SCIENCE – Fifth Grade

Scientific Investigation, Reasoning, and Logic

5.1 The student will demonstrate an understanding of scientific reasoning, logic, and the nature of science by planning and conducting investigations in which
- a) items such as rocks, minerals, and organisms are identified using various classification keys;
- b) estimates are made and accurate measurements of length, mass, volume, and temperature are made in metric units using proper tools;
- c) estimates are made and accurate measurements of elapsed time are made using proper tools;
- d) hypotheses are formed from testable questions;
- e) independent and dependent variables are identified;
- f) constants in an experimental situation are identified;
- g) data are collected, recorded, analyzed, and communicated using proper graphical representations and metric measurements;
- h) predictions are made using patterns from data collected, and simple graphical data are generated;
- i) inferences are made and conclusions are drawn;
- j) models are constructed to clarify explanations, demonstrate relationships, and solve needs; and
- k) current applications are used to reinforce science concepts.

Force, Motion, and Energy

5.2 The student will investigate and understand how sound is created and transmitted, and how it is used. Key concepts include
- a) compression waves;
- b) vibration, compression, wavelength, frequency, amplitude;
- c) the ability of different media (solids, liquids, and gases) to transmit sound; and
- d) uses and applications of sound waves.

5.3 The student will investigate and understand basic characteristics of visible light and how it behaves. Key concepts include
- a) transverse waves;
- b) the visible spectrum;
- c) opaque, transparent, and translucent;
- d) reflection of light from reflective surfaces; and
- e) refraction of light through water and prisms.

Matter

5.4 The student will investigate and understand that matter is anything that has mass and takes up space; and occurs as a solid, liquid, or gas. Key concepts include
- a) distinguishing properties of each phase of matter;
- b) the effect of temperature on the phases of matter;
- c) atoms and elements;
- d) molecules and compounds; and
- e) mixtures including solutions.

Living Systems

5.5 The student will investigate and understand that organisms are made of one or more cells and have distinguishing characteristics that play a vital role in the organism's ability to survive and thrive in its environment. Key concepts include
- a) basic cell structures and functions;
- b) classification of organisms using physical characteristics, body structures, and behavior of the organism; and
- c) traits of organisms that allow them to survive in their environment.

Interrelationships in Earth/Space Systems

5.6 The student will investigate and understand characteristics of the ocean environment. Key concepts include
- a) geological characteristics;
- b) physical characteristics; and
- c) ecological characteristics.

Earth Patterns, Cycles, and Change

5.7 The student will investigate and understand how Earth's surface is constantly changing. Key concepts include
- a) identification of rock types;
- b) the rock cycle and how transformations between rocks occur;
- c) Earth history and fossil evidence;
- d) the basic structure of Earth's interior;
- e) changes in Earth's crust due to plate tectonics;
- f) weathering, erosion, and deposition; and
- g) human impact.