

Science TEKS Review Work Group E Draft Recommendations

Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
5. Matter and its interactions. The student knows that objects have observable properties that determine how it is described and classified. The student is expected to:	5. Matter and its interactions. The student knows that objects have properties and that objects can be understood by their properties and their interactions. The student is expected to:	5. Matter and its interactions. The student knows that matter has physical properties and those properties determine how it is described, classified, changed, and used. The student is expected to:	5. Matter and energy. The student knows that matter has measurable physical properties and those properties determine how matter is classified, changed, and used. The student is expected to:	5. Matter and energy. The student knows that matter has measurable physical properties and those properties determine how matter is classified, changed, and used. The student is expected to:	5. Matter and energy. The student knows that matter has measurable physical properties and those properties determine how matter is classified, changed, and used. The student is expected to:
K.5.A identify and record observable properties of objects, including shape, color, texture, and material, and generate additional ways to classify objects.	1.5.A classify objects by observable properties, including, shape, color, and texture and attributes such as larger and smaller and heavier and lighter; and	2.5.A classify matter by observable properties, including texture, flexibility, and relative temperature and identify whether a material is a solid or liquid;	3.5.A measure, test, and record physical properties of matter, including temperature, mass, magnetism, and the ability to sink or float (relative density);	4.5.A classify and describe matter using observable physical properties, including mass, volume, states (solid, liquid, gas), temperature, magnetism, and relative density (the ability to sink or float); and	5.5.A compare and contrast matter based on measurable, testable, or observable physical properties, including mass, magnetism, physical state (solid, liquid, and gas), relative density (sinking and floating using water as a reference point), solubility in water, and the ability to conduct or insulate thermal energy and electric energy;
	1.5.B compare and predict changes in materials caused by heating and cooling.	2.5.B demonstrate that physical properties can be changed through processes such as cutting, folding, sanding, and melting; and	3.5.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;	4.5.B compare and contrast a variety of mixtures, including solutions that are composed of liquids in liquids and solids in liquids, and explore the conservation of matter.	5.5.B demonstrate and explain that some mixtures maintain physical properties of their substances such as iron filings and sand and sand and water;
		2.5.C create a mixture by combining two or more substances and identify the physical properties of the substances and the mixture.	3.5.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); and		5.5.C compare the properties of substances before and after they are combined into a solution and demonstrate that matter is conserved; and
			3.5.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.		5.5.D model how matter can be divided into particles that are too small to be seen.

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6. Force and motion. The student knows that force, motion, and position are a part of their everyday life. The student is expected to:	6. Force and, motion. The student knows that force and, motion are related and are a part of everyday life. The student is expected to:	6. Force and motion. The student knows that forces cause change in everyday life. The student is expected to:	6. Force, motion, and energy. The student knows the nature of forces and their interactions. The student is expected to:	6. Force, motion, and energy. The student knows the nature of forces and their interactions. The student is expected to:	6. Force, motion, and energy. The student knows the nature of forces and their interactions. The student is expected to:
K.6.A describe the location of an object in relation to another such as above, below, behind, in front of, and beside; and	1.6.A describe and predict how a magnet interacts with various materials and how they can be used to push or pull.	2.6.A plan and conduct an investigation that uses pushes and pulls to identify patterns of movement such as sliding, rolling, and spinning.	3.6.A observe and identify forces such as magnetism, gravity, and pushes and pulls acting on objects; and	4.6.A investigate and record observations of the forces of static electricity and friction; and	5.6.A investigate the equal and unequal forces acting on an object and describe the effects that may create movement, including the identification of patterns of motion; and
K.6.B describe and demonstrate the ways that objects can move such as in a straight line, zigzag, up and down, back and forth, round and round, and fast and slow.			3.6.B demonstrate and explain how position and motion can be changed by pushing and pulling objects such as swings, balls, and wagons.	4.6.B design a descriptive investigation to explore the effect of force on an object such as gravity, friction, or magnetism.	5.6.B design a simple experimental investigation that tests the effect of force on an object.
7. Energy. The student knows that energy exists in many forms and is a part of their everyday life. The student is expected to:	7. Energy. The student knows that energy exists in many forms and is a part of their everyday life. The student is expected to:	7. Energy. The student knows that energy exists in many forms and is a part of everyday life. The student is expected to:	7. Force, motion, and energy. The student knows that forces cause change and that energy exists in many forms. The student is expected to:	7. Force, motion, and energy. The student knows that energy exists in many forms and can be observed in cycles, patterns, and systems. The student is expected to:	7. Force, motion, and energy. The student knows that energy occurs in many forms and can be observed in cycles, patterns, and systems. The student is expected to:
K.7.A identify and describe different forms of energy including light, thermal, and sound using the senses;	1.7.A identify and explain how different forms of energy, including light, thermal, and sound, are important to everyday life;	2.7.A compare different forms of energy including light, thermal, and sound energy;	3.7.A identify examples of mechanical, light, thermal, and sound energy in everyday life and explain how each type of energy can be identified; and	4.7.A differentiate among mechanical, sound, light, thermal, and electrical energy;	5.7.A investigate and identify the uses of mechanical, light, thermal, electrical, and sound energy;
K.7.B demonstrate 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; and	1.7.B investigate and describe applications of thermal energy in everyday life such as cooking food or using a hair dryer; and	2.7.B demonstrate and explain that sound energy is made by vibrating matter and that sound energy can make matter vibrate; and	3.7.B describe how the forces of push and pull relate to mechanical energy.	4.7.B identify conductors and insulators of thermal and electrical energy; and	5.7.B demonstrate that the flow of electricity in series and parallel circuits can produce light, thermal, or sound energy and identify the requirements for a functioning electrical circuit; and
K.7.C identify and demonstrate that light travels through some objects and is blocked by other objects, creating shadows.	1.7.C describe how some changes caused by thermal energy may be reversed, such as melting butter and other changes cannot be reversed, such as baking a cake.	2.7.C explain how different levels of sound energy are used in everyday life such as a whisper in a classroom or a fire alarm.		4.7.C demonstrate and identify that electricity travels in a closed path, creating a series circuit that can produce light and thermal energy.	5.7.C demonstrate that light travels in a straight line until it strikes an object and is reflected or travels from one medium to another and is refracted and differentiate between reflection and refraction.

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8. Earth and space. The student knows that there are recognizable patterns in the natural world and among objects in the sky. The student is expected to:	8. Earth and space. The student knows that the natural world has recognizable patterns. The student is expected to:	8. Earth and space. The student knows that there are recognizable patterns in the natural world and among objects in the sky. The student is expected to:	8. Earth and space. The student knows there are recognizable objects and patterns in Earth’s solar system. The student is expected to:	8. Earth and space. The student recognizes patterns among the Sun, Earth, and Moon system and their effects. The student is expected to:	8. Earth and space. The student knows that there are recognizable patterns among the Sun, Earth, and Moon system. The student is expected to:
K.8.A identify, describe, and predict the patterns of day and night and their observable characteristics;	1.8.A describe that air is all around us and demonstrate that wind is moving air using items such as a windsock, pinwheel, or ribbon;	2.8.A illustrate and describe the Sun as a star composed of gases that provides light and thermal energy;	3.8.A construct models and explain the orbits of the Sun, Earth, and Moon in relation to each other; and	4.8.A collect and analyze data to identify sequences and predict patterns of change in seasons such as change in temperature and length of daylight; and	5.8.A demonstrate that Earth rotates on its axis once approximately every 24 hours causing the day/night cycle, shadows, and the apparent movement of the Sun across the sky.
K.8.B observe, describe, and illustrate the Sun, objects in the sky such as the clouds, Moon, and stars; and	1.8.B record weather information, including relative temperature such as hot or cold, clear or cloudy, calm or windy, and rainy or icy using the senses;	2.8.B explain that the Sun produces its own light energy and that the Moon reflects the Sun’s light energy; and	3.8.B identify the sequence of the planets in Earth’s solar system in relation to the Sun.	4.8.B collect and analyze data to identify sequences and predict patterns of change in the observable appearance of the Moon from Earth during the lunar cycle.	
K.8.C observe and describe weather changes from day to day and over seasons.	1.8.C identify and describe characteristics of seasonal weather patterns and seasonal choices in clothing and activities; and	2.8.C measure, record, and graph weather information, including temperature and precipitation.			
	1.8.D predict the patterns of seasons of the year such as order of occurrence and changes in nature.				
9. Earth and space. The student knows that the natural world includes earth materials. The student is expected to:	9. Earth and space. The student knows that the natural world includes earth materials that can be observed in systems and processes. The student is expected to:	9. Earth and space. The student knows that the natural world includes earth materials. The student is expected to:	9. Earth and space. The student knows that there are recognizable processes that change the Earth over time. The student is expected to:	9. Earth and space. The student knows that there are processes on Earth that create patterns of change. The student is expected to:	9. Earth and space. The student knows that there are recognizable patterns and processes on Earth. The student is expected to:
K.9.A describe and classify rocks by the observable properties of size, shape, color, and texture.	1.9.A investigate and document characteristics and components of different types of soils;	2.9.A investigate and describe how wind and water can carry soil and rocks across the earth’s surface such as wind blowing sand on a beach or a river carrying rocks as it flows.	3.9.A compare and describe day-to-day weather in different locations at the same time that include air temperature, wind direction, and precipitation;	4.9.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; and	5.9.A differentiate between weather and climate;
	1.9.B identify and compare a variety of natural sources of freshwater and saltwater, including streams, lakes, and oceans; and		3.9.B investigate and explain how soils are formed by weathering of rock such as sand and clay and the decomposition of plant and animal remains; and	4.9.B model and describe slow changes to Earth’s surface caused by weathering, erosion, and deposition from water, wind, and ice.	5.9.B explain how the Sun and the ocean interact in the water cycle and affect weather;

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	1.9.C investigate and describe how water can move rocks and soil from one place to another.		3.9.C model and describe rapid changes in Earth's surface such as volcanic eruptions, earthquakes, and landslides.		5.9.C model and describe the processes that led to the formation of sedimentary rocks and fossil fuels; and
					5.9.D 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.
10. Earth and Space. The student knows that earth materials, and products made from these materials, are important to everyday life. The student is expected to:	10. Earth and Space. The student knows that earth materials are important to everyday life. The student is expected to:	10. Earth and Space. The student knows that earth materials are important to everyday life. The student is expected to:	10. Earth and Space. The student understands how natural resources are important and can be managed. The student is expected to:	10. Earth and Space. The student understands how natural resources are important and can be managed. The student is expected to:	10. Earth and Space. The student understands how natural resources are important and can be managed. The student is expected to:
K.10.A describe how plants, animals, and humans use rocks, soil, and water.	1.10.A generate examples of practical uses for rocks, soil, and water; and	2.10.A distinguish between natural and manmade resources; and	3.10.A explore and explain how natural resources are used to make products for human use; and	4.10.A identify and classify Earth's renewable resources, including air, plants, water, and animals, and nonrenewable resources, including coal, oil, and natural gas.	5.10.A explain how conservation, disposal, and recycling of renewable and non-renewable natural resources impact the environment.
	1.10.B describe ways to conserve and protect natural sources of water such as turning off the faucet when brushing teeth and keeping trash out of bodies of water.	2.10.B demonstrate how to use conserve and dispose of materials such as reusing or recycling paper, plastic, and metal.	3.10.B identify ways to conserve natural resources through reducing, reusing, or recycling.		
11. Organisms and environments. The student knows that plants and animals have basic needs for survival. The student is expected to:	11. Organisms and environments. The student knows that the environment is composed of relationships between living organisms and nonliving components. The student is expected to:	11. Organisms and environments. The student knows that living organisms have basic needs that must be met through interactions within their environment. The student is expected to:	11. Organisms and environments. The student knows and can describe patterns, cycles, systems, and relationships within the environments. The student is expected to:	11. Organisms and environments. The student knows and understands that living organisms within an ecosystem interact with one another and with their environment. The student is expected to:	11. Organisms and environments. The student knows that there are relationships, systems, and cycles within environments. The student is expected to:
K.11.A identify that air, sunlight, water, nutrients, and space are basic needs of plants; and	K.11.A describe and classify living and nonliving things based upon whether they have basic needs and produce young;	2.11.A explain how temperature and precipitation affect growth and behavior of animals through migration and hibernation, and plants responses through dormancy;	3.11.A describe how the physical characteristics of environments support plants and animals within an ecosystem;	4.11.A investigate and explain how most producers make their own food using sunlight, water, and carbon dioxide; and	5.11.A observe and describe how organisms survive by interacting with biotic and abiotic factors in their ecosystem;
K.11.B identify that air, water, food, space, and shelter are basic needs of animals.	1.11.B analyze and record examples of interactions among living and nonliving components in terrariums or aquariums; and	2.11.B design and create a model to demonstrate the ways animals depend on other living things using food chains that include producers and consumers; and	3.11.B identify and describe the flow of energy in a food chain and predict how changes in a food chain affect the ecosystem such as removal of frogs from a pond or bees from a field;	4.11.B describe the flow of energy through food webs, including the roles of the Sun, producers, consumers, and decomposers; and	5.11.B predict how changes in the ecosystem affect the flow of energy in a food web; and

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	1.11.C identify and illustrate ways that living organisms depend on each other through food chains.	2.11.C explain and demonstrate how plants depend on other living things for pollination and to move their seeds around.	3.11.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; and	4.11.C identify and describe past environments based on fossil evidence.	5.11.C describe how human activities have beneficial and harmful impacts on ecosystems.
			3.11.D identify fossils as evidence of past living organisms.		
12. Organisms and environments. The student knows that organisms resemble their parents and have structures and processes that help them interact with their environments. The student is expected to:	12. Organisms and environments. The student knows that organisms resemble their parents and have structures and processes that help them survive within their environments. The student is expected to:	12. Organisms and environments. The student knows that organisms have structures and processes that help them survive within their environments. The student is expected to:	12. Organisms and environments. The student knows that organisms undergo similar life processes and have structures that help them survive within their environments. The student is expected to:	12. Organisms and environments. The student knows that organisms undergo similar life processes and have structures and behaviors that help them survive within their environment. The student is expected to:	12. Organisms and environments. The student knows that organisms have structures and behaviors that help them survive within their environments. The student is expected to:
K.12.A identify the different parts of plants including roots, stems, leaves, flowers, and fruits;	1.12.A Identify and compare how the external characteristics of an animal are related to where it lives, how it moves, and what it eats;	2.12.A identify and compare how plants have roots, stems, leaves, flowers, fruits, and seeds that help them meet their basic needs to survive, grow, and produce more plants;	3.12.A explore and explain how structures and functions of animals enable them to survive in their environment; and	4.12.A explore and explain how structures and functions of plants enable them to survive in their environment; and	5.12.A analyze the structures and functions of different species to identify how organisms survive in the same environment; and
K.12.B identify that animals have different parts that allow them to interact with their environment such as seeing, hearing, moving, and grasping objects;	1.12.B record observations of and describe basic life cycles of animals including a bird, a mammal, and a fish; and	2.12.B record and compare how the physical characteristics and behaviors of animals help them to find and take in food, water, and air; and	3.12.B explore, illustrate, and compare life cycles in living organisms such as beetles, crickets, radishes, or lima beans.	4.12.B differentiate between inherited and acquired physical traits of organisms.	5.12.B differentiate between instinctual and learned behavioral traits of animals.
K.12.C identify and record the changes from seed, seedling, plant, flower, and fruit in a simple plant life cycle; and	1.12.C compare ways that young animals resemble their parents.	2.12.C investigate and describe some of the unique life cycles of animals where young animals do not resemble their parents, including butterflies and frogs.			
K.12.D identify ways that young plants resemble the parent plant.					