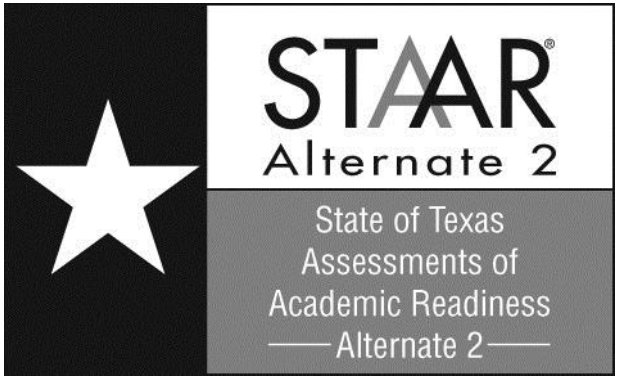

TEKS Curriculum Framework for STAAR Alternate 2

Grade 5 Science

Updated September 2018

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STAAR Reporting Category 1 – Matter and Energy: The student will demonstrate an understanding of the properties of matter and energy and their interactions.	
TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations	**Essence of TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations**
(5.5) Matter and energy. The student knows that matter has measurable physical properties and those properties determine how matter is classified, changed, and used. The student is expected to (A) classify matter based on measurable, testable, and observable physical properties, including mass, magnetism, physical state (solid, liquid, and gas), relative density (sinking and floating using water as a reference point), solubility in water, and the ability to conduct or insulate thermal energy or electric energy; Readiness Standard (B) demonstrate that some mixtures maintain physical properties of their ingredients such as iron filings and sand and sand and water; Supporting Standard (C) 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. Supporting Standard **(3.5) Matter and energy.** The student knows that matter has measurable physical properties and those properties determine how matter is classified, changed, and used. The student is expected to (C) predict, observe, and record changes in the state of matter caused by heating or cooling such as ice becoming liquid water, condensation forming on the outside of a glass of ice water, or liquid water being heated to the point of becoming water vapor. Supporting Standard	Identifies and classifies matter by its physical properties and determines how matter is changed.

5.5	**Prerequisite Skills/Links to TEKS Vertical Alignment**
	Characteristics and Properties of Matter • compare and contrast a variety of mixtures, including solutions (4) • measure, compare, and contrast physical properties of matter, including mass, volume, states (solid, liquid, gas), temperature, magnetism, and the ability to sink or float (4) • explore and recognize that a mixture is created when two materials are combined such as gravel and sand or metal and plastic paperclips (3)

Continued

5.5	Prerequisite Skills/Links to TEKS Vertical Alignment
	• predict, observe, and record changes in the state of matter caused by heating or cooling such as ice becoming liquid water, condensation forming on the outside of a glass of ice water, or liquid water being heated to the point of becoming water vapor (3) • 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 (3) • measure, test, and record physical properties of matter, including temperature, mass, magnetism, and the ability to sink or float (3) • 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 (2) • demonstrate that things can be done to materials such as cutting, folding, sanding, and melting to change their physical properties (2) • compare changes in materials caused by heating and cooling (2) • classify matter by physical properties, including relative temperature, texture, flexibility, and whether material is a solid or liquid (2) • predict and identify changes in materials caused by heating and cooling (1) • classify objects by observable properties such as larger and smaller, heavier and lighter, shape, color, and texture (1) • observe, record, and discuss how materials can be changed by heating or cooling (K) • observe and record properties of objects, including bigger or smaller, heavier or lighter, shape, color, and texture (K) **Physical science skills** • observe, investigate, describe, and discuss properties and characteristics of common objects (Pre-K)

STAAR Reporting Category 2 – Force, Motion, and Energy: The student will demonstrate an understanding of force, motion, and energy and their relationships.	
TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations	**Essence of TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations**
(5.6) Force, motion, and energy. The student knows that energy occurs in many forms and can be observed in cycles, patterns, and systems. The student is expected to (A) explore the uses of energy, including mechanical, light, thermal, electrical, and sound energy; Readiness Standard (B) demonstrate that the flow of electricity in closed circuits can produce light, heat, or sound; Readiness Standard (C) demonstrate that light travels in a straight line until it strikes an object and is reflected or travels through one medium to another and is refracted; Readiness Standard (D) design a simple experimental investigation that tests the effect of force on an object. Supporting Standard **(3.6) Force, motion, and energy.** The student knows that forces cause change and that energy exists in many forms. The student is expected to (B) demonstrate and observe how position and motion can be changed by pushing and pulling objects such as swings, balls, and wagons. Supporting Standard	Recognizes force, motion, and energy and their relationships.

5.6	**Prerequisite Skills/Links to TEKS Vertical Alignment**
	Force and Motion • design a descriptive investigation to explore the effect of force on an object such as a push or a pull, gravity, friction, or magnetism (4) • observe forces such as magnetism and gravity acting on objects (3) • demonstrate and observe how position and motion can be changed by pushing and pulling objects such as swings, balls, and wagons (3) • trace and compare patterns of movement of objects such as sliding, rolling, and spinning over time (2) • observe and identify how magnets are used in everyday life (2) • 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 (1)

Continued

5.6	Prerequisite Skills/Links to TEKS Vertical Alignment
	• predict and describe how a magnet can be used to push or pull an object (1) • 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 (K) • observe and describe the location of an object in relation to another such as above, below, behind, in front of, and beside (K) • explore interactions between magnets and various materials (K) *Energy in Its Many Forms* • differentiate between conductors and insulators of thermal and electrical energy (4) • differentiate among forms of energy, including mechanical, sound, electrical, light, and thermal (4) • explore different forms of energy, including mechanical, light, sound, and thermal in everyday life (3) • investigate the effects on objects 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 (2) • identify and discuss how different forms of energy such as light, thermal, and sound are important to everyday life (1) • use the senses to explore different forms of energy such as light, thermal, and sound (K) *Electricity and Magnetism* • demonstrate that electricity travels in a closed path, creating an electrical circuit (4) **Physical science skills** • observe, investigate, describe, and discuss position and motion of objects (Pre-K) • observe, investigate, describe and discuss sources of energy including light, heat and electricity (Pre-K)

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.	
TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations	**Essence of TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations**
(5.7) Earth and space. The student knows Earth's surface is constantly changing and consists of useful resources. The student is expected to (A) explore the processes that led to the formation of sedimentary rocks and fossil fuels; Readiness Standard (B) recognize how landforms such as deltas, canyons, and sand dunes are the result of changes to Earth's surface by wind, water, or ice; Readiness Standard **(4.7) Earth and space.** The students know that Earth consists of useful resources and its surface is constantly changing. The student is expected to (A) examine properties of soils, including color and texture, capacity to retain water, and ability to support the growth of plants; Supporting Standard (C) 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. Supporting Standard **(3.7) Earth and space.** The student knows that Earth consists of natural resources and its surface is constantly changing. The student is expected to (B) investigate rapid changes in Earth's surface such as volcanic eruptions, earthquakes, and landslides. Supporting Standard	Knows that Earth's surface is constantly changing and consists of useful resources.

Continued

5.7	Prerequisite Skills/Links to TEKS Vertical Alignment
	Earth: Rock, Soil, and Water • 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 (4) • examine properties of soils, including color and texture, capacity to retain water, and ability to support the growth of plants (4) • 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 (3) • distinguish between natural and manmade resources (2) • identify and compare the properties of natural sources of freshwater and saltwater (2) • observe, describe, and compare rocks by size, texture, and color (2) • identify how rocks, soil, and water are used to make products (1) • identify and describe a variety of natural sources of water, including streams, lakes, and oceans (1) • observe, compare, describe, and sort components of soil by size, texture, and color (1) • give examples of ways rocks, soil, and water are useful (K) • observe and describe physical properties of natural sources of water, including color and clarity (K) • observe, describe, and sort rocks by size, shape, color, and texture (K) *Earth: Formation of Earth's Surface and Earth's Resources* • observe and identify slow changes to Earth's surface caused by weathering, erosion, and deposition from water, wind, and ice (4) • investigate rapid changes in Earth's surface such as volcanic eruptions, earthquakes, and landslides (3) • explore and record how soils are formed by weathering of rock and the decomposition of plant and animal remains (3) **Earth and space science skills** • demonstrate the importance of caring for our environment and our planet (Pre-K) • observe, investigate, describe, and discuss earth materials, and their properties and uses (Pre-K)

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.	
TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations	**Essence of TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations**
(5.8) Earth and space. The student knows that there are recognizable patterns in the natural world and among the Sun, Earth, and Moon system. The student is expected to (A) differentiate between weather and climate; Supporting Standard (B) explain how the Sun and the ocean interact in the water cycle; Supporting Standard (C) 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; Readiness Standard (D) identify and compare the physical characteristics of the Sun, Earth, and Moon. Supporting Standard **(4.8) Earth and space.** The student knows that there are recognizable patterns in the natural world and among the Sun, Earth, and Moon system. The student is expected to (A) measure, record, and predict changes in weather; Supporting Standard (B) 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; Supporting Standard (C) collect and analyze data to identify sequences and predict patterns of change in shadows, seasons, and the observable appearance of the Moon over time. Supporting Standard **(3.8) Earth and space.** The student knows there are recognizable patterns in the natural world and among objects in the sky. The student is expected to (D) identify the planets in Earth's solar system and their position in relation to the Sun. Supporting Standard	Recognizes patterns in the natural world and among the Sun, Earth, and Moon system.

Continued

5.8	**Prerequisite Skills/Links to TEKS Vertical Alignment**
	Earth: Seasons, Climate, and Weather • collect and analyze data to identify sequences and predict patterns of change in shadows, seasons, and the observable appearance of the Moon over time (4) • 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 (4) • measure, record, and predict changes in weather (4) • describe and illustrate the Sun as a star composed of gases that provides light and thermal energy (3) • 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 (3) • identify the importance of weather and seasonal information to make choices in clothing, activities, and transportation (2) • measure, record and graph weather information, including temperature, wind conditions, precipitation, and cloud coverage, in order to identify patterns in the data (2) • demonstrate that air is all around us and observe that wind is moving air (1) • identify characteristics of the seasons of the year and day and night (1) • record weather information, including relative temperature such as hot or cold, clear or cloudy, calm or windy, and rainy or icy (1) • identify events that have repeating patterns, including seasons of the year and day and night (K) • observe and describe weather changes from day to day and over seasons (K) *Space: The Solar System and the Universe* • identify the planets in Earth's solar system and their position in relation to the Sun (3) • construct models that demonstrate the relationship of the Sun, Earth, and Moon, including orbits and positions (3) • observe, describe, and record patterns of objects in the sky, including the appearance of the Moon (2) • observe and record changes in the appearance of objects in the sky such the Moon and stars, including the Sun (1) • observe, describe, and illustrate objects in the sky such as the clouds, Moon, and stars, including the Sun (K) **Earth and space science skills** • observe and describe what happens during changes in the earth and sky (Pre-K) • identify, observe, and discuss objects in the sky (Pre-K)

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.	
TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations	**Essence of TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations**
(5.9) Organisms and environments. The student knows that there are relationships, systems, and cycles within environments. The student is expected to (A) observe the way organisms live and survive in their ecosystem by interacting with the living and nonliving components; Readiness Standard (B) describe the flow of energy within a food web including the roles of the Sun, producers, consumers, and decomposers; Readiness Standard (C) predict the effects of changes in ecosystems caused by living organisms, including humans, such as the overpopulation of grazers or the building of highways; Supporting Standard (D) identify fossils as evidence of past living organisms and the nature of the environments at the time using models. Supporting Standard **(3.9) Organisms and environments.** The student knows and can describe patterns, cycles, systems, and relationships within the environments. The student is expected to (A) observe and describe the physical characteristics of environments and how they support populations and communities of plants and animals within an ecosystem. Supporting Standard	Knows that there are relationships and characteristics within environments that support organisms.

5.9	**Prerequisite Skills/Links to TEKS Vertical Alignment**
	Environment: How Organisms Depend on Each Other and Their Environment • describe the flow of energy through food webs, beginning with the Sun, and predict how changes in the ecosystem affect the food web (4) • investigate that most producers need sunlight, water, and carbon dioxide to make their own food, while consumers are dependent on other organisms for food (4)

Continued

5.9	Prerequisite Skills/Links to TEKS Vertical Alignment
	• describe environmental changes such as floods and droughts where some organisms thrive and others perish or move to new locations (3) • 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 (3) • observe and describe the physical characteristics of environments and how they support populations and communities of plants and animals within an ecosystem (3) • compare the ways living organisms depend on each other and on their environments such as through food chains (2) • gather evidence of interdependence among living organisms such as energy transfer through food chains or animals using plants for shelter (1) • analyze and record examples of interdependence found in various situations such as terrariums and aquariums or pet and caregiver (1) *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 (2) • observe, record, and compare how the physical characteristics and behaviors of animals help them meet their basic needs (2) • identify factors in the environment, including temperature and precipitation, that affect growth and behavior such as migration, hibernation, and dormancy of living things (2) • identify the basic needs of plants and animals (2) • identify and compare the parts of plants (1) • sort and classify living and nonliving things based upon whether they have basic needs and produce offspring (1) • identify basic parts of plants and animals (K) • sort plants and animals into groups based on physical characteristics such as color, size, body covering, or leaf shape (K) • examine evidence that living organisms have basic needs such as food, water, and shelter for animals and air, water, nutrients, sunlight, and space for plants (K) • differentiate between living and nonliving things based upon whether they have basic needs and produce offspring (K) **Personal safety and health skills** • identify good habits of nutrition and exercise (Pre-K) • practice good habits of personal health and hygiene (Pre-K) **Life sciences skills** • observe, investigate, describe, and discuss the relationship of organisms to their environments (Pre-K) • observe, investigate, describe, and discuss the characteristics of organisms (Pre-K)

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.	
TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations	**Essence of TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations**
(5.10) Organisms and environments. The student knows that organisms have structures and behaviors that help them survive within their environments. The student is expected to (A) compare the structures and functions of different species that help them live and survive in a specific environment such as hooves on prairie animals or webbed feet in aquatic animals; Readiness Standard (B) 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. Readiness Standard **(3.10) Organisms and environments.** The student knows that organisms undergo similar life processes and have structures that help them survive within their environments. The student is expected to (B) investigate and compare how animals and plants undergo a series of orderly changes in their diverse life cycles such as tomato plants, frogs, and lady beetles. Supporting Standard	Knows that organisms undergo similar life processes and have structures and behaviors that help them survive within their environments.

5.10	**Prerequisite Skills/Links to TEKS Vertical Alignment**
	Environment: Adaptations and Biological Evolution • explore how structures and functions enable organisms to survive in their environment (4) • explore how structures and functions of plants and animals allow them to survive in a particular environment (3) • investigate how the external characteristics of an animal are related to where it lives, how it moves, and what it eats (1) *Organisms: Inherited Traits and Learned Behaviors* • explore and describe examples of traits that are inherited from parents to offspring such as eye color and shapes of leaves and behaviors that are learned such as reading a book and a wolf pack teaching their pups to hunt effectively (4) • compare ways that young animals resemble their parents (1) • identify ways that young plants resemble the parent plant (K)

Continued

5.10	**Prerequisite Skills/Links to TEKS Vertical Alignment**
	Organisms: Life Cycles • explore, illustrate, and compare life cycles in living organisms such as beetles, crickets, radishes, or lima beans (4) • investigate and compare how animals and plants undergo a series of orderly changes in their diverse life cycles such as tomato plants, frogs, and lady beetles (3) • investigate and record some of the unique stages that insects such as grasshoppers and butterflies undergo during their life cycle (2) • observe and record life cycles of animals such as a chicken, frog, or fish (1) • observe changes that are part of a simple life cycle of a plant: seed, seedling, plant, flower, and fruit (K) **Life sciences skills** • describe life cycles of organisms (Pre-K) • observe, investigate, describe and discuss the relationship of organisms to their environments (Pre-K) • observe, investigate, describe and discuss the characteristics of organisms (Pre-K)

Process Skills – 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

(5.1) Scientific investigation and reasoning. The student conducts classroom and outdoor investigations following home and school safety procedures and environmentally appropriate and ethical practices. The student is expected to

(A) demonstrate safe practices and the use of safety equipment as outlined in Texas Education Agency-approved safety standards during classroom and outdoor investigations using safety equipment, including safety goggles or chemical splash goggles, as appropriate, and gloves, as appropriate;

(B) make informed choices in the conservation, disposal, and recycling of materials.

5.1 Prerequisite Skills/Links to TEKS Vertical Alignment

Demonstrate Home and School Safety Practices

- demonstrate safe practices and the use of safety equipment as described in Texas Education Agency-approved safety standards during classroom and outdoor investigations using safety equipment, including safety goggles or chemical splash goggles, as appropriate, and gloves, as appropriate (4)
- demonstrate safe practices as described in Texas Education Agency-approved safety standards during classroom and outdoor investigations using safety equipment as appropriate, including safety goggles or chemical splash goggles, as appropriate, and gloves (3)
- identify, describe, and demonstrate safe practices as outlined in Texas Education Agency-approved safety standards during classroom and outdoor investigations, including wearing safety goggles or chemical splash goggles, as appropriate, washing hands, and using materials appropriately (2)
- identify, discuss, and demonstrate safe and healthy practices as outlined in Texas Education Agency-approved safety standards during classroom and outdoor investigations, including wearing safety goggles or chemical splash goggles, as appropriate, washing hands, and using materials appropriately (K-1)

Use and Conservation of School Resources and Laboratory 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 (4)
- make informed choices in the use and conservation of natural resources by recycling or reusing materials such as paper, aluminum cans, and plastics (3)
- 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 (2)
- identify and learn how to use natural resources and materials, including conservation and reuse or recycling of paper, plastic, and metals (1)

Continued

5.1	Prerequisite Skills/Links to TEKS Vertical Alignment
	• demonstrate how to use, conserve, and dispose of natural resources and materials such as conserving water and reusing or recycling paper, plastic, and metal (K) **Personal safety and health skills** • practice good habits of personal safety (Pre-K)

Process Skills – 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

(5.2) Scientific investigation and reasoning. The student uses scientific practices during laboratory and outdoor investigations. The student is expected to

(A) describe, plan, and implement simple experimental investigations testing one variable;
(B) ask well defined questions, formulate testable hypotheses, and select and use appropriate equipment and technology;
(C) collect and record information using detailed observations and accurate measuring;
(D) analyze and interpret information to construct reasonable explanations from direct (observable) and indirect (inferred) evidence;
(E) demonstrate that repeated investigations may increase the reliability of results;
(F) communicate valid conclusions in both written and verbal forms;
(G) construct appropriate simple graphs, tables, maps, and charts using technology, including computers, to organize, examine, and evaluate information.

5.2 Prerequisite Skills/Links to TEKS Vertical Alignment

Plan and Conduct Investigations

- 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 (4)
- 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 (3)
- plan and conduct descriptive investigations (2)
- ask questions about organisms, objects, and events during observations and investigations (2)
- plan and conduct simple descriptive investigations (K–1)
- ask questions about organisms, objects, and events observed in the natural world (K-1)

Gather Information

- collect, record, and analyze information using tools, including calculators, microscopes, cameras, computers, hand lenses, metric rulers, Celsius thermometers, mirrors, spring scales, balances, graduated cylinders, beakers, hot plates, meter sticks, magnets, collecting nets, and notebooks; timing devices; and materials to support observation of habitats of organisms such as terrariums and aquariums (4)
- 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 (4)

Continued

5.2	Prerequisite Skills/Links to TEKS Vertical Alignment

- collect, record, and analyze information using tools, including cameras, computers, hand lenses, metric rulers, Celsius thermometers, wind vanes, rain gauges, pan balances, graduated cylinders, beakers, spring scales, hot plates, meter sticks, magnets, collecting nets, notebooks, and Sun, Earth, and Moon system models; timing devices; and materials to support observation of habitats of organisms such as terrariums and aquariums (3)
- collect and record data by observing and measuring using the metric system and recognize differences between observed and measured data (3)
- measure and compare organisms and objects (2)
- collect, record, and compare information using tools, including computers, hand lenses, rulers, plastic beakers, magnets, collecting nets, notebooks, and safety goggles or chemical splash goggles, as appropriate; timing devices; weather instruments such as thermometers, wind vanes, and rain gauges; and materials to support observations of habitats of organisms such as terrariums and aquariums (2)
- collect data from observations using scientific tools (2)
- record and organize data using pictures, numbers, and words (1–2)
- measure and compare organisms and objects using non-standard units (1)
- collect, record, and compare information using tools, including computers, hand lenses, primary balances, cups, bowls, magnets, collecting nets, notebooks, and safety goggles or chemical splash goggles, as appropriate; timing devices; non-standard measuring items; weather instruments such as demonstration thermometers and wind socks; and materials to support observations of habitats of organisms such as aquariums and terrariums (1)
- collect data and make observations using simple tools (K–1)
- use the senses as a tool of observation to identify properties and patterns of organisms, objects, and events in the environment (K)
- collect information using tools, including computing devices, hand lenses, primary balances, cups, bowls, magnets, collecting nets, and notebooks; timing devices; non-standard measuring items; weather instruments such as demonstration thermometers; and materials to support observations of habitats of organisms such as terrariums and aquariums (K)
- record and organize data and observations using pictures, numbers, and words (K)

Organize Information

- construct simple tables, charts, bar graphs, and maps using tools and current technology to organize, examine, and evaluate data (4)
- construct maps, graphic organizers, simple tables, charts, and bar graphs using tools and current technology to organize, examine, and evaluate measured data (3)
- compare results of investigations with what students and scientists know about the world (2)

Analyze Evidence and Communicate Conclusions

- communicate valid oral and written results supported by data (4)
- perform repeated investigations to increase the reliability of results (4)
- analyze data and interpret patterns to construct reasonable explanations from data that can be observed and measured (4)

Continued

5.2	Prerequisite Skills/Links to TEKS Vertical Alignment
	• analyze, evaluate, and critique scientific explanations by using evidence, logical reasoning, and experimental and observational testing (3–5) • demonstrate that repeated investigations may increase the reliability of results (3, 5) • communicate valid conclusions supported by data in writing, by drawing pictures, and through verbal discussion (3) • analyze and interpret patterns in data to construct reasonable explanations based on evidence from investigations (3) • communicate observations and justify explanations using student-generated data from simple descriptive investigations (2) • communicate observations and provide reasons for explanations using student-generated data from simple descriptive investigations (1) • communicate observations about simple descriptive investigations (K) **Physical science skills.** • use simple measuring devices to learn about objects (Pre-K)

Process Skills – 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

(5.3) Scientific investigation and reasoning. The student uses critical thinking and scientific problem solving to make informed decisions. The student is expected to

(A) analyze, evaluate, and critique scientific explanations by using evidence, logical reasoning, and experimental and observational testing;

(B) draw or develop a model that represents how something that cannot be seen such as the Sun, Earth, and Moon system and formation of sedimentary rock works or looks;

(C) connect grade-level appropriate science concepts with the history of science, science careers, and contributions of scientists.

5.3 Prerequisite Skills/Links to TEKS Vertical Alignment

Application of Science

- identify and explain a problem and propose a task and solution for the problem (2)
- make predictions based on observable patterns (1–2)
- identify and explain a problem and propose a solution (1)
- make predictions based on observable patterns in nature (K)
- identify and explain a problem such as the impact of littering and propose a solution (K)

Gather Information

- collect, record, and analyze information using tools, including calculators, microscopes, cameras, computers, hand lenses, metric rulers, Celsius thermometers, mirrors, spring scales, balances, graduated cylinders, beakers, hot plates, meter sticks, magnets, collecting nets, and notebooks; timing devices; and materials to support observation of habitats of organisms such as terrariums and aquariums (4)
- 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 (4)
- collect, record, and analyze information using tools, including cameras, computers, hand lenses, metric rulers, Celsius thermometers, wind vanes, rain gauges, pan balances, graduated cylinders, beakers, spring scales, hot plates, meter sticks, magnets, collecting nets, notebooks, and Sun, Earth, and Moon system models; timing devices; and materials to support observation of habitats of organisms such as terrariums and aquariums (3)
- collect and record data by observing and measuring using the metric system and recognize differences between observed and measured data (3)
- measure and compare organisms and objects (2)

Continued

5.3	Prerequisite Skills/Links to TEKS Vertical Alignment

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

Organize Information

- construct simple tables, charts, bar graphs, and maps using tools and current technology to organize, examine, and evaluate data (4)
- construct maps, graphic organizers, simple tables, charts, and bar graphs using tools and current technology to organize, examine, and evaluate measured data (3)
- compare results of investigations with what students and scientists know about the world (2)

Analyze Evidence and Communicate Conclusions

- communicate valid oral and written results supported by data (4)
- perform repeated investigations to increase the reliability of results (4)
- analyze data and interpret patterns to construct reasonable explanations from data that can be observed and measured (4)
- analyze, evaluate, and critique scientific explanations by using evidence, logical reasoning, and experimental and observational testing (3–5)
- demonstrate that repeated investigations may increase the reliability of results (3, 5)
- communicate valid conclusions supported by data in writing, by drawing pictures, and through verbal discussion (3)
- analyze and interpret patterns in data to construct reasonable explanations based on evidence from investigations (3)
- communicate observations and justify explanations using student-generated data from simple descriptive investigations (2)
- communicate observations and provide reasons for explanations using student-generated data from simple descriptive investigations (1)

Continued

5.3	Prerequisite Skills/Links to TEKS Vertical Alignment
	• communicate observations about simple descriptive investigations (K) *Use Models* • represent the represent the natural world using models such as the water cycle and stream tables and identify their limitations, including accuracy and size (4) • represent the natural world using models such as volcanoes or the Sun, Earth, and Moon system and identify their limitations, including size, properties, and materials (3) *History and Impact of Scientific Research* • connect grade-level appropriate science concepts with the history of science, science careers, and contributions of scientists (3-5) • identify what a scientist is and explore what different scientists do (2) • describe what scientists do (1) • explore that scientists investigate different things in the natural world and use tools to help in their investigations (K) **Physical science skills** • use simple measuring devices to learn about objects (Pre-K)

Process Skills – 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

(5.4) Scientific investigation and reasoning. The student knows how to use a variety of tools and methods to conduct science inquiry. The student is expected to

collect, record, and analyze information using tools, including calculators, microscopes, cameras, computers, hand lenses, metric rulers, Celsius thermometers, prisms, mirrors, balances, spring scales, graduated cylinders, beakers, hot plates, meter sticks, magnets, collecting nets, and notebooks; timing devices; and materials to support observations of habitats or organisms such as terrariums and aquariums.

5.4 Prerequisite Skills/Links to TEKS Vertical Alignment

Gather Information

- collect, record, and analyze information using tools, including calculators, microscopes, cameras, computers, hand lenses, metric rulers, Celsius thermometers, mirrors, spring scales, balances, graduated cylinders, beakers, hot plates, meter sticks, magnets, collecting nets, and notebooks; timing devices; and materials to support observation of habitats of organisms such as terrariums and aquariums (4)
- 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 (4)
- collect, record, and analyze information using tools, including cameras, computers, hand lenses, metric rulers, Celsius thermometers, wind vanes, rain gauges, pan balances, graduated cylinders, beakers, spring scales, hot plates, meter sticks, magnets, collecting nets, notebooks, and Sun, Earth, and Moon system models; timing devices; and materials to support observation of habitats of organisms such as terrariums and aquariums (3)
- collect and record data by observing and measuring using the metric system and recognize differences between observed and measured data (3)
- measure and compare organisms and objects (2)
- collect, record, and compare information using tools, including computers, hand lenses, rulers, plastic beakers, magnets, collecting nets, notebooks, and safety goggles or chemical splash goggles, as appropriate; timing devices; weather instruments such as thermometers, wind vanes, and rain gauges; and materials to support observations of habitats of organisms such as terrariums and aquariums (2)
- collect data from observations using scientific tools (2)
- record and organize data using pictures, numbers, and words (1–2)
- measure and compare organisms and objects using non-standard units (1)
- collect, record, and compare information using tools, including computers, hand lenses, primary balances, cups, bowls, magnets, collecting nets, notebooks, and safety goggles or chemical splash goggles, as appropriate; timing devices; non-standard measuring items; weather instruments such as demonstration thermometers and wind socks; and materials to support observations of habitats of organisms such as aquariums and terrariums (1)

Continued

5.4	Prerequisite Skills/Links to TEKS Vertical Alignment

- collect data and make observations using simple tools (K–1)
- use the senses as a tool of observation to identify properties and patterns of organisms, objects, and events in the environment (K)
- collect information using tools, including computing devices, hand lenses, primary balances, cups, bowls, magnets, collecting nets, and notebooks; timing devices; non-standard measuring items; weather instruments such as demonstration thermometers; and materials to support observations of habitats of organisms such as terrariums and aquariums (K)
- record and organize data and observations using pictures, numbers, and words (K)

Demonstrate Home and School Safety Practices

- demonstrate safe practices and the use of safety equipment as described in Texas Education Agency-approved safety standards during classroom and outdoor investigations using safety equipment, including safety goggles or chemical splash goggles, as appropriate, and gloves, as appropriate (4)
- demonstrate safe practices as described in Texas Education Agency-approved safety standards during classroom and outdoor investigations using safety equipment as appropriate, including safety goggles or chemical splash goggles, as appropriate, and gloves (3)
- identify, describe, and demonstrate safe practices as outlined in Texas Education Agency-approved safety standards during classroom and outdoor investigations, including wearing safety goggles or chemical splash goggles, as appropriate, washing hands, and using materials appropriately (2)
- identify, discuss, and demonstrate safe and healthy practices as outlined in Texas Education Agency-approved safety standards during classroom and outdoor investigations, including wearing safety goggles or chemical splash goggles, as appropriate, washing hands, and using materials appropriately (K-1)

Organize Information

- construct simple tables, charts, bar graphs, and maps using tools and current technology to organize, examine, and evaluate data (4)
- construct maps, graphic organizers, simple tables, charts, and bar graphs using tools and current technology to organize, examine, and evaluate measured data (3)
- compare results of investigations with what students and scientists know about the world (2)

Analyze Evidence and Communicate Conclusions

- communicate valid oral and written results supported by data (4)
- perform repeated investigations to increase the reliability of results (4)
- analyze data and interpret patterns to construct reasonable explanations from data that can be observed and measured (4)
- analyze, evaluate, and critique scientific explanations by using evidence, logical reasoning, and experimental and observational testing (3–5)
- demonstrate that repeated investigations may increase the reliability of results (3, 5)
- communicate valid conclusions supported by data in writing, by drawing pictures, and through verbal discussion (3)
- analyze and interpret patterns in data to construct reasonable explanations based on evidence from investigations (3)

Continued

5.4	Prerequisite Skills/Links to TEKS Vertical Alignment
	• communicate observations and justify explanations using student-generated data from simple descriptive investigations (2) • communicate observations and provide reasons for explanations using student-generated data from simple descriptive investigations (1) • communicate observations about simple descriptive investigations (K) **Personal safety and health skills** • practice good habits of personal safety (Pre-K) • use simple measuring devices to learn about objects (Pre-K)