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

1.1 **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.

1.2 **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.

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

Tools to Know

1.1(A)	ask questions and define problems based on observations or information from text, phenomena, models, or investigations
1.1(B)	use scientific practices to plan and conduct simple descriptive investigations and use engineering practices to design solutions to problems
1.1(C)	identify, describe, and demonstrate safe practices during classroom and field investigations as outlined in Texas Education Agency-approved safety standards
1.1(D)	use tools, including hand lenses, goggles, heat-resistant gloves, trays, cups, bowls, beakers, sieves/sifters, tweezers, primary balance, notebooks, terrariums, aquariums, stream tables, soil samples (loam, sand, gravel, rocks, and clay), seeds, plants, windsock, pinwheel, student thermometer, demonstration thermometer, rain gauge, straws, ribbons, non-standard measuring items, flashlights, sandpaper, wax paper, items that are magnetic, non-magnetic items, a variety of magnets, hot plate, aluminum foil, Sun-Moon-Earth model, and plant and animal life cycle models to observe, measure, test, and compare
1.1(E)	collect observations and measurements as evidence
1.1(F)	record and organize data using pictures, numbers, words, symbols, and simple graphs
1.2(D)	evaluate a design or object using criteria to determine if it works as intended
1.5(A)	identify and use patterns to describe phenomena or design solutions

Properties of Matter

1.6 **Matter and its properties.** The student knows that objects have physical properties that determine how they are described and classified.

Readiness Standards		Supporting Standards	
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) 1.6(C)	explain and predict changes in materials caused by heating and cooling 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

Force and Motion

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

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

Heat Energy

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

1.8(A)	investigate and describe applications of heat in everyday life such as cooking food or using a clothes dryer	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

Patterns in Nature

1.9 **Earth and space.** The student knows that the natural world has recognizable patterns.

1.9(A)	describe and predict the patterns of seasons of the year such as order of occurrence and changes in nature		

Earth, Water, and Weather

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

Readiness Standards	Supporting Standards
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

Earth's Resources

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

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

Interactions in Environments

1.12 Organisms and environments. The student knows that the environment is composed of relationships between living organisms and nonliving components.

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	1.12(A) classify living and nonliving things based upon whether they have basic needs and produce young

Characteristics of Animals

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

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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1.2	**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.
1.3	**Scientific and engineering practices.** The student develops evidence-based explanations and communicates findings, conclusions, and proposed solutions.
1.4	**Scientific and engineering practices.** The student knows the contributions of scientists and recognizes the importance of scientific research and innovation for society.
1.5	**Recurring themes and concepts.** The student uses recurring themes and concepts to make connections across disciplines.

Ways to Show	
1.1(G)	develop and use models to represent phenomena, objects, and processes or design a prototype for a solution to a problem
1.2(A)	identify basic advantages and limitations of models such as their size, properties, and materials
1.2(B)	analyze data by identifying significant features and patterns
1.2(C)	use mathematical concepts to compare two objects with common attributes
1.3(A)	develop explanations and propose solutions supported by data and models
1.3(B)	communicate explanations and solutions individually and collaboratively in a variety of settings and formats
1.3(C)	listen actively to others' explanations to identify important evidence and engage respectfully in scientific discussion
1.4(A)	explain how science or an innovation can help others
1.4(B)	identify scientists and engineers such as Katherine Johnson, Sally Ride, and Ernest Just and explore what different scientists and engineers do
1.5(A)	identify and use patterns to describe phenomena or design solutions
1.5(B)	investigate and predict cause-and-effect relationships in science
1.5(C)	describe the properties of objects in terms of relative size (scale) and relative quantity
1.5(D)	examine the parts of a whole to define or model a system
1.5(E)	identify forms of energy and properties of matter
1.5(F)	describe the relationship between structure and function of objects, organisms, and systems
1.5(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.