Florida Science

Grade 6

Adopted 2008

The Practice of Science

1. **Define a problem from the sixth grade curriculum, use appropriate reference materials to support scientific understanding, plan and carry out scientific investigation of various types, such as systematic observations or experiments, identify variables, collect and organize data, interpret data in charts, tables, and graphics, analyze information, make predictions, and defend conclusions.** SC.6.N.1.1
2. **Explain why scientific investigations should be replicable.** SC.6.N.1.2
3. **Explain the difference between an experiment and other types of scientific investigation, and explain the relative benefits and limitations of each.** SC.6.N.1.3
4. **Discuss, compare, and negotiate methods used, results obtained, and explanations among groups of students conducting the same investigation.** SC.6.N.1.4
5. **Recognize that science involves creativity, not just in designing experiments, but also in creating explanations that fit evidence.** SC.6.N.1.5

Access Point for Students with Significant Cognitive Disabilities

Independent

a. Identify a problem from the sixth grade curriculum, use reference materials to gather information, carry out an experiment, collect and record data, and report results. SC.6.N.1.IN.A

b. Identify that scientific investigations can be repeated the same way by others. SC.6.N.1.IN.B

c. Identify that scientists can use different kinds of experiments, methods, and explanations to find answers to scientific questions. SC.6.N.1.IN.C

d. Compare results of observations and experiments of self and others. SC.6.N.1.IN.D

Supported

a. Recognize a problem from the sixth grade curriculum, use materials to gather information, carry out a simple experiment, and record and share results. SC.6.N.1.SU.A

b. Recognize that experiments involve procedures that can be repeated the same way by others. SC.6.N.1.SU.B

c. Recognize that scientists perform experiments, make observations, and gather evidence to answer scientific questions. SC.6.N.1.SU.C

d. Identify information based on observations and experiments of self and others. SC.6.N.1.SU.D

Participatory

a. Recognize a problem related to the sixth grade curriculum, observe and explore objects or activities, and recognize a solution. SC.6.N.1.PA.A

b. Recognize that when a common activity is repeated, it has the same result. SC.6.N.1.PA.B

c. Recognize that people conduct activities and share information about science. SC.6.N.1.PA.C

The Characteristics of Scientific Knowledge

1. **Distinguish science from other activities involving thought.** SC.6.N.2.1

2. **Explain that scientific knowledge is durable because it is open to change as new evidence or interpretations are encountered.** SC.6.N.2.2

3. **Recognize that scientists who make contributions to scientific knowledge come from all kinds of backgrounds and possess varied talents, interests, and goals.** SC.6.N.2.3

Access Point for Students with Significant Cognitive Disabilities

Independent

a. Identify familiar topics included in the study of science. SC.6.N.2.IN.A

b. Identify that scientific knowledge changes with new evidence or new interpretations. SC.6.N.2.IN.B

Supported

a. Recognize familiar topics in the study of science. SC.6.N.2.SU.A

b. Recognize that scientific knowledge changes when new things are discovered. SC.6.N.2.SU.B

c. Recognize contributions of well-known scientists. SC.6.N.2.SU.C

Participatory

a. Recognize objects and pictures related to science. SC.6.N.2.PA.A

b. Recognize a scientist as a person who works with science. SC.6.N.2.PA.B

The Role of Theories, Laws, Hypotheses, and Models

1. **Recognize and explain that a scientific theory is a well-supported and widely accepted explanation of nature and is not simply a claim posed by an individual. Thus, the use of the term theory in science is very different than how it is used in everyday life.** SC.6.N.3.1

2. **Recognize and explain that a scientific law is a description of a specific relationship under given conditions in the natural world. Thus, scientific laws are different from societal laws.** SC.6.N.3.2

3. **Give several examples of scientific laws.** SC.6.N.3.3

4. **Identify the role of models in the context of the sixth grade science benchmarks.** SC.6.N.3.4

Access Point for Students with Significant Cognitive Disabilities

Independent

a. Identify that a scientific theory is an explanation of nature supported by evidence. SC.6.N.3.IN.A

b. Identify examples of scientific laws (proven descriptions of nature), such as the law of gravity. SC.6.N.3.IN.B

c. Identify models used in the context of sixth grade science access points. SC.6.N.3.IN.C

Supported

a. Recognize that a scientific theory is an explanation of nature. SC.6.N.3.SU.A

b. Recognize events that are based on scientific laws, such as the law of gravity. SC.6.N.3.SU.B

c. Recognize models used in the context of sixth grade science access points. SC.6.N.3.SU.C

Participatory

a. Observe and recognize a predictable cause-effect relationship related to a science topic. SC.6.N.3.PA.A

b. Associate a model with an activity used in the context of sixth grade science access points. SC.6.N.3.PA.B

Earth Structures

1. **Describe and give examples of ways in which Earth's surface is built up and torn down by physical and chemical weathering, erosion, and deposition.** SC.6.E.6.1

2. **Recognize that there are a variety of different landforms on Earth's surface such as coastlines, dunes, rivers, mountains, glaciers, deltas, and lakes and relate these landforms as they apply to Florida.** SC.6.E.6.2

Access Point for Students with Significant Cognitive Disabilities

Independent

a. Describe how weathering and erosion reshape the Earth's surface. SC.6.E.6.IN.A

b. Identify various landforms in Florida, including coastlines, rivers, lakes, and dunes. SC.6.E.6.IN.B

Supported

a. Recognize that wind and water cause physical weathering and erosion. SC.6.E.6.SU.A

b. Recognize different landforms in Florida, including beaches (coastlines), rivers, and lakes. SC.6.E.6.SU.B

Participatory

a. Recognize that water can move soil. SC.6.E.6.PA.A

b. Recognize a landform in Florida, such as a beach (coastline), river, or lake. SC.6.E.6.PA.B

Earth Systems and Patterns

1. **Differentiate among radiation, conduction, and convection, the three mechanisms by which heat is transferred through Earth's system.** SC.6.E.7.1
2. **Investigate and apply how the cycling of water between the atmosphere and hydrosphere has an effect on weather patterns and climate.** SC.6.E.7.2
3. **Describe how global patterns such as the jet stream and ocean currents influence local weather in measurable terms such as temperature, air pressure, wind direction and speed, and humidity and precipitation.** SC.6.E.7.3
4. **Differentiate and show interactions among the geosphere, hydrosphere, cryosphere, atmosphere, and biosphere.** SC.6.E.7.4
5. **Explain how energy provided by the sun influences global patterns of atmospheric movement and the temperature differences between air, water, and land.** SC.6.E.7.5
6. **Differentiate between weather and climate.** SC.6.E.7.6
7. **Investigate how natural disasters have affected human life in Florida.** SC.6.E.7.7
8. **Describe ways human beings protect themselves from hazardous weather and sun exposure.** SC.6.E.7.8
9. **Describe how the composition and structure of the atmosphere protects life and insulates the planet.** SC.6.E.7.9

Access Point for Students with Significant Cognitive Disabilities

Independent

a. Recognize that heat is a flow of energy that moves through Earth's land, air, and water in different ways, including conduction, convection, and radiation. SC.6.E.7.IN.A

b. Identify components in the water cycle, including evaporation, condensation, precipitation, ground water, and runoff. SC.6.E.7.IN.B

c. Identify the way elements of weather are measured, including temperature, humidity, wind speed and direction, and precipitation. SC.6.E.7.IN.C

d. Recognize that Earth consists of different parts, including air that is over the Earth (atmosphere), water that covers much of the Earth (hydrosphere), and the parts that support all living things on Earth (biosphere). SC.6.E.7.IN.D

e. Recognize that there are general patterns of weather that move around Earth, and in North America the patterns typically move from west to east. SC.6.E.7.IN.E

f. Identify climate as the expected weather patterns in a region. SC.6.E.7.IN.F

g. Identify possible effects of hurricanes and other natural disasters on humans in Florida. SC.6.E.7.IN.G

h. Identify ways humans get ready for severe storms and protect themselves from sun exposure. SC.6.E.7.IN.H

i. Identify that the atmosphere protects Earth from radiation from the Sun and regulates the temperature. SC.6.E.7.IN.I

Supported

a. Recognize that heat can transfer from the Sun to the water, land, and air. Recognize that heat can transfer from the Sun to the water, land, and air. SC.6.E.7.SU.A

b. Recognize parts of the water cycle such as clouds (condensation), rain (precipitation), and evaporation. SC.6.E.7.SU.B

c. Recognize the way temperature and wind speed are measured. SC.6.E.7.SU.C

d. Recognize where living things are found (biosphere) and where the air is found (atmosphere) on Earth. SC.6.E.7.SU.D

e. Recognize that there are patterns of weather that move. SC.6.E.7.SU.E

f. Identify the major characteristics of climate in Florida, including temperature and precipitation. SC.6.E.7.SU.F

g. Recognize possible effects of severe storms, hurricanes, or other natural disasters in Florida. SC.6.E.7.SU.G

h. Recognize ways people prepare for severe storms and protect themselves from sun exposure. SC.6.E.7.SU.H

i. Recognize that the air that surrounds Earth (atmosphere) protects living things from the intense heat of the Sun. SC.6.E.7.SU.I

Participatory

a. Recognize that the Sun is a source of heat. SC.6.E.7.PA.A

b. Recognize that rain comes from clouds. SC.6.E.7.PA.B

c. Recognize different types of weather conditions, including hot/cold, raining/not raining, and windy/calm. SC.6.E.7.PA.C

d. Recognize that air covers Earth (atmosphere). SC.6.E.7.PA.D

e. Recognize where to go in severe weather situations or drills at school and at home. SC.6.E.7.PA.E

Energy Transfer and Transformations

1. **Explore the Law of Conservation of Energy by differentiating between potential and kinetic energy. Identify situations where kinetic energy is transformed into potential energy and vice versa.** SC.6.P.11.1

Access Point for Students with Significant Cognitive Disabilities

Independent

a. Identify energy as stored (potential) or expressed in motion (kinetic). SC.6.P.11.IN.A

Supported

a. Recognize examples of stored energy, such as in a roller coaster. SC.6.P.11.SU.A

Participatory

a. Distinguish between objects in motion (kinetic energy) and at rest. SC.6.P.11.PA.A

Motion of Objects

1. **Measure and graph distance versus time for an object moving at a constant speed. Interpret this relationship.** SC.6.P.12.1

Access Point for Students with Significant Cognitive Disabilities

Independent

a. Identify that speed describes the distance and time in which an object is moving, such as miles per hour. SC.6.P.12.IN.A

Supported

a. Recognize that speed describes how far an object travels in a given amount of time. SC.6.P.12.SU.A

Participatory

a. Recognize that traveling longer distances takes more time, such as going to the cafeteria takes longer than going across the classroom. SC.6.P.12.PA.A

Forces and Changes in Motion

1. **Investigate and describe types of forces including contact forces and forces acting at a distance, such as electrical, magnetic, and gravitational.** SC.6.P.13.1

2. **Explore the Law of Gravity by recognizing that every object exerts gravitational force on every other object and that the force depends on how much mass the objects have and how far apart they are.** SC.6.P.13.2

3. **Investigate and describe that an unbalanced force acting on an object changes its speed, or direction of motion, or both.** SC.6.P.13.3

Access Point for Students with Significant Cognitive Disabilities

Independent

a. Identify examples of gravitational and contact forces, such as falling objects or push and pull. SC.6.P.13.IN.A

b. Demonstrate and describe how forces can change the speed and direction of objects in motion. SC.6.P.13.IN.B

Supported

a. Distinguish between pushing and pulling forces (contact) and falling (gravitational force) of an object. SC.6.P.13.SU.A

b. Recognize that force can change the speed and direction of an object in motion. SC.6.P.13.SU.B

Participatory

a. Recognize that pushing or pulling makes an object move (contact force). SC.6.P.13.PA.A

b. Recognize that objects fall unless supported by something. SC.6.P.13.PA.B

c. Recognize the speed (fast or slow) of a moving object. SC.6.P.13.PA.C

Organization and Development of Living Organisms

1. **Describe and identify patterns in the hierarchical organization of organisms from atoms to molecules and cells to tissues to organs to organ systems to organisms.** SC.6.L.14.1

2. **Investigate and explain the components of the scientific theory of cells (cell theory): all organisms are composed of cells (single-celled or multi-cellular), all cells come from pre-existing cells, and cells are the basic unit of life.** SC.6.L.14.2

3. **Recognize and explore how cells of all organisms undergo similar processes to maintain homeostasis, including extracting energy from food, getting rid of waste, and reproducing.** SC.6.L.14.3

4. **Compare and contrast the structure and function of major organelles of plant and animal cells, including cell wall, cell membrane, nucleus, cytoplasm, chloroplasts, mitochondria, and vacuoles.** SC.6.L.14.4

5. **Identify and investigate the general functions of the major systems of the human body (digestive, respiratory, circulatory, reproductive, excretory, immune, nervous, and musculoskeletal) and describe ways these systems interact with each other to maintain homeostasis.** SC.6.L.14.5

6. **Compare and contrast types of infectious agents that may infect the human body, including viruses, bacteria, fungi, and parasites.** SC.6.L.14.6

Access Point for Students with Significant Cognitive Disabilities

Independent

a. Identify how the major structures of plants and organs of animals work as parts of larger systems, such as the heart is part of the circulatory system that pumps blood. SC.6.L.14.IN.A

b. Identify that the cell is the smallest basic unit of life and most living things are composed of many cells. SC.6.L.14.IN.B

c. Identify that cells carry out important functions within an organism, such as using energy from food. SC.6.L.14.IN.C

d. Recognize that plant and animal cells have different parts and each part has a function. SC.6.L.14.IN.D

e. Recognize that bacteria and viruses can infect the human body. SC.6.L.14.IN.E

Supported

a. Identify the major internal organs of animals and external structures of plants and their functions. SC.6.L.14.SU.A

b. Recognize that there are smaller parts in all living things, too small to be seen without magnification, called cells. SC.6.L.14.SU.B

c. Recognize that animals, including humans, use energy from food. SC.6.L.14.SU.C

d. Identify ways to prevent infection from bacteria and viruses, such as hand washing. SC.6.L.14.SU.D

Participatory

a. Recognize that the human body is made up of various parts. SC.6.L.14.PA.A

b. Identify basic needs of plants and animals. SC.6.L.14.PA.B

c. Recognize body parts related to basic needs, such as mouth for eating. SC.6.L.14.PA.C

d. Recognize practices that keep the body free from infection, such as hand washing. SC.6.L.14.PA.D

Diversity and Evolution of Living Organisms

1. **Analyze and describe how and why organisms are classified according to shared characteristics with emphasis on the Linnaean system combined with the concept of Domains.** SC.6.L.15.1

Access Point for Students with Significant Cognitive Disabilities

Independent

a. Classify animals into major groups, such as insects, fish, reptiles, mammals, and birds. SC.6.L.15.IN.A

Supported

a. Sort common animals by their physical characteristics. SC.6.L.15.SU.A

Participatory

a. Match animals based on a given shared characteristic. SC.6.L.15.PA.A