

1. **Scientific investigation and reasoning. The student conducts classroom and outdoor investigations following home and school safety procedures and environmentally appropriate practices. The student is expected to:**
 - A. demonstrate safe practices as described in Texas Education Agency-approved safety standards during classroom and outdoor investigations using safety equipment as appropriate, including safety goggles or chemical splash goggles, as appropriate, and gloves; and
 - B. make informed choices in the use and conservation of natural resources by recycling or reusing materials such as paper, aluminum cans, and plastics.
2. **Scientific investigation and reasoning. The student uses scientific practices during laboratory and outdoor investigations. The student is expected to:**
 - A. plan and implement descriptive investigations, including asking and answering questions, making inferences, and selecting and using equipment or technology needed, to solve a specific problem in the natural world;
 - B. collect and record data by observing and measuring using the metric system and recognize differences between observed and measured data;
 - C. construct maps, graphic organizers, simple tables, charts, and bar graphs using tools and current technology to organize, examine, and evaluate measured data;
 - D. analyze and interpret patterns in data to construct reasonable explanations based on evidence from investigations;
 - E. demonstrate that repeated investigations may increase the reliability of results; and
 - F. communicate valid conclusions supported by data in writing, by drawing pictures, and through verbal discussion.
3. **Scientific investigation and reasoning. The student knows that information, critical thinking, scientific problem solving, and the contributions of scientists are used in making decisions. The student is expected to:**
 - A. analyze, evaluate, and critique scientific explanations by using evidence, logical reasoning, and experimental and observational testing;
 - B. represent the natural world using models such as volcanoes or the Sun, Earth, and Moon system and identify their limitations, including size, properties, and materials; and
 - C. connect grade-level appropriate science concepts with the history of science, science careers, and contributions of scientists.
4. **Scientific investigation and reasoning. The student knows how to use a variety of tools and methods to conduct science inquiry. The student is expected to**
 - A. collect, record, and analyze information using tools, including cameras, computers, hand lenses, metric rulers, Celsius thermometers, wind vanes, rain gauges, pan balances, graduated cylinders, beakers, spring scales, hot plates, meter sticks, magnets, collecting nets, notebooks, and Sun, Earth, and Moon system models; timing devices; and materials to support observation of habitats of organisms such as terrariums and aquariums.

5. **Matter and energy. The student knows that matter has measurable physical properties and those properties determine how matter is classified, changed, and used. The student is expected to:**
 - A. measure, test, and record physical properties of matter, including temperature, mass, magnetism, and the ability to sink or float;
 - B. describe and classify samples of matter as solids, liquids, and gases and demonstrate that solids have a definite shape and that liquids and gases take the shape of their container;
 - C. predict, observe, and record changes in the state of matter caused by heating or cooling such as ice becoming liquid water, condensation forming on the outside of a glass of ice water, or liquid water being heated to the point of becoming water vapor; and
 - D. explore and recognize that a mixture is created when two materials are combined such as gravel and sand or metal and plastic paper clips.
6. **Force, motion, and energy. The student knows that forces cause change and that energy exists in many forms. The student is expected to:**
 - A. explore different forms of energy, including mechanical, light, sound, and thermal in everyday life;
 - B. demonstrate and observe how position and motion can be changed by pushing and pulling objects such as swings, balls, and wagons; and
 - C. observe forces such as magnetism and gravity acting on objects.
7. **Earth and space. The student knows that Earth consists of natural resources and its surface is constantly changing. The student is expected to:**
 - A. explore and record how soils are formed by weathering of rock and the decomposition of plant and animal remains;
 - B. investigate rapid changes in Earth's surface such as volcanic eruptions, earthquakes, and landslides; and
 - C. explore the characteristics of natural resources that make them useful in products and materials such as clothing and furniture and how resources may be conserved.
8. **Earth and space. The student knows there are recognizable patterns in the natural world and among objects in the sky. The student is expected to:**
 - A. observe, measure, record, and compare day-to-day weather changes in different locations at the same time that include air temperature, wind direction, and precipitation;
 - B. describe and illustrate the Sun as a star composed of gases that provides light and thermal energy;
 - C. construct models that demonstrate the relationship of the Sun, Earth, and Moon, including orbits and positions; and
 - D. identify the planets in Earth's solar system and their position in relation to the Sun.

9. **Organisms and environments. The student knows and can describe patterns, cycles, systems, and relationships within the environments. The student is expected to:**
 - A. observe and describe the physical characteristics of environments and how they support populations and communities of plants and animals within an ecosystem;
 - B. identify and describe the flow of energy in a food chain and predict how changes in a food chain affect the ecosystem such as removal of frogs from a pond or bees from a field; and
 - C. describe environmental changes such as floods and droughts where some organisms thrive and others perish or move to new locations.
10. **Organisms and environments. The student knows that organisms undergo similar life processes and have structures that help them survive within their environments. The student is expected to:**
 - A. explore how structures and functions of plants and animals allow them to survive in a particular environment; and
 - B. investigate and compare how animals and plants undergo a series of orderly changes in their diverse life cycles such as tomato plants, frogs, and lady beetles.