

Process Standards (Scientific Investigation and Reasoning Skills)

- 6.1 Scientific investigation and reasoning.** The student, for at least 40% of instructional time, conducts laboratory and field investigations following safety procedures and environmentally appropriate and ethical practices.
- 6.2 Scientific investigation and reasoning.** The student uses scientific inquiry methods during laboratory and field investigations.
- 6.3 Scientific investigation and reasoning.** The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions and knows the contributions of relevant scientists.
- 6.4 Scientific investigation and reasoning.** The student knows how to use a variety of tools and safety equipment to conduct science inquiry.

Tools to Know		Ways to Show	
6.1(A)	demonstrate safe practices during laboratory and field investigations as outlined in the Texas Safety Standards	6.2(C)	collect and record data using the International System of Units (SI) and qualitative means such as labeled drawings, writing, and graphic organizers
6.1(B)	practice appropriate use and conservation of resources, including disposal, reuse, or recycling of materials	6.2(D)	construct tables and graphs, using repeated trials and means, to organize data and identify patterns
6.2(A)	plan and implement comparative and descriptive investigations by making observations, asking well-defined questions, and using appropriate equipment and technology	6.2(E)	analyze data to formulate reasonable explanations, communicate valid conclusions supported by the data, and predict trends
6.2(B)	design and implement experimental investigations by making observations, asking well-defined questions, formulating testable hypotheses, and using appropriate equipment and technology	6.3(A)	in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student
6.4(A)	use appropriate tools to collect, record, and analyze information, including journals/notebooks, beakers, Petri dishes, meter sticks, graduated cylinders, hot plates, test tubes, triple beam balances, microscopes, thermometers, calculators, computers, timing devices, and other equipment as needed to teach the curriculum	6.3(B)	use models to represent aspects of the natural world such as a model of Earth's layers
6.4(B)	use preventative safety equipment, including chemical splash goggles, aprons, and gloves, and be prepared to use emergency safety equipment, including an eye/face wash, a fire blanket, and a fire extinguisher	6.3(C)	identify advantages and limitations of models such as size, scale, properties, and materials
		6.3(D)	relate the impact of research on scientific thought and society, including the history of science and contributions of scientists as related to the content

Knowledge and Skills Statements

- 6.5 Matter and energy.** The student knows the differences between elements and compounds.
- 6.6 Matter and energy.** The student knows matter has physical properties that can be used for classification.
- 6.7 Matter and energy.** The student knows that some of Earth's energy resources are available on a nearly perpetual basis, while others can be renewed over a relatively short period of time. Some energy resources, once depleted, are essentially nonrenewable.
- 6.8 Force, motion, and energy.** The student knows force and motion are related to potential and kinetic energy.
- 6.9 Force, motion, and energy.** The student knows that the Law of Conservation of Energy states that energy can neither be created nor destroyed, it just changes form.
- 6.10 Earth and space.** The student understands the structure of Earth, the rock cycle, and plate tectonics.
- 6.11 Earth and space.** The student understands the organization of our solar system and the relationships among the various bodies that comprise it.
- 6.12 Organisms and environments.** The student knows all organisms are classified into Domains and Kingdoms. Organisms within these taxonomic groups share similar characteristics which allow them to interact with the living and nonliving parts of their ecosystem.

^ = Student expectation tested on STAAR™ at Grade 8

* = Essential concept that supports an 8th grade STAAR™ tested standard

Rptg Cat	Readiness Standards	Supporting Standards
1 Matter and Energy	6.5(A)* know that an element is a pure substance represented by chemical symbols 6.6(A)^ compare metals, nonmetals, and metalloids using physical properties such as luster, conductivity, or malleability 6.6(B)^ calculate density to identify an unknown substance	6.5(B) recognize that a limited number of the many known elements comprise the largest portion of solid Earth, living matter, oceans, and the atmosphere 6.5(C)^ differentiate between elements and compounds on the most basic level 6.5(D)* identify the formation of a new substance by using the evidence of a possible chemical change such as production of a gas, change in temperature, production of a precipitate, or color change 6.6(C) test the physical properties of minerals, including hardness, color, luster, and streak 6.7(A) research and debate the advantages and disadvantages of using coal, oil, natural gas, nuclear power, biomass, wind, hydropower, geothermal, and solar resources 6.7(B) design a logical plan to manage energy resources in the home, school, or community
2 Force, Motion, and Energy	6.8(A)^ compare and contrast potential and kinetic energy 6.8(C)^ calculate average speed using distance and time measurements 6.9(A) investigate methods of thermal energy transfer, including conduction, convection, and radiation 6.9(C)^ demonstrate energy transformations such as energy in a flashlight battery changes from chemical energy to electrical energy to light energy	6.8(B)* identify and describe the changes in position, direction, and speed of an object when acted upon by unbalanced forces 6.8(D)^ measure and graph changes in motion 6.8(E) investigate how inclined planes and pulleys can be used to change the amount of force to move an object 6.9(B) verify through investigations that thermal energy moves in a predictable pattern from warmer to cooler until all the substances attain the same temperature such as an ice cube melting
3 Earth and Space	6.10(B) classify rocks as metamorphic, igneous, or sedimentary by the processes of their formation 6.11(A)* describe the physical properties, locations, and movements of the Sun, planets, Galilean moons, meteors, asteroids, and comets	6.10(A) build a model to illustrate the structural layers of Earth, including the inner core, outer core, mantle, crust, asthenosphere, and lithosphere 6.10(C)* identify the major tectonic plates, including Eurasian, African, Indo-Australian, Pacific, North American, and South American 6.10(D)* describe how plate tectonics causes major geological events such as ocean basins, earthquakes, volcanic eruptions, and mountain building 6.11(B)^ understand that gravity is the force that governs the motion of our solar system 6.11(C) describe the history and future of space exploration, including the types of equipment and transportation needed for space travel
4 Organisms and Environments	6.12(D)^ identify the basic characteristics of organisms, including prokaryotic or eukaryotic, unicellular or multicellular, autotrophic or heterotrophic, and mode of reproduction, that further classify them in the currently recognized kingdoms	6.12(A)* understand that all organisms are composed of one or more cells 6.12(B)* recognize that the presence of a nucleus determines whether a cell is prokaryotic or eukaryotic 6.12(C) recognize that the broadest taxonomic classification of living organisms is divided into currently recognized domains 6.12(E)* describe biotic and abiotic parts of an ecosystem in which organisms interact 6.12(F) diagram the levels of organization within an ecosystem, including organism, population, community, and ecosystem

NOTE: The classification of standards on this TEKS Snapshot represents the reviewed and synthesized input of a sample of Texas Science teachers. This TEKS Snapshot DOES NOT represent a publication of the Texas Education Agency. District curriculum materials may reflect other classifications.