



**Literacy Connections, Texas K-5 Science
Kindergarten – Fifth Grade, 2017 TEKS**

Scientific Investigation and Reasoning

Kindergarten	First	Second	Third	Fourth	Fifth
1.A Identify, discuss, and demonstrate safe and healthy practices as outlined in the TEA-approved safety standards during classroom and outdoor investigations, including wearing safety goggles or chemical splash goggles as appropriate), washing hands, and using materials appropriately.	1.A Identify, discuss and demonstrate safe and healthy practices as outlined in the TEA-approved safety standards during classroom and outdoor investigations, including wearing safety goggles or chemical splash goggles (as appropriate), washing hands, and using materials appropriately.	1.A Identify, describe, and demonstrate safe practices as outlined in Texas Education Agency-approved safety standards during classroom and outdoor investigations, including wearing safety goggles or chemical splash goggles, as appropriate, washing hands, and using materials appropriately.	1.A Demonstrate safe practices as described in Texas Education Agency-approved safety standards during classroom and outdoor investigations using safety equipment as appropriate, including safety goggles or chemical splash goggles, as appropriate, and gloves.	1.A Demonstrate safe practices and the use of safety equipment as described in Texas Education Agency-approved safety standards during classroom and outdoor investigations using safety equipment, including safety goggles or chemical splash goggles, as appropriate, and gloves, as appropriate.	1.A Demonstrate safe practices and the use of safety equipment as outlined in Texas Education Agency-approved safety standards during classroom and outdoor investigations using safety equipment, including safety goggles or chemical splash goggles, as appropriate, and gloves, as appropriate.
1.B Demonstrate how to use, conserve, and dispose of natural resources and materials such as conserving water and reusing or recycling of paper, plastic, and metal.	1.B Identify and learn how to use natural resources and materials including conservation and reuse or recycling of paper, plastic, and metals.	1.B Identify and demonstrate how to use, conserve, and dispose of natural resources and materials such as conserving water and reuse or recycling of paper, plastic, and metal.	1.B Make informed choices in the use and conservation of natural resources by recycling or reusing materials such as paper, aluminum cans, and plastics.	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.	1.B Make informed choices in the conservation, disposal, and recycling of materials.
2.A Ask questions about organisms, objects, and events observed in the natural world.	2.A Ask questions about organisms, objects, and events observed in the natural world.	2.A Ask questions about organisms, objects, and events during observations and investigations.			2.B Ask well-defined questions, formulate testable hypotheses, and select and use appropriate equipment and technology.
2.B Plan and conduct simple descriptive investigations.	2.B Plan and conduct simple descriptive investigations.	2.B Plan and conduct descriptive investigations.	2.A Plan and implement descriptive investigations including asking and answering questions, making inferences, and selecting and using equipment or technology needed to solve a specific problem in the natural world.	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.	2.A Describe, plan and implement simple experimental investigations testing one variable.
2.C Collect data and make observations using simple tools.	2.C Collect data and make observations using simple tools	2.C Collect data from observations using scientific tools.	2.B Collect and record data by observing and measuring using the metric system and recognize differences	2.B Collect and record data by observing and measuring, using the metric system, and using descriptive words and	2.C Collect and record information using detailed observations and accurate measuring.



Kindergarten	First	Second	Third	Fourth	Fifth
			between observed and measured data.	numerals, such as labeled drawings, writing, and concept maps.	
2.D Record and organize data and observations using pictures, numbers, and words.	2.D Record and organize data using pictures, numbers, and words.	2.D Record and organize data using pictures, numbers, and words.	2.C Construct maps, graphic organizers, simple tables, charts, and bar graphs using tools and current technology to organize, examine, and evaluate measured data.	2.C Construct simple tables, charts, bar graphs, and maps using tools and current technology to organize, examine, and evaluate data.	2.G Construct appropriate simple graphs, tables, maps, and charts using technology including computers to organize, examine, and evaluate information.
			2.D Analyze and interpret patterns in data to construct reasonable explanations based on evidence from investigations.	2.D Analyze data and interpret patterns to construct reasonable explanations from data that can be observed and measured.	2.D Analyze and interpret information to construct reasonable explanations from direct (observable) and indirect (inferred) evidence.
2.E Communicate observations about simple descriptive investigations	2.E Communicate observations and provide reasons for explanations using student-generated data from simple descriptive investigations.	2.E Communicate observations and justify explanations using student-generated data from simple descriptive investigations.	2.F Communicate valid conclusions supported by data in writing, by drawing pictures, and through verbal discussion.	2.F Communicate valid, oral and written results supported by data.	2.F Communicate valid conclusions in both written and verbal forms.
		2.F Compare results of investigations with what students and scientists know about the world.	2.E Demonstrate that repeated investigations may increase the reliability of results.	2.E Perform repeated investigations to increase the reliability of results.	2.E Demonstrate that repeated investigations may increase the reliability of results.
			3.A Analyze, evaluate, and critique scientific explanations by using evidence, logical reasoning, and experimental and observational testing.	3.A Analyze, evaluate, and critique scientific explanations by using evidence, logical reasoning, and experimental and observational testing.	3.A Analyze, evaluate, and critique scientific explanations by using evidence, logical reasoning, and experimental and observational testing.
3.A Identify and explain a problem, such as the impact of littering, and propose a solution.	3.A Identify and explain a problem and propose a solution.	3.A Identify and explain a problem and propose a task and solution for the problem.			
3.B Make predictions based on observable patterns in nature.	3.B Make predictions based on observable patterns.	3.B Make predictions based on observable patterns.			



Kindergarten	First	Second	Third	Fourth	Fifth
			3.B Represent the natural world using models such as volcanoes or Sun, Earth, and Moon system, and identify their limitations including size, properties, and materials.	3.B Represent the natural world using models such as the water cycle and stream tables and identify their limitations, including accuracy and size.	3.B Draw or develop a model that represents how something that cannot be seen such as the Sun, Earth and Moon system and formation of sedimentary rock works or looks.
3.C Explore that scientists investigate different things in the natural world and use tools to help in their investigations.	3.C Describe what scientists do.	3.C Identify what a scientist is and explore what different scientists do.	3.C Connect grade level appropriate science concepts with the history of science, science careers and contributions of scientists.	3.C Connect grade-level appropriate science concepts with the history of science, science careers, and contributions of scientists.	3.C Connect grade-level appropriate science concepts with the history of science, science careers, and contributions of scientists.
4.A Collect information using tools, including computing devices, hand lenses, primary balances, cups, bowls, magnets, collecting nets, and notebooks; timing devices, nonstandard measuring items, weather instruments such as demonstration thermometers, and materials to support observations of habitats of organisms such as terrariums and aquariums..	4.A Collect, record, and compare information using tools, including computers, hand lenses, primary balances, cups, bowls, magnets, collecting nets, notebooks, and safety goggles or chemical splash goggles, as appropriate; timing devices, non-standard measuring items, weather instruments such as demonstration thermometers and wind socks; and materials to support observations of habitats of organisms such as terrariums and aquariums.	4.A Collect, record, and compare information using tools, including computers, hand lenses, rulers, plastic beakers, magnets, collecting nets, notebooks, and safety goggles or chemical splash goggles, as appropriate; timing devices; weather instruments such as thermometers, wind vanes, and rain gauges; and materials to support observations of habitats of organisms such as terrariums and aquariums.	4.A Collect, record, and analyze information using tools, including cameras, computers, hand lenses, metric rulers, Celsius thermometers, wind vanes, rain gauges, pan balances, graduated cylinders, beakers, spring scales, hot plates, meter sticks, magnets, collecting nets, notebooks, Sun, Earth, and Moon system models; timing devices; and materials to support observation of habitats of organisms such as terrariums and aquariums.	4.A Collect, record, and analyze information using tools, including calculators, microscopes, cameras, computers, hand lenses, metric rulers, Celsius thermometers, mirrors, spring scales, graduated cylinders, beakers, hotplates, meter sticks, magnets, collecting nets, and notebooks; timing devices; and materials to support observation of habitats of organisms such as terrariums and aquariums.	4.A Collect, record and analyze information using tools including calculators, microscopes, cameras, hand lenses, metric rulers, Celsius thermometers, prisms, mirrors, balances, spring scales, graduated cylinders, beakers, hot plates, meter sticks, magnets, collecting nets, and notebooks; timing devices; and materials to support observations of habitats or organisms such as terrariums and aquariums.
4.B Use the senses as a tool of observation to identify properties and patterns of organisms, objects, and events in the environment.					
	4.B Measure and compare organisms and objects using non-standard units.	4.B Measure and compare organisms and objects.			



Reporting Category 1: Matter and Energy

The student will demonstrate an understanding of the properties of matter and energy and their interactions.

Kindergarten	First	Second	Third	Fourth	Fifth
<p>5.A Observe and record properties of objects including bigger or smaller, heavier or lighter, shape, color, and texture.</p>	<p>5.A Classify objects by observable properties such as larger and smaller, heavier and lighter, shape, color, and texture.</p>	<p>5.A Classify matter by physical properties including relative temperature, texture, flexibility, and whether material is a solid or liquid.</p>	<p>5.A Measure, test, and record physical properties of matter including temperature, mass, magnetism, and the ability to sink or float.</p>	<p>5.A Measure, compare, and contrast physical properties of matter including mass, volume, states (solid, liquid, gas), temperature, magnetism, and the ability to sink or float.</p>	<p>☆ 5.A Classify matter based on measurable, testable, and 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 or electric energy.</p>
			<p>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.</p>		
<p>5.B Observe, record, and discuss how materials can be changed by heating or cooling.</p>	<p>5.B Predict and identify changes in materials caused by heating and cooling.</p>	<p>5.B Compare changes in materials caused by heating and cooling.</p>	<p>✓ 5.C Predict, observe, and record changes in the state of matter caused by heating or cooling such as ice becoming liquid water, condensation forming on the outside of a glass of ice water, or liquid water being heated to the point of becoming water vapor.</p>		
	<p>5.C Classify objects by the materials from which they are made.</p>				
		<p>5.C Demonstrate that things can be done to materials to change their physical properties such as cutting, folding, sanding and melting.</p>			<p>✓ 5.C Identify changes that can occur in the physical properties of the ingredients of solutions such as dissolving salt in water or adding lemon juice to water.</p>



Kindergarten	First	Second	Third	Fourth	Fifth
		5.D Combine materials that when put together can do things that they cannot do by themselves such as building a tower or a bridge and justify the selection of those materials based on their physical properties.	5.D Explore and recognize that a mixture is created when two materials are combined, such as gravel and sand and metal or plastic paper clips.	5.B Compare and contrast a variety of mixtures including solutions.	✓ 5.B Demonstrate that some mixtures maintain physical properties of their ingredients such as iron filings and sand and sand and water.



Reporting Category 2: Force, Motion, and Energy

The student will demonstrate an understanding of force, motion, and energy and their relationships.

Kindergarten	First	Second	Third	Fourth	Fifth
6.A Use the senses to explore different forms of energy, such as light, thermal, and sound.	6.A Identify and discuss how different forms of energy such as light, thermal, and sound are important to everyday life.	6.A Investigate the effects on objects by increasing or decreasing amounts of light, heat, and sound energy such as how the color of an object appears differently in dimmer light or how heat melts butter.	6.A Explore different forms of energy including mechanical, light, sound, and thermal in everyday life.	6.A Differentiate among forms of energy including mechanical, sound, electrical, light, and thermal.	☆ 6.A Explore the uses of energy including mechanical, light, thermal, electrical, and sound energy.
				6.B Differentiate between conductors and insulators of thermal and electrical energy.	
				6.C Demonstrate that electricity travels in a closed path, creating an electrical circuit.	☆ 6.B Demonstrate that the flow of electricity in closed circuits can produce light, heat, or sound.
					☆ 6.C Demonstrate that light travels in a straight line until it strikes an object or travels from one medium to another and demonstrate that light can be reflected such as the use of mirrors or other shiny surfaces, and refracted such as the appearance of an object when observed through water.
6.B Explore interactions between magnets and various materials.	6.B Predict and describe how a magnet can be used to push or pull an object.	6.B Observe and identify how magnets are used in everyday life.	6.C Observe forces such as magnetism and gravity acting on objects.	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.	✓ 6.D Design a simple experimental investigation that tests the effect of force on an object.
6.C Observe and describe the location of an object in relation to another such as above, below, behind, in front of, and beside.					
6.D Observe and describe the ways that objects can move such as, in a straight line, zigzag, up and down,	6.C Demonstrate and record the ways that objects can move such as in a straight line, zig zag, up and down, back and	6.C Trace and compare patterns of movement of objects such as sliding, rolling, and spinning over time.	✓ 6.B Demonstrate and observe how position and motion can be changed by pushing and pulling		



Kindergarten	First	Second	Third	Fourth	Fifth
back and forth, round and round, fast and slow.	forth, round and round, and fast and slow.		objects such as swings, balls, and wagons.		



Reporting Category 3: Earth and Space

The student will demonstrate an understanding of components, cycles, patterns, and natural events of Earth and space systems.

Kindergarten	First	Second	Third	Fourth	Fifth
7.A Observe, describe and sort rocks by size, shape, color, and texture.	7.A Observe, compare, describe and sort components of soil by size, texture, and color.	7.A Observe describe, and compare rocks by size, texture, and color.	7.A Explore and record how soils are formed by weathering of rock and the decomposition of plant and animal remains.	✓7.A Examine properties of soils, including color and texture, capacity to retain water, and ability to support the growth of plants.	☆ 7.A Explore the processes that led to the formation of sedimentary rocks and fossil fuels.
			✓7.B Investigate rapid changes in Earth's surface such as volcanic eruptions, earthquakes, and landslides.	7.B Observe and identify slow changes to the Earth's surface caused by weathering, erosion and deposition from water, wind, and ice.	☆ 7.B Recognize how landforms such as deltas, canyons, and sand dunes are the result of changes to Earth's surface by wind, water, or ice.
7.B Observe and describe physical properties of natural sources of water including color and clarity.	7.B Identify and describe a variety of natural sources of water including streams, lakes, and oceans.	7.B Identify and compare the properties of natural sources of freshwater and saltwater.			
7.C Give examples of ways rocks, soil, and water are useful.	7.C Identify how rocks, soil, and water are used to make products.	7.C Distinguish between natural and manmade resources.	7.C Explore the characteristics of natural resources that make them useful in products and materials such as clothing and furniture, and how resources may be conserved.	✓7.C Identify and classify the Earth's renewable resources including air, plants, water, and animals, and nonrenewable resources including coal, oil, natural gas, and the importance of conservation.	
8.A Observe and describe weather changes from day to day and over seasons.	8.A Record weather information including relative temperature such as hot or cold, clear or cloudy, calm or windy and rainy or icy.	8.A Measure, record, and graph weather information including temperature, wind conditions, precipitation, and cloud coverage in order to identify patterns in the data.	8.A Observe, measure, record and compare day-to-day weather changes in different locations at the same time that include air temperature, wind direction and precipitation.	✓8.A Measure, record and predict changes in weather.	✓8.A Differentiate between weather and climate.
		8.B Identify the importance of weather and seasonal information to make choices in clothing, activities, and transportation.			
			8.B Describe and illustrate the Sun as a star composed of gases that provides light and thermal energy	✓8.B Describe and illustrate the continuous movement of water above and on the surface of the Earth through the water cycle, and explain the role	✓8.B Explain how the Sun and the ocean interact in the water cycle.



Kindergarten	First	Second	Third	Fourth	Fifth
				of the Sun as a major source of energy in this process.	
8.B Identify events that have repeating patterns including seasons of the year and day and night.	8.B Observe and record changes in the appearance of objects in the sky such as the Moon and stars, including the Sun.	8.C Observe, describe, and record patterns of objects in the sky, including the appearance of the Moon.	8.C Construct models that demonstrate the relationship of the Sun, Earth, and Moon including orbits and positions.	✓8.C Collect and analyze data to identify sequences and predict patterns of change in shadows, seasons, and the observable appearance of the Moon over time.	☆8.C Demonstrate that Earth rotates on its axis once approximately every 24 hours causing the day/night cycle and the apparent movement of the Sun across the sky.
8.C Observe, describe, and illustrate objects in the sky such as the clouds, Moon, and stars, including the Sun.	8.C Identify characteristics of the seasons of the year and day and night.		✓8.D Identify the planets in Earth's solar system and their position in relation to the Sun.		✓8.D Identify and compare the physical characteristics of the Sun, Earth, and Moon.
	8.D Demonstrate that air is all around us and observe that wind is moving air.				



Reporting Category 4: Organisms and Environments

The student will demonstrate an understanding of the structures and functions of living organisms and their interdependence on each other and on their environment.

Kindergarten	First	Second	Third	Fourth	Fifth
9.A Differentiate between living and nonliving things based upon whether they have basic needs and produce offspring.	9.A Sort and classify living and nonliving things based upon whether they have basic needs and produce offspring.	9.A Identify the basic needs of plants and animals.			
9.B Examine evidence that living organisms have basic needs such as food, water, and shelter for animals, and air, water, nutrients, sunlight, and space for plants.	9.B Analyze and record examples of interdependence found in various situations such as terrariums and aquariums or pet and caregiver.	9.B Identify factors in the environment, including temperature and precipitation, that affect growth and behavior such as migration, hibernation, and dormancy of living things.	✓9.A Observe and describe the physical characteristics of environments and how they support populations and communities of plants and animals within an ecosystem.	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.	☆9.A Observe the way organisms live and survive in their ecosystem by interacting with the living and nonliving components.
	9.C Gather evidence of interdependence among living organisms such as energy transfer through food chains or animals using plants for shelter.	9.C Compare the ways living organisms depend on each other and on their environments, such as through food chains	9.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.	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.	☆9.B Describe the flow of energy within a food web, including the roles of the Sun, producers, consumers and decomposers.
			9.C Describe environmental changes such as floods and droughts where some organisms thrive and others perish or move to new locations.		✓9.C Predict the effects of changes in ecosystems caused by living organisms, including humans, such as the overpopulation of grazers or the building of highways.
					✓9.D Identify fossils as evidence of past living organisms and the nature of the environments at the time using models.
10.A Sort plants and animals into groups based on physical characteristics such as color, size, body covering, or leaf shape.	10.A Investigate how the external characteristics of an animal are related to where it lives, how it moves, and what it eats.	10.A Observe, record and compare how the physical characteristics and behaviors of animals help them meet their basic needs.	10.A Explore how structures and functions of plants and animals allow them to survive in a particular environment.	10.A Explore how structures and functions enable organisms to survive in their environment.	☆10.A Compare the structures and functions of different species that help them live and survive in a specific environment such as hooves on prairie animals or webbed feet in aquatic animals.
10.B Identify basic parts of plants and animals.	10.B Identify and compare the parts of plants.	10.B Observe, record, and compare how the physical characteristics of plants help			



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		them meet their basic needs such as stems carry water throughout the plant.			
10.C Identify ways that young plants resemble the parent plant.	10.C Compare ways that young animals resemble their parents.			10.B Explore and describe examples of traits that are inherited from parents to offspring such as eye color and shapes of leaves and behaviors that are learned such as reading a book and a wolf pack teaching their pups to hunt effectively.	☆ 10.B Differentiate between inherited traits of plants and animals such as spines on a cactus or shape of beak, and learned behaviors such as an animal learning tricks or a child riding a bicycle.
10.D Observe changes that are part of a simple life cycle of a plant: seed, seedling, plant, flower, and fruit.	10.D Observe and record life cycles of animals such as a chicken, frog, or fish.	10.C Investigate and record some of the unique stages that insects such as grasshoppers and butterflies undergo during their life cycle.	✓ 10.B Investigate and compare how animals and plants undergo a series of orderly changes in their diverse life cycles such as tomato plants, frogs and lady beetles.	10.C Explore, illustrate and compare life cycles in living organisms, such as beetles, crickets, radishes or lima beans.	