7th Grade Science TEKS

Knowledge and skills.

(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. – Science Investigation Skills

The student is expected to:

(A) demonstrate safe practices during laboratory and field investigations as outlined in Texas Education Agency-approved safety standards; and

(B) practice appropriate use and conservation of resources, including disposal, reuse, or recycling of materials.

(2) Scientific investigation and reasoning. The student uses scientific practices during laboratory and field investigations. – Science Reasoning Skills

The student is expected to:

(A) plan and implement comparative and descriptive investigations by making observations, asking well defined questions, and using appropriate equipment and technology;

(B) design and implement experimental investigations by making observations, asking well defined questions, formulating testable hypotheses, and using appropriate equipment and technology;

(C) collect and record data using the International System of Units (SI) and qualitative means such as labeled drawings, writing, and graphic organizers;

(D) construct tables and graphs, using repeated trials and means, to organize data and identify patterns; and

(E) analyze data to formulate reasonable explanations, communicate valid conclusions supported by the data, and predict trends.

(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. – Science Reasoning Skills

The student is expected to:

(A) analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, so as to encourage critical thinking by the student;

(B) use models to represent aspects of the natural world such as a model of Earth's layers;

(C) identify advantages and limitations of models such as size, scale, properties, and materials; and

(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.

7th Grade Science TEKS

(4) Scientific investigation and reasoning. The student knows how to use a variety of tools and safety equipment to conduct science inquiry.– Science Investigation Skills

The student is expected to:

(A) use appropriate tools, including journals/notebooks, beakers, Petri dishes, meter sticks, graduated cylinders, hot plates, test tubes, balances, microscopes, thermometers, calculators, computers, timing devices, and other necessary equipment to collect, record, and analyze information; and

(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.

(5) Matter and energy. The student knows that interactions occur between matter and energy.

The student is expected to:

(A) recognize that radiant energy from the Sun is transformed into chemical energy through the process of photosynthesis; and
-STAAR Supporting Standard for 8th Grade (6.9A Energy Transformations)

(B) diagram the flow of energy through living systems, including food chains, food webs, and energy pyramids.
-STAAR Supporting Standard for 8th Grade (7.5B Flow of Energy through Living Systems)

(6) Matter and energy. The student knows that matter has physical and chemical properties and can undergo physical and chemical changes. The student is expected to distinguish between physical and chemical changes in matter.

(7) Force, motion, and energy. The student knows that there is a relationship among force, motion, and energy.

The student is expected to:

(A) illustrate the transformation of energy within an organism such as the transfer from chemical energy to thermal energy; and
-STAAR Supporting Standard for 8th Grade (6.9A Energy Transformations)

(B) demonstrate and illustrate forces that affect motion in organisms such as emergence of seedlings, turgor pressure, geotropism, and circulation of blood.
--STAAR Readiness Standard for 8th Grade (8.6A Unbalanced Forces affecting motion of an object)

FIT Science

7th Grade Science TEKS

(8) Earth and space. The student knows that natural events and human activity can impact Earth systems

The student is expected to:

(A) predict and describe how catastrophic events such as floods, hurricanes, or tornadoes impact ecosystems;
-STAAR Readiness Standard for 8th Grade (8.11B Short-term environmental changes affecting organism and ecosystems)

(B) analyze the effects of weathering, erosion, and deposition on the environment in ecoregions of Texas; and
-STAAR Readiness Standard for 8th Grade (8.9C Satellite Images and Topographic Maps to show erosional features of Landforms)

(C) model the effects of human activity on groundwater and surface water in a watershed
-STAAR Supporting Standard for 8th Grade (7.8C Human Activity on Groundwater and Surface water)

(9) Earth and space. The student knows components of our solar system.

The student is expected to:

(A) analyze the characteristics of objects in our solar system that allow life to exist such as the proximity of the Sun, presence of water, and composition of the atmosphere; and
-STAAR Readiness Standard for 8th Grade (8.8A Components of the Universe)

(B) identify the accommodations, considering the characteristics of our solar system, that enabled manned space exploration.
-STAAR Readiness Standard for 8th Grade (8.8A Components of the Universe)

FIT Science

7th Grade Science TEKS

(10) Organisms and environments. The student knows that there is a relationship between organisms and the environment.

The student is expected to:

(A) observe and describe how different environments, including microhabitats in schoolyards and biomes, support different varieties of organisms;
-STAAR Readiness Standard for 8th Grade (8.11A Organisms/Populations Depend and Compete for Resources in Ecosystem)

(B) describe how biodiversity contributes to the sustainability of an ecosystem; and
-STAAR Supporting Standard for 8th Grade (7.10B Biodiversity and Sustainability in an Ecosystem)

(C) observe, record, and describe the role of ecological succession such as in a microhabitat of a garden with weeds.
-STAAR Supporting Standard for 8th Grade (7.10C Primary and Secondary Ecological Succession in an Environment)

(11) Organisms and environments. The student knows that populations and species demonstrate variation and inherit many of their unique traits through gradual processes over many generations.

The student is expected to:

(A) examine organisms or their structures such as insects or leaves and use dichotomous keys for identification;
-STAAR Supporting Standard for 8th Grade (7.11A Dichotomous Keys for Identification of Organisms)

(B) explain variation within a population or species by comparing external features, behaviors, or physiology of organisms that enhance their survival such as migration, hibernation, or storage of food in a bulb; and
-STAAR Readiness Standard for 8th Grade (8.11B Short and Long Term Environmental Changes affecting Organisms)

(C) identify some changes in genetic traits that have occurred over several generations through natural selection and selective breeding such as the Galapagos Medium Ground Finch *(Geospiza fortis)* or domestic animals and hybrid plants
-STAAR Supporting Standard for 8th Grade (7.11C Natural Selection and Selective Breeding of Organisms)

FIT Science

7th Grade Science TEKS

(12) Organisms and environments. The student knows that living systems at all levels of organization demonstrate the complementary nature of structure and function.

The student is expected to:

(A) investigate and explain how internal structures of organisms have adaptations that allow specific functions such as gills in fish, hollow bones in birds, or xylem in plants;
-STAAR Supporting Standard for 8th Grade (7.12B Structure and Function of Body Systems in Humans)

(B) identify the main functions of the systems of the human organism, including the circulatory, respiratory, skeletal, muscular, digestive, excretory, reproductive, integumentary, nervous, and endocrine systems;
-STAAR Supporting Standard for 8th Grade (7.12B Structure and Function of Body Systems in Humans)

(C) recognize levels of organization in plants and animals, including cells, tissues, organs, organ systems, and organisms;
-STAAR Supporting Standard for 8th Grade (7.12C Levels of Organization in Animals and Plants)

(D) differentiate between structure and function in plant and animal cell organelles, including cell membrane, cell wall, nucleus, cytoplasm, mitochondrion, chloroplast, and vacuole;
-STAAR Supporting Standard for 8th Grade (7.12D Animal and Plant Cell Structures and Organelles)

(E) compare the functions of cell organelles to the functions of an organ system; and
-STAAR Supporting Standard for 8th Grade (7.12D Animal and Plant Cell Structures and Organelles) and (7.12B Structure and Function of Body Systems in Humans)

(F) recognize the components of cell theory.
-STAAR Supporting Standard for 8th Grade (7.12F Components of Cell Theory)

(13) Organisms and environments. The student knows that a living organism must be able to maintain balance in stable internal conditions in response to external and internal stimuli.

The student is expected to:

(A) investigate how organisms respond to external stimuli found in the environment such as phototropism and fight or flight; and
STAAR Readiness Standard for 8th Grade (8.11A Organisms/Populations Depend and Compete for Resources in Ecosystem)

(B) describe and relate responses in organisms that may result from internal stimuli such as wilting in plants and fever or vomiting in animals that allow them to maintain balance.
-STAAR Readiness Standard for 8th Grade (8.11B Short and Long Term Environmental Changes affecting Organisms)

7th Grade Science TEKS

(14) Organisms and environments. The student knows that a living organism must be able to maintain balance in stable internal conditions in response to external and internal stimuli.

The student is expected to:

(A) define heredity as the passage of genetic instructions from one generation to the next generation;
-STAAR Supporting Standard for 8th Grade (7.14C Inherited Traits, Genes, and the Nucleus of a Cell)

(B) compare the results of uniform or diverse offspring from asexual or sexual reproduction; and
-STAAR Supporting Standard for 8th Grade (7.14B Asexual vs Sexual Reproduction results in Organisms)

(C) recognize that inherited traits of individuals are governed in the genetic material found in the genes within chromosomes in the nucleus
-STAAR Supporting Standard for 8th Grade (7.14C Inherited Traits, Genes, and the Nucleus of a Cell)