STAAR® ALTERNATE 2

State of Texas Assessments of Academic Readiness

TEKS Curriculum Framework for STAAR Alternate 2

Elementary Science Assessment Administered in Grade 5

Note: This curriculum framework document includes the Science TEKS implemented in the 2024-2025 school year.

Strand 1 - Matter and Energy	
TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations	**STAAR Alternate 2 Essence Statement**
(5.6) Matter and energy. The student knows that matter has measurable physical properties that determine how matter is identified, classified, changed, and used. The student is expected to: (A) compare and contrast matter based on measurable, testable, or observable physical properties, including mass, magnetism, relative density (sinking and floating using water as a reference point), physical state (solid, liquid, gas), volume, solubility in water, and the ability to conduct or insulate thermal energy and electric energy; (B) demonstrate and explain that some mixtures maintain physical properties of their substances such as iron filings and sand or sand and water; (C) compare the properties of substances before and after they are combined into a solution and demonstrate that matter is conserved in solutions. **(3.6) Matter and energy.** The student knows that matter has measurable physical properties that determine how matter is identified, 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 in a variety of substances such as ice becoming liquid water, condensation forming on the outside of a glass, or liquid water being heated to the point of becoming water vapor (gas).	Identifies and classifies matter by its physical properties and determines how matter is changed.

5.6	Prerequisite Skills Linked to Assessed Curriculum
	• 4.6.A: Classify and describe matter using observable physical properties, including temperature, mass, magnetism, relative density (the ability to sink or float in water), and physical state (solid, liquid, gas). • 4.6.B: Investigate and compare a variety of mixtures, including solutions that are composed of liquids in liquids and solids in liquids. • 4.6.C: Demonstrate that matter is conserved when mixtures such as soil and water or oil and water are formed. • 3.6.A: Measure, test, and record physical properties of matter, including temperature, mass, magnetism, and the ability to sink or float in water. • 3.6.B: 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. • 3.6.C: Predict, observe, and record changes in the state of matter caused by heating or cooling in a variety of substances such as ice becoming liquid water, condensation forming on the outside of a glass, or liquid water being heated to the point of becoming water vapor (gas). • 3.6.D: Demonstrate that materials can be combined based on their physical properties to create or modify objects such as building a tower or adding clay to sand to make a stronger brick and justify the selection of materials based on their physical properties. • 2.6.A: Classify matter by observable physical properties, including texture, flexibility, and relative temperature, and identify whether a material is a solid or liquid. • 2.6.B: Conduct a descriptive investigation to explain how physical properties can be changed through processes such as cutting, folding, sanding, melting, or freezing. • 2.6.C: Demonstrate that small units such as building blocks can be combined or reassembled to form new objects for different purposes and explain the materials chosen based on their physical properties. • 1.6.A: Classify objects by observable physical properties, including, shape, color, and texture, and attributes such as larger and smaller and heavier and lighter. • 1.6.B: Explain and predict changes in materials caused by heating and cooling. • 1.6.C: Demonstrate and explain that a whole object is a system made of organized parts such as a toy that can be taken apart and put back together. • K.6: Identify and record observable physical properties of objects, including shape, color, texture, and material, and generate ways to classify objects. • PK4.VI.A.1: Observe, investigate, describe, and discuss characteristics of common objects. • PK4.VI.A.3: Use simple scientific tools to learn about objects.

Strand 2 - Force, Motion, and Energy	
TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations	**STAAR Alternate 2 Essence Statement**
(5.7) Force, motion, and energy. The student knows the nature of forces and the patterns of their interactions. The student is expected to: (A) investigate and explain how equal and unequal forces acting on an object cause patterns of motion and transfer of energy; (B) design a simple experimental investigation that tests the effect of force on an object in a system such as a car on a ramp or balloon rocket on a string. **(3.7) Force, motion, and energy.** The student knows the nature of forces and the patterns of their interactions. The student is expected to: (A) demonstrate and describe forces acting on an object in contact or at a distance, including magnetism, gravity, and pushes and pulls; (B) plan and conduct a descriptive investigation to demonstrate and explain how position and motion can be changed by pushing and pulling objects such as swings, balls, and wagons.	Knows that forces such as magnetism, gravity, pushing, and pulling can act on an object and cause patterns of motion and the transfer of energy.

5.7	Prerequisite Skills Linked to Assessed Curriculum
	• 4.7: Plan and conduct descriptive investigations to explore the patterns of forces such as gravity, friction, or magnetism in contact or at a distance on an object. • 3.7.A: Demonstrate and describe forces acting on an object in contact or at a distance, including magnetism, gravity, and pushes and pulls. • 3.7.B: Plan and conduct a descriptive investigation to demonstrate and explain how position and motion can be changed by pushing and pulling objects such as swings, balls, and wagons. • 2.7.A: Explain how objects push on each other and may change shape when they touch or collide. • 2.7.B: Plan and conduct a descriptive investigation to demonstrate how the strength of a push and pull changes an object's motion. • 1.7.A: Explain how pushes and pulls can start, stop, or change the speed or direction of an object's motion. • 1.7.B: Plan and conduct a descriptive investigation that predicts how pushes and pulls can start, stop, or change the speed or direction of an object's motion. • K.7: Describe and predict how a magnet interacts with various materials and how magnets can be used to push or pull. • PK4.VI.A.2: Observe, investigate, describe, and discuss position and motion of objects.

Strand 2 - Force, Motion, and Energy	
TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations	**STAAR Alternate 2 Essence Statement**
(5.8) Force, motion, and energy. The student knows that energy is everywhere and can be observed in cycles, patterns, and systems. The student is expected to: (B) demonstrate that electrical energy in complete circuits can be transformed into motion, light, sound, or thermal energy and identify the requirements for a functioning electrical circuit; (C) demonstrate and explain how light travels in a straight line and can be reflected, refracted, or absorbed. **(4.8) Force, motion, and energy.** The student knows that energy is everywhere and can be observed in cycles, patterns, and systems. The student is expected to: (A) investigate and identify the transfer of energy by objects in motion, waves in water, and sound.	Knows that electrical energy can be transformed into other types of energy (motion, light, sound, and thermal) and understands how light can be reflected, refracted, or absorbed.

5.8	**Prerequisite Skills Linked to Assessed Curriculum**
	• 4.8.A: Investigate and identify the transfer of energy by objects in motion, waves in water, and sound. • 4.8.B: Identify conductors and insulators of thermal and electrical energy. • 4.8.C: Demonstrate and describe how electrical energy travels in a closed path that can produce light and thermal energy. • 3.8.A: Identify everyday examples of energy, including light, sound, thermal, and mechanical. • 3.8.B: Plan and conduct investigations that demonstrate how the speed of an object is related to its mechanical energy. • 2.8.A: Demonstrate and explain that sound is made by vibrating matter and that vibrations can be caused by a variety of means, including sound. • 2.8.B: Explain how different levels of sound are used in everyday life such as a whisper in a classroom or a fire alarm. • 1.8.A: Investigate and describe applications of heat in everyday life such as cooking food or using a clothes dryer.

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5.8	Prerequisite Skills Linked to Assessed Curriculum
	• 1.8.B: Describe how some changes caused by heat may be reversed such as melting butter and other changes cannot be reversed such as cooking an egg or baking a cake. • K.8.A: Communicate the idea that objects can only be seen when a light source is present and compare the effects of different amounts of light on the appearance of objects. • K.8.B: Demonstrate and explain that light travels through some objects and is blocked by other objects, creating shadows. • PK4.VI.A.4: Observe, investigate, describe, and discuss sources of energy including light, heat, and electricity.

Strand 3 - Earth and Space	
TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations	**STAAR Alternate 2 Essence Statement**
(5.9) Earth and space. The student recognizes patterns among the Sun, Earth, and Moon system and their effects. The student is expected to: (A) demonstrate that Earth rotates on its axis once approximately every 24 hours and explain how that causes the day/night cycle and the appearance of the Sun moving across the sky, resulting in changes in shadow positions and shapes. **(4.9) Earth and space.** The student recognizes patterns among the Sun, Earth, and Moon system and their effects. The student is expected to: (A) collect and analyze data to identify sequences and predict patterns of change in seasons such as changes in temperature and length of daylight; (B) collect and analyze data to identify sequences and predict patterns of change in the observable appearance of the Moon from Earth. **(3.9) Earth and space.** The student knows there are recognizable objects and patterns in Earth's solar system. The student is expected to: (B) identify the order of the planets in Earth's solar system in relation to the Sun.	Recognizes the patterns of movement of the Sun, Earth, and Moon and understands the effects of this movement.

5.9	**Prerequisite Skills Linked to Assessed Curriculum**
	• 4.9.A: Collect and analyze data to identify sequences and predict patterns of change in seasons such as change in temperature and length of daylight. • 4.9.B: Collect and analyze data to identify sequences and predict patterns of change in the observable appearance of the Moon from Earth. • 3.9.A: Construct models and explain the orbits of the Sun, Earth, and Moon in relation to each other. • 3.9.B: Identify the order of the planets in Earth's solar system in relation to the Sun. • 2.9.A: Describe the Sun as a star that provides light and heat and explain that the Moon reflects the Sun's light.

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5.9	Prerequisite Skills Linked to Assessed Curriculum
	• 2.9.B: Observe objects in the sky using tools such as a telescope and compare how objects in the sky are more visible and can appear different with a tool than with an unaided eye. • 1.9: Describe and predict the patterns of seasons of the year such as order of occurrence and changes in nature. • K.9.A: Identify, describe, and predict the patterns of day and night and their observable characteristics. • K.9.B: Observe, describe, and illustrate the Sun, Moon, stars, and objects in the sky such as clouds. • PK4.VI.C.2: Identify, observe, describe, and discuss objects in the sky. • PK4.VI.C.3: Observe and describe what happens during changes in the earth and sky.

Strand 3 - Earth and Space	
TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations	**STAAR Alternate 2 Essence Statement**
(5.10) Earth and space. The student knows that there are recognizable patterns and processes on Earth. The student is expected to: (A) explain how the Sun and the ocean interact in the water cycle and affect weather; (B) model and describe the processes that led to the formation of sedimentary rocks and fossil fuels; (C) model and identify how changes to Earth's surface by wind, water, or ice result in the formation of landforms, including deltas, canyons, and sand dunes. **(4.10) Earth and space.** The student knows that there are processes on Earth that create patterns of change. The student is expected to: (A) 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; (B) model and describe slow changes to Earth's surface caused by weathering, erosion, and deposition from water, wind, and ice; (C) differentiate between weather and climate. **(3.10) Earth and space.** The student knows that there are recognizable processes that change Earth over time. The student is expected to: (C) model and describe rapid changes in Earth's surface such as volcanic eruptions, earthquakes, and landslides.	Knows that there are patterns and processes on Earth that change the Earth's surface over time.

5.10	Prerequisite Skills Linked to Assessed Curriculum
	• 4.10.A: 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. • 4.10.B: Model and describe slow changes to Earth's surface caused by weathering, erosion, and deposition from water, wind, and ice. • 4.10.C: Differentiate between weather and climate. • 3.10.A: Compare and describe day-to-day weather in different locations at the same time, including air temperature, wind direction, and precipitation. • 3.10.B: Investigate and explain how soils such as sand and clay are formed by weathering of rock and by decomposition of plant and animal remains. • 3.10.C: Model and describe rapid changes in Earth's surface such as volcanic eruptions, earthquakes, and landslides. • 2.10.A: Investigate and describe how wind and water move soil and rock particles across the Earth's surface such as wind blowing sand into dunes on a beach or a river carrying rocks as it flows. • 2.10.B: Measure, record, and graph weather information, including temperature and precipitation. • 2.10.C: Investigate different types of severe weather events such as a hurricane, tornado, or flood and explain that some events are more likely than others in a given region. • 1.10.A: Investigate and document the properties of particle size, shape, texture, and color and the components of different types of soils such as topsoil, clay, and sand. • 1.10.B: Investigate and describe how water can move rock and soil particles from one place to another. • 1.10.C: Compare the properties of puddles, ponds, streams, rivers, lakes, and oceans, including color, clarity, size, shape, and whether it is freshwater or saltwater. • 1.10.D: Describe and record observable characteristics of weather, including hot or cold, clear or cloudy, calm or windy, and rainy or icy, and explain the impact of weather on daily choices. • K.10.A: Describe and classify rocks by the observable properties of size, shape, color, and texture. • K.10.B: Observe and describe weather changes from day to day and over seasons. • K.10.C: Identify evidence that supports the idea that air is all around us and demonstrate that wind is moving air using items such as a windsock, pinwheel, or ribbon. • PK4.VI.C.1: Observe, investigate, describe, and discuss earth materials, and their properties and uses. • PK4.VI.C.3: Observe and describe what happens during changes in the earth and sky.

Strand 3 - Earth and Space	
TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations	**STAAR Alternate 2 Essence Statement**
(4.11) Earth and space. The student understands how natural resources are important and can be managed. The student is expected to: (A) identify and explain advantages and disadvantages of using Earth's renewable and nonrenewable natural resources such as wind, water, sunlight, plants, animals, coal, oil, and natural gas;	Understands Earth's renewable and nonrenewable natural resources.

4.11	**Prerequisite Skills Linked to Assessed Curriculum**
	• 4.11.A: Identify and explain advantages and disadvantages of using Earth's renewable and nonrenewable natural resources such as wind, water, sunlight, plants, animals, coal, oil, and natural gas. • 4.11.B: Explain the critical role of energy resources to modern life and how conservation, disposal, and recycling of natural resources impact the environment. • 4.11. C: Determine the physical properties of rocks that allow Earth's natural resources to be stored there. • 3.11.A: Explore and explain how humans use natural resources such as in construction, in agriculture, in transportation, and to make products. • 3.11.B: Explain why the conservation of natural resources is important. • 3.11.C: Identify ways to conserve natural resources through reducing, reusing, or recycling. • 2.11.A: Distinguish between natural and manmade resources. • 2.11.B: Describe how human impact can be limited by making choices to conserve and properly dispose of materials such as reducing use of, reusing, or recycling paper, plastic, and metal. • 1.11.A: Identify and describe how plants, animals, and humans use rocks, soil, and water. • 1.11.B: Explain why water conservation is important. • 1.11.C: Describe ways to conserve water such as turning off the faucet when brushing teeth and protect natural sources of water such as keeping trash out of bodies of water. • K.11: Observe and generate examples of practical uses for rocks, soil, and water. • PK4.VI.C.1: Observe, investigate, describe, and discuss earth materials, and their properties and uses. • PK4.VI.C.4: Demonstrate an understanding of the importance of caring for our environment and our planet.

Strand 4 - Organisms and Environments	
TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations	**STAAR Alternate 2 Essence Statement**
(5.12) Organisms and environments. The student describes patterns, cycles, systems, and relationships within environments. The student is expected to: (A) observe and describe how a variety of organisms survive by interacting with biotic and abiotic factors in a healthy ecosystem. **(4.12) Organisms and environments.** The student describes patterns, cycles, systems, and relationships within environments. The student is expected to: (B) describe the cycling of matter and flow of energy through food webs, including the roles of the Sun, producers, consumers, and decomposers. **(3.12) Organisms and environments.** The student describes patterns, cycles, systems, and relationships within environments. The student is expected to: (B) identify and describe the flow of energy in a food chain and predict how changes in a food chain such as removal of frogs from a pond or bees from a field affect the ecosystem; (D) identify fossils as evidence of past living organisms and environments, including common Texas fossils.	Describes/Identifies how living systems interact with their environment to create a healthy ecosystem.

5.12	Prerequisite Skills Linked to Assessed Curriculum
	• 4.12.A: Investigate and explain how most producers can make their own food using sunlight, water, and carbon dioxide through the cycling of matter. • 4.12.B: Describe the cycling of matter and flow of energy through food webs, including the roles of the Sun, producers, consumers, and decomposers. • 4.12.C: Identify and describe past environments based on fossil evidence, including common Texas fossils. • 3.12.A: Explain how temperature and precipitation affect animal growth and behavior through migration and hibernation and plant responses through dormancy. • 3.12.B: Identify and describe the flow of energy in a food chain and predict how changes in a food chain such as removal of frogs from a pond or bees from a field affect the ecosystem. • 3.12.C: Describe how natural changes to the environment such as floods and droughts cause some organisms to thrive and others to perish or move to new locations. • 3.12.D: Identify fossils as evidence of past living organisms and environments, including common Texas fossils. • 2.12.A: Describe how the physical characteristics of environments, including the amount of rainfall, support plants and animals within an ecosystem. • 2.12.B: Create and describe food chains identifying producers and consumers to demonstrate how animals depend on other living things. • 2.12.C: Explain and demonstrate how some plants depend on other living things, wind, or water for pollination and to move their seeds around. • 1.12.A: Classify living and nonliving things based upon whether they have basic needs and produce young. • 1.12.B: Describe and record examples of interactions and dependence between living and nonliving components in terrariums or aquariums. • 1.12.C: Identify and illustrate how living organisms depend on each other through food chains. • K.12.A: Observe and identify the dependence of plants on air, sunlight, water, nutrients in the soil, and space to grow. • K.12.B: Observe and identify the dependence of animals on air, water, food, space, and shelter. • PK4.VI.B.1: Observe, investigate, describe, and discuss the characteristics of organisms. • PK4.VI.B.2: Observe, describe, and discuss the life cycles of organisms. • PK4.VI.B.3: Observe, investigate, describe, and discuss the relationship of organisms in their environments.

Strand 4 - Organisms and Environments	
TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations	**STAAR Alternate 2 Essence Statement**
(5.13) Organisms and environments. The student knows that organisms undergo similar life processes and have structures and behaviors that help them survive within their environments. The student is expected to: (A) analyze the structures and functions of different species to identify how organisms survive in the same environment.	Knows that organisms have structures and functions that help them survive within their environments.

5.13	**Prerequisite Skills Linked to Assessed Curriculum**

- 4.13.A: Explore and explain how structures and functions of plants such as waxy leaves and deep roots enable them to survive in their environment.
- 4.13.B: Differentiate between inherited and acquired physical traits of organisms.
- 3.13.A: Explore and explain how external structures and functions of animals such as the neck of a giraffe or webbed feet on a duck enable them to survive in their environment.
- 3.13.B: Explore, illustrate, and compare life cycles in organisms such as beetles, crickets, radishes, or lima beans.
- 2.13.A: Identify the roots, stems, leaves, flowers, fruits, and seeds of plants and compare how those structures help different plants meet their basic needs for survival.
- 2.13.B: Record and compare how the structures and behaviors of animals help them find and take in food, water, and air.
- 2.13.C: Record and compare how being part of a group helps animals obtain food, defend themselves, and cope with changes.
- 2.13.D: Investigate and describe some of the unique life cycles of animals where young animals do not resemble their parents, including butterflies and frogs.
- 1.13.A: Identify the external structures of different animals and compare how those structures help different animals live, move, and meet basic needs for survival.
- 1.13.B: Record observations of and describe basic life cycles of animals, including a bird, a mammal, and a fish.
- 1.13.C: Compare ways that young animals resemble their parents.

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5.13	Prerequisite Skills Linked to Assessed Curriculum
	• K.13.A: Identify the structures of plants, including roots, stems, leaves, flowers, and fruits. • K.13.B: Identify the different structures that animals have that allow them to interact with their environment such as seeing, hearing, moving, and grasping objects. • K.13.C: Identify and record the changes from seed, seedling, plant, flower, and fruit in a simple plant life cycle. • K.13.D: Identify ways that young plants resemble the parent plant. • K.12.A: Observe and identify the dependence of plants on air, sunlight, water, nutrients in the soil, and space to grow. • K.12.B: Observe and identify the dependence of animals on air, water, food, space, and shelter. • PK4.VI.B.3: Observe, investigate, describe, and discuss the relationship of organisms in their environments.