



State of Texas Assessments of Academic Readiness

Elementary Science Assessment

Administered in Grade 5

**Eligible Texas Essential
Knowledge and Skills**

STAAR Elementary Science Assessment

Matter and Energy

Grade 5

- 5.6 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

Grade 3

- 3.6 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)

Force, Motion, and Energy

Grade 5

- 5.7 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
- 5.8 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

Grade 4

- 4.8 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

Grade 3

- 3.7 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

Earth and Space

Grade 5

- 5.9 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
- 5.10 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

Grade 4

- 4.9 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
- 4.10 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
- 4.11 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

Grade 3

3.9 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

3.10 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

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Organisms and Environments

Grade 5

- 5.12 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
- 5.13 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

Grade 4

- 4.12 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

Grade 3

- 3.12 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