

**Process Standards (Scientific Investigation and Reasoning Skills)**

| <b>4.1</b>           | <b>Scientific investigation and reasoning.</b> The student conducts classroom and outdoor investigations, following home and school safety procedures and environmentally appropriate and ethical practices.  |
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| <b>4.2</b>           | <b>Scientific investigation and reasoning.</b> The student uses scientific inquiry methods during laboratory and outdoor investigations.  |
| <b>4.3</b>           | <b>Scientific investigation and reasoning.</b> The student uses critical thinking and scientific problem solving to make informed decisions.  |
| <b>4.4</b>           | <b>Scientific investigation and reasoning.</b> The student knows how to use a variety of tools, materials, equipment, and models to conduct science inquiry.  |
| <b>Tools to Know</b> |   |
| 4.1(A)               | demonstrate safe practices and the use of safety equipment as described in the Texas Safety Standards during classroom and outdoor investigations   |
| 4.1(B)               | 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   |
| 4.2(A)               | 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  |
| 4.2(E)               | perform repeated investigations to increase the reliability of results  |
| 4.4(A)               | 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, hotplates, meter sticks, compasses, magnets, collecting nets, and notebooks, timing devices including clocks and stop watches; and materials to support observation of habitats of organisms such as terrariums and aquariums |
| 4.4(B)               | use safety equipment as appropriate, including safety goggles and gloves.   |
| <b>Ways to Show</b>  |   |
| 4.2(B)               | 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   |
| 4.2(C)               | construct simple tables, charts, bar graphs, and maps using tools and current technology to organize, examine, and evaluate data  |
| 4.2(D)               | analyze data and interpret patterns to construct reasonable explanations from data that can be observed and measured  |
| 4.2(F)               | communicate valid oral and written results supported by data  |
| 4.3(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  |
| 4.3(B)               | draw inferences and evaluate accuracy of services and product claims found in advertisements and labels such as toys, food, and sunscreen   |
| 4.3(C)               | represent the natural world using models such as rivers, stream tables, or fossils and identify their limitations, including accuracy and size  |
| 4.3(D)               | connect grade-level appropriate science concepts with the history of science, science careers, and contributions of scientists  |

**Knowledge and Skills Statements**

|             |   |
|-------------|---|
| <b>4.5</b>  | <b>Matter and energy.</b> The student knows that matter has measurable physical properties and those properties determine how matter is classified, changed, and used.  |
| <b>4.6</b>  | <b>Force, motion, and energy.</b> The student knows that energy exists in many forms and can be observed in cycles, patterns, and systems.                              |
| <b>4.7</b>  | <b>Earth and space.</b> The students know that Earth consists of useful resources and its surface is constantly changing.   |
| <b>4.8</b>  | <b>Earth and space.</b> The student knows that there are recognizable patterns in the natural world and among the Sun, Earth, and Moon system.                          |
| <b>4.9</b>  | <b>Organisms and environments.</b> The student knows and understands that living organisms within an ecosystem interact with one another and with their environment.    |
| <b>4.10</b> | <b>Organisms and environments.</b> The student knows that organisms undergo similar life processes and have structures that help them survive within their environment. |

| Rpgt Cat               | Readiness Standards   | Supporting Standards  |
|------------------------|---|---|
| 1<br>Matter and Energy | 4.5(A)* measure, compare, and contrast physical properties of matter, including size, mass, volume, states (solid, liquid, and gas), temperature, magnetism, and the ability to sink or float | 4.5(B)* 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<br>4.5(C)* compare and contrast a variety of mixtures and solutions such as rocks in sand, sand in water, or sugar in water |

^ = Student Expectation specifically included in STAAR Assessed Curriculum at Grade 5 (classified as a Readiness or Supporting Standard in Grade 4 based on its characteristics as part of the Grade 4 Science curriculum)

\* = Aligned with STAAR Assessed Curriculum at Grades 5

Source: Texas Education Agency STAAR Resources

| Rpgt Cat                             | Readiness Standards   | Supporting Standards   |
|--------------------------------------|---|--|
| 2<br>Force,<br>Motion, and<br>Energy | 4.6(A)* differentiate among forms of energy, including mechanical, sound, electrical, light, and heat/thermal   | 4.6(B) differentiate between conductors and insulators<br>4.6(C)* demonstrate that electricity travels in a closed path, creating an electrical circuit, and explore an electromagnetic field<br>4.6(D)* design an experiment to test the effect of force on an object such as a push or a pull, gravity, friction, or magnetism   |
| 3<br>Earth and Space                 | 4.7(A)^ examine properties of soils, including color and texture, capacity to retain water, and ability to support the growth of plants<br>4.7(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<br>4.8(A)^ measure and record changes in weather and make predictions using weather maps, weather symbols, and a map key | 4.7(B) observe and identify slow changes to Earth's surface caused by weathering, erosion, and deposition from water, wind, and ice<br>4.8(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<br>4.8(C)^ 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   |
| 4<br>Organisms and Environments      | 4.9(B)* 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<br>4.10(A)* explore how adaptations enable organisms to survive in their environment such as comparing birds' beaks and leaves on plants   | 4.9(A)* investigate that most producers need sunlight, water, and carbon dioxide to make their own food, while consumers are dependent on other organisms for food<br>4.10(B)* 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 and other likenesses are learned such as table manners or reading a book and seals balancing balls on their noses<br>4.10(C)* explore, illustrate, and compare life cycles in living organisms such as butterflies, beetles, radishes, or lima beans |

NOTE: The classification of standards on this TEKS Snapshot represents the reviewed and synthesized input of a sample of Texas Science teachers. This TEKS Snapshot DOES NOT represent a publication of the Texas Education Agency. District curriculum materials may reflect other classifications.

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