Process Standards (Scientific and Engineering Practices/Recurring Themes and Concepts)

2.1 **Scientific and engineering practices.** The student asks questions, identifies problems, and plans and safely conducts classroom, laboratory, and field investigations to answer questions, explain phenomena, or design solutions using appropriate tools and models.

2.2 **Scientific and engineering practices.** The student analyzes and interprets data to derive meaning, identify features and patterns, and discover relationships or correlations to develop evidence-based arguments or evaluate designs.

2.5 **Recurring themes and concepts.** The student uses recurring themes and concepts to make connections across disciplines.

Tools to Know

2.1(A) ask questions and define problems based on observations or information from text, phenomena, models, or investigations
2.1(B) use scientific practices to plan and conduct simple descriptive investigations and use engineering practices to design solutions to problems
2.1(C) identify, describe, and demonstrate safe practices during classroom and field investigations as outlined in Texas Education Agency-approved safety standards
2.1(D) use tools, including hand lenses, goggles, heat-resistant gloves, trays, cups, bowls, beakers, notebooks, stream tables, soil, sand, gravel, flowering plants, student thermometer, demonstration thermometer, rain gauge, flashlights, ramps, balls, spinning tops, drums, tuning forks, sandpaper, wax paper, items that are flexible, non-flexible items, magnets, hot plate, aluminum foil, Sun-Moon-Earth model, and frog and butterfly life cycle models to observe, measure, test, and compare
2.1(E) collect observations and measurements as evidence
2.1(F) record and organize data using pictures, numbers, words, symbols, and simple graphs
2.2(D) evaluate a design or object using criteria to determine if it works as intended
2.5(A) identify and use patterns to describe phenomena or design solutions

Properties of Matter

2.6 **Matter and its properties.** The student knows that matter has physical properties that determine how it is described, classified, changed, and used.

Readiness Standards	Supporting Standards
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

Force and Motion

2.7 **Force, motion, and energy.** The student knows that forces cause changes in motion and position in everyday life.

2.7(B) plan and conduct a descriptive investigation to demonstrate how the strength of a push and pull changes an object's motion	2.7(A) explain how objects push on each other and may change shape when they touch or collide

Sound Energy

2.8 **Force, motion, and energy.** The student knows that energy is everywhere and can be observed in everyday life.

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 2.8(C) design and build a device using tools and materials that uses sound to solve the problem of communicating over a distance

Space

2.9 Earth and space. The student knows that there are recognizable patterns in the natural world and among objects in the sky.

Readiness Standards	Supporting Standards
2.9(A) describe the Sun as a star that provides light and heat and explain that the Moon reflects the Sun's light	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

Earth's Weather and Processes

2.10 Earth and space. The student knows that the natural world includes earth materials that can be observed in systems and processes.

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

Earth's Resources

2.11 Earth and space. The student knows that earth materials and products made from these materials are important to everyday life.

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

Interactions in Environments

2.12 Organisms and environments. The student knows that living organisms have basic needs that must be met through interactions within their environment.

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

Characteristics of Plants and Animals

2.13 Organisms and environments. The student knows that organisms have structures and undergo processes that help them interact and survive within their environments.

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

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2.2	**Scientific and engineering practices.** The student analyzes and interprets data to derive meaning, identify features and patterns, and discover relationships or correlations to develop evidence-based arguments or evaluate designs.
2.3	**Scientific and engineering practices.** The student develops evidence-based explanations and communicates findings, conclusions, and proposed solutions.
2.4	**Scientific and engineering practices.** The student knows the contributions of scientists and recognizes the importance of scientific research and innovation for society.
2.5	**Recurring themes and concepts.** The student uses recurring themes and concepts to make connections across disciplines.

Ways to Show	
2.1(G)	develop and use models to represent phenomena, objects, and processes or design a prototype for a solution to a problem
2.2(A)	identify basic advantages and limitations of models such as their size, properties, and materials
2.2(B)	analyze data by identifying significant features and patterns
2.2(C)	use mathematical concepts to compare two objects with common attributes
2.3(A)	develop explanations and propose solutions supported by data and models
2.3(B)	communicate explanations and solutions individually and collaboratively in a variety of settings and formats
2.3(C)	listen actively to others' explanations to identify relevant evidence and engage respectfully in scientific discussion
2.4(A)	explain how science or an innovation can help others
2.4(B)	identify scientists and engineers such as Alexander Graham Bell, Marie Daly, Mario Molina, and Jane Goodall and explore what different scientists and engineers do
2.5(A)	identify and use patterns to describe phenomena or design solutions
2.5(B)	identify and predict cause-and-effect relationships in science
2.5(C)	measure and describe the properties of objects in terms of size and quantity
2.5(D)	examine the parts of a whole to define or model a system
2.5(E)	identify forms of energy and properties of matter
2.5(F)	describe the relationship between structure and function of objects, organisms, and systems
2.5(G)	describe how factors or conditions can cause objects, organisms, and systems to either change or stay the same

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