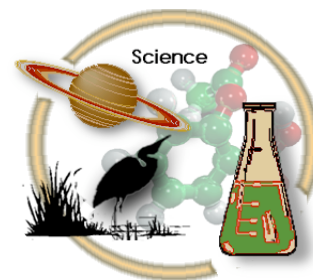


Science

Grade 4



Standard 2: The student understands the nature of scientific knowledge.

- 2.1 Gives scientific explanations based on evidence and scientific knowledge
- 2.2 Makes results of investigations public
- 2.3 Reviews and asks questions about the results of other scientists' work
- 2.4 Can replicate scientific experiments with results that fall within an accepted range
- 2.5 Accepts the results of an experiment only after the experiment has been repeated many times with consistent results

Standard 3: The student understands the nature and tools of scientific inquiry.

- 3.1 Uses different kinds of investigations (e.g. observations of things or events, data collection, controlled experiments)
- 3.2 Conducts simple investigations (e.g. makes systematic observations and develops logical conclusions)
- 3.3 Uses simple nonstandard and standard equipment such as thermometers, magnifiers, rulers or balances to gather data and extend the senses
- 3.4 Draws reasonable conclusions based on observations

Standard 4: The student understands science as a human endeavor.

- 4.1 Knows that people of all ages, backgrounds and groups have made contributions to science and technology throughout history
 - 4.2 Knows that science is an on-going process and will never be finished
 - 4.3 Knows that scientists* often work in teams to accomplish a task
- *Scientists – students as scientists as well as professional scientists

Standard 5: The student understands basic features of the Earth.

- 5.1 Understands the properties of water including surface tension, absorption, adhesion, and cohesion
- 5.2 Knows that water may exist as a solid, liquid or gas
- 5.3 Knows that changing the temperature of water may change its properties
- 5.4 Understands the movement of water through the water cycle

Standard 8: The student knows about the diversity and unity that characterize life.

- 8.1 Knows different ways in which living things can be grouped
- Identifies major differences between seeds and plants*
- Demonstrates that living organisms are grouped according to similar characteristics*

8.2 Knows that plants progress through life cycles
Germinates and grows seeds making observations
Draws and labels the life cycle of a plant

Standard 10: The student knows the general structure and function of cells in organisms.

10.1 Knows that each plant has different structures, which serve different functions
Identifies and explains structure and functions of roots, stems and leaves
Provides examples of how plant are adapted to different environments

Standard 11: The student understands how species depend on one another and on the environment for survival.

11.1 Knows that changes in the environment can be beneficial or detrimental to plants
Describes the possible effects of environmental change on plants

Standard 12: The student understands the cycling of matter and flow of energy through the living environment.

12.1 Knows that the transfer of energy is essential to all living organisms

Standard 14: The student understands basic concepts about the structure and properties of matter.

14.1 Knows that objects/substances can be classified according to their properties
Compares properties of liquids (e.g., density, buoyancy, viscosity, freezing point)

14.2 Knows that materials have different states and some common materials, such as water, can be changed from one state to another by heating or cooling
Provides examples of solids, liquids, gases

Standard 15: The student understands energy types, sources, conversions, and their relationship to heat and temperature.

15.1 Knows that a circuit is a pathway through which electric current flows

15.2 Knows the organization of electrical circuits
Builds a simple electrical circuit
Draws and labels a diagram of a simple electrical circuit using standard symbols
Differentiates between an open and a closed circuit

15.3 Knows that conductors are materials that allow the flow of electricity and insulators are materials that do not allow the flow of electricity

15.4 Knows that electricity can move from one to another by conduction and that some materials conduct electricity better than others

Standard 17: The student knows the kinds of forces that exist between objects and within atoms.

17.1 Knows that electromagnetism is magnetism created by current flowing through a conductor

17.2 Knows that magnets attract and repel each other and attract certain kinds of other materials

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