

TEKS #	TEKS Scientific Concepts	SquidBooks Content Area	SquidBooks
6.5	Matter and energy - The student knows the differences between elements and compounds		
	(A) know that an element is a pure substance represented by a chemical symbol and that a compound is a pure substance represented by a chemical formula.	Physical and Chemical Properties of Pure Substances	https://app.squidbooks.com/browse/PS1A/3
	(C) 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.	Chemical Reactions	https://app.squidbooks.com/browse/PS1B/2
6.6	Matter and energy. The student knows matter has physical properties that can be used for classification.		
	(A) compare metals, nonmetals, and metalloids using physical properties such as luster, conductivity, or malleability. S	Physical and Chemical Properties of Pure Substances	https://app.squidbooks.com/browse/PS1A/3
	(B) calculate density to identify an unknown substance. S	Physical and Chemical Properties of Pure Substances	https://app.squidbooks.com/browse/PS1A/3
	(C) test the physical properties of minerals, including hardness, color, luster, and streak.	Physical and Chemical Properties of Pure Substances	https://app.squidbooks.com/browse/PS1A/3
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.		
	(A) research and discuss the advantages and disadvantages of using coal, oil, natural gas, nuclear power, biomass, wind, hydropower, geothermal, and solar resources.	Renewable and Nonrenewable Resources	https://app.squidbooks.com/browse/ESS3A/3
6.8	Force, motion, and energy. The student knows force and motion are related to potential and kinetic energy.		
	(A) compare and contrast potential and kinetic energy.	Kinetic and Potential Energy	https://app.squidbooks.com/browse/PS3A/2

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	(B) identify and describe the changes in position, direction, and speed of an object when acted upon by unbalanced forces.	Forces and Motion	https://app.squidbooks.com/browse/PS2A/3
	(C) calculate average speed using distance and time measurements.	Forces and Motion	https://app.squidbooks.com/browse/PS2A/3
	(D) measure and graph changes in motion.	Kinetic and Potential Energy	https://app.squidbooks.com/browse/PS3A/2
	(E) investigate how inclined planes can be used to change the amount of force to move an object.		
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.			
	(A) investigate methods of thermal energy transfer, including conduction, convection, and radiation.	Conservation of Energy	https://app.squidbooks.com/browse/PS3B/2
	(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.	Conservation of Energy	https://app.squidbooks.com/browse/PS3B/2
	(C) demonstrate energy transformations such as energy in a flashlight battery changes from chemical energy to electrical energy to light energy.	Conservation of Energy	https://app.squidbooks.com/browse/PS3B/2
6.10 Earth and space. The student understands the structure of Earth, the rock cycle, and plate tectonics. The student is expected to:			
	(A) build a model to illustrate the compositional and mechanical layers of Earth, including the inner core, outer core, mantle, crust, asthenosphere, and lithosphere;	The Theory of Plate Tectonics	https://app.squidbooks.com/browse/ESS2B/2
	(B) classify rocks as metamorphic, igneous, or sedimentary by the processes of their formation;	Rocks and the Rock Cycle	https://app.squidbooks.com/browse/ESS2A/3

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	(C) identify the major tectonic plates, including Eurasian, African, Indo-Australian, Pacific, North American, and South American; and	The Theory of Plate Tectonics	https://app.squidbooks.com/browse/ESS2B/2
	(D) describe how plate tectonics causes major geological events such as ocean basin formation, earthquakes, volcanic eruptions, and mountain building.	Surface Features and Plate Interactions	https://app.squidbooks.com/browse/ESS2B/4
6.11 Earth and space. The student understands the organization of our solar system and the relationships among the various bodies that comprise it. The student is expected to:			
	(A) describe the physical properties, locations, and movements of the Sun, planets, moons, meteors, asteroids, and comets;	The Solar System	https://app.squidbooks.com/browse/ESS1B/3
	(B) understand that gravity is the force that governs the motion of our solar system; and	Gravity: Keeping the Order	https://app.squidbooks.com/browse/ESS1A/3
	(C) describe the history and future of space exploration, including the types of equipment and transportation needed for space travel.	The Scale of the Universe The Milky Way and the Solar System	https://app.squidbooks.com/browse/ESS1A/5 https://app.squidbooks.com/browse/ESS1A/4
6.12 Organisms and environments. The student knows all organisms are classified into domains and kingdoms. Organisms within these taxonomic groups share similar characteristics that allow them to interact with the living and nonliving parts of their ecosystem. The student is expected to:			
	(A) understand that all organisms are composed of one or more cells;	Cells: Basic Units of Life	https://app.squidbooks.com/browse/LS1A/2
	(B) recognize that the presence of a nucleus is a key factor used to determine whether a cell is prokaryotic or eukaryotic;	The Parts of Cells	https://app.squidbooks.com/browse/LS1A/3

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	(C) recognize that the broadest taxonomic classification of living organisms is divided into currently recognized domains;		
	(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;	Cells: Basic Units of Life The Parts of Cells	https://app.squidbooks.com/browse/LS1A/2 https://app.squidbooks.com/browse/LS1A/3
	(E) describe biotic and abiotic parts of an ecosystem in which organisms interact; and	Ecosystem Interdependence	https://app.squidbooks.com/browse/LS2A/2
	(F) diagram the levels of organization within an ecosystem, including organism, population, community, and ecosystem.		

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7.5	Matter and energy. The student knows that interactions occur between matter and energy.		
	(A) recognize that radiant energy from the Sun is transformed into chemical energy through the process of photosynthesis.	Photosynthesis	https://app.squidbooks.com/browse/LS1C/2
	(B) diagram the flow of energy through living systems, including food chains, food webs, and energy pyramids	Food Webs: Ecosystem Models	https://app.squidbooks.com/browse/LS2B/2
7.6	Matter and energy. The student knows that matter has physical and chemical properties and can undergo physical and chemical changes.		
	(A) distinguish between physical and chemical changes in matter.	Energy Flows and Matter Cycles	https://app.squidbooks.com/browse/ESS2A/5
7.7	Force, motion, and energy. The student knows that there is a relationship among force, motion, and energy.		
	(A) illustrate the transformation of energy within an organism such as the transfer from chemical energy to thermal energy.		
	(B) demonstrate and illustrate forces that affect motion in organisms such as emergence of seedlings, turgor pressure, geotropism, and circulation of blood.		
7.8	Earth and space. The student knows that natural events and human activity can impact Earth systems.		
	(A) predict and describe how catastrophic events such as floods, hurricanes, or tornadoes impact ecosystems.	Extreme Weather Events Volcanic Eruptions Earthquakes and Tsunamis	https://app.squidbooks.com/browse/ESS3B/5 https://app.squidbooks.com/browse/ESS3B/4 https://app.squidbooks.com/browse/ESS3B/3
	(B) analyze the effects of weathering, erosion, and deposition on the environment in ecoregions of Texas.	Water: Shaping Landscapes	https://app.squidbooks.com/browse/ESS2C/4

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	(C) model the effects of human activity on groundwater and surface water in a watershed.	Human Impacts on Air and Water	https://app.squidbooks.com/browse/ESS3C/2`
7.9 Earth and space. The student knows components of our solar system.			
	(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.	Atmospheric Structure and Composition	https://app.squidbooks.com/browse/ESS2D/2
	(B) identify the accommodations, considering the characteristics of our solar system, that enabled manned space exploration.	The Milky Way and the Solar System	https://app.squidbooks.com/browse/ESS1A/4
7.10 Organisms and environments. The student knows that there is a relationship between organisms and the environment.			
	(A) observe and describe how different environments, including microhabitats in schoolyards and biomes, support different varieties of organisms.	Population Adaptation	https://app.squidbooks.com/browse/LS4C/2
	(B) describe how biodiversity contributes to the sustainability of an ecosystem.	Biodiversity and Resilience	https://app.squidbooks.com/browse/LS2C/3
	(C) observe, record, and describe the role of ecological succession such as in a microhabitat of a garden with weeds.		
7.11 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.			
	(A) examine organisms or their structures such as insects or leaves and use dichotomous keys for identification.		

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	(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.	Population Adaptation	https://app.squidbooks.com/browse/LS4C/2
	(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 (<i>Geospiza fortis</i>) or domestic animals and hybrid plants.	Natural Selection and Artificial Selection	https://app.squidbooks.com/browse/LS4B/2
7.12 Organisms and environments. The student knows that living systems at all levels of organization demonstrate the complementary nature of structure and function.			
	(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.	Population Adaptation	https://app.squidbooks.com/browse/LS4C/2
	(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.	Body Systems in Multicellular Organisms	https://app.squidbooks.com/browse/LS1A/4
	(C) recognize levels of organization in plants and animals, including cells, tissues, organs, organ systems, and organisms.	Body Systems in Multicellular Organisms	https://app.squidbooks.com/browse/LS1A/4
	(D) differentiate between structure and function in plant and animal cell organelles, including cell membrane, cell wall, nucleus, cytoplasm, mitochondrion, chloroplast, and vacuole.	The Parts of Cells	https://app.squidbooks.com/browse/LS1A/3
	(E) compare the functions of cell organelles to the functions of an organ system.	Body Systems in Multicellular Organisms	https://app.squidbooks.com/browse/LS1A/3 https://app.squidbooks.com/browse/LS1A/4
	(F) recognize the components of cell theory.	Cells: Basic Units of Life	https://app.squidbooks.com/browse/LS1A/2

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7.13	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.		
	(A) investigate how organisms respond to external stimuli found in the environment such as phototropism and fight or flight.		
	(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.		
7.14	Organisms and environments. The student knows that reproduction is a characteristic of living organisms and that the instructions for traits are governed in the genetic material.		
	(A) define heredity as the passage of genetic instructions from one generation to the next generation.	Inheritance of Genes	https://app.squidbooks.com/browse/LS3A/4
	(B) compare the results of uniform or diverse offspring from asexual or sexual reproduction.	Sexual Reproduction	https://app.squidbooks.com/browse/LS3B/2
	(C) recognize that inherited traits of individuals are governed in the genetic material found in the genes within chromosomes in the nucleus.	Chromosomes	https://app.squidbooks.com/browse/LS3A/3

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8.5	Matter and energy. The student knows that matter is composed of atoms and has chemical and physical properties.		
	(A) describe the structure of atoms, including the masses, electrical charges, and locations, of protons and neutrons in the nucleus and electrons in the electron cloud.	Atoms, Molecules, and Substances	https://app.squidbooks.com/browse/PS1A/2
	(B) identify that protons determine an element's identity and valence electrons determine its chemical properties, including reactivity.		
	(C) interpret the arrangement of the Periodic Table, including groups and periods, to explain how properties are used to classify elements.	Physical and Chemical Properties of Pure Substances	https://app.squidbooks.com/browse/PS1A/3
	(D) recognize that chemical formulas are used to identify substances and determine the number of atoms of each element in chemical formulas containing subscripts.	Atoms, Molecules, and Substances	https://app.squidbooks.com/browse/PS1A/2
	(E) investigate how evidence of chemical reactions indicates that new substances with different properties are formed and how that relates to the law of conservation of mass	Chemical Reactions	https://app.squidbooks.com/browse/PS1B/2
8.6	Force, motion, and energy. The student knows that there is a relationship between force, motion, and energy.		
	(A) demonstrate and calculate how unbalanced forces change the speed or direction of an object's motion.	Forces and Motion	https://app.squidbooks.com/browse/PS2A/3
	(B) differentiate between speed, velocity, and acceleration		

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	(C) investigate and describe applications of Newton's three laws of motion such as in vehicle restraints, sports activities, amusement park rides, Earth's tectonic activities, and rocket launches	Forces and Interacting Objects Forces and Motion Force, Mass, and Change in Motion	https://app.squidbooks.com/browse/PS2A/2 https://app.squidbooks.com/browse/PS2A/3 https://app.squidbooks.com/browse/PS2A/4
8.7	Earth and space. The student knows the effects resulting from cyclical movements of the Sun, Earth, and Moon.		
	(A) model and illustrate how the tilted Earth rotates on its axis, causing day and night, and revolves around the Sun, causing changes in seasons.	The Solar System's Predictable Patterns: Days and Seasons	https://app.squidbooks.com/browse/ESS1B/5
	(B) demonstrate and predict the sequence of events in the lunar cycle	The Sun-Earth-Moon System	https://app.squidbooks.com/browse/ESS1B/4
	(C) relate the positions of the Moon and Sun to their effect on ocean tides.	The Sun-Earth-Moon System	https://app.squidbooks.com/browse/ESS1B/5
8.8	Earth and space. The student knows characteristics of the universe.		
	(A) describe components of the universe, including stars, nebulae, and galaxies, and use models such as the Hertzsprung-Russell diagram for classification.	The Milky Way and the Solar System	https://app.squidbooks.com/browse/ESS1A/4
	(B) recognize that the Sun is a medium-sized star located in a spiral arm of the Milky Way galaxy and that the Sun is many thousands of times closer to Earth than any other star.	The Milky Way and the Solar System The Sun	https://app.squidbooks.com/browse/ESS1A/5 https://app.squidbooks.com/browse/ESS1B/2
	(C) identify how different wavelengths of the electromagnetic spectrum such as visible light and radio waves are used to gain information about components in the universe.	The Origins of the Universe and the Big Bang	https://app.squidbooks.com/browse/ESS1A/2
	(D) research how scientific data are used as evidence to develop scientific theories to describe the origin of the universe.	The Origins of the Universe and the Big Bang	https://app.squidbooks.com/browse/ESS1A/2

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8.9	Earth and space. The student knows that natural events can impact Earth systems.		
	(A) describe the historical development of evidence that supports plate tectonic theory.	The Theory of Plate Tectonics Continental Drift	https://app.squidbooks.com/browse/ESS2B/2 https://app.squidbooks.com/browse/ESS2B/3
	(B) relate plate tectonics to the formation of crustal features.	Surface Features and Plate Interactions	https://app.squidbooks.com/browse/ESS2B/4
	(C) interpret topographic maps and satellite views to identify land and erosional features and predict how these features may be reshaped by weathering.		
8.10	Earth and space. The student knows that climatic interactions exist among Earth, ocean, and weather systems.		
	(A) recognize that the Sun provides the energy that drives convection within the atmosphere and oceans, producing winds.	Ocean Currents and Climate	https://app.squidbooks.com/browse/ESS2D/6
	(B) identify how global patterns of atmospheric movement influence local weather using weather maps that show high and low pressures and fronts.	Air Masses and Fronts	https://app.squidbooks.com/browse/ESS2D/4
	(C) identify the role of the oceans in the formation of weather systems such as hurricanes.	Ocean Currents and Climate	https://app.squidbooks.com/browse/ESS2D/6
8.11	Organisms and environments. The student knows that interdependence occurs among living systems and the environment and that human activities can affect these systems.		
	(A) investigate how organisms and populations in an ecosystem depend on and may compete for biotic factors such as food and abiotic factors such as quantity of light, water, range of temperatures, or soil composition.	Ecosystem Resources and Populations	https://app.squidbooks.com/browse/LS2A

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	(B) explore how short- and long-term environmental changes affect organisms and traits in subsequent populations.	Ecosystem Dynamics Natural Selection and Artificial Selection Population Adaptation	https://app.squidbooks.com/browse/LS2C/2 https://app.squidbooks.com/browse/LS4B/2 https://app.squidbooks.com/browse/LS4C/2
	(C) recognize human dependence on ocean systems and explain how human activities such as runoff, artificial reefs, or use of resources have modified these systems.	Human Impacts on Air and Water	https://app.squidbooks.com/browse/ESS3C