



Science
Sixth Grade

1.0 Understands and applies the skills of scientific inquiry.

- 1.1 Uses scientific inquiry to design, conduct, and analyze scientific investigations.
- 1.2 Identifies questions and concepts that guide scientific investigations
- 1.3 Understands that different kinds of questions suggest different kinds of investigations
- 1.4 Uses appropriate models when necessary
- 1.5 Develops hypothesis
- 1.6 Identifies controls and variables
- 1.7 Designs and executes scientific investigations
- 1.8 Selects and uses appropriate tools, technology and techniques to gather data
- 1.9 Makes appropriate qualitative and quantitative observations
- 1.10 Recognizes the importance of multiple trials with reproducible results
- 1.11 Organizes data and observations efficiently, including creating appropriate tables and graphs
- 1.12 Analyzes and evaluate the data and observations
- 1.13 Integrates data and observations to draw appropriate conclusions
- 1.14 Accounts for errors in investigations
- 1.15 Uses various methods to communicate experimental methods, observations, results, and interpretations
- 1.16 Students use appropriate safety procedures when conducting investigations
- 1.17 Recognizes that safety concerns change with different procedures

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

- 2.1 Understands and applies knowledge of the origin and evolution of the Earth system including formation of the solar system, geologic time, interactions among hydrosphere, lithosphere and atmosphere and origins and evolution of life.
- 2.2 Explains how the tilt of the earth's axis and the earth's revolution around the sun affects seasons and weather patterns.
- 2.3 Describes the characteristics of our sun and the impact that it has on our universe.
- 2.4 Differentiates among planets, comets, asteroids, and meteoroids based

on their characteristics and movement patterns.

2.5 Explains how gravity affects orbits.

2.6 Illustrates knowledge of the effects of rotation and revolution with respect to the sun, earth, and moon.

2.7 Understands and applies knowledge of the origin and evolution of the universe, including age and origin of the universe, star formation, and properties of the universe.

2.8 Knows the scientific evidence about the formation of the universe and how it is changing.

2.9 Knows the common characteristics of stars in the universe.

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

3.1 Understands the identification, organization, and structure of living organisms.

3.2 Understands that all living systems have levels of organization - Important levels include: cells, tissues, organs, and organ systems.

3.3 Demonstrates knowledge of the body systems and how they interact with one another.

3.4 Disease is a breakdown in structures or functions of an organism.

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

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

4.2 Understands and applies Newton's Three Laws of Motion.

4.3 Describes the motion of an object by its position, direction of motion, and speed.

4.4 Graphically describes the motion of an object by its position, direction of motion, and speed.

4.5 Mathematically describes the motion of an object by its position, direction of motion, and speed.

4.6 Understands the conservation of momentum.

4.7 Knows that gravity is a universal force that each mass exerts on any other mass.

4.8 Understands how forces affect motion.

4.9 Understands and applies knowledge of types of energy and conservation of energy.

4.10 Identifies types of energy.

4.11 Explains that energy is transferred in many ways.

4.12 Describes and explains that energy appears in different forms, and can be changed from one form to another according to the conservation of energy.

4.13 Recognizes that all energy is either potential energy or kinetic energy and can be transferred between the two.

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.