Grade 1

First grade students continue to be eager learners who are curious about their world. This inquisitive nature leads them to ask a variety of questions to create deeper understanding. Students are developing social skills that enable them to engage in cooperative, inquiry-based learning, and they begin to take ownership of their learning experiences by making connections through meaningful investigations. Explicit science instruction is critical for developing scientific literacy and fostering students' curiosity.

Students in Grade 1 learn disciplinary core ideas (DCIs) from the scientific domains of physical, life, and Earth and space sciences. In the physical sciences, addressed through the core idea "Waves and Their Applications in Technologies for Information Transfer," students conduct investigations to discover the properties of light and sound waves. In the life sciences DCIs, "From Molecules to Organisms: Structures and Processes" and "Heredity: Inheritance and Variation of Traits," students identify similarities between parents and their offspring and determine how organisms adapt to their environment in order to survive. In the Earth and space sciences core idea, "Earth's Place in the Universe," students observe and predict seasonal patterns of daylight and observe the patterns of the sun, moon, and stars as they appear in the sky.

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 construct a device that uses light or sound to communicate.

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

Waves and Their Applications in Technologies for Information Transfer		
Wave Properties	1. Carry out investigations to provide evidence that the vibrations of matter can make sound and sound can make matter vibrate. *Examples: striking a tuning fork, plucking a guitar string, holding a piece of paper near a sound system speaker* 2. Use evidence from observations to explain that light is necessary in order for an object to be seen. 3. Plan and carry out investigations to determine how light is affected when it interacts with various types of materials. *Examples: transparent, translucent, opaque, reflective*	**Cause and Effect**

	4. ✪Design and construct a device that uses light or sound waves to send a communication signal over a distance. *Examples: using a light or a sound to communicate an action or a warning*	
From Molecules to Organisms: Structures and Processes		
External Structures	5. Use information from observations to explain how various external features help living things survive, grow, and meet their needs. *Examples: a rose's thorns, a giraffe's long neck*	**Structure and Function**
Growth and Development	6. Obtain information from text and other media to provide evidence that parents and their offspring engage in patterns of behavior that help the offspring survive. *Examples: Offspring send signals such as crying or other vocalization and the parent responds by comforting, feeding, and protecting the offspring.*	**Patterns**
Heredity: Inheritance and Variation of Traits		
Inherited Traits and Environmental Impact	7. Make observations to identify the similarities and differences between offspring and their parents. *Examples: flowers from the same kind of plant being the same shape, but differing in size; dog being same breed as parent, but differing in fur color or pattern*	**Patterns**
Earth's Place in the Universe		
Sun, Moon, and Stars	8. Observe, describe, and predict patterns of the sun, moon, and stars as they appear in the sky. 9. Use observations of seasonal sunrise and sunset patterns to describe the relationship between the number of hours of daylight and the time of year.	**Patterns**