Science Standards
Grade 3

Strand:

S1 Scientific Inquiry: The student demonstrates abilities necessary to do scientific inquiry and an understanding about scientific inquiry; that is, the student:

Standards: S1a: asks questions about objects, organisms, and events.

Components:

S1a1. proposes ways their questions might be answered.

S1a2. determines which questions might be answered with a "testable" question, those that might be answered through observations, and those that might be answered through research.

Standards: S1b: uses observations to make predictions.

S1c: plans and conducts a "fair test" with the teacher's help.

Components:

S1c1. gathers materials and/or information needed to conduct investigations.

S1c2. identifies ways to conduct a "fair test" by testing for only one variable at a time.

S1c3. follows logical steps to conduct a "fair test."

S1c4. uses simple tools (such as magnifiers, scales, mineral testing devices, timers, etc.) and units of measure (U.S. customary units and metric).

S1c5. records data from investigations in an organized and appropriate format (e.g., lab book, log, notebook, t-chart, etc).

Standards: S1d: identifies patterns based on observations and summarizes findings.

S1e: compares and groups objects based on observable and measurable characteristics (e.g., solubility, hardness, reactivity) and justifies the groups based on a logical classification scheme.

S1f: analyzes and makes statements about data displayed in a Venn diagram, graph and table.

S1g: communicates scientific explorations through discussions with peers, drawing, graphs, tables, simple reports, and oral presentations.

S1h: demonstrates safe practices in science.

Components:

S1h1. explains and conducts safe Sun viewing procedures and practices.

S1h2. explains and conducts safe use of tools.

S1h3. explains and conducts safe experiments with batteries and bulbs.

Strand:

S2 History and Nature of Science: The student demonstrates an understanding of science as a human endeavor, that is, the student:

Standards: S2a: builds awareness that science and technology have been practiced for a long time and there is still more to be learned.

S2b: knows that scientists share and critique new information with others.

S2c: describes some historical examples of diverse women and men who have made contributions to science.

Strand:

S3 Personal & Social Perspectives: The student demonstrates an understanding of safety, types of resources, and changes in the environment; that is, the student:

Standards: S3a: compares the needs of a population with the sources and quantities of resources.

S3b: realizes that some resources humans obtain from the environment are limited and resources can be extended through recycling and decreased use.

Strand:

S4 Science and Technology: The student demonstrates an understanding of science and technology and the nature of technological design; that is, the student:

Standards: S4a: identifies a problem, implements a proposed solution for the problem, discusses the merit of the solution, and improves on the solution after evaluation.

S4b: identifies some of the technological solutions that make life easier and the trade-offs (safety, cost, efficiency, health and environmental side effects, etc.) involved in those solutions.

S4c: identifies some of the human-made things that aid in scientific inquiry.

Strand:

S5 Physical Science: The student demonstrates a conceptual understanding of matter, motion, and energy; that is, the student:

Standards: S5a: gains an understanding that mass is conserved even when materials are reshaped or broken into smaller and smaller pieces.

Components:

S5a1. observes, measures, describes that the reshaped or dissembled parts of an object are equal to the weight of the whole object.

Standards: S5b: recognizes that materials have properties that are independent of the shape or size of the sample.

Components:

S5b1. demonstrates actions that change the shape or size of a material (cutting, breaking tearing, shredding, sanding) and differentiates the properties that changed and those that did not (e.g. paper may be shredded and cut into smaller and smaller pieces but the fundamental properties of paper can still be described).

S5b2. observes and describes that one of the properties of a material is how it reacts with other materials.

Standards: S5c: demonstrates a basic knowledge of the relationship between force and change of motion.

Components:

S5c1. compares the motion of various objects by examining the time it takes for the object to travel a certain distance.

S5c2. describes the position of an object by locating it in relationship to another object or to a background.

S5c3. describes speed in qualitative ways (e.g., faster vs. slower).

S5c4. identifies simple situations in which forces are balanced (e.g., designing mobiles, balance toys, and structures in which equal and opposite forces cause no change in motion).

Standards: S5d: examines how magnets can cause some things to move without touching them.

Components:

S5d1. determines situations where magnets act at a distance to cause other magnets or objects to move towards them or away.

S5d2. compares the magnetic attraction of different objects and materials to a magnet.

S5d3. demonstrates that magnets can repel or attract each other.

Standards: S5e: builds awareness of how electrical flow can produce light, movement, heat, and magnetic fields.

Components:

S5e1. demonstrates that electric circuits require a complete loop in which an electrical current can pass.

S5e2. predicts and tests the electrical conductivity or insulating abilities of various materials.

Strand:

S6 Life Science: The student demonstrates a conceptual understanding of the characteristics of organisms, their life cycles, and their environments; that is, the student:

Standards: S6a: compares and contrasts structure and function among different organisms.

Components:

S6a1. identifies structures that are responsible for growth, survival, and reproduction in observed plants.

S6a2. identifies structures that are responsible for growth, survival, and reproduction in observed animals.

S6a3. investigates and explains the functions of different parts of plants (e.g., seeds, leaves, flowers).

S6a4. identifies examples of plant structures that serve the same function but differ in appearance (e.g., seeds, leaves, flowers).

S6a5. compares and contrasts structures that animals use to obtain food and protect themselves.

S6a6. identifies examples of structures in animals that serve the same purpose but differ in appearance (e.g. bird beaks).

S6a7. draws conclusions about the functions of plant and animal structures seen in fossils.

Standards: S6b: gains an understanding that the details in the life cycles of organisms are different for different types of organisms.

Components:

S6b1. observes and compares the life cycles of different plants.

Standards: S6c: differentiates between inherited physical traits and those that are not inherited in plants.

Components:

S6c1. discusses that when plants reproduce, both biological parents pass on information that determine characteristics of the offspring.

S6c2. examines and identifies physical characteristics of plants that are caused by interaction with the environment and those that are inherited.

Standards: S6d: investigates how changes in environments affect plants and animals (including humans).

Components:

S6d1. observes and describes how organisms can cause changes (both beneficial and detrimental) in their environments.

S6d2. provides examples of situations that cause some plants and animals to change their behavior in order to survive and reproduce; die out; or find new locations to live.

S6d3. describe how growth, death, and decay are integral aspects of living systems by providing evidence from readings and observations.

Strand:

S7 Earth & Space Sciences: The student demonstrates a conceptual understanding of Earth materials, objects in the sky, and changes in Earth and sky; that is, the student:

Standards: S7a: gains an understanding of how some earth materials are created and change.

Components:

S7a1. observes and describes fossils as evidence of organisms that once lived and can provide information about earth's past.

S7a2. compares how sand and soil are formed, based on investigations.

S7a3. categorizes sand and soil in different ways (i.e., grain size, color, texture, water-holding capacity).

Standards: S7b: realizes that some earth processes are rapid and some are slow.

Components:

S7b1. compares rapid earth processes (e.g. volcanic eruptions, earthquakes) to slow ones (e.g. formation of metamorphic rock).

Standards: S7c: builds awareness that our Sun is a star among other stars in the universe.

Components:

S7c1. provides examples of how the Sun is necessary for life on earth.

S7c2. explains that our Sun is a star that gives off a tremendous amount of heat and light.