



Science  
Fourth 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/capacity, temperature, time, cycles, speed 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 Uses evidence to develop and revise descriptions, explanations, predictions, and models.
- 1.20 Bases explanations on observations.
- 1.21 Uses evidences to construct a logical argument for their explanation.
- 1.22 Uses evidence to infer possible applications of extensions for further inquiry.
- 1.23 Accounts for errors in investigations.
- 1.24 Identifies cause and effect relationships.
- 1.25 Identifies the purpose and appropriate use of models.

- 1.26 Communicates and defends procedures, explanations, and scientific arguments.
- 1.27 Uses various methods to communicate methods, observations, results and interpretations.
- 1.28 Communicates, critiques, and analyzes their work and the work of others.
- 1.29 Recognizes and analyzes alternative predictions, explanations, and models.
- 1.30 Recognizes, considers, and acknowledges different ideas and explanations.
- 1.31 Engages in discussion and arguments that result in revision of explanation.
- 1.32 Uses scientific criteria to find preferred explanations.
- 1.33 Summarizes how conclusions and ideas change as new knowledge is gained.
- 1.34 Uses appropriate safety procedures when conducting investigations.
- 1.35 Recognizes that safety concerns and procedures change with differing scientific procedures.
- 1.36 Knows the locations and appropriate uses of the safety equipment in the classroom.
- 1.37 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 Describes the characteristics of Earth and its orbit around the sun (3/4 of Earth's surface is covered by a layer of water (some frozen) and the entire planet is surrounded by a thin blanket of air, elliptical orbit, tilted axis and spherical planet (solar system)).
- 2.4 Understands weather and weather patterns.
- 2.5 Understands that air is a mixture of gases, mostly nitrogen and oxygen, that surrounds us and moving air is called wind.
- 2.6 Understands that weather can be predicted based on air movement.
- 2.7 Determines changes in weather based on temperature, wind direction, wind speed, and precipitation.
- 2.8 Understands fossil evidence of past life on Earth (Not assessed at this grade level).
- 2.9 Understands the properties, movements, and locations of objects in our solar system (Not assessed at this grade level).
- 2.10 Understands the eight planets and many other objects revolve around the sun in predictable patterns.
- 2.11 Recognizes patterns in the solar system in regards to movement of the sun, planets, and moons.

- 2.12 Understands the rotation of the Earth on its axis every 24 hours produces the day and night cycles.
- 2.13 Recognizes the sun appears to move across the sky in the same way every day and that its apparent path changes slowly across the seasons.
- 2.14 Describes how the Earth's tilt and revolution are related to the seasons.
- 2.15 Recognizes the phases of the moon change based on the 28-day orbit around the Earth.
- 2.16 Describes the characteristic properties of objects in the solar system.
- 2.17 Describes the age and origin of the universe, star formation, and the properties of galaxies and universes.
- 2.18 Understands that no matter where you are on Earth, the direction of the pull of Earth's gravity is always toward the center of the earth.
- 2.19 Explains that stars are like the sun, some being smaller and some larger, but are so far away they look like points of light.

### **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 relationships between living things and their environment (Not assessed at this grade level).
- 3.3 Demonstrates knowledge of environmental stewardship (Not assessed at this grade level).
- 3.4 Understands and demonstrates knowledge of basic human body systems and how they work together.
- 3.5 Understands how the human body systems are organized and work together (circulatory, respiratory, digestive, musculoskeletal, etc.).
- 3.6 Understands that cells in our body form tissues that work together to do specific jobs.

### **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 characteristics properties.
- 4.3 Demonstrates knowledge of states of matter and changes in states of matter.
- 4.4 Observes that matter can exist in all three states (solid, liquid, and gas).
- 4.5 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).

4.6 Understands knowledge of states of matter and changes in states of matter (Not assessed at this grade level).

4.7 Understands the characteristic properties of sound, light, electricity, magnetism, and heat.

4.8 Understands that sound light travels in a straight line until it strikes an object (solar system).

### **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 (Treasures – Inventions).

5.3 Understands the dynamic relationship between science and society (Pollution/Conservation).

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

5.5 Describes 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.