected during a particular season.

Embedded in the content standards are the disciplinary core ideas of the Engineering, Technology, and Applications of Science (ETS) domain, which require students to use design strategies in conjunction with knowledge and understanding of science and technology to solve practical problems. Engineering standards are denoted with a gear icon⚙. Through guided participation in the engineering design process, students will solve a problem by applying scientific ideas about magnetic interactions.

Each content standard completes the stem *"**Students will**..."*

Motion and Stability: Forces and Interactions		
Changes in Motion	1. Conduct investigations to explain the effects of balanced and unbalanced forces exerted on an object, varying the size, number, and direction of the forces. *Examples: balanced forces pushing from both sides of an object, such as a box, producing no motion; unbalanced force on one side of an object, such as a ball, producing motion*	**Cause and Effect**
	2. Observe and measure an object's motion to provide evidence that a pattern of motion can be used to predict future motion. *Examples: a child swinging on a swing, a ball rolling back and forth in a bowl, two children going up and down on a seesaw, a model vehicle rolling down ramps of varying heights, a swinging pendulum*	**Patterns**
Non-Contact Forces	3. Conduct investigations to determine cause and effect relationships between objects not in contact with one another, including magnetic and electrostatic forces. *Examples: the force on hair from an electrically charged balloon, the attraction of the plastic wrap to your hand after you remove it from a package, force between two permanent magnets at a distance, force between two magnets and steel paper clips*	**Cause and Effect**
	4. ⚙ Apply scientific ideas about magnetic interactions to solve a problem using the engineering design process. *Examples: constructing maglev systems, constructing a latch to keep a door shut*	**Systems and System Models**

From Molecules to Organisms: Structures and Processes		
Growth and Development	5. Develop and use models to compare the diverse life cycles of organisms other than humans, including birth, growth, reproduction, and death. *Examples: flowering plants, frogs, butterflies*	**Stability and Change**
Heredity: Inheritance and Variation of Traits		
Inherited Traits and Environmental Impact	6. Use data to provide evidence that plants and animals have observable traits inherited from parents and that variations of these traits exist in groups of similar organisms. *Examples: dogs and their offspring have fur and four legs, pine trees and their offspring have needles*	**Patterns**
	7. Use evidence to support a claim that traits can be influenced by the environment. *Examples: insufficient nutrients leads to stunted growth in plants and animals; acid in the soil determines the color of the hydrangea blooms; a flamingo's diet determines the color of its feathers*	**Cause and Effect**
Unity and Diversity		
Fossil Evidence	8. Analyze and interpret data from fossils to provide evidence of the existence of organisms and information about the environments in which they lived. *Examples: marine fossils on dry land, tropical plant fossils in arctic areas, fossils of extinct organisms in any environment*	**Scale, Proportion, and Quantity**

Biodiversity	9. Construct an explanation from evidence of how variations in characteristics among individuals of the same species may provide advantages in surviving, finding mates, and reproducing. *Examples: plants having larger thorns being less likely to be eaten by predators, animals having better camouflage coloration being more likely to survive and bear offspring*	**Systems and System Models**
	10. Make a claim from evidence that an organism's likelihood of survival depends upon access to sufficient resources in its habitat, including sunlight, air, water, food, and shelter.	**Energy and Matter**
	11. Construct explanations of how forming groups helps some organisms survive. *Example: quail form coveys to provide protection for their young*	**Cause and Effect**
Human Impact	12. Obtain and communicate information regarding the impact of existing solutions on plant and animal populations when environmental changes occur. *Examples: creating barriers in coastal areas to protect sea oats from destruction by hurricanes, trapping and relocating beavers whose dam causes flooding, reseeding a forest following wildfires, cutting a fire break or burning underbrush to contain a wildfire*	**Scale, Proportion, and Quantity**
Earth's Systems		
Weather	13. Represent data in tables or graphical displays to reveal typical weather patterns during a particular season. *Examples: line graphs of precipitation, bar graphs of wind direction, line plots of temperature*	**Patterns**
Climate	14. Use information from a variety of sources to describe climates in different regions of the world.	**Systems and System Models**

Earth and Human Activity		
Natural Hazard Solutions	15. Obtain and communicate information on the effectiveness of existing solutions designed to reduce the impact of weather-related hazards. *Examples: flood barriers, wind-resistant roofs, tornado warning sirens, hurricane shutters, tornado shelters, weather alert apps on a phone*	**Cause and Effect**