

TEKS Vertical Alignment for STAAR Alternate 2



Pre-kindergarten through End-of-Course

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Matter and Energy

- identify changes that can occur in the physical properties of the ingredients of solutions such as dissolving salt in water or adding lemon juice to water (5)
- 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. (6)
- recognize that a limited number of the many known elements comprise the largest portion of solid Earth, living matter, oceans, and the atmosphere (6)
- 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)
- compare metals, nonmetals, and metalloids using physical properties such as luster, conductivity, or malleability (6)
- < calculate density to identify an unknown substance (6)
- test the physical properties of minerals, including hardness, color, luster, and streak (6)
- research and discuss the advantages and disadvantages of using coal, oil, natural gas, nuclear power, biomass, wind, hydropower, geothermal, and solar resources (6)
- recognize that radiant energy from the Sun is transformed into chemical energy through the process of photosynthesis (7)
- diagram the flow of energy through living systems, including food chains, food webs, and energy pyramids (7)
- distinguish between physical and chemical changes (7)
- interpret the arrangement of the Periodic Table, including groups and periods, to explain how properties are used to classify elements

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- observe and identify slow changes to from water, wind, and ice (4)
 erosion, and deposition
- explore the processes that led to the formation of sedimentary rocks and fossil fuels (5)
- recognize how landforms such as deltas, canyons, and sand dunes are the result of changes to Earth's surface by wind, water, or ice (5)
- build a model to illustrate the compositional and mechanical layers of Earth, including the inner core, outer core, mantle, crust, asthenosphere, and lithosphere (6)
- < classify rocks as metamorphill23 (s a)-7 ((on)23 ne)12 (2BT/TT01.(l)-16 (ud) (e)12 (,)- Ea)-12 (r)-7 (t)5 (h)23 (,

- describe the physical properties, locations, and movements of the Sun, planets, moons, meteors, asteroids, and comets (6)
- (understand that gravity is the force that governs the motion of our solar system (6)
- describe the history and future of space exploration, including the types of equipment and transportation needed for space travel (6)
- 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 (7)
- identify the accommodations, considering the characteristics of our solar system, that enabled manned space exploration (7)
- model and illustrate how the tilted Earth rotates on its axis, causing day and night, and revolves around the Sun causing changes in seasons (8)
- demonstrate and predict the sequence of events in the lunar cycle (8)
- relate the positions of the Moon and Sun to their effect on ocean tides (8)
- describe components of the universe, including stars, nebulae, and galaxies, and use models such as the Hertzsprung-Russell diagram for classification (8)
- 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 (8)
- 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 (8)
- research how scientific data are used as evidence to develop scientific theories to describe the origin of the universe (8)

Organisms and Environments

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 (6.12). The student knows that living systems at all levels of organization demonstrate the complementary nature of structure and function (7.12). The student knows that a living organism must be able to maintain balance in stable internal conditions in response to external and internal stimuli (7.13).

Science concepts. The student knows that cells are the basic structures of all living things with specialized parts that perform specific functions and that viruses are different from cells (Biology 4). The student knows how an organism grows and the importance of cell differentiation (Biology 5). The student knows that biological systems are composed of multiple levels (Biology 10). The student knows that biological systems work to achieve and maintain balance (Biology 11). The student is expected to

Organisms: Structure and Function of Living Systems

- understand that all organisms are composed of one or more cells (6)
- recognize that the presence of a nucleus is a key factor used to determine whether a cell is prokaryotic or eukaryotic (6)
- 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
 (7)
- recognize levels of organization in plants and animals, including cells, tissues, organs, organ systems, and organisms (7)
- differentiate between structure and function in plant and animal cell organelles, including cell membrane, cell wall, nucleus, cytoplasm, mitochondrion, chloroplast, and vacuole (7)
- compare the functions of cell organelles to the functions of an organ system (7)

Life sciences skills. The student understands differences in living and non-living things (Pre-K.VI.B). **Organisms and environments.** The student knows that organisms resemble their parents and have structures and processes that help them survive within their environments (K.10; 1.10; 2.10). The student knows that organisms undergo similar life processes and have structures that help them survive within their environments (3.10). The student knows that organisms undergo similar life processes and have structures and have structures and behaviors that help them survive within their environment (4.10). The student knows that organisms have structures and behaviors that help them survive within their environments (5.10). The student is expected to

Organisms: Life Cycles

- < describe life cycles of organisms (Pre-K)
- observe changes that are part of a simple life cycle of a plant: seed, seedling, plant, flower, and fruit (K)
- observe and record life cycles of animals such as a chicken, frog, or fish (1)
- investigate and record some of the unique stages that insects such as grasshoppers and butterflies undergo during their life cycle (2)
- 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 (3)
- explore, illustrate, and compare life cycles in living organisms such as beetles, crickets, radishes, or lima beans (4)

Life sciences skills. The student understands differences in living and non-living things (Pre-K.VI.B). **Personal safety and health skills.** The student demonstrates an understanding of health and safety issues as it relates to their daily routines and activities (Pre-K.IX.C).

Organisms and environments. The student observes and describes the characteristics of organisms, the life cycle of organisms, and the relationship between organisms and their enhnhrgan t (und)23 (e)17 (e)**TETQ** 0 612 792 reW³

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Environment: Identify How Organisms Meet Their Basic Needs

- observe, investigate, describe, and discuss the characteristics of organisms (Pre-K)
- identify good habits of nutrition and exercise (Pre-K)
- differentiate between living and nonliving things based upon whether they have basic needs and produce offspring (K)
- examine evidence that living organisms have basic needs such as food, water, and shelter for animals and air, water, nutrients, sunlight, and space for plants (K)
- sort plants and animals into groups based on physical characteristics such as color, size, body covering, or leaf shape (K)
- < identify basic parts of plants and animals (K)
- sort and classify living and nonliving things based upon whether they have basic needs and produce offspring (1)
- < identify and compare the parts of plants (1)
- < identify the basic needs of plants and animals (2)
- identify factors in the environment, including temperature and precipitation, that affect growth and behavior suc (h)23 (a)-1c/TT0 11 Tf108.05 524.67 Td[i)5 (de)-10 (n)ETQ0 0 10 (n)ETQ2)

- explore how structures and functions enable organisms to survive in their environment (4)
- compare the structures and functions of different species that help them live and survive in a specific environment such as hooves on prairie animals or webbed feet in aquatic animals (5)
- 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 (7)
- 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 (7)

- recognize that inherited traits of individuals are governed in the genetic material found in the genes within chromosomes in the nucleus (7)
- describe the stages of the cell cycle, including deoxyribonucleic acid (DNA) replication and mitosis, and the importance of the cell cycle to the growth of organisms (Biology)
- identify components of DNA, identify how information for specifying the traits of an organism is carried in the DNA, and examine scientific explanations for the origin of DNA (Biology)
- recognize that components that make up the genetic code are common to all organisms (Biology)
- explain the purpose and process of transcription and translation using models of DNA and RNA (Biology)
- recognize that gene expression is a regulated process (Biology)

- demonstrate safe practices and the use of safety equipment as outlined in Texas Education Agencyapproved safety standards during classroom and outdoor investigations using safety equipment, including safety goggles or chemical splash goggles, as appropriate, and gloves, as appropriate (5)
- demonstrate safe practices during laboratory and field investigations as outlined in Texas Education Agency-approved safety standards (6 8)
- use preventative safety equipment, including chemical splash goggles, aprons, and gloves, and be

- collect information using tools, including computing devices, hand lenses, primary balances, cups, bowls, magnets, collecting nets, and notebooks; timing devices; non-standard measuring items; weather instruments such as demonstration thermometers; and materials to support observations of habitats of organisms such as terrariums and aquariums (K)
- use the senses as a tool of observation to identify properties and patterns of organisms, objects, and events in the environment (K)
- < collect data and make observations using simple tools (K 1)
- collect, record, and compare information using tools, including computers, hand lenses, primary balances, cups, bowls, magnets, collecting nets, notebooks, and safety goggles or chemical splash goggles, as appropriate; timing devices; non-standard measuring items; weather instruments such as classroom thermometers and wind socks; and materials to support observations of habitats of organisms such as aquariums and terrariums (1)
- measure and compare organisms and objects using non-standard units (1)
- record and organize data using pictures, numbers, and words (1 2)
- < collect data from observations using scientific tools (2)
- collect, record, and compare information using tools, including computers, hand lenses, rulers, plastic beakers, magnets, collecting nets, notebooks, and safety goggles or chemical splash goggles, as appropriate; timing devices; weather instruments such as thermometers, wind vanes, and rain gauges; and materials to support observations of habitats of organisms such as terrariums and aquariums (2)

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Scientific investigation and reasoning.