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TEKS Curriculum Framework for STAAR Alternate 2

# Grade 8 Science



## STAAR Alternate 2 Science Instructional Terms

The curriculum that will be assessed each year for STAAR Alternate 2 is determined by the essence statements that are selected for each administration. Teachers should refer to the Curriculum Framework documents for each selected essence statement to locate the prerequisite skills that are linked to that essence statement. Instruction should focus on the listed prerequisite skills. The teacher should determine what skills have been mastered and which need to be taught according to the developmental level of the student. The goal should be to assist the student in attaining the highest academic level the student is capable of within a given year. In addition to the prerequisite skills, there are instructional terms that students will need exposure to during instruction. The following list includes the terms for all the essence statements and not just the ones selected for a given administration. Students need to become familiar with these terms as the student is developmentally able to comprehend the content. Students in higher grades need to also know the terms presented in earlier grades.

### Grade 5 Science

universe: planets, moon, sun, stars, Earth	conserve/conserving	organism
states of matter: solid, liquid, gas	natural resources	living/non-living
physical properties: sphere, mass, magnetism, texture	land forms: valleys, canyons, mountains	developmental stages: young, adult
	water sources: streams, lakes, oceans	characteristics/parts: plant, animal
energy: heat, sound, light, mechanical	water cycle: precipitation, evaporation, condensation	habitat
nectar/pollen	absorb/absorption	seasons: climate, weather conditions
nutrients/nutrition	life cycles: larva, mature, seedling, pupa	survive

### Grade 8 Science

mixture/solution	erosion	force
substance	ecosystem	pulley/inclined plane
strainer	food chain/food web/food source	harvested
environment	omnivore	friction
phase	migration, migrating	electricity/current
weathering	investigation	kilogram
mammals	thermal energy	beaker
bud		

### Biology

metamorphosis/nymph	structures	cell, vacuole
traits	absorption, absorb	organ
inherited	hibernation	systems: circulatory, digestive, respiratory, nervous, skeletal, digestive
learned behaviors	flow of energy	
survival	producer/consumer	kingdom: plant (Plantae), animal (Animalia)
adaptations	interdependence	fungi (Fungi)
function	mutualistic relationship	plankton



<b>STAAR Reporting Category 1 – Matter and Energy: The student will demonstrate an understanding of the properties of matter and energy and their interactions.</b>	
<b>TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations</b>	<b>Essence of TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations</b>
<p><b>(8.5) Matter and energy.</b> The student knows that matter is composed of atoms and has chemical and physical properties. The student is expected to</p> <p>(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; Readiness Standard</p> <p>(B) identify that protons determine an element’s identity and valence electrons determine its chemical properties, including reactivity; Readiness Standard</p> <p>(C) interpret the arrangement of the Periodic Table, including groups and periods, to explain how properties are used to classify elements; Readiness Standard</p> <p>(D) recognize that chemical formulas are used to identify substances and determine the number of atoms of each element in chemical formulas containing subscripts; Readiness Standard</p> <p>(E) investigate how evidence of chemical reactions indicate that new substances with different properties are formed; Readiness Standard</p> <p>(F) recognize whether a chemical equation containing coefficients is balanced or not and how that relates to the law of conservation of mass. Supporting Standard</p> <p><b>(7.5) Matter and energy.</b> The student knows that interactions occur between matter and energy. The student is expected to</p> <p>(C) diagram the flow of energy through living systems, including food chains, food webs, and energy pyramids. Supporting Standard</p> <p><b>(6.5) Matter and energy.</b> The student knows the differences between elements and compounds. The student is expected to</p> <p>(C) differentiate between elements and compounds on the most basic level. Supporting Standard</p>	<p>Recognizes that matter is composed of atoms, has distinct properties, and interacts with energy.</p>

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## 8.5

## Prerequisite Skills/Links to TEKS Vertical Alignment

*Characteristics and Properties of Matter*

- recognize how large molecules are broken down into smaller molecules such as carbohydrates can be broken down into sugars
- distinguish between physical and chemical changes in matter in the digestive system
- identify that organic compounds contain carbon and other elements such as hydrogen, oxygen, phosphorus, nitrogen, or sulfur
- diagram the flow of energy through living systems, including food chains, food webs, and energy pyramids
- demonstrate and explain the cycling of matter within living systems such as in the decay of biomass in a compost bin
- recognize that radiant energy from the Sun is transformed into chemical energy through the process of photosynthesis
- design a logical plan to manage energy resources in the home, school or community
- research and debate the advantages and disadvantages of using coal, oil, natural gas, nuclear power, biomass, wind, hydropower, geothermal, and solar resources
- test the physical properties of minerals, including hardness, color, luster, and streak
- calculate density to identify an unknown substance
- compare metals, nonmetals, and metalloids using physical properties such as luster, conductivity, or malleability
- 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
- differentiate between elements and compounds on the most basic level
- recognize that a limited number of the many known elements comprise the largest portion of solid Earth, living matter, oceans, and the atmosphere
- know that an element is a pure substance represented by chemical symbols
- 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
- demonstrate that some mixtures maintain physical properties of their ingredients such as iron filings and sand
- identify the boiling and freezing/ melting points of water on the Celsius scale
- classify matter based on physical properties, including mass, magnetism, physical state (solid, liquid, and gas), relative density (sinking and floating), solubility in water, and the ability to conduct or insulate thermal energy or electric energy
- compare and contrast a variety of mixtures and solutions such as rocks in sand, sand in water, or sugar in water
- predict the changes caused by heating and cooling such as ice becoming liquid water and condensation forming on the outside of a glass of ice water
- measure, compare, and contrast physical properties of matter, including size, mass, volume, states (solid, liquid, gas), temperature, magnetism, and the ability to sink or float
- explore and recognize that a mixture is created when two materials are combined such as gravel and sand and metal and plastic paper clips
- predict, observe and record changes in the state of matter caused by heating or cooling

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8.5	Prerequisite Skills/Links to TEKS Vertical Alignment
	<ul style="list-style-type: none"><li>• 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</li><li>• measure, test, and record physical properties of matter, including temperature, mass, magnetism, and the ability to sink or float</li><li>• combine materials that when put together can do things that they cannot do by themselves such as building a tower or a bridge and justify the selection of those materials based on their physical properties</li><li>• demonstrate that things can be done to materials to change their physical properties such as cutting, folding, sanding, and melting</li><li>• compare changes in materials caused by heating and cooling</li><li>• classify matter by physical properties, including shape, relative mass, relative temperature, texture, flexibility, and whether material is a solid or liquid</li><li>• predict and identify changes in materials caused by heating and cooling such as ice melting, water freezing, and water evaporating</li><li>• classify objects by observable properties of the materials from which they are made such as larger and smaller, heavier and lighter, shape, color, and texture</li><li>• observe, record, and discuss how materials can be changed by heating or cooling</li><li>• observe and record properties of objects, including relative size and mass, such as bigger or smaller and heavier or lighter, shape, color, and texture</li></ul> <p><b>Physical science skills</b></p> <ul style="list-style-type: none"><li>• describe, observe, and investigate properties and characteristics of common objects</li></ul>

**NOTE:** Under each heading the prerequisite skills are arranged from the highest grade level to the lowest grade level.

<b>STAAR Reporting Category 1 – Matter and Energy: The student will demonstrate an understanding of the properties of matter and energy and their interactions.</b>	
<b>TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations</b>	<b>Essence of TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations</b>
<p><b>(7.6) Matter and energy.</b> The student knows that matter has physical and chemical properties and can undergo physical and chemical changes. The student is expected to</p> <p>(A) identify that organic compounds contain carbon and other elements such as hydrogen, oxygen, phosphorus, nitrogen, or sulfur; Supporting Standard</p> <p>(B) distinguish between physical and chemical changes in matter in the digestive system. Supporting Standard</p> <p><b>(6.6) Matter and energy.</b> The student knows matter has physical properties that can be used for classification. The student is expected to</p> <p>(A) compare metals, nonmetals, and metalloids using physical properties such as luster, conductivity, or malleability; and Supporting Standard</p> <p>(B) calculate density to identify an unknown substance. Supporting Standard</p>	<p>Recognizes the physical and chemical properties and changes of matter and how physical properties are used for classification.</p>
<b>7.6 Prerequisite Skills/Links to TEKS Vertical Alignment</b>	
<b>7.6</b>	<p><i>Characteristics and Properties of Matter</i></p> <ul style="list-style-type: none"> <li>• recognize how large molecules are broken down into smaller molecules such as carbohydrates can be broken down into sugars</li> <li>• distinguish between physical and chemical changes in matter in the digestive system</li> <li>• identify that organic compounds contain carbon and other elements such as hydrogen, oxygen, phosphorus, nitrogen, or sulfur</li> <li>• diagram the flow of energy through living systems, including food chains, food webs, and energy pyramids</li> <li>• demonstrate and explain the cycling of matter within living systems such as in the decay of biomass in a compost bin</li> <li>• recognize that radiant energy from the Sun is transformed into chemical energy through the process of photosynthesis</li> <li>• design a logical plan to manage energy resources in the home, school or community</li> <li>• research and debate the advantages and disadvantages of using coal, oil, natural gas, nuclear power, biomass, wind, hydropower, geothermal, and solar resources</li> <li>• test the physical properties of minerals, including hardness, color, luster, and streak</li> <li>• calculate density to identify an unknown substance</li> </ul>

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## 7.6

## Prerequisite Skills/Links to TEKS Vertical Alignment

- compare metals, nonmetals, and metalloids using physical properties such as luster, conductivity, or malleability
- 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
- differentiate between elements and compounds on the most basic level
- recognize that a limited number of the many known elements comprise the largest portion of solid Earth, living matter, oceans, and the atmosphere
- know that an element is a pure substance represented by chemical symbols
- 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
- demonstrate that some mixtures maintain physical properties of their ingredients such as iron filings and sand
- identify the boiling and freezing/ melting points of water on the Celsius scale
- classify matter based on physical properties, including mass, magnetism, physical state (solid, liquid, and gas), relative density (sinking and floating), solubility in water, and the ability to conduct or insulate thermal energy or electric energy
- compare and contrast a variety of mixtures and solutions such as rocks in sand, sand in water, or sugar in water
- predict the changes caused by heating and cooling such as ice becoming liquid water and condensation forming on the outside of a glass of ice water
- measure, compare, and contrast physical properties of matter, including size, mass, volume, states (solid, liquid, gas), temperature, magnetism, and the ability to sink or float
- explore and recognize that a mixture is created when two materials are combined such as gravel and sand and metal and plastic paper clips
- predict, observe and record changes in the state of matter caused by heating or cooling
- 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
- measure, test, and record physical properties of matter, including temperature, mass, magnetism, and the ability to sink or float
- combine materials that when put together can do things that they cannot do by themselves such as building a tower or a bridge and justify the selection of those materials based on their physical properties
- demonstrate that things can be done to materials to change their physical properties such as cutting, folding, sanding, and melting
- compare changes in materials caused by heating and cooling
- classify matter by physical properties, including shape, relative mass, relative temperature, texture, flexibility, and whether material is a solid or liquid
- predict and identify changes in materials caused by heating and cooling such as ice melting, water freezing, and water evaporating
- classify objects by observable properties of the materials from which they are made such as larger and smaller, heavier and lighter, shape, color, and texture
- observe, record, and discuss how materials can be changed by heating or cooling

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7.6	Prerequisite Skills/Links to TEKS Vertical Alignment
	<ul style="list-style-type: none"><li>• observe and record properties of objects, including relative size and mass, such as bigger or smaller and heavier or lighter, shape, color, and texture</li></ul> <p><b>Physical science skills</b></p> <ul style="list-style-type: none"><li>• describe, observe, and investigate properties and characteristics of common objects</li></ul>

**NOTE:** Under each heading the prerequisite skills are arranged from the highest grade level to the lowest grade level.

<b>STAAR Reporting Category 2 – Force, Motion, and Energy: The student will demonstrate an understanding of force, motion, and energy and their relationships.</b>	
<b>TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations</b>	<b>Essence of TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations</b>
<p><b>(8.6) Force, motion, and energy.</b> The student knows that there is a relationship between force, motion, and energy. The student is expected to</p> <p>(A) demonstrate and calculate how unbalanced forces change the speed or direction of an object’s motion; Readiness Standard</p> <p>(B) differentiate between speed, velocity, and acceleration; Supporting Standard</p> <p>(C) investigate and describe applications of Newton’s law of inertia, law of force and acceleration, and law of action-reaction such as in vehicle restraints, sports activities, amusement park rides, Earth’s tectonic activities, and rocket launches. Readiness Standard</p>	<p>Recognizes that relationships exist between force, motion, and energy.</p>
<b>8.6 Prerequisite Skills/Links to TEKS Vertical Alignment</b>	
<p><i>Force and Motion</i></p> <ul style="list-style-type: none"> <li>• demonstrate and illustrate forces that affect motion in everyday life such as emergence of seedlings, turgor pressure, and geotropism</li> <li>• contrast situations where work is done with different amounts of force to situations where no work is done such as moving a box with a ramp and without a ramp, or standing still</li> <li>• investigate how inclined planes and pulleys can be used to change the amount of force to move an object</li> <li>• measure and graph changes in motion</li> <li>• calculate average speed using distance and time measurements</li> <li>• identify and describe the changes in position, direction, and speed of an object when acted upon by unbalanced forces</li> <li>• design an experiment that tests the effect of force on an object</li> <li>• design an experiment to test the effect of force on an object such as a push or a pull, gravity, friction, or magnetism</li> <li>• observe forces such as magnetism and gravity acting on objects</li> <li>• demonstrate and observe how position and motion can be changed by pushing and pulling objects to show work being done such as swings, balls, pulleys, and wagons</li> <li>• compare patterns of movement of objects such as sliding, rolling, and spinning</li> <li>• trace the changes in the position of an object over time such as a cup rolling on the floor and a car rolling down a ramp</li> <li>• observe and identify how magnets are used in everyday life</li> </ul>	<p style="border: 1px solid black; border-radius: 15px; padding: 2px 10px; display: inline-block;"><i>Continued</i></p>

8.6	Prerequisite Skills/Links to TEKS Vertical Alignment
	<ul style="list-style-type: none"><li>• demonstrate and record the ways that objects can move such as in a straight line, zigzag, up and down, back and forth, round and round, and fast and slow</li><li>• describe the change in the location of an object such as closer to, nearer to, and farther from</li><li>• predict and describe how a magnet can be used to push or pull an object</li><li>• observe and describe the ways that objects can move such as in a straight line, zigzag, up and down, back and forth, round and round, and fast and slow</li><li>• observe and describe the location of an object in relation to another such as above, below, behind, in front of, and beside</li><li>• explore interactions between magnets and various materials</li></ul> <p><b>Physical science skills</b></p> <ul style="list-style-type: none"><li>• investigate and describe position and motion of objects</li></ul>

**NOTE:** Under each heading the prerequisite skills are arranged from the highest grade level to the lowest grade level.

<b>STAAR Reporting Category 2 – Force, Motion, and Energy: The student will demonstrate an understanding of force, motion, and energy and their relationships.</b>	
<b>TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations</b>	<b>Essence of TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations</b>
<p><b>(7.7) Force, motion, and energy.</b> The student knows that there is a relationship among force, motion, and energy. The student is expected to</p> <p>(A) contrast situations where work is done with different amounts of force to situations where no work is done such as moving a box with a ramp and without a ramp, or standing still. Supporting Standard</p>	<p>Recognizes the relationship between force and work.</p>
<b>7.7 Prerequisite Skills/Links to TEKS Vertical Alignment</b>	
<b>7.7</b>	<p><i>Force and Motion</i></p> <ul style="list-style-type: none"> <li>• demonstrate and illustrate forces that affect motion in everyday life such as emergence of seedlings, turgor pressure, and geotropism</li> <li>• contrast situations where work is done with different amounts of force to situations where no work is done such as moving a box with a ramp and without a ramp, or standing still</li> <li>• investigate how inclined planes and pulleys can be used to change the amount of force to move an object</li> <li>• measure and graph changes in motion</li> <li>• calculate average speed using distance and time measurements</li> <li>• identify and describe the changes in position, direction, and speed of an object when acted upon by unbalanced forces</li> <li>• design an experiment that tests the effect of force on an object</li> <li>• design an experiment to test the effect of force on an object such as a push or a pull, gravity, friction, or magnetism</li> <li>• observe forces such as magnetism and gravity acting on objects</li> <li>• demonstrate and observe how position and motion can be changed by pushing and pulling objects to show work being done such as swings, balls, pulleys, and wagons</li> <li>• compare patterns of movement of objects such as sliding, rolling, and spinning</li> <li>• trace the changes in the position of an object over time such as a cup rolling on the floor and a car rolling down a ramp</li> <li>• observe and identify how magnets are used in everyday life</li> <li>• demonstrate and record the ways that objects can move such as in a straight line, zigzag, up and down, back and forth, round and round, and fast and slow</li> <li>• describe the change in the location of an object such as closer to, nearer to, and farther from</li> <li>• predict and describe how a magnet can be used to push or pull an object</li> </ul>

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7.7	Prerequisite Skills/Links to TEKS Vertical Alignment
	<ul style="list-style-type: none"><li>• observe and describe the ways that objects can move such as in a straight line, zigzag, up and down, back and forth, round and round, and fast and slow</li><li>• observe and describe the location of an object in relation to another such as above, below, behind, in front of, and beside</li><li>• explore interactions between magnets and various materials</li></ul> <p><b>Physical science skills</b></p> <ul style="list-style-type: none"><li>• investigate and describe position and motion of objects</li></ul>

**NOTE:** Under each heading the prerequisite skills are arranged from the highest grade level to the lowest grade level.

<b>STAAR Reporting Category 2 – Force, Motion, and Energy: The student will demonstrate an understanding of force, motion, and energy and their relationships.</b>	
<b>TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations</b>	<b>Essence of TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations</b>
<p><b>(6.8) Force, motion, and energy.</b> The student knows force and motion are related to potential and kinetic energy. The student is expected to</p> <p>(A) compare and contrast potential and kinetic energy; Supporting Standard</p> <p>(C) calculate average speed using distance and time measurements; Supporting Standard</p> <p>(D) measure and graph changes in motion. Supporting Standard</p>	<p>Recognizes that force and motion are related to potential and kinetic energy.</p>
<b>6.8 Prerequisite Skills/Links to TEKS Vertical Alignment</b>	
<p><i>Force and Motion</i></p> <ul style="list-style-type: none"> <li>• demonstrate and illustrate forces that affect motion in everyday life such as emergence of seedlings, turgor pressure, and geotropism</li> <li>• contrast situations where work is done with different amounts of force to situations where no work is done such as moving a box with a ramp and without a ramp, or standing still</li> <li>• investigate how inclined planes and pulleys can be used to change the amount of force to move an object</li> <li>• measure and graph changes in motion</li> <li>• calculate average speed using distance and time measurements</li> <li>• identify and describe the changes in position, direction, and speed of an object when acted upon by unbalanced forces</li> <li>• design an experiment that tests the effect of force on an object</li> <li>• design an experiment to test the effect of force on an object such as a push or a pull, gravity, friction, or magnetism</li> <li>• observe forces such as magnetism and gravity acting on objects</li> <li>• demonstrate and observe how position and motion can be changed by pushing and pulling objects to show work being done such as swings, balls, pulleys, and wagons</li> <li>• compare patterns of movement of objects such as sliding, rolling, and spinning</li> <li>• trace the changes in the position of an object over time such as a cup rolling on the floor and a car rolling down a ramp</li> <li>• observe and identify how magnets are used in everyday life</li> <li>• demonstrate and record the ways that objects can move such as in a straight line, zigzag, up and down, back and forth, round and round, and fast and slow</li> <li>• describe the change in the location of an object such as closer to, nearer to, and farther from</li> <li>• predict and describe how a magnet can be used to push or pull an object</li> </ul>	

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6.8	Prerequisite Skills/Links to TEKS Vertical Alignment
	<ul style="list-style-type: none"> <li>• observe and describe the ways that objects can move such as in a straight line, zigzag, up and down, back and forth, round and round, and fast and slow</li> <li>• observe and describe the location of an object in relation to another such as above, below, behind, in front of, and beside</li> <li>• explore interactions between magnets and various materials</li> </ul> <p><i>Energy in Its Many Forms</i></p> <ul style="list-style-type: none"> <li>• illustrate the transformation of energy within an organism such as the transfer from chemical energy to heat and thermal energy in digestion</li> <li>• demonstrate energy transformations such as energy in a flashlight battery changes from chemical energy to electrical energy to light energy</li> <li>• 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</li> <li>• investigate methods of thermal energy transfer, including conduction, convection, and radiation</li> <li>• compare and contrast potential and kinetic energy</li> <li>• demonstrate that light travels in a straight line until it strikes an object or travels through one medium to another and demonstrate that light can be reflected such as the use of mirrors or other shiny surfaces and refracted such as the appearance of an object when observed through water</li> <li>• explore the uses of energy, including mechanical, light, thermal, electrical, and sound energy</li> <li>• differentiate between conductors and insulators</li> <li>• differentiate among forms of energy, including mechanical, sound, electrical, light, and heat/ thermal</li> <li>• explore different forms of energy, including mechanical, light, sound, and heat/ thermal in everyday life</li> <li>• investigate the effects on an object by increasing or decreasing amounts of light, heat, and sound energy such as how the color of an object appears different in dimmer light or how heat melts butter</li> <li>• identify and discuss how different forms of energy such as light, heat, and sound are important to everyday life</li> <li>• use the five senses to explore different forms of energy such as light, heat, and sound</li> </ul> <p><b>Physical science skills</b></p> <ul style="list-style-type: none"> <li>• investigate and describe position and motion of objects</li> <li>• investigate and describe sources of energy including light, heat, and electricity</li> </ul> <p><i>Electricity and Magnetism</i></p> <ul style="list-style-type: none"> <li>• demonstrate that the flow of electricity in circuits requires a complete path through which an electric current can pass and can produce light, heat, and sound</li> <li>• demonstrate that electricity travels in a closed path, creating an electrical circuit, and explore an electromagnetic field</li> </ul>

**NOTE:** Under each heading the prerequisite skills are arranged from the highest grade level to the lowest grade level.



<b>STAAR Reporting Category 2 – Force, Motion, and Energy: The student will demonstrate an understanding of force, motion, and energy and their relationships.</b>	
<b>TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations</b>	<b>Essence of TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations</b>
<p><b>(6.9) Force, motion, and energy.</b> The student knows that the Law of Conservation of Energy states that energy can neither be created nor destroyed, it just changes form. The student is expected to</p> <p style="padding-left: 40px;">(C) demonstrate energy transformations such as energy in a flashlight battery changes from chemical energy to electrical energy to light energy. Supporting Standard</p>	<p>Knows that energy can neither be created nor destroyed but changes form.</p>
<b>6.9 Prerequisite Skills/Links to TEKS Vertical Alignment</b>	
<p><i>Energy in Its Many Forms</i></p> <ul style="list-style-type: none"> <li>• illustrate the transformation of energy within an organism such as the transfer from chemical energy to heat and thermal energy in digestion</li> <li>• demonstrate energy transformations such as energy in a flashlight battery changes from chemical energy to electrical energy to light energy</li> <li>• 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</li> <li>• investigate methods of thermal energy transfer, including conduction, convection, and radiation</li> <li>• compare and contrast potential and kinetic energy</li> <li>• demonstrate that light travels in a straight line until it strikes an object or travels through one medium to another and demonstrate that light can be reflected such as the use of mirrors or other shiny surfaces and refracted such as the appearance of an object when observed through water</li> <li>• explore the uses of energy, including mechanical, light, thermal, electrical, and sound energy</li> <li>• differentiate between conductors and insulators</li> <li>• differentiate among forms of energy, including mechanical, sound, electrical, light, and heat/ thermal</li> <li>• explore different forms of energy, including mechanical, light, sound, and heat/ thermal in everyday life</li> <li>• investigate the effects on an object by increasing or decreasing amounts of light, heat, and sound energy such as how the color of an object appears different in dimmer light or how heat melts butter</li> <li>• identify and discuss how different forms of energy such as light, heat, and sound are important to everyday life</li> <li>• use the five senses to explore different forms of energy such as light, heat, and sound</li> </ul>	<p style="border: 1px solid black; border-radius: 15px; padding: 2px 10px; display: inline-block;"><i>Continued</i></p>

6.9	Prerequisite Skills/Links to TEKS Vertical Alignment
	<p data-bbox="201 217 495 250"><b>Physical science skills</b></p> <ul data-bbox="226 256 1285 289" style="list-style-type: none"><li>• investigate and describe sources of energy including light, heat, and electricity</li></ul> <p data-bbox="201 295 516 328"><i>Electricity and Magnetism</i></p> <ul data-bbox="226 334 1898 435" style="list-style-type: none"><li>• demonstrate that the flow of electricity in circuits requires a complete path through which an electric current can pass and can produce light, heat, and sound</li><li>• demonstrate that electricity travels in a closed path, creating an electrical circuit, and explore an electromagnetic field</li></ul>

**NOTE:** Under each heading the prerequisite skills are arranged from the highest grade level to the lowest grade level.

<b>STAAR Reporting Category 3 – Earth and Space: The student will demonstrate an understanding of components, cycles, patterns, and natural events of Earth and space systems.</b>	
<b>TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations</b>	<b>Essence of TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations</b>
<p><b>(8.7) Earth and space.</b> The student knows the effects resulting from cyclical movements of the Sun, Earth, and Moon. The student is expected to</p> <p>(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; Readiness Standard</p> <p>(B) demonstrate and predict the sequence of events in the lunar cycle; Readiness Standard</p> <p>(C) relate the position of the Moon and Sun to their effect on ocean tides. Supporting Standard</p>	<p>Knows that the phases of the moon, the seasons on Earth, and the day and night cycle are the result of cyclical interactions among Earth, the Moon, and the Sun.</p>
<b>8.7 Prerequisite Skills/Links to TEKS Vertical Alignment</b>	
<p><i>Space: The Solar System and the Universe</i></p> <ul style="list-style-type: none"> <li>• identify the accommodations, considering the characteristics of our solar system, that enabled manned space exploration</li> <li>• 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</li> <li>• describe the history and future of space exploration, including the types of equipment and transportation needed for space travel</li> <li>• understand that gravity is the force that governs the motion of our solar system</li> <li>• describe the physical properties, locations, and movements of the Sun, planets, Galilean moons, meteors, asteroids, and comets</li> <li>• identify and compare the physical characteristics of the Sun, Earth and Moon</li> <li>• demonstrate that Earth rotates on its axis once approximately every 24 hours causing the day/ night cycle and the apparent movement of the Sun across the sky</li> <li>• identify the planets in Earth’s solar system and their position in relation to the Sun</li> <li>• construct models that demonstrate the relationship of the Sun, Earth, and Moon, including orbits and positions</li> <li>• observe, describe, and record patterns of objects in the sky, including the appearance of the Moon</li> <li>• observe and record changes in the appearance of objects in the sky such as clouds, the Moon, and stars, including the Sun</li> <li>• observe, describe, and illustrate objects in the sky such as the clouds, Moon, and stars, including the Sun</li> </ul>	<p><i>Continued</i></p>

8.7	Prerequisite Skills/Links to TEKS Vertical Alignment
	<p data-bbox="201 217 596 250"><b>Earth and space science skills</b></p> <ul data-bbox="226 256 1205 324" style="list-style-type: none"><li data-bbox="226 256 1205 289">• observe and describe what happens during changes in the earth and sky</li><li data-bbox="226 295 1205 324">• identify, observe, and discuss objects in the sky</li></ul>

**NOTE:** Under each heading the prerequisite skills are arranged from the highest grade level to the lowest grade level.

<b>STAAR Reporting Category 3 – Earth and Space: The student will demonstrate an understanding of components, cycles, patterns, and natural events of Earth and space systems.</b>	
<b>TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations</b>	<b>Essence of TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations</b>
<p><b>(8.8) Earth and space.</b> The student knows characteristics of the universe. The student is expected to</p> <p>(A) describe components of the universe, including stars, nebulae, and galaxies, and use models such as the Hertzsprung-Russell diagram for classification; Readiness Standard</p> <p>(B) recognize that the Sun is a medium-sized star near the edge of a disc-shaped galaxy of stars and that the Sun is many thousands of times closer to Earth than any other star; Supporting Standard</p> <p>(C) explore how different wavelengths of the electromagnetic spectrum such as light and radio waves are used to gain information about distances and properties of components in the universe; Supporting Standard</p> <p>(D) model and describe how light years are used to measure distances and sizes in the universe. Supporting Standard</p>	<p>Recognizes characteristics of the universe and its components.</p>
<b>8.8 Prerequisite Skills/Links to TEKS Vertical Alignment</b>	
<b>8.8</b>	<p><i>Space: The Solar System and the Universe</i></p> <ul style="list-style-type: none"> <li>• identify the accommodations, considering the characteristics of our solar system, that enabled manned space exploration</li> <li>• 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</li> <li>• describe the history and future of space exploration, including the types of equipment and transportation needed for space travel</li> <li>• understand that gravity is the force that governs the motion of our solar system</li> <li>• describe the physical properties, locations, and movements of the Sun, planets, Galilean moons, meteors, asteroids, and comets</li> <li>• identify and compare the physical characteristics of the Sun, Earth and Moon</li> <li>• demonstrate that Earth rotates on its axis once approximately every 24 hours causing the day/ night cycle and the apparent movement of the Sun across the sky</li> <li>• identify the planets in Earth’s solar system and their position in relation to the Sun</li> <li>• construct models that demonstrate the relationship of the Sun, Earth, and Moon, including orbits and positions</li> <li>• observe, describe, and record patterns of objects in the sky, including the appearance of the Moon</li> <li>• observe and record changes in the appearance of objects in the sky such as clouds, the Moon, and stars, including the Sun</li> <li>• observe, describe, and illustrate objects in the sky such as the clouds, Moon, and stars, including the Sun</li> </ul>

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8.8	Prerequisite Skills/Links to TEKS Vertical Alignment
	<p data-bbox="201 220 573 248"><b>Earth and space science skills</b></p> <ul data-bbox="226 256 1205 326" style="list-style-type: none"><li data-bbox="226 256 1205 289">• observe and describe what happens during changes in the earth and sky</li><li data-bbox="226 293 884 326">• identify, observe, and discuss objects in the sky</li></ul>

**NOTE:** Under each heading the prerequisite skills are arranged from the highest grade level to the lowest grade level.

<b>STAAR Reporting Category 3 – Earth and Space: The student will demonstrate an understanding of components, cycles, patterns, and natural events of Earth and space systems.</b>	
<b>TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations</b>	<b>Essence of TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations</b>
<p><b>(8.9) Earth and space.</b> The student knows that natural events can impact Earth systems. The student is expected to</p> <p>(A) describe the historical development of evidence that supports plate tectonic theory; Supporting Standard</p> <p>(B) relate plate tectonics to the formation of crustal features; Readiness Standard</p> <p>(C) interpret topographic maps and satellite views to identify land and erosional features and predict how these features may be reshaped by weathering. Readiness Standard</p>	<p>Recognizes that natural events affect Earth’s systems.</p>
<b>8.9 Prerequisite Skills/Links to TEKS Vertical Alignment</b>	
<p><i>Earth: Formation of Earth’s Surface and Earth’s Resources</i></p> <ul style="list-style-type: none"> <li>• analyze the effects of weathering, erosion, and deposition on the environment in ecoregions of Texas</li> <li>• predict and describe how different types of catastrophic events impact ecosystems such as floods, hurricanes, or tornadoes</li> <li>• describe how plate tectonics causes major geological events such as ocean basins, earthquakes, volcanic eruptions, and mountain building</li> <li>• identify the major tectonic plates, including Eurasian, African, Indo-Australian, Pacific, North American, and South American</li> <li>• classify rocks as metamorphic, igneous, or sedimentary by the processes of their formation</li> <li>• build a model to illustrate the structural layers of Earth, including the inner core, outer core, mantle, crust, asthenosphere, and lithosphere</li> <li>• identify fossils as evidence of past living organisms and the nature of the environments at the time using models</li> <li>• recognize how landforms such as deltas, canyons, and sand dunes are the result of changes to Earth's surface by wind, water, and ice</li> <li>• explore the processes that led to the formation of sedimentary rocks and fossil fuels</li> <li>• observe and identify slow changes to Earth’s surface caused by weathering, erosion, and deposition from water, wind, and ice</li> <li>• identify and compare different landforms, including mountains, hills, valleys, and plains</li> <li>• investigate rapid changes in Earth’s surface such as volcanic eruptions, earthquakes, and landslides</li> <li>• explore and record how soils are formed by weathering of rock and the decomposition of plant and animal remains</li> </ul> <p><i>Earth: Seasons, Climate, and Weather</i></p> <ul style="list-style-type: none"> <li>• explain how the Sun and the ocean interact in the water cycle</li> <li>• differentiate between weather and climate</li> </ul>	

Continued

## 8.9

## Prerequisite Skills/Links to TEKS Vertical Alignment

- collect and analyze data to identify sequences and predict patterns of change in shadows, tides, seasons, and the observable appearance of the Moon over time
- describe and illustrate the continuous movement of water above and on the surface of Earth through the water cycle and explain the role of the Sun as a major source of energy in this process
- measure and record changes in weather and make predictions using weather maps, weather symbols, and a map key
- describe and illustrate the Sun as a star composed of gases that provides light and heat energy for the water cycle
- 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
- explore the processes in the water cycle, including evaporation, condensation, and precipitation, as connected to weather conditions
- identify the importance of weather and seasonal information to make choices in clothing, activities, and transportation
- measure, record and graph weather information, including temperature, wind conditions, precipitation, and cloud coverage, in order to identify patterns in the data
- demonstrate that air is all around us and observe that wind is moving air
- identify characteristics of the seasons of the year and day and night
- record weather information, including relative temperature, such as hot or cold, clear or cloudy, calm or windy, and rainy or icy
- identify events that have repeating patterns, including seasons of the year and day and night
- observe and describe weather changes from day to day and over seasons

*Earth: Rock, Soil, and Water*

- model the effects of human activity on groundwater and surface water in a watershed
- identify and classify Earth's renewable resources, including air, plants, water, and animals; and nonrenewable resources, including coal, oil, and natural gas; and the importance of conservation
- examine properties of soils, including color and texture, capacity to retain water, and ability to support the growth of plants
- 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
- distinguish between natural and manmade resources
- identify and compare the properties of natural sources of freshwater and saltwater
- observe and describe rocks by size, texture, and color
- gather evidence of how rocks, soil, and water help to make useful products
- identify and describe a variety of natural sources of water, including streams, lakes, and oceans
- observe, compare, describe, and sort components of soil by size, texture, and color
- give examples of ways rocks, soil, and water are useful
- observe and describe physical properties of natural sources of water, including color and clarity
- observe, describe, compare, and sort rocks by size, shape, color, and texture

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8.9	Prerequisite Skills/Links to TEKS Vertical Alignment
	<p data-bbox="201 220 594 248"><b>Earth and space science skills</b></p> <ul data-bbox="237 256 1241 326" style="list-style-type: none"><li data-bbox="237 256 1241 289">• demonstrate the importance of caring for our environment and our planet</li><li data-bbox="237 293 1241 326">• identify, compare, discuss earth materials, and their properties and uses</li></ul>

**NOTE:** Under each heading the prerequisite skills are arranged from the highest grade level to the lowest grade level.

<b>STAAR Reporting Category 3 – Earth and Space: The student will demonstrate an understanding of components, cycles, patterns, and natural events of Earth and space systems.</b>	
<b>TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations</b>	<b>Essence of TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations</b>
<p><b>(8.10) Earth and space.</b> The student knows that climatic interactions exist among Earth, ocean, and weather systems. The student is expected to</p> <p>(A) recognize that the Sun provides the energy that drives convection within the atmosphere and oceans, producing winds and ocean currents; Supporting Standard</p> <p>(B) identify how global patterns of atmospheric movement influence local weather using weather maps that show high and low pressures and fronts; Supporting Standard</p> <p>(C) identify the role of the oceans in the formation of weather systems such as hurricanes. Supporting Standard</p>	<p>Knows that interactions exist among Earth, ocean, and weather systems.</p>
<b>8.10 Prerequisite Skills/Links to TEKS Vertical Alignment</b>	
<b>8.10</b>	<p><i>Earth: Seasons, Climate, and Weather</i></p> <ul style="list-style-type: none"> <li>• explain how the Sun and the ocean interact in the water cycle</li> <li>• differentiate between weather and climate</li> <li>• collect and analyze data to identify sequences and predict patterns of change in shadows, tides, seasons, and the observable appearance of the Moon over time</li> <li>• describe and illustrate the continuous movement of water above and on the surface of Earth through the water cycle and explain the role of the Sun as a major source of energy in this process</li> <li>• measure and record changes in weather and make predictions using weather maps, weather symbols, and a map key</li> <li>• describe and illustrate the Sun as a star composed of gases that provides light and heat energy for the water cycle</li> <li>• 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</li> <li>• explore the processes in the water cycle, including evaporation, condensation, and precipitation, as connected to weather conditions</li> <li>• identify the importance of weather and seasonal information to make choices in clothing, activities, and transportation</li> <li>• measure, record and graph weather information, including temperature, wind conditions, precipitation, and cloud coverage, in order to identify patterns in the data</li> <li>• demonstrate that air is all around us and observe that wind is moving air</li> <li>• identify characteristics of the seasons of the year and day and night</li> <li>• record weather information, including relative temperature, such as hot or cold, clear or cloudy, calm or windy, and rainy or icy</li> </ul>

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**8.10****Prerequisite Skills/Links to TEKS Vertical Alignment**

- identify events that have repeating patterns, including seasons of the year and day and night
- observe and describe weather changes from day to day and over seasons

*Earth: Rock, Soil, and Water*

- model the effects of human activity on groundwater and surface water in a watershed
- identify and classify Earth's renewable resources, including air, plants, water, and animals; and nonrenewable resources, including coal, oil, and natural gas; and the importance of conservation
- examine properties of soils, including color and texture, capacity to retain water, and ability to support the growth of plants
- 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
- distinguish between natural and manmade resources
- identify and compare the properties of natural sources of freshwater and saltwater
- observe and describe rocks by size, texture, and color
- gather evidence of how rocks, soil, and water help to make useful products
- identify and describe a variety of natural sources of water, including streams, lakes, and oceans
- observe, compare, describe, and sort components of soil by size, texture, and color
- give examples of ways rocks, soil, and water are useful
- observe and describe physical properties of natural sources of water, including color and clarity
- observe, describe, compare, and sort rocks by size, shape, color, and texture

**Earth and space science skills**

- demonstrate the importance of caring for our environment and our planet
- identify, compare, discuss earth materials, and their properties and uses

*Earth: Formation of Earth's Surface and Earth's Resources*

- analyze the effects of weathering, erosion, and deposition on the environment in ecoregions of Texas
- predict and describe how different types of catastrophic events impact ecosystems such as floods, hurricanes, or tornadoes
- describe how plate tectonics causes major geological events such as ocean basins, earthquakes, volcanic eruptions, and mountain building
- identify the major tectonic plates, including Eurasian, African, Indo-Australian, Pacific, North American, and South American
- classify rocks as metamorphic, igneous, or sedimentary by the processes of their formation
- build a model to illustrate the structural layers of Earth, including the inner core, outer core, mantle, crust, asthenosphere, and lithosphere
- identify fossils as evidence of past living organisms and the nature of the environments at the time using models
- recognize how landforms such as deltas, canyons, and sand dunes are the result of changes to Earth's surface by wind, water, and ice
- explore the processes that led to the formation of sedimentary rocks and fossil fuels
- observe and identify slow changes to Earth's surface caused by weathering, erosion, and deposition from water, wind, and ice

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<b>8.10</b>	<b>Prerequisite Skills/Links to TEKS Vertical Alignment</b>
	<ul style="list-style-type: none"><li>• identify and compare different landforms, including mountains, hills, valleys, and plains</li><li>• investigate rapid changes in Earth’s surface such as volcanic eruptions, earthquakes, and landslides</li><li>• explore and record how soils are formed by weathering of rock and the decomposition of plant and animal remains</li></ul>

**NOTE:** Under each heading the prerequisite skills are arranged from the highest grade level to the lowest grade level.

<b>STAAR Reporting Category 3 – Earth and Space: The student will demonstrate an understanding of components, cycles, patterns, and natural events of Earth and space systems.</b>	
<b>TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectation</b>	<b>Essence of TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectation</b>
<p><b>(7.8) Earth and space.</b> The student knows that natural events and human activity can impact Earth systems. The student is expected to (C) model the effects of human activity on groundwater and surface water in a watershed. Supporting Standard</p>	<p>Recognizes the relationship between ground water and surface water in watersheds.</p>
<b>7.8 Prerequisite Skills/Links to TEKS Vertical Alignment</b>	
<p><i>Earth: Rock, Soil, and Water</i></p> <ul style="list-style-type: none"> <li>• model the effects of human activity on groundwater and surface water in a watershed</li> <li>• identify and classify Earth’s renewable resources, including air, plants, water, and animals; and nonrenewable resources, including coal, oil, and natural gas; and the importance of conservation</li> <li>• examine properties of soils, including color and texture, capacity to retain water, and ability to support the growth of plants</li> <li>• 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</li> <li>• distinguish between natural and manmade resources</li> <li>• identify and compare the properties of natural sources of freshwater and saltwater</li> <li>• observe and describe rocks by size, texture, and color</li> <li>• gather evidence of how rocks, soil, and water help to make useful products</li> <li>• identify and describe a variety of natural sources of water, including streams, lakes, and oceans</li> <li>• observe, compare, describe, and sort components of soil by size, texture, and color</li> <li>• give examples of ways rocks, soil, and water are useful</li> <li>• observe and describe physical properties of natural sources of water, including color and clarity</li> <li>• observe, describe, compare, and sort rocks by size, shape, color, and texture</li> </ul> <p><b>Earth and space science skills</b></p> <ul style="list-style-type: none"> <li>• demonstrate the importance of caring for our environment and our planet</li> <li>• identify, compare, discuss earth materials, and their properties and uses</li> </ul> <p><i>Earth: Seasons, Climate, and Weather</i></p> <ul style="list-style-type: none"> <li>• explain how the Sun and the ocean interact in the water cycle</li> <li>• differentiate between weather and climate</li> <li>• collect and analyze data to identify sequences and predict patterns of change in shadows, tides, seasons, and the observable appearance of the Moon over time</li> </ul>	

Continued

## 7.8

## Prerequisite Skills/Links to TEKS Vertical Alignment

- describe and illustrate the continuous movement of water above and on the surface of Earth through the water cycle and explain the role of the Sun as a major source of energy in this process
- measure and record changes in weather and make predictions using weather maps, weather symbols, and a map key
- describe and illustrate the Sun as a star composed of gases that provides light and heat energy for the water cycle
- 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
- explore the processes in the water cycle, including evaporation, condensation, and precipitation, as connected to weather conditions
- identify the importance of weather and seasonal information to make choices in clothing, activities, and transportation
- measure, record and graph weather information, including temperature, wind conditions, precipitation, and cloud coverage, in order to identify patterns in the data
- demonstrate that air is all around us and observe that wind is moving air
- identify characteristics of the seasons of the year and day and night
- record weather information, including relative temperature, such as hot or cold, clear or cloudy, calm or windy, and rainy or icy
- identify events that have repeating patterns, including seasons of the year and day and night
- observe and describe weather changes from day to day and over seasons

*Earth: Formation of Earth's Surface and Earth's Resources*

- analyze the effects of weathering, erosion, and deposition on the environment in ecoregions of Texas
- predict and describe how different types of catastrophic events impact ecosystems such as floods, hurricanes, or tornadoes
- describe how plate tectonics causes major geological events such as ocean basins, earthquakes, volcanic eruptions, and mountain building
- identify the major tectonic plates, including Eurasian, African, Indo-Australian, Pacific, North American, and South American
- classify rocks as metamorphic, igneous, or sedimentary by the processes of their formation
- build a model to illustrate the structural layers of Earth, including the inner core, outer core, mantle, crust, asthenosphere, and lithosphere
- identify fossils as evidence of past living organisms and the nature of the environments at the time using models
- identify alternative energy resources such as wind, solar, hydroelectric, geothermal, and biofuels
- recognize how landforms such as deltas, canyons, and sand dunes are the result of changes to Earth's surface by wind, water, and ice
- explore the processes that led to the formation of sedimentary rocks and fossil fuels
- observe and identify slow changes to Earth's surface caused by weathering, erosion, and deposition from water, wind, and ice

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7.8	Prerequisite Skills/Links to TEKS Vertical Alignment
	<ul style="list-style-type: none"><li>• identify and compare different landforms, including mountains, hills, valleys, and plains</li><li>• investigate rapid changes in Earth’s surface such as volcanic eruptions, earthquakes, and landslides</li><li>• explore and record how soils are formed by weathering of rock and the decomposition of plant and animal remains</li></ul>

**NOTE:** Under each heading the prerequisite skills are arranged from the highest grade level to the lowest grade level.

<b>STAAR Reporting Category 3 – Earth and Space: The student will demonstrate an understanding of components, cycles, patterns, and natural events of Earth and space systems.</b>	
<b>TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectation</b>	<b>Essence of TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectation</b>
<p><b>(6.11) Earth and space.</b> The student understands the organization of our solar system and the relationships among the various bodies that comprise it. The student is expected to</p> <p style="padding-left: 40px;">(B) understand that gravity is the force that governs the motion of our solar system. Supporting Standard</p>	<p>Knows the organization and relationships among components of the solar system.</p>
<b>6.11 Prerequisite Skills/Links to TEKS Vertical Alignment</b>	
<p><i>Space: The Solar System and the Universe</i></p> <ul style="list-style-type: none"> <li>• identify the accommodations, considering the characteristics of our solar system, that enabled manned space exploration</li> <li>• 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</li> <li>• describe the history and future of space exploration, including the types of equipment and transportation needed for space travel</li> <li>• understand that gravity is the force that governs the motion of our solar system</li> <li>• describe the physical properties, locations, and movements of the Sun, planets, Galilean moons, meteors, asteroids, and comets</li> <li>• identify and compare the physical characteristics of the Sun, Earth and Moon</li> <li>• demonstrate that Earth rotates on its axis once approximately every 24 hours causing the day/ night cycle and the apparent movement of the Sun across the sky</li> <li>• identify the planets in Earth’s solar system and their position in relation to the Sun</li> <li>• construct models that demonstrate the relationship of the Sun, Earth, and Moon, including orbits and positions</li> <li>• observe, describe, and record patterns of objects in the sky, including the appearance of the Moon</li> <li>• observe and record changes in the appearance of objects in the sky such as clouds, the Moon, and stars, including the Sun</li> <li>• observe, describe, and illustrate objects in the sky such as the clouds, Moon, and stars, including the Sun</li> </ul> <p><b>Earth and space science skills</b></p> <ul style="list-style-type: none"> <li>• observe and describe what happens during changes in the earth and sky</li> <li>• identify, observe, and discuss objects in the sky</li> </ul>	

**NOTE:** Under each heading the prerequisite skills are arranged from the highest grade level to the lowest grade level.



<b>STAAR Reporting Category 4 – Organisms and Environments: The student will demonstrate an understanding of the structures and functions of living organisms and their interdependence on each other and on their environment.</b>	
<b>TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations</b>	<b>Essence of TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations</b>
<p><b>(8.11) Organisms and environments.</b> The student knows that interdependence occurs among living systems and the environment and that human activities can affect these systems. The student is expected to</p> <p>(A) describe producer/ consumer, predator/ prey, and parasite/ host relationships as they occur in food webs within marine, freshwater, and terrestrial ecosystems; Readiness Standard</p> <p>(B) investigate how organisms and populations in an ecosystem depend on and may compete for biotic and abiotic factors such as quantity of light, water, range of temperatures, or soil composition; Readiness Standard</p> <p>(C) explore how short- and long-term environmental changes affect organisms and traits in subsequent populations; Readiness Standard</p> <p>(D) recognize human dependence on ocean systems and explain how human activities such as runoff, artificial reefs, or use of resources have modified these systems. Supporting Standard</p> <p><b>(7.11) Organisms and environments.</b> 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</p> <p>(A) examine organisms or their structures such as insects or leaves and use dichotomous keys for identification; Supporting Standard</p> <p>(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. Supporting Standard</p>	<p>Recognizes the interdependence of organisms with each other and with their environment.</p>

Continued

## 8.11

## Prerequisite Skills/Links to TEKS Vertical Alignment

*Environment: Adaptations and Biological Evolution*

- 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
- 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
- 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
- compare the structures and functions of different species that help them live and survive such as hooves on prairie animals or webbed feet in aquatic animals
- explore how adaptations enable organisms to survive in their environment such as comparing birds' beaks and leaves on plants
- explore how structures and functions of plants and animals allow them to survive in a particular environment
- investigate how the external characteristics of an animal are related to where it lives, how it moves, and what it eats

*Organisms: Classification of Organisms*

- examine organisms or their structures such as insects or leaves and use dichotomous keys for identification
- 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
- recognize that the broadest taxonomic classification of living organisms is divided into currently recognized Domains

*Environment: Identify How Organisms Meet Their Basic Needs*

- observe, record, and compare how the physical characteristics of plants help them meet their basic needs such as stems carry water throughout the plant
- observe, record, and compare how the physical characteristics and behaviors of animals help them meet their basic needs such as fins help fish move and balance in the water
- identify factors in the environment, including temperature and precipitation, that affect growth and behavior such as migration, hibernation, and dormancy of living things
- identify the basic needs of plants and animals
- identify and compare the parts of plants
- sort and classify living and nonliving things based upon whether or not they have basic needs and produce offspring
- identify parts of plants such as roots, stem and leaves and parts of animals such as head, eyes, and limbs
- sort plants and animals into groups based on physical characteristics such as color, size, body covering, or leaf shape
- 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
- differentiate between living and nonliving things based upon whether they have basic needs and produce offspring

Continued

## 8.11

## Prerequisite Skills/Links to TEKS Vertical Alignment

**Personal safety and health skills**

- identify good habits of nutrition and exercise
- practice good habits of personal health and hygiene

*Environment: How Organisms Depend on Each Other and Their Environment*

- observe, record, and describe the role of ecological succession such as in a microhabitat of a garden with weeds
- describe how biodiversity contributes to the sustainability of an ecosystem
- observe and describe how different environments, including microhabitats in schoolyards and biomes, support different varieties of organisms
- diagram the levels of organization within an ecosystem, including organism, population, community, and ecosystem
- describe biotic and abiotic parts of an ecosystem in which organisms interact
- identify the significance of the carbon dioxide-oxygen cycle to the survival of plants and animals
- predict the effects of changes in ecosystems caused by living organisms, including humans, such as the overpopulation of grazers or the building of highways
- describe how the flow of energy derived from the Sun, used by producers to create their own food, is transferred through a food chain and food web to consumers and decomposers
- observe the way organisms live and survive in their ecosystem by interacting with the living and non-living elements
- describe the flow of energy through food webs, beginning with the Sun, and predict how changes in the ecosystem affect the food web such as a fire in a forest
- investigate that most producers need sunlight, water, and carbon dioxide to make their own food, while consumers are dependent on other organisms for food
- describe environmental changes such as floods and droughts where some organisms thrive and others perish or move to new locations
- 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
- observe and describe the physical characteristics of environments and how they support populations and communities within an ecosystem
- compare and give examples of the ways living organisms depend on each other and on their environments such as food chains within a garden, park, beach, lake, and wooded area
- gather evidence of interdependence among living organisms such as energy transfer through food chains and animals using plants for shelter
- analyze and record examples of interdependence found in various situations such as terrariums and aquariums or pet and caregiver

Continued

8.11	Prerequisite Skills/Links to TEKS Vertical Alignment
	<p data-bbox="201 220 453 248"><b>Life sciences skills</b></p> <ul data-bbox="226 256 1346 329" style="list-style-type: none"><li data-bbox="226 256 1346 289">• recognize, observe, and discuss the relationship of organisms to their environments</li><li data-bbox="226 297 957 329">• identify and describe the characteristics of organisms</li></ul>

**NOTE:** Under each heading the prerequisite skills are arranged from the highest grade level to the lowest grade level.

<b>STAAR Reporting Category 4 – Organisms and Environments: The student will demonstrate an understanding of the structures and functions of living organisms and their interdependence on each other and on their environment.</b>	
<b>TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations</b>	<b>Essence of TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations</b>
<p><b>(7.10) Organisms and environments.</b> The student knows that there is a relationship between organisms and the environment. The student is expected to</p> <p>(B) describe how biodiversity contributes to the sustainability of an ecosystem; Supporting Standard</p> <p>(C) observe, record, and describe the role of ecological succession such as in a microhabitat of a garden with weeds. Supporting Standard</p>	<p>Knows the importance of biodiversity to the health of an ecosystem.</p>
<b>7.10 Prerequisite Skills/Links to TEKS Vertical Alignment</b>	
	<p><i>Environment: How Organisms Depend on Each Other and Their Environment</i></p> <ul style="list-style-type: none"> <li>• observe, record, and describe the role of ecological succession such as in a microhabitat of a garden with weeds</li> <li>• describe how biodiversity contributes to the sustainability of an ecosystem</li> <li>• observe and describe how different environments, including microhabitats in schoolyards and biomes, support different varieties of organisms</li> <li>• diagram the levels of organization within an ecosystem, including organism, population, community, and ecosystem</li> <li>• describe biotic and abiotic parts of an ecosystem in which organisms interact</li> <li>• identify the significance of the carbon dioxide-oxygen cycle to the survival of plants and animals</li> <li>• predict the effects of changes in ecosystems caused by living organisms, including humans, such as the overpopulation of grazers or the building of highways</li> <li>• describe how the flow of energy derived from the Sun, used by producers to create their own food, is transferred through a food chain and food web to consumers and decomposers</li> <li>• observe the way organisms live and survive in their ecosystem by interacting with the living and non-living elements</li> <li>• describe the flow of energy through food webs, beginning with the Sun, and predict how changes in the ecosystem affect the food web such as a fire in a forest</li> <li>• investigate that most producers need sunlight, water, and carbon dioxide to make their own food, while consumers are dependent on other organisms for food</li> <li>• describe environmental changes such as floods and droughts where some organisms thrive and others perish or move to new locations</li> <li>• 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</li> </ul>

Continued

7.10	Prerequisite Skills/Links to TEKS Vertical Alignment
	<ul style="list-style-type: none"> <li>• observe and describe the physical characteristics of environments and how they support populations and communities within an ecosystem</li> <li>• compare and give examples of the ways living organisms depend on each other and on their environments such as food chains within a garden, park, beach, lake, and wooded area</li> <li>• gather evidence of interdependence among living organisms such as energy transfer through food chains and animals using plants for shelter</li> <li>• analyze and record examples of interdependence found in various situations such as terrariums and aquariums or pet and caregiver</li> </ul> <p><i>Environment: Identify How Organisms Meet Their Basic Needs</i></p> <ul style="list-style-type: none"> <li>• observe, record, and compare how the physical characteristics of plants help them meet their basic needs such as stems carry water throughout the plant</li> <li>• observe, record, and compare how the physical characteristics and behaviors of animals help them meet their basic needs such as fins help fish move and balance in the water</li> <li>• identify factors in the environment, including temperature and precipitation, that affect growth and behavior such as migration, hibernation, and dormancy of living things</li> <li>• identify the basic needs of plants and animals</li> <li>• identify and compare the parts of plants</li> <li>• sort and classify living and nonliving things based upon whether or not they have basic needs and produce offspring</li> <li>• identify parts of plants such as roots, stem and leaves and parts of animals such as head, eyes, and limbs</li> <li>• sort plants and animals into groups based on physical characteristics such as color, size, body covering, or leaf shape</li> <li>• 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</li> <li>• differentiate between living and nonliving things based upon whether they have basic needs and produce offspring</li> </ul> <p><b>Life sciences skills</b></p> <ul style="list-style-type: none"> <li>• recognize, observe, and discuss the relationship of organisms to their environments</li> <li>• identify and describe the characteristics of organisms</li> </ul> <p><b>Personal safety and health skills</b></p> <ul style="list-style-type: none"> <li>• practice good habits of personal health and hygiene</li> <li>• identify good habits of nutrition and exercise</li> </ul>

**NOTE:** Under each heading the prerequisite skills are arranged from the highest grade level to the lowest grade level.

<b>STAAR Reporting Category 4 – Organisms and Environments: The student will demonstrate an understanding of the structures and functions of living organisms and their interdependence on each other and on their environment.</b>	
<b>TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations</b>	<b>Essence of TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations</b>
<p><b>(7.12) Organisms and environments.</b> The student knows that living systems at all levels of organization demonstrate the complementary nature of structure and function. The student is expected to</p> <p style="padding-left: 40px;">(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; Supporting Standard</p> <p style="padding-left: 40px;">(D) differentiate between structure and function in plant and animal cell organelles, including cell membrane, cell wall, nucleus, cytoplasm, mitochondrion, chloroplast, and vacuole; Supporting Standard</p> <p style="padding-left: 40px;">(F) recognize that according to cell theory all organisms are composed of cells and cells carry on similar functions such as extracting energy from food to sustain life. Supporting Standard</p> <p><b>(6.12) Organisms and environments.</b> 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. The student is expected to</p> <p style="padding-left: 40px;">(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. Supporting Standard</p>	<p>Recognizes the classification of organisms.</p>

*Continued*

## 7.12

## Prerequisite Skills/Links to TEKS Vertical Alignment

*Organisms: Structure and Function of Living Systems*

- recognize that according to cell theory all organisms are composed of cells and cells carry on similar functions such as extracting energy from food to sustain life
- compare the functions of a cell to the functions of organisms such as waste removal
- differentiate between structure and function in plant and animal cell organelles, including cell membrane, cell wall, nucleus, cytoplasm, mitochondrion, chloroplast, and vacuole
- recognize levels of organization in plants and animals, including cells, tissues, organs, organ systems, and organisms
- 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
- recognize that the presence of a nucleus determines whether a cell is prokaryotic or eukaryotic
- understand that all organisms are composed of one or more cells

*Environment: Organisms' Response to Their Environment*

- 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
- investigate how organisms respond to external stimuli found in the environment such as phototropism and fight or flight

*Organisms: Classification of Organisms*

- examine organisms or their structures such as insects or leaves and use dichotomous keys for identification
- 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
- recognize that the broadest taxonomic classification of living organisms is divided into currently recognized Domains

*Environment: Identify How Organisms Meet Their Basic Needs*

- observe, record, and compare how the physical characteristics of plants help them meet their basic needs such as stems carry water throughout the plant
- observe, record, and compare how the physical characteristics and behaviors of animals help them meet their basic needs such as fins help fish move and balance in the water
- identify factors in the environment, including temperature and precipitation, that affect growth and behavior such as migration, hibernation, and dormancy of living things
- identify the basic needs of plants and animals
- identify and compare the parts of plants
- sort and classify living and nonliving things based upon whether or not they have basic needs and produce offspring
- identify parts of plants such as roots, stem and leaves and parts of animals such as head, eyes, and limbs
- sort plants and animals into groups based on physical characteristics such as color, size, body covering, or leaf shape
- 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

Continued



## 7.12

## Prerequisite Skills/Links to TEKS Vertical Alignment

- differentiate between living and nonliving things based upon whether they have basic needs and produce offspring

**Personal safety and health skills**

- identify good habits of nutrition and exercise
- practice good habits of personal health and hygiene

*Environment: How Organisms Depend on Each Other and Their Environment*

- observe, record, and describe the role of ecological succession such as in a microhabitat of a garden with weeds
- describe how biodiversity contributes to the sustainability of an ecosystem
- observe and describe how different environments, including microhabitats in schoolyards and biomes, support different varieties of organisms
- diagram the levels of organization within an ecosystem, including organism, population, community, and ecosystem
- describe biotic and abiotic parts of an ecosystem in which organisms interact
- identify the significance of the carbon dioxide-oxygen cycle to the survival of plants and animals
- predict the effects of changes in ecosystems caused by living organisms, including humans, such as the overpopulation of grazers or the building of highways
- describe how the flow of energy derived from the Sun, used by producers to create their own food, is transferred through a food chain and food web to consumers and decomposers
- observe the way organisms live and survive in their ecosystem by interacting with the living and non-living elements
- describe the flow of energy through food webs, beginning with the Sun, and predict how changes in the ecosystem affect the food web such as a fire in a forest
- investigate that most producers need sunlight, water, and carbon dioxide to make their own food, while consumers are dependent on other organisms for food
- describe environmental changes such as floods and droughts where some organisms thrive and others perish or move to new locations
- 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
- observe and describe the physical characteristics of environments and how they support populations and communities within an ecosystem
- compare and give examples of the ways living organisms depend on each other and on their environments such as food chains within a garden, park, beach, lake, and wooded area
- gather evidence of interdependence among living organisms such as energy transfer through food chains and animals using plants for shelter
- analyze and record examples of interdependence found in various situations such as terrariums and aquariums or pet and caregiver

Continued

7.12	Prerequisite Skills/Links to TEKS Vertical Alignment
	<p data-bbox="201 220 449 250"><b>Life sciences skills</b></p> <ul data-bbox="226 259 1348 328" style="list-style-type: none"><li data-bbox="226 259 1348 289">• recognize, observe, and discuss the relationship of organisms to their environments</li><li data-bbox="226 295 957 328">• identify and describe the characteristics of organisms</li></ul> <p data-bbox="201 334 814 363"><i>Environment: Adaptations and Biological Evolution</i></p> <ul data-bbox="226 370 1978 766" style="list-style-type: none"><li data-bbox="226 370 1978 435">• 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</li><li data-bbox="226 441 1978 506">• 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</li><li data-bbox="226 513 1978 578">• 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</li><li data-bbox="226 584 1978 649">• compare the structures and functions of different species that help them live and survive such as hooves on prairie animals or webbed feet in aquatic animals</li><li data-bbox="226 656 1978 688">• explore how adaptations enable organisms to survive in their environment such as comparing birds' beaks and leaves on plants</li><li data-bbox="226 695 1692 727">• explore how structures and functions of plants and animals allow them to survive in a particular environment</li><li data-bbox="226 734 1759 766">• investigate how the external characteristics of an animal are related to where it lives, how it moves, and what it eats</li></ul>

**NOTE:** Under each heading the prerequisite skills are arranged from the highest grade level to the lowest grade level.

<b>STAAR Reporting Category 4 – Organisms and Environments: The student will demonstrate an understanding of the structures and functions of living organisms and their interdependence on each other and on their environment.</b>	
<b>TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations</b>	<b>Essence of TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations</b>
<p><b>(7.14) Organisms and environments.</b> The student knows that reproduction is a characteristic of living organisms and that the instructions for traits are governed in the genetic material. The student is expected to</p> <p style="padding-left: 20px;">(B) compare the results of uniform or diverse offspring from sexual reproduction or asexual reproduction; Supporting Standard</p> <p style="padding-left: 20px;">(C) recognize that inherited traits of individuals are governed in the genetic material found in the genes within chromosomes in the nucleus. Supporting Standard</p>	<p>Recognizes that inherited traits are determined by genetic material.</p>
<b>7.14 Prerequisite Skills/Links to TEKS Vertical Alignment</b>	
<p><i>Organisms: Genetic Material and Its Role in Inheritance</i></p> <ul style="list-style-type: none"> <li>• recognize that inherited traits of individuals are governed in the genetic material found in the genes within chromosomes in the nucleus</li> <li>• compare the results of uniform or diverse offspring from sexual reproduction or asexual reproduction</li> <li>• define heredity as the passage of genetic instructions from one generation to the next generation</li> </ul> <p><i>Organisms: Inherited Traits and Learned Behaviors</i></p> <ul style="list-style-type: none"> <li>• differentiate between inherited traits of plants and animals such as spines on a cactus or shape of a beak and learned behaviors such as an animal learning tricks or a child riding a bicycle</li> <li>• demonstrate that some likenesses between parents and offspring are inherited, passed from generation to generation such as eye color in humans or shapes of leaves in plants. Other likenesses are learned such as table manners or reading a book and seals balancing balls on their noses</li> <li>• explore that some characteristics of organisms are inherited such as the number of limbs on an animal or flower color and recognize that some behaviors are learned in response to living in a certain environment such as animals using tools to get food</li> <li>• compare ways that young animals resemble their parents</li> <li>• identify ways that young plants resemble the parent plant</li> </ul> <p><i>Organisms: Life Cycles</i></p> <ul style="list-style-type: none"> <li>• describe the differences between complete and incomplete metamorphosis of insects</li> <li>• explore, illustrate, and compare life cycles in living organisms such as butterflies, beetles, radishes, or lima beans</li> <li>• 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 bugs</li> </ul>	<p style="border: 1px solid black; border-radius: 15px; display: inline-block; padding: 2px 10px;"><i>Continued</i></p>

7.14	Prerequisite Skills/Links to TEKS Vertical Alignment
	<ul style="list-style-type: none"><li>• investigate and record some of the unique stages that insects undergo during their life cycle</li><li>• observe and record life cycles of animals such as a chicken, frog, or fish</li><li>• observe changes that are part of a simple life cycle of a plant: seed, seedling, plant, flower, and fruit</li><li>• describe life cycles of organisms</li></ul>

**NOTE:** Under each heading the prerequisite skills are arranged from the highest grade level to the lowest grade level.

**Scientific Investigation and Reasoning Standards: Scientific investigation and reasoning standards will not be listed under a separate reporting category. These standards will be incorporated into assessment tasks in reporting categories 1–4 and identified along with content standards.**

**TEKS Knowledge and Skills Statement/STAAR-Tested Student Expectations**

**(8.1) 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. The student is expected to

(A) demonstrate safe practices during laboratory and field investigations as outlined in the Texas Safety Standards;

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

**8.1 Prerequisite Skills/Links to TEKS Vertical Alignment**

*Demonstrate Home and School Safety Practices*

- 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
- demonstrate safe practices during laboratory and field investigations as outlined in the Texas Safety Standards
- use safety equipment, including safety goggles and gloves
- demonstrate safe practices and the use of safety equipment as described in the Texas Safety Standards during classroom and outdoor investigations
- use safety equipment as appropriate, including safety goggles and gloves
- demonstrate safe practices as described in the Texas Safety Standards during classroom and outdoor investigations, including observing a schoolyard habitat
- describe the importance of safe practices
- recognize the importance of safe practices to keep self and others safe and healthy
- recognize and demonstrate safe practices as described in the Texas Safety Standards during classroom and outdoor investigations, including wearing safety goggles, washing hands, and using materials appropriately
- identify and demonstrate safe practices as described in the Texas Safety Standards during classroom and outdoor investigations, including wearing safety goggles, washing hands, and using materials appropriately
- discuss the importance of safe practices to keep self and others safe and healthy

**Personal safety and health skills**

- practice good habits of personal safety

*Use and Conservation of School Resources and Laboratory Materials*

- practice appropriate use and conservation of resources, including disposal, reuse, or recycling of materials
- make informed choices in the conservation, disposal, and recycling of materials
- make informed choices in the use and conservation of natural resources and reusing and recycling of materials such as paper, aluminum, glass, cans, and plastic

*Continued*

8.1	Prerequisite Skills/Links to TEKS Vertical Alignment
	<ul style="list-style-type: none"><li>• make informed choices in the use and conservation of natural resources by recycling or reusing materials such as paper, aluminum cans, and plastics</li><li>• identify and demonstrate how to use, conserve, and dispose of natural resources and materials such as conserving water and reuse or recycling of paper, plastic, and metal</li><li>• identify and learn how to use natural resources and materials, including conservation and reuse or recycling of paper, plastic, and metals</li><li>• demonstrate how to use, conserve, and dispose of natural resources and materials such as conserving water and reusing or recycling paper, plastic, and metal</li></ul>

**NOTE:** Under each heading the prerequisite skills are arranged from the highest grade level to the lowest grade level.

**Scientific Investigation and Reasoning Standards: Scientific investigation and reasoning standards will not be listed under a separate reporting category. These standards will be incorporated into assessment tasks in reporting categories 1–4 and identified along with content standards.**

**TEKS Knowledge and Skills Statement/STAAR-Tested Student Expectations**

- (8.2) Scientific investigation and reasoning.** The student uses scientific inquiry methods during laboratory and field investigations. 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 comparative and 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;
  - (E) analyze data to formulate reasonable explanations, communicate valid conclusions supported by the data, and predict trends.

**8.2 Prerequisite Skills/Links to TEKS Vertical Alignment**

*Plan and Conduct Investigations*

- plan and implement comparative and descriptive investigations by making observations, asking well-defined questions, and using appropriate equipment and technology
- design and implement experimental investigations by making observations, asking well-defined questions, formulating testable hypotheses, and using appropriate equipment and technology
- ask well-defined questions, formulate testable hypotheses, and select and use appropriate equipment and technology
- describe, plan, and implement simple experimental investigations testing one variable
- plan and implement descriptive investigations, including asking well-defined questions, making inferences, and selecting and using appropriate equipment or technology to answer his/ her questions
- 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
- plan and conduct descriptive investigations such as how organisms grow
- ask questions about organisms, objects, and events during observations and investigations
- plan and conduct simple descriptive investigations such as ways objects move
- ask questions about organisms, objects, and events observed in the natural world

*Continued*

## 8.2

## Prerequisite Skills/Links to TEKS Vertical Alignment

*Gather Information*

- use appropriate tools to collect, record, and analyze information, including life science models, hand lens, stereoscopes, microscopes, beakers, Petri dishes, microscope slides, graduated cylinders, test tubes, meter sticks, metric rulers, metric tape measures, timing devices, hot plates, balances, thermometers, calculators, water test kits, computers, temperature and pH probes, collecting nets, insect traps, globes, digital cameras, journals/ notebooks, and other equipment as needed to teach the curriculum
- collect and record data using the International System of Units (SI) and qualitative means such as labeled drawings, writing, and graphic organizers
- 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
- collect, record, and analyze information using tools, including calculators, microscopes, cameras, computers, hand lenses, metric rulers, Celsius thermometers, prisms, mirrors, pan balances, triple beam balances, spring scales, graduated cylinders, beakers, hot plates, meter sticks, magnets, collecting nets, and notebooks; timing devices, including clocks and stopwatches; and materials to support observations of habitats of organisms such as terrariums and aquariums
- collect information by detailed observations and accurate measuring
- collect, record, and analyze information using tools, including calculators, microscopes, cameras, computers, hand lenses, metric rulers, Celsius thermometers, mirrors, spring scales, pan balances, triple beam balances, graduated cylinders, beakers, hot plates, meter sticks, compasses, magnets, collecting nets, and notebooks; timing devices, including clocks and stopwatches; and materials to support observation of habitats of organisms such as terrariums and aquariums
- collect and record data by observing and measuring, using the metric system, and using descriptive words and numerals such as labeled drawings, writing, and concept maps
- collect, record, and analyze information using tools, including microscopes, cameras, computers, hand lenses, metric rulers, Celsius thermometers, wind vanes, rain gauges, pan balances, graduated cylinders, beakers, spring scales, hot plates, meter sticks, compasses, magnets, collecting nets, notebooks, sound recorders, and Sun, Earth, and Moon system models; timing devices, including clocks and stopwatches; and materials to support observation of habitats of organisms such as terrariums and aquariums
- collect data by observing and measuring using the metric system and recognize differences between observed and measured data
- measure and compare organisms and objects using non-standard units that approximate metric units
- collect, record, and compare information using tools, including computers, hand lenses, rulers, primary balances, plastic beakers, magnets, collecting nets, notebooks, and safety goggles; timing devices, including clocks and stopwatches; weather instruments such as thermometers, wind vanes, and rain gauges; and materials to support observations of habitats of organisms such as terrariums and aquariums
- collect data from observations using simple equipment such as hand lenses, primary balances, thermometers, and non-standard measurement tools

*Continued*



## 8.2

## Prerequisite Skills/Links to TEKS Vertical Alignment

- record and organize data using pictures, numbers, and words
- measure and compare organisms and objects using non-standard units
- collect, record, and compare information using tools, including computers, hand lenses, primary balances, cups, bowls, magnets, collecting nets, notebooks, and safety goggles; timing devices, including clocks and timers; non-standard measuring items such as paper clips and clothespins; weather instruments such as classroom demonstration thermometers and wind socks; and materials to support observations of habitats of organisms such as aquariums and terrariums
- collect data and make observations using simple equipment such as hand lenses, primary balances, and non-standard measurement tools
- use senses as a tool of observation to identify properties and patterns of organisms, objects, and events in the environment
- collect information using tools, including computers, hand lenses, primary balances, cups, bowls, magnets, collecting nets, and notebooks; timing devices, including clocks and timers; non-standard measuring items such as paper clips and clothespins; weather instruments such as demonstration thermometers and wind socks; and materials to support observations of habitats of organisms such as terrariums and aquariums
- record and organize data and observations using pictures, numbers, and words

**Physical science skills**

- use simple measuring devices to learn about objects

*Organize Information*

- construct tables and graphs, using repeated trials and means, to organize data and identify patterns
- construct appropriate simple graphs, tables, maps, and charts using technology, including computers, to organize, examine, and evaluate information
- construct simple tables, charts, bar graphs, and maps using tools and current technology to organize, examine, and evaluate data
- construct maps, graphic organizers, simple tables, charts, and bar graphs using tools and current technology to organize, examine, and evaluate measured data
- compare results of investigations with what students and scientists know about the world

*Analyze Evidence and Communicate Conclusions*

- analyze data to formulate reasonable explanations, communicate valid conclusions supported by the data, and predict trends
- communicate valid conclusions in both written and verbal forms
- analyze and interpret information to construct reasonable explanations from direct (observable) and indirect (inferred) evidence
- communicate valid, oral, and written results supported by data
- perform repeated investigations to increase the reliability of results
- analyze data and interpret patterns to construct reasonable explanations from data that can be observed and measured
- 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

Continued

8.2	Prerequisite Skills/Links to TEKS Vertical Alignment
	<ul style="list-style-type: none"><li>• demonstrate that repeated investigations may increase the reliability of results</li><li>• communicate valid conclusions supported by data in writing, by drawing pictures, and through verbal discussion</li><li>• analyze and interpret patterns in data to construct reasonable explanations based on evidence from investigations</li><li>• communicate observations and justify explanations using student-generated data from simple descriptive investigations</li><li>• communicate observations and provide reasons for explanations using student-generated data from simple descriptive investigations</li><li>• communicate observations with others about simple descriptive investigations</li></ul>

**NOTE:** Under each heading the prerequisite skills are arranged from the highest grade level to the lowest grade level.

**Scientific Investigation and Reasoning Standards: Scientific investigation and reasoning standards will not be listed under a separate reporting category. These standards will be incorporated into assessment tasks in reporting categories 1–4 and identified along with content standards.**

**TEKS Knowledge and Skills Statement/STAAR-Tested Student Expectations**

**(8.3) 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. The student is expected to

- (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;
- (B) use models to represent aspects of the natural world such as an atom, a molecule, space, or a geologic feature;
- (C) identify advantages and limitations of models such as size, scale, properties, and materials;
- (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.

**8.3**

**Prerequisite Skills/Links to TEKS Vertical Alignment**

*Application of Science*

- evaluate the accuracy of the information related to promotional materials for products and services such as nutritional labels
- draw inferences and evaluate accuracy of services and product claims found in advertisements and labels such as for toys, food, and sunscreen
- draw inferences and evaluate accuracy of product claims found in advertisements and labels such as for toys and food
- identify and explain a problem in his/ her own words and propose a task and solution for the problem such as lack of water in a habitat
- make predictions based on observable patterns
- identify and explain a problem such as finding a home for a classroom pet and propose a solution in his/ her own words
- make predictions based on observable patterns in nature such as the shapes of leaves
- identify and explain a problem such as the impact of littering on the playground and propose a solution in his/ her own words

*Gather Information*

- use appropriate tools to collect, record, and analyze information, including life science models, hand lens, stereoscopes, microscopes, beakers, Petri dishes, microscope slides, graduated cylinders, test tubes, meter sticks, metric rulers, metric tape measures, timing devices, hot plates, balances, thermometers, calculators, water test kits, computers, temperature and pH probes, collecting nets, insect traps, globes, digital cameras, journals/ notebooks, and other equipment as needed to teach the curriculum
- collect and record data using the International System of Units (SI) and qualitative means such as labeled drawings, writing, and graphic organizers

*Continued*

**8.3****Prerequisite Skills/Links to TEKS Vertical Alignment**

- 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
- collect, record, and analyze information using tools, including calculators, microscopes, cameras, computers, hand lenses, metric rulers, Celsius thermometers, prisms, mirrors, pan balances, triple beam balances, spring scales, graduated cylinders, beakers, hot plates, meter sticks, magnets, collecting nets, and notebooks; timing devices, including clocks and stopwatches; and materials to support observations of habitats of organisms such as terrariums and aquariums
- collect information by detailed observations and accurate measuring
- collect, record, and analyze information using tools, including calculators, microscopes, cameras, computers, hand lenses, metric rulers, Celsius thermometers, mirrors, spring scales, pan balances, triple beam balances, graduated cylinders, beakers, hot plates, meter sticks, compasses, magnets, collecting nets, and notebooks; timing devices, including clocks and stopwatches; and materials to support observation of habitats of organisms such as terrariums and aquariums
- collect and record data by observing and measuring, using the metric system, and using descriptive words and numerals such as labeled drawings, writing, and concept maps
- collect, record, and analyze information using tools, including microscopes, cameras, computers, hand lenses, metric rulers, Celsius thermometers, wind vanes, rain gauges, pan balances, graduated cylinders, beakers, spring scales, hot plates, meter sticks, compasses, magnets, collecting nets, notebooks, sound recorders, and Sun, Earth, and Moon system models; timing devices, including clocks and stopwatches; and materials to support observation of habitats of organisms such as terrariums and aquariums
- collect data by observing and measuring using the metric system and recognize differences between observed and measured data
- measure and compare organisms and objects using non-standard units that approximate metric units
- collect, record, and compare information using tools, including computers, hand lenses, rulers, primary balances, plastic beakers, magnets, collecting nets, notebooks, and safety goggles; timing devices, including clocks and stopwatches; weather instruments such as thermometers, wind vanes, and rain gauges; and materials to support observations of habitats of organisms such as terrariums and aquariums
- collect data from observations using simple equipment such as hand lenses, primary balances, thermometers, and non-standard measurement tools
- record and organize data using pictures, numbers, and words
- measure and compare organisms and objects using non-standard units
- collect, record, and compare information using tools, including computers, hand lenses, primary balances, cups, bowls, magnets, collecting nets, notebooks, and safety goggles; timing devices, including clocks and timers; non-standard measuring items such as paper clips and clothespins; weather instruments such as classroom demonstration thermometers and wind socks; and materials to support observations of habitats of organisms such as aquariums and terrariums
- collect data and make observations using simple equipment such as hand lenses, primary balances, and non-standard measurement tools

*Continued*

## 8.3

## Prerequisite Skills/Links to TEKS Vertical Alignment

- use senses as a tool of observation to identify properties and patterns of organisms, objects, and events in the environment
- collect information using tools, including computers, hand lenses, primary balances, cups, bowls, magnets, collecting nets, and notebooks; timing devices, including clocks and timers; non-standard measuring items such as paper clips and clothespins; weather instruments such as demonstration thermometers and wind socks; and materials to support observations of habitats of organisms such as terrariums and aquariums
- record and organize data and observations using pictures, numbers, and words

**Physical science skills**

- use simple measuring devices to learn about objects

*Organize Information*

- construct tables and graphs, using repeated trials and means, to organize data and identify patterns
- construct appropriate simple graphs, tables, maps, and charts using technology, including computers, to organize, examine, and evaluate information
- construct simple tables, charts, bar graphs, and maps using tools and current technology to organize, examine, and evaluate data
- construct maps, graphic organizers, simple tables, charts, and bar graphs using tools and current technology to organize, examine, and evaluate measured data
- compare results of investigations with what students and scientists know about the world

*Analyze Evidence and Communicate Conclusions*

- analyze data to formulate reasonable explanations, communicate valid conclusions supported by the data, and predict trends
- communicate valid conclusions in both written and verbal forms
- analyze and interpret information to construct reasonable explanations from direct (observable) and indirect (inferred) evidence
- communicate valid, oral, and written results supported by data
- perform repeated investigations to increase the reliability of results
- analyze data and interpret patterns to construct reasonable explanations from data that can be observed and measured
- 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
- demonstrate that repeated investigations may increase the reliability of results
- communicate valid conclusions supported by data in writing, by drawing pictures, and through verbal discussion
- analyze and interpret patterns in data to construct reasonable explanations based on evidence from investigations
- communicate observations and justify explanations using student-generated data from simple descriptive investigations
- communicate observations and provide reasons for explanations using student-generated data from simple descriptive investigations
- communicate observations with others about simple descriptive investigations

Continued

8.3	Prerequisite Skills/Links to TEKS Vertical Alignment
	<p data-bbox="205 232 346 256"><i>Use Models</i></p> <ul data-bbox="226 269 1984 589" style="list-style-type: none"><li>• use models to represent aspects of the natural world such as human body systems and plant and animal cells</li><li>• identify advantages and limitations of models such as size, scale, properties, and materials</li><li>• use models to represent aspects of the natural world such as a model of Earth's layers</li><li>• draw or develop a model that represents how something works or looks that cannot be seen such as how a soda dispensing machine works</li><li>• represent the natural world using models such as rivers, stream tables, or fossils and identify their limitations, including accuracy and size</li><li>• represent the natural world using models such as volcanoes or Sun, Earth, and Moon system and identify their limitations, including size, properties, and materials</li></ul> <p data-bbox="205 597 693 621"><i>History and Impact of Scientific Research</i></p> <ul data-bbox="226 634 1906 849" style="list-style-type: none"><li>• relate the impact of research on scientific thought and society, including the history of science and contributions of scientists as related to the content</li><li>• connect grade-level appropriate science concepts with the history of science, science careers, and contributions of scientists</li><li>• identify what a scientist is and explore what different scientists do</li><li>• describe what scientists do</li><li>• explore that scientists investigate different things in the natural world and use tools to help in their investigations</li></ul>

**NOTE:** Under each heading the prerequisite skills are arranged from the highest grade level to the lowest grade level.

**Scientific Investigation and Reasoning Standards: Scientific investigation and reasoning standards will not be listed under a separate reporting category. These standards will be incorporated into assessment tasks in reporting categories 1–4 and identified along with content standards.**

**TEKS Knowledge and Skills Statement/STAAR-Tested Student Expectations**

**(8.4) Scientific investigation and reasoning.** The student knows how to use a variety of tools and safety equipment to conduct science inquiry. The student is expected to

- (A) use appropriate tools to collect, record, and analyze information, including lab journals/ notebooks, beakers, meter sticks, graduated cylinders, anemometers, psychrometers, hot plates, test tubes, spring scales, balances, microscopes, thermometers, calculators, computers, spectrosopes, timing devices, and other equipment as needed to teach the curriculum;
- (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.

**8.4 Prerequisite Skills/Links to TEKS Vertical Alignment**

*Demonstrate Home and School Safety Practices*

- 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
- demonstrate safe practices during laboratory and field investigations as outlined in the Texas Safety Standards
- use safety equipment, including safety goggles and gloves
- demonstrate safe practices and the use of safety equipment as described in the Texas Safety Standards during classroom and outdoor investigations
- use safety equipment as appropriate, including safety goggles and gloves
- demonstrate safe practices as described in the Texas Safety Standards during classroom and outdoor investigations, including observing a schoolyard habitat
- describe the importance of safe practices
- recognize the importance of safe practices to keep self and others safe and healthy
- recognize and demonstrate safe practices as described in the Texas Safety Standards during classroom and outdoor investigations, including wearing safety goggles, washing hands, and using materials appropriately
- identify and demonstrate safe practices as described in the Texas Safety Standards during classroom and outdoor investigations, including wearing safety goggles, washing hands, and using materials appropriately
- discuss the importance of safe practices to keep self and others safe and healthy

**Personal safety and health skills**

- practice good habits of personal safety

*Continued*

## 8.4

## Prerequisite Skills/Links to TEKS Vertical Alignment

*Gather Information*

- use appropriate tools to collect, record, and analyze information, including life science models, hand lens, stereoscopes, microscopes, beakers, Petri dishes, microscope slides, graduated cylinders, test tubes, meter sticks, metric rulers, metric tape measures, timing devices, hot plates, balances, thermometers, calculators, water test kits, computers, temperature and pH probes, collecting nets, insect traps, globes, digital cameras, journals/ notebooks, and other equipment as needed to teach the curriculum
- collect and record data using the International System of Units (SI) and qualitative means such as labeled drawings, writing, and graphic organizers
- 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
- collect, record, and analyze information using tools, including calculators, microscopes, cameras, computers, hand lenses, metric rulers, Celsius thermometers, prisms, mirrors, pan balances, triple beam balances, spring scales, graduated cylinders, beakers, hot plates, meter sticks, magnets, collecting nets, and notebooks; timing devices, including clocks and stopwatches; and materials to support observations of habitats of organisms such as terrariums and aquariums
- collect information by detailed observations and accurate measuring
- collect, record, and analyze information using tools, including calculators, microscopes, cameras, computers, hand lenses, metric rulers, Celsius thermometers, mirrors, spring scales, pan balances, triple beam balances, graduated cylinders, beakers, hot plates, meter sticks, compasses, magnets, collecting nets, and notebooks; timing devices, including clocks and stopwatches; and materials to support observation of habitats of organisms such as terrariums and aquariums
- collect and record data by observing and measuring, using the metric system, and using descriptive words and numerals such as labeled drawings, writing, and concept maps
- collect, record, and analyze information using tools, including microscopes, cameras, computers, hand lenses, metric rulers, Celsius thermometers, wind vanes, rain gauges, pan balances, graduated cylinders, beakers, spring scales, hot plates, meter sticks, compasses, magnets, collecting nets, notebooks, sound recorders, and Sun, Earth, and Moon system models; timing devices, including clocks and stopwatches; and materials to support observation of habitats of organisms such as terrariums and aquariums
- collect data by observing and measuring using the metric system and recognize differences between observed and measured data
- measure and compare organisms and objects using non-standard units that approximate metric units
- collect, record, and compare information using tools, including computers, hand lenses, rulers, primary balances, plastic beakers, magnets, collecting nets, notebooks, and safety goggles; timing devices, including clocks and stopwatches; weather instruments such as thermometers, wind vanes, and rain gauges; and materials to support observations of habitats of organisms such as terrariums and aquariums
- collect data from observations using simple equipment such as hand lenses, primary balances, thermometers, and non-standard measurement tools
- record and organize data using pictures, numbers, and words

*Continued*



## 8.4

## Prerequisite Skills/Links to TEKS Vertical Alignment

- measure and compare organisms and objects using non-standard units
- collect, record, and compare information using tools, including computers, hand lenses, primary balances, cups, bowls, magnets, collecting nets, notebooks, and safety goggles; timing devices, including clocks and timers; non-standard measuring items such as paper clips and clothespins; weather instruments such as classroom demonstration thermometers and wind socks; and materials to support observations of habitats of organisms such as aquariums and terrariums
- collect data and make observations using simple equipment such as hand lenses, primary balances, and non-standard measurement tools
- use senses as a tool of observation to identify properties and patterns of organisms, objects, and events in the environment
- collect information using tools, including computers, hand lenses, primary balances, cups, bowls, magnets, collecting nets, and notebooks; timing devices, including clocks and timers; non-standard measuring items such as paper clips and clothespins; weather instruments such as demonstration thermometers and wind socks; and materials to support observations of habitats of organisms such as terrariums and aquariums
- record and organize data and observations using pictures, numbers, and words

**Physical science skills**

- use simple measuring devices to learn about objects

*Organize Information*

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- construct maps, graphic organizers, simple tables, charts, and bar graphs using tools and current technology to organize, examine, and evaluate measured data
- compare results of investigations with what students and scientists know about the world

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- analyze and interpret information to construct reasonable explanations from direct (observable) and indirect (inferred) evidence
- communicate valid, oral, and written results supported by data
- perform repeated investigations to increase the reliability of results
- analyze data and interpret patterns to construct reasonable explanations from data that can be observed and measured
- 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
- demonstrate that repeated investigations may increase the reliability of results

Continued

8.4	Prerequisite Skills/Links to TEKS Vertical Alignment
	<ul style="list-style-type: none"><li>• communicate valid conclusions supported by data in writing, by drawing pictures, and through verbal discussion</li><li>• analyze and interpret patterns in data to construct reasonable explanations based on evidence from investigations</li><li>• communicate observations and justify explanations using student-generated data from simple descriptive investigations</li><li>• communicate observations and provide reasons for explanations using student-generated data from simple descriptive investigations</li><li>• communicate observations with others about simple descriptive investigations</li></ul>

**NOTE:** Under each heading the prerequisite skills are arranged from the highest grade level to the lowest grade level.