



Science  
Fifth Grade

**1.0 Understands and applies the skills of scientific inquiry.**

- 1.1 Generates questions that can be answered through scientific investigations.
- 1.2 Identifies questions that can be answered with scientific questions.
- 1.3 Asks questions that they can answer with scientific knowledge combined with their own observations/investigations.
- 1.4 Recognizes that different kinds of questions lead to different types of investigations.
- 1.5 Designs and conducts scientific investigations.
- 1.6 Develops hypothesis.
- 1.7 Designs and execute investigations.
- 1.8 Uses appropriate equipment for the investigation.
- 1.9 Performs different kinds of investigations depending on the scientific question.
- 1.10 Recognizes the importance of multiple trials with reproducible results.
- 1.11 Summarizes observations.
- 1.12 Selects and uses appropriate tools, technology, and techniques to gather, analyze, and interpret data.
- 1.13 Selects and uses a variety of tools to appropriately gather, analyze, and interpret data.
- 1.14 Uses appropriate tools to measure and record length, weight, volume temperature time, cycles, and area.
- 1.15 Records data and calculations correctly.
- 1.16 Organizes data and observations efficiently.
- 1.17 Creates appropriate data tables with labels.
- 1.18 Creates appropriate graphs with label.
- 1.19 Identifies dependent and independent variable on graphs – Appropriately uses X and Y axis.
- 1.20 Uses evidence to develop and revise descriptions, explanations, predictions, and models.
- 1.21 Bases explanations on observations.
- 1.22 Uses evidences to construct a logical argument for their explanation.
- 1.23 Uses evidence to infer possible applications of extensions for further inquiry.

- 1.24 Accounts for errors in investigations.
- 1.25 Identifies cause and effect relationships.
- 1.26 Identifies the purpose and appropriate use of models.
- 1.27 Communicates and defends procedures, explanations, and scientific arguments.
- 1.28 Uses various methods to communicate methods, observations, results and interpretations.
- 1.29 Communicates, critiques, and analyzes their work and the work of others.
- 1.30 Recognizes and analyzes alternative predictions, explanations, and models.
- 1.31 Recognizes, considers, and acknowledges different ideas and explanations.
- 1.32 Engages in discussion and arguments that result in revision of explanation.
- 1.33 Uses scientific criteria to find preferred explanations.
- 1.34 Summarizes how conclusions and ideas change as new knowledge is gained.
- 1.35 Uses appropriate safety procedures when conducting investigations.
- 1.36 Recognizes that safety concerns and procedures change with differing scientific procedures.
- 1.37 Knows the locations and appropriate uses of the safety equipment in the classroom.
- 1.38 Uses appropriate safety procedures when conducting investigations.

**2.0 Understands and applies scientific concepts, principles, and theories pertaining to Earth and the Universe.**

- 2.1 Recognizes the different properties and uses of earth materials (Not assessed at this grade level).
- 2.2 Understands the processes and changes on or in the earth's land, oceans and atmosphere.
- 2.3 Demonstrates changes of the Earth's surface due to erosion, weathering, and plate tectonics.
- 2.4 Compares and contrasts slow (i.e. erosion and weathering) and rapid (i.e. landslides, floods, volcanoes, and earthquakes) changes of the Earth's surface.
- 2.5 Understands weather and weather patterns (Not assessed at this grade level).
- 2.6 Understands fossil evidence of past life on Earth (Not assessed at this grade level).
- 2.7 Understands the properties, movements, and locations of objects in our solar system (Not assessed at this grade level).

**3.0 Understands and applies concepts, principles and theories pertaining to life and its interactions.**

- 3.1 Understands and demonstrates knowledge of structures, characteristics, and adaptations of organisms that allow them to function and survive within their habitats (Not assessed at this grade level).

3.2 Understands the relationship between living things and their environment (Not assessed at this grade level).

3.3 Demonstrates knowledge of environmental stewardship.

3.4 Understands the necessity of the conservation of natural resources and environmental awareness.

3.5 Knows that human behavior can affect earth processes and systems.

3.6 Understands and demonstrates knowledge of basic human body systems and how they work together (Not assessed at this grade level).

#### **4.0 Understands and applies concepts and theories pertaining matter, its composition and the forces that govern it.**

4.1 Understands and applies knowledge of the structure and properties of matter.

4.2 Demonstrates that substances have characteristic properties.

4.3 Uses tools to measure the properties of substances.

4.4 Uses magnifiers to observe properties and parts of materials.

4.5 Describes how a mixture of substances can be separated into the original substances using one or more of the characteristic properties.

4.6 Understands the unique properties of solutions.

4.7 Understands the concepts of conservation of mass/matter.

4.8 Demonstrates that a compound can be made by combining two or more materials and that it has properties that are different from the original materials.

4.9 Understands that many different substances can be made from a small number of basic materials.

4.10 Understands that when something is broken into parts, the parts have the same total mass as the original item.

4.11 Identifies characteristics of a simple chemical change. When a new material is made by combining two or more materials, it has chemical properties that are different from the original materials (burning paper, vinegar and baking soda).

4.12 Compares the characteristics of simple physical and chemical changes.

4.13 Demonstrates knowledge of states of matter and changes in states of matter.

4.14 Observes that matter can exist in all three states (solid, liquid, and gas).

4.15 Describes how matter changes state by heating and cooling (perhaps add) (heating or cooling can change water from one state to another and the change is reversible).

4.16 Understands and applies knowledge of motion and forces.

4.17 Demonstrates the motion of an object can be described by its position, direction of motion and speed.

4.18 Measures and represents motion of an object on a graph.

4.19 Understands that forces cause changes in speed or direction of movement.

4.20 Describes the forces that directly affect objects and their motion.

4.21 Describes the relationship between mass and applied force (the more massive an object, the less effect a given force will have in changing its motion).

4.22 Understands the characteristic properties of sound, light, electricity, magnetism, and heat (Not assessed at this grade level).

### **5.0 Understands the Nature of Science.**

5.1 Understands how science develops and changes over time.

5.2 Understands that people continue inventing new ways of doing things, solving problems, and getting work done (social studies link: cotton gin).

5.3 Understands the dynamic relationship between science and society.

5.4 Knows that human behavior can affect Earth processes and systems.

5.5 Describe how technology affects human life.

5.6 Describes how technology can extend human abilities (move things and to extend senses).

5.7 Investigates how technology and inventions change to meet peoples' needs and wants.

5.8 Investigates positive/negative impacts of human activity and technology on the environment.