

DRAFT Proposed Revisions
Texas Essential Knowledge and Skills (TEKS)
Science, Kindergarten – Grade 2

Prepared by the State Board of Education Science TEKS Streamlining Committees

First Draft, September 2016

These draft proposed revisions reflect the changes to the science Texas Essential Knowledge and Skills (TEKS) that have been recommended by State Board of Education-appointed TEKS streamlining committees for **Kindergarten - Grade 2**. Proposed deletions are shown in red font with strikethroughs (~~deletions~~). Text proposed to be moved from its current student expectation is shown in purple font with strikethrough (~~moved text~~) and is shown in the proposed new location in purple font with underlines (new text location). Recommendations to clarify language are shown in blue font with underlines (clarifying language).

Comments in the right-hand column provide explanations for the proposed changes. The following notations were used as part of the explanations:

- CRS**—information added or changed to align with the Texas College and Career Readiness Standards (CCRS)
- ER**—information added, changed, or deleted based on expert reviewer feedback
- MV**—multiple viewpoints from within the committee
- VA**—information added, changed, or deleted to increase vertical alignment

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§112.11. Science, Kindergarten, Beginning with School Year 2010-2011.

TEKS with edits		Committee Comments
(a)	Introduction.	
(1)	Science, as defined by the National Academy of Sciences, is the "use of evidence to construct testable explanations and predictions of natural phenomena, as well as the knowledge generated through this process."	
(2)	Recurring themes are pervasive in sciences, mathematics, and technology. These ideas transcend disciplinary boundaries and include patterns, cycles, systems, models, and change and constancy.	
(3)	The study of elementary science includes planning and safely implementing classroom and outdoor investigations using scientific processes, including inquiry methods, analyzing information, making informed decisions, and using tools to collect and record information, while addressing the major concepts and vocabulary, in the context of physical, earth, and life sciences. Districts are encouraged to facilitate classroom and outdoor investigations for at least 80% of instructional time.	
(4)	In Kindergarten, students observe and describe the natural world using their five senses. Students do science as inquiry in order to develop and enrich their abilities to understand scientific concepts and processes. Students develop vocabulary through their experiences investigating properties of common objects, earth materials, and organisms.	Consistency: 'Five' was removed to be consistent with changes made in the SEs.
(A)	A central theme throughout the study of scientific investigation and reasoning; matter and energy; force, motion, and energy; Earth and space; and organisms and environment is active engagement in asking questions, communicating ideas, and exploring with scientific tools. Scientific investigation and reasoning involves practicing safe procedures, asking questions about the natural world, and seeking answers to those questions through simple observations and descriptive investigations.	
(B)	Matter is described in terms of its physical properties, including relative size and mass , shape, color, and texture. The importance of light, heat, and sound energy is identified as it relates to the students' everyday life. The location and motion of objects are explored.	Mass was removed from the SE as it is not developmentally appropriate. See comments for K(5)(A)
(C)	Weather is recorded and discussed on a daily basis so students may begin to recognize patterns in the weather. Other patterns are observed in the appearance of objects in the sky.	
(D)	In life science, students recognize the interdependence of organisms in the natural world. They understand that all organisms have basic needs that can be satisfied through interactions with living and nonliving things. Students will investigate the life cycle of plants and identify likenesses between parents and offspring.	

(b)	Knowledge and skills.	
(1)	Scientific investigation and reasoning. The student conducts classroom and outdoor investigations following home and school safety procedures and uses environmentally appropriate and responsible practices. The student is expected to:	
(A)	identify and demonstrate safe practices as described in the Texas Safety Standards during classroom and outdoor investigations, including wearing safety goggles, washing hands, and using materials appropriately;	
(B)	discuss the importance of safe practices to keep self and others safe and healthy; and	
(C)	demonstrate how to use, conserve, and dispose of natural resources and materials such as conserving water and reusing or recycling paper, plastic, and metal.	
(2)	Scientific investigation and reasoning. The student develops abilities to ask questions and seek answers in classroom and outdoor investigations. The student is expected to:	
(A)	ask questions about organisms, objects, and events observed in the natural world;	
(B)	plan and conduct simple descriptive investigations such as ways objects move;	Clarification: too narrow / limited scope, need to broaden to support all SEs
(C)	collect data and make observations using simple equipment such as hand lenses, primary balances, and non-standard measurement tools;	
(D)	record and organize data and observations using pictures, numbers, and words; and	
(E)	communicate observations with others about simple descriptive investigations.	Redundant: 'With others' is not needed
(3)	Scientific investigation and reasoning. The student knows that information and critical thinking are used in scientific problem solving. The student is expected to:	
(A)	identify and explain a problem such as the impact of littering on the playground and propose a solution in his/her own words;	Clarification: 'On the playground' is limiting language, needs to be broader for all SEs; 'In his/her own words' is redundant Survey Recommended
(B)	make predictions based on observable patterns in nature such as the shapes of leaves; and	Clarification: too narrow, process standards need to be broad to cover all SEs
(C)	explore that scientists investigate different things in the natural world and use tools to help in their investigations.	

(4)	Scientific investigation and reasoning. The student uses age-appropriate tools and models to investigate the natural world. The student is expected to:	
(A)	collect information using tools, including computers, hand lenses, primary balances, cups, bowls, magnets, collecting nets, and notebooks; timing devices, including clocks and timers ; non-standard measuring items such as paper clips and clothespins ; weather instruments such as demonstration thermometers and wind socks ; and materials to support observations of habitats of organisms such as terrariums and aquariums; and	Clarification: clocks and timers are redundant; examples for non-standard measuring items not needed; wind socks needed in 1 st grade not kindergarten Survey recommended to remove windsocks.
(B)	use senses as a tool of observation to identify properties and patterns of organisms, objects, and events in the environment.	
(5)	Matter and energy. The student knows that objects have properties and patterns. The student is expected to:	
(A)	observe and record properties of objects, including relative size and mass , such as bigger or smaller, heavier or lighter shape, color, and texture; and	Clarification: 'Mass' is not developmentally appropriate; moved to third grade.
(B)	observe, record, and discuss how materials can be changed by heating or cooling.	
(6)	Force, motion, and energy. The student knows that energy, force, and motion are related and are a part of their everyday life. The student is expected to:	
(A)	use the five senses to explore different forms of energy such as light, heat, and sound;	Clarification: students do not need to taste forms of energy
(B)	explore interactions between magnets and various materials;	
(C)	observe and describe the location of an object in relation to another such as above, below, behind, in front of, and beside; and	
(D)	observe and describe 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.	
(7)	Earth and space. The student knows that the natural world includes earth materials. The student is expected to:	
(A)	observe, describe, and compare , and sort rocks by size, shape, color, and texture;	Clarification: moved to 2 nd grade to create a progression of higher rigor. This will not affect current instructional resources. Survey recommended this change.
(B)	observe and describe physical properties of natural sources of water, including color and clarity; and	
(C)	give examples of ways rocks, soil, and water are useful.	

(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:	
(A)	observe and describe weather changes from day to day and over seasons;	
(B)	identify events that have repeating patterns, including seasons of the year and day and night; and	
(C)	observe, describe, and illustrate objects in the sky such as the clouds, Moon, and stars, including the Sun.	
(9)	Organisms and environments. The student knows that plants and animals have basic needs and depend on the living and nonliving things around them for survival. The student is expected to:	
(A)	differentiate between living (including once living) and nonliving things based upon whether they have basic needs and produce offspring; and	Clarification: to reduce misconceptions between alive/dead vs. living/non-living Survey recommended a clarification
(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.	
(10)	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:	
(A)	sort plants and animals into groups based on physical characteristics such as color, size, body covering, or leaf shape;	
(B)	identify parts of plants such as roots, stem, and leaves and parts of animals such as head, eyes, and limbs ;	Multiple Viewpoints: discussion about keeping the ‘such as roots, stem, and leaves’ statement; one view is that the examples are not needed and implied in the SE; another view is that it maintains focus on the basics and provides direction for the teacher. The majority of the committee agreed to strike through the ‘such as’ statement. The strike through of the ‘such as’ statement for animals was agreed upon by the whole committee because it is not needed for clarification.
(C)	identify ways that young plants resemble the parent plant; and	
(D)	observe changes that are part of a simple life cycle of a plant: seed, seedling, plant, flower, and fruit.	

§112.12. Science, Grade 1, Beginning with School Year 2010-2011.

TEKS with edits		Committee Comments
(a)	Introduction.	
(1)	Science, as defined by the National Academy of Sciences, is the "use of evidence to construct testable explanations and predictions of natural phenomena, as well as the knowledge generated through this process."	
(2)	Recurring themes are pervasive in sciences, mathematics, and technology. These ideas transcend disciplinary boundaries and include patterns, cycles, systems, models, and change and constancy.	
(3)	The study of elementary science includes planning and safely implementing classroom and outdoor investigations using scientific processes, including inquiry methods, analyzing information, making informed decisions, and using tools to collect and record information, while addressing the major concepts and vocabulary, in the context of physical, earth, and life sciences. Districts are encouraged to facilitate classroom and outdoor investigations for at least 80% of instructional time.	
(4)	In Grade 1, students observe and describe the natural world using their five senses. Students do science as inquiry in order to develop and enrich their abilities to understand the world around them in the context of scientific concepts and processes. Students develop vocabulary through their experiences investigating properties of common objects, earth materials, and organisms.	Consistency: 'Five' was removed to be consistent with changes made in the SEs.
(A)	A central theme in first grade science is active engagement in asking questions, communicating ideas, and exploring with scientific tools in order to explain scientific concepts and processes like scientific investigation and reasoning; matter and energy; force, motion, and energy; Earth and space; and organisms and environment. Scientific investigation and reasoning involves practicing safe procedures, asking questions about the natural world, and seeking answers to those questions through simple observations and descriptive investigations.	
(B)	Matter is described in terms of its physical properties, including relative size and mass , shape, color, and texture. The importance of light, heat, and sound energy is identified as it relates to the students' everyday life. The location and motion of objects are explored.	Mass was removed from the SE as it is not developmentally appropriate. See comments for 1(5)(A)
(C)	Weather is recorded and discussed on a daily basis so students may begin to recognize patterns in the weather. In addition, patterns are observed in the appearance of objects in the sky.	
(D)	In life science, students recognize the interdependence of organisms in the natural world. They understand that all organisms have basic needs that can be satisfied through interactions with living and nonliving things. Students will investigate life cycles of animals and identify likenesses between parents and offspring.	

(b)	Knowledge and skills.	
(1)	Scientific investigation and reasoning. The student conducts classroom and outdoor investigations following home and school safety procedures and uses environmentally appropriate and responsible practices. The student is expected to:	
(A)	recognize and demonstrate safe practices as described in the Texas Safety Standards during classroom and outdoor investigations, including wearing safety goggles, washing hands, and using materials appropriately;	
(B)	recognize the importance of safe practices to keep self and others safe and healthy; and	
(C)	identify and learn how to use natural resources and materials, including conservation and reuse or recycling of paper, plastic, and metals.	
(2)	Scientific investigation and reasoning. The student develops abilities to ask questions and seek answers in classroom and outdoor investigations. The student is expected to:	
(A)	ask questions about organisms, objects, and events observed in the natural world;	
(B)	plan and conduct simple descriptive investigations such as ways objects move;	Clarification: too narrow / limited scope, need to broaden to support all SEs
(C)	collect data and make observations using simple equipment such as hand lenses, primary balances, and non-standard measurement tools;	
(D)	record and organize data using pictures, numbers, and words; and	
(E)	communicate observations and provide reasons for explanations using student-generated data from simple descriptive investigations.	
(3)	Scientific investigation and reasoning. The student knows that information and critical thinking are used in scientific problem solving. The student is expected to:	
(A)	identify and explain a problem such as finding a home for a classroom pet and propose a solution in his/her own words;	Clarification: limiting language – needs to be broad to cover all SEs / redundant language within this SE (in his/her own words)
(B)	make predictions based on observable patterns; and	
(C)	describe what scientists do.	
(4)	Scientific investigation and reasoning. The student uses age-appropriate tools and models to investigate the natural world. The student is expected to:	

(A)	collect, record, and compare information using tools, including computers, hand lenses, primary balances, cups, bowls, magnets, collecting nets, notebooks, and safety goggles; timing devices, including clocks and timers ; non-standard measuring items such as paper clips and clothespins ; weather instruments such as classroom -demonstration thermometers and wind socks; and materials to support observations of habitats of organisms such as aquariums and terrariums; and	Clarification: clocks and timers are redundant; examples for non-standard measuring items not needed
(B)	measure and compare organisms and objects using non-standard units.	
(5)	Matter and energy. The student knows that objects have properties and patterns. The student is expected to:	
(A)	classify objects by <u>the materials from which they are made</u> and observable properties of the materials from which they are made such as larger and smaller, heavier and lighter, shape, color, and texture; and	Clarification: clarifying intention by distinguishing between classification of materials and observable properties of those materials Survey Supported
(B)	predict and identify changes in materials caused by heating and cooling. such as ice melting, water freezing, and water evaporating.	Clarification: not developmentally appropriate; implies water cycle which is introduced in 4 th grade Survey Supported
(6)	Force, motion, and energy. The student knows that force, motion, and energy are related and are a part of everyday life. The student is expected to:	
(A)	identify and discuss how different forms of energy such as light, heat, and sound are important to everyday life;	
(B)	predict and describe how a magnet can be used to push or pull an object; <u>and</u>	
(C)	describe the change in the location of an object such as closer to, nearer to, and farther from; <u>and</u>	Duplicate: K(6)(C) Survey comments align with the committee's recommendation to strike through this expectation.
(D)	demonstrate and record the ways that objects can move such as in a straight line, zig zag, up and down, back and forth, round and round, and fast and slow.	Duplicate: redundant with a kindergarten SE K(6)(C)(D)
(7)	Earth and space. The student knows that the natural world includes rocks, soil, and water that can be observed in cycles, patterns, and systems. The student is expected to:	
(A)	observe, compare, describe, and sort components of soil by size, texture, and color;	
(B)	identify and describe a variety of natural sources of water, including streams, lakes, and oceans; and	

(C)	gather evidence of how rocks, soil, and water help <u>are used</u> to make useful products.	Clarification: the changes made by the committee clarify the progression from how resources are useful K(7)(C) to how the resources are made into products.
(8)	Earth and space. The student knows that the natural world includes the air around us and objects in the sky. The student is expected to:	
(A)	record weather information, including relative temperature, such as hot or cold, clear or cloudy, calm or windy, and rainy or icy;	
(B)	observe and record changes in the appearance of objects in the sky such as clouds , the Moon, and stars, including the Sun;	Duplicate: 'cloudy' already in previous SE 1(8)(A)
(C)	identify characteristics of the seasons of the year and day and night; and	
(D)	demonstrate that air is all around us and observe that wind is moving air.	
(9)	Organisms and environments. The student knows that the living environment is composed of relationships between organisms and the life cycles that occur. The student is expected to:	
(A)	sort and classify living (<u>including once living</u>) and nonliving things based upon whether or not they have basic needs and produce offspring;	Clarification: to reduce misconceptions between alive/dead vs. living/non-living Survey Recommended a clarification
(B)	analyze and record examples of interdependence found in various situations such as terrariums and aquariums or pet and caregiver; and	
(C)	gather evidence of interdependence among living organisms such as energy transfer through food chains and animals using plants for shelter.	
(10)	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:	
(A)	investigate how the external characteristics of an animal are related to where it lives, how it moves, and what it eats;	
(B)	identify and compare the parts of plants;	
(C)	compare ways that young animals resemble their parents; and	
(D)	observe and record life cycles of animals such as a chicken, frog, or fish.	

§112.13. Science, Grade 2, Beginning with School Year 2010-2011.

TEKS with edits		Committee Comments
(a)	Introduction.	
(1)	Science, as defined by the National Academy of Sciences, is the "use of evidence to construct testable explanations and predictions of natural phenomena, as well as the knowledge generated through this process."	
(2)	Recurring themes are pervasive in sciences, mathematics, and technology. These ideas transcend disciplinary boundaries and include patterns, cycles, systems, models, and change and constancy.	
(3)	The study of elementary science includes planning and safely implementing classroom and outdoor investigations using scientific processes, including inquiry methods, analyzing information, making informed decisions, and using tools to collect and record information, while addressing the major concepts and vocabulary, in the context of physical, earth, and life sciences. Districts are encouraged to facilitate classroom and outdoor investigations for at least 60% of instructional time.	
(4)	In Grade 2, careful observation and investigation are used to learn about the natural world and reveal patterns, changes, and cycles. Students should understand that certain types of questions can be answered by using observation and investigations and that the information gathered in these may change as new observations are made. As students participate in investigation, they develop the skills necessary to do science as well as develop new science concepts.	
(A)	<u>A central theme throughout the study of scientific investigation and reasoning; matter and energy; force, motion, and energy; Earth and space; and organisms and environment is active engagement in asking questions, communicating ideas, and exploring with scientific tools. Scientific investigation and reasoning involves practicing safe procedures, asking questions about the natural world, and seeking answers to those questions through simple observations and descriptive investigations.</u>	Clarification: Addition of this paragraph makes the introduction consistent with kindergarten and first grade.
(A) (B)	Within the physical environment, students expand their understanding of the properties of objects such as shape, mass, temperature, and flexibility then use those properties to compare, classify, and then combine the objects to do something that they could not do before. Students manipulate objects to demonstrate a change in motion and position.	Mass was removed from the SE as it is not developmentally appropriate. See comments for 2(5)(A)
(B) (C)	Within the natural environment, students will observe the properties of earth materials as well as predictable patterns that occur on Earth and in the sky. The students understand that those patterns are used to make choices in clothing, activities, and transportation.	

(E)(D)	Within the living environment, students explore patterns, systems, and cycles by investigating characteristics of organisms, life cycles, and interactions among all the components within their habitat. Students examine how living organisms depend on each other and on their environment.	
(b)	Knowledge and skills.	
(1)	Scientific investigation and reasoning. The student conducts classroom and outdoor investigations following home and school safety procedures. The student is expected to:	
(A)	identify and demonstrate safe practices as described in the Texas Safety Standards during classroom and outdoor investigations, including wearing safety goggles, washing hands, and using materials appropriately;	
(B)	describe the importance of safe practices; and	
(C)	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.	
(2)	Scientific investigation and reasoning. The student develops abilities necessary to do scientific inquiry in classroom and outdoor investigations. The student is expected to:	
(A)	ask questions about organisms, objects, and events during observations and investigations;	
(B)	plan and conduct descriptive investigations such as how organisms grow;	Clarification: too narrow / limited scope, need to broaden to support all SEs
(C)	collect data from observations using simple equipment such as hand lenses, primary balances, thermometers, and non-standard measurement tools;	Clarification: too limiting, 2 nd grade math requires standard measurements, need cross-curricular consistency
(D)	record and organize data using pictures, numbers, and words;	
(E)	communicate observations and justify explanations using student-generated data from simple descriptive investigations; and	
(F)	compare results of investigations with what students and scientists know about the world.	
(3)	Scientific investigation and reasoning. The student knows that information and critical thinking, scientific problem solving, and the contributions of scientists are used in making decisions. The student is expected to:	
(A)	identify and explain a problem in his/her own words and propose a task and solution for the problem such as lack of water in a habitat;	Clarification: limiting language – needs to be broad to cover all SEs / redundant language within this SE (in his/her own words)
(B)	make predictions based on observable patterns; and	
(C)	identify what a scientist is and explore what different scientists do.	

(4)	Scientific investigation and reasoning. The student uses age-appropriate tools and models to investigate the natural world. The student is expected to:	
(A)	collect, record, and compare information using tools, including computers, hand lenses, rulers, primary balances, plastic beakers, magnets, collecting nets, notebooks, and safety goggles; timing devices, including clocks and stopwatches ; weather instruments such as thermometers, wind vanes, and rain gauges; and materials to support observations of habitats of organisms such as terrariums and aquariums; and	Restrictive/Redundant: clocks and stopwatches are timing devices
(B)	measure and compare organisms and objects using non-standard units that approximate metric units.	Clarification: limiting language, in 2 nd grade math, students are transitioning from using non-standard to standard units of measure
(5)	Matter and energy. 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:	
(A)	classify matter by physical properties, including shape, relative mass , relative temperature, texture, flexibility, and whether material is a solid or liquid;	Duplicate: 'Shape' characteristic taught extensively in K & 1. Clarification: 'relative mass' not developmentally appropriate
(B)	compare changes in materials caused by heating and cooling;	
(C)	demonstrate that things can be done to materials to change their physical properties such as cutting, folding, sanding, and melting; and	
(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.	
(6)	Force, motion, and energy. The student knows that forces cause change and energy exists in many forms. The student is expected to:	
(A)	investigate the effects on an objects by increasing or decreasing amounts of light, heat, and sound energy such as how the color of an object appears different in dimmer light or how heat melts butter;	Clarification: 'An' limits the meaning of the SE to a single object
(B)	observe and identify how magnets are used in everyday life; <u>and</u>	
(C)	trace <u>and compare patterns of movement of objects</u> the changes in the position of an object over time such as a cup rolling on the floor and a car rolling down a ramp; and <u>such as sliding, rolling, and spinning.</u>	Clarification: combined SEs C and D to clarify the language.
(D)	compare patterns of movement of objects such as sliding, rolling, and spinning.	

(7)	Earth and space. The student knows that the natural world includes earth materials. The student is expected to:	
(A)	observe, describe, and compare rocks by size, texture, and color;	Clarification: VA Information moved from kindergarten to increase vertical alignment and increases rigor from kindergarten to provide a learning progression. This will not impact current instructional resources. Survey Supported
(B)	identify and compare the properties of natural sources of freshwater and saltwater; and	
(C)	distinguish between natural and manmade resources.	The committee and survey responses believe a change is necessary but is outside the directive of this Streamlining Committee and has current instructional resource implications.
(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:	
(A)	measure, record, and graph weather information, including temperature, wind conditions, precipitation, and cloud coverage, in order to identify patterns in the data;	
(B)	identify the importance of weather and seasonal information to make choices in clothing, activities, and transportation; and	
(C)	explore the processes in the water cycle, including evaporation, condensation, and precipitation, as connected to weather conditions; and	Clarification: water cycle processes (evaporation and condensation) are not developmentally appropriate – gases are not introduced until 3 rd grade Strongly Supported by Survey
(D)	observe, describe, and record patterns of objects in the sky, including the appearance of the Moon.	
(9)	Organisms and environments. The student knows that living organisms have basic needs that must be met for them to survive within their environment. The student is expected to:	
(A)	identify the basic needs of plants and animals;	The committee and survey responses believe a change is necessary but is outside the directive of this Streamlining Committee and has current instructional resource implications.
(B)	identify factors in the environment, including temperature and precipitation, that affect growth and behavior such as migration, hibernation, and dormancy of living things; and	

(C)	compare and give examples of the ways living organisms depend on each other and on their environments such as food chains within a garden, park, beach, lake, and wooded area.	Clarification: redundant, excessive “such as” examples
(10)	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:	
(A)	observe, record, and compare how the physical characteristics and behaviors of animals help them meet their basic needs such as fins help fish move and balance in the water;	Clarification: this “such as” may confine the purpose of the SE
(B)	observe, record, and compare how the physical characteristics of plants help them meet their basic needs such as stems carry water throughout the plant; and	
(C)	investigate and record some of the unique stages that insects undergo during their life cycle <u>such as grasshoppers and butterflies.</u>	Clarification: this addition clarifies the scope of this SE and vertically aligns it with K-5

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