

DRAFT Proposed Revisions
Texas Essential Knowledge and Skills (TEKS)
Science, Grade 3 – Grade 5

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 **Grade 3 - Grade 5**. 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

GRADE 3 - GRADE 5, SCIENCE DRAFT RECOMMENDATIONS TABLE OF CONTENTS

Grade 3	pages 2 - 6
Grade 4	pages 7 - 12
Grade 5	pages 13 - 18

§112.14. Science, Grade 3, 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 methods, analyzing information, making informed decisions, and using tools to collect and record information while addressing the content and vocabulary in physical, earth, and life sciences. Districts are encouraged to facilitate classroom and outdoor investigations for at least 60% of instructional time.	
(4)	In Grade 3, students learn that the study of science uses appropriate tools and safe practices in planning and implementing investigations, asking and answering questions, collecting data by observing and measuring, and by using models to support scientific inquiry about the natural world.	
(A)	Students recognize that patterns, relationships, and cycles exist in matter. Students will investigate the physical properties of matter and will learn that changes occur. They explore mixtures and investigate light, sound, and heat/thermal energy in everyday life. Students manipulate objects by pushing and pulling to demonstrate changes in motion and position.	
(B)	Students investigate how the surface of Earth changes and provides resources that humans use. As students explore objects in the sky, they describe how relationships affect patterns and cycles on Earth. Students will construct models to demonstrate Sun, Earth, and Moon system relationships and will describe the Sun's role in the water cycle.	Duplicate – Different Grade level = Water cycle in 4 th and 5 th grade, misconception that the Sun's only role is for light and heat of the water cycle Survey = Survey responses supports deleting water cycle from 3(8)(B)
(C)	Students explore patterns, systems, and cycles within environments by investigating characteristics of organisms, life cycles, and interactions among all components of the natural environment. Students examine how the environment plays a key role in survival. Students know that when changes in the environment occur organisms may thrive, become ill, or perish.	

(b)	Knowledge and skills.	
(1)	Scientific investigation and reasoning. The student conducts classroom and outdoor investigations following school and home safety procedures and environmentally appropriate practices. The student is expected to:	
(A)	demonstrate safe practices as described in the Texas Safety Standards during classroom and outdoor investigations, including observing a schoolyard habitat ; and	VA = Vertically alignment grades 3-8 Not needed = unnecessary example
(B)	make informed choices in the use and conservation of natural resources by recycling or reusing materials such as paper, aluminum cans, and plastics.	
(2)	Scientific investigation and reasoning. The student uses scientific inquiry methods during laboratory and outdoor investigations. The student is expected to:	
(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;	
(B)	collect <u>and record</u> data by observing and measuring using the metric system and recognize differences between observed and measured data;	Clarification = for vertical alignment with 4 th grade 4(2)(B). Correcting a vertical alignment error between 3 rd and 4 th grade. Not able to do TEKS 3(2)(C-F) without recording data.
(C)	construct maps, graphic organizers, simple tables, charts, and bar graphs using tools and current technology to organize, examine, and evaluate measured data;	
(D)	analyze and interpret patterns in data to construct reasonable explanations based on evidence from investigations;	
(E)	demonstrate that repeated investigations may increase the reliability of results; and	
(F)	communicate valid conclusions supported by data in writing, by drawing pictures, and through verbal discussion.	
(3)	Scientific investigation and reasoning. The student knows that information, critical thinking, scientific problem solving, and the contributions of scientists are used in making decisions. The student is expected to:	
(A)	in all fields of science , analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student ;	VA = To be consistent with middle school and high school. Difficult to examine all sides of scientific evidence.

(B)	draw inferences and evaluate accuracy of product claims found in advertisements and labels such as for toys and food;	Not needed = unrelated to content for grade level, Duplicate – Same Grade = Skills are duplicated in 3(3)(A) Duplicate – Same Grade = Skills are duplicated in Language Arts 3(17)(C) and Social Studies 3(21)(B) Survey = Survey responses support deleting 3(3)(B)
(C)	represent the natural world using models such as volcanoes or Sun, Earth, and Moon system and identify their limitations, including size, properties, and materials; and	
(D)	connect grade-level appropriate science concepts with the history of science, science careers, and contributions of scientists.	
(4)	Scientific investigation and reasoning. The student knows how to use a variety of tools and methods to conduct science inquiry. The student is expected to:	
(A)	collect, record, and analyze information using tools, including microscopes, cameras, computers, hand lenses, metric rulers, Celsius thermometers, wind vanes, rain gauges, pan balances, graduated cylinders, beakers, spring scales, hot plates, meter sticks, compasses, magnets, collecting nets, notebooks, sound recorders, and Sun, Earth, and Moon system models; timing devices, including clocks and stopwatches; and materials to support observation of habitats of organisms such as terrariums and aquariums; and	Not needed = Sound recorders – not needed Not needed = allows latitude to select correct timing device for investigation and age. MV = Lack of funding to support microscopes in elementary classrooms, lack of standards that drives the use of microscopes
(B)	use safety equipment as appropriate, including safety goggles and gloves.	
(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:	
(A)	measure, test, and record physical properties of matter, including temperature, mass, magnetism, and the ability to sink or float;	
(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;	
(C)	predict, observe, and record changes in the state of matter caused by heating or cooling; and	
(D)	explore and recognize that a mixture is created when two materials are combined such as gravel and sand and metal and plastic paper clips.	

(6)	Force, motion, and energy. The student knows that forces cause change and that energy exists in many forms. The student is expected to:	
(A)	explore different forms of energy, including mechanical, light, sound, and heat/thermal in everyday life;	
(B)	demonstrate and observe how position and motion can be changed by pushing and pulling objects to show work being done such as swings, balls, pulleys, and wagons; and	VA = Aligns with new proposed deletion of work from TEKS 7(7)(A). Survey = Survey responses support deleting work from 3(6)(B)
(C)	observe forces such as magnetism and gravity acting on objects.	
(7)	Earth and space. The student knows that Earth consists of natural resources and its surface is constantly changing. The student is expected to:	
(A)	explore and record how soils are formed by weathering of rock and the decomposition of plant and animal remains;	
(B)	investigate rapid changes in Earth's surface such as volcanic eruptions, earthquakes, and landslides; <u>and</u>	
(C)	identify and compare different landforms, including mountains, hills, valleys, and plains; and	Duplicate – Same Grade level different content. Does not align to Knowledge and Skills statement. Survey = Survey responses supports deleting 3(7)(C)
(D)	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.	
(8)	Earth and space. The student knows there are recognizable patterns in the natural world and among objects in the sky. The student is expected to:	
(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;	
(B)	describe and illustrate the Sun as a star composed of gases that provides light and heat energy for the water cycle;	Duplicate – Different Grade level = Water cycle in 4 th and 5 th grade, misconception that the Sun's only role is for light and heat of the water cycle Survey = Survey responses supports deleting water cycle from 3(8)(B)
(C)	construct models that demonstrate the relationship of the Sun, Earth, and Moon, including orbits and positions; and	

(D)	identify the planets in Earth's solar system and their position in relation to the Sun.	
(9)	Organisms and environments. The student knows that organisms have characteristics that help them survive and can describe patterns, cycles, systems, and relationships within the environments. The student is expected to:	VA = None of the SE matched original KS statement. New KS statement vertically aligns 3-5 and matches SE's.
(A)	observe and describe the physical characteristics of environments and how they support populations and communities <u>of plants and animals</u> within an ecosystem;	Clarification = Addition makes the SE more clear and prevents misconception that plants do not have populations or communities.
(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; and	
(C)	describe environmental changes such as floods and droughts where some organisms thrive and others perish or move to new locations.	
(10)	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:	
(A)	explore how structures and functions of plants and animals allow them to survive in a particular environment;	
(B)	explore that some characteristics of organisms are inherited such as the number of limbs on an animal or flower color and recognize that some behaviors are learned in response to living in a certain environment such as animals using tools to get food; and	Duplicate – Different Grade = Duplicate with 4 th grade 4(10)(B) and 5(10)(B). Removal allows students more time for mastery of structure and function of plants and animals
(C)	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 bugs.	

§112.15. Science, Grade 4, 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 50% of instructional time.	
(4)	In Grade 4, investigations are used to learn about the natural world. Students should understand that certain types of questions can be answered by investigations and that methods, models, and conclusions built from these investigations change as new observations are made. Models of objects and events are tools for understanding the natural world and can show how systems work. They have limitations and based on new discoveries are constantly being modified to more closely reflect the natural world.	
(A)	Within the natural environment, students know that earth materials have properties that are constantly changing due to Earth's forces. The students learn that the natural world consists of resources, including renewable and nonrenewable, and their responsibility to conserve our natural resources for future generations. They will also explore Sun, Earth, and Moon relationships. The students will recognize that our major source of energy is the Sun.	
(B)	Within the living environment, students know and understand that living organisms within an ecosystem interact with one another and with their environment. The students will recognize that plants and animals have basic needs, and they are met through a flow of energy known as food webs. Students will explore how all living organisms go through a life cycle and <u>have structures</u> that adaptations enable organisms to survive in their ecosystem.	Clarification = Better aligned SE's grades 3-5. Wording is clearer and shares common language making it vertically aligned. Streamlining the content to improve instructional efficiency. Provides a focused instructional approach for teachers without increasing the need for new instructional materials.

(b)	Knowledge and skills.	
(1)	Scientific investigation and reasoning. The student conducts classroom and outdoor investigations, following home and school safety procedures and environmentally appropriate and ethical practices. The student is expected to:	
(A)	demonstrate safe practices and the use of safety equipment as described in the Texas Safety Standards during classroom and outdoor investigations; and	
(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.	
(2)	Scientific investigation and reasoning. The student uses scientific inquiry methods during laboratory and outdoor investigations. The student is expected to:	
(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;	
(B)	collect and record data by observing and measuring, using the metric system, and using descriptive words and numerals such as labeled drawings, writing, and concept maps;	
(C)	construct simple tables, charts, bar graphs, and maps using tools and current technology to organize, examine, and evaluate data;	
(D)	analyze data and interpret patterns to construct reasonable explanations from data that can be observed and measured;	
(E)	perform repeated investigations to increase the reliability of results; and	
(F)	communicate valid, oral, and written results supported by data.	
(3)	Scientific investigation and reasoning. The student uses critical thinking and scientific problem solving to make informed decisions. The student is expected to:	
(A)	in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student;	VA = To be consistent with middle school and high school. Difficult to examine all sides of scientific evidence.
(B)	draw inferences and evaluate accuracy of services and product claims found in advertisements and labels such as for toys, food, and sunscreen;	Not needed = unrelated to content, Duplicate – Same Grade = same skill repeated in Language Arts 4(14)(A&B) and Social Studies TEKS Duplicate – Same Grade = Same skills found in 4(3)(A) Survey = Survey responses supports deleting TEKS 4(3)(B)

(C)	represent the natural world using models such as <u>water cycle and</u> stream tables, rivers or fossils and identify their limitations, including accuracy and size; and	Not needed = example is unrelated to content for grade level, Clarification = new examples alignment with content for grade level Survey = Survey responses supports clarification of TEKS 4(3)(C) and removal of rivers or fossils.
(D)	connect grade-level appropriate science concepts with the history of science, science careers, and contributions of scientists.	
(4)	Scientific investigation and reasoning. The student knows how to use a variety of tools, materials, equipment, and models to conduct science inquiry. The student is expected to:	
(A)	collect, record, and analyze information using tools, including calculators, microscopes, cameras, computers, hand lenses, metric rulers, Celsius thermometers, mirrors, spring scales, pan balances, triple beam balances, graduated cylinders, beakers, hot plates, meter sticks, compasses , magnets, collecting nets, and notebooks; timing devices, including clocks and stopwatches ; and materials to support observation of habitats of organisms such as terrariums and aquariums; and	Not needed = allows latitude to select correct timing device for investigation and age. Not needed = No standards drive the need for compasses MV = Lack of funding to support microscopes in elementary classrooms, lack of standards that drives the use of microscopes
(B)	use safety equipment as appropriate, including safety goggles and gloves.	
(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:	
(A)	measure, compare, and contrast physical properties of matter, including size , mass, volume, states (solid, liquid, gas), temperature, magnetism, and the ability to sink or float; <u>and</u>	Duplicate – Different Grade = K-2 discuss the physical property of size in K(5)A, 1(5)A, 2(5)A.
(B)	predict the changes caused by heating and cooling such as ice becoming liquid water and condensation forming on the outside of a glass of ice water; and	Duplicate – Different Grade = Third grade 3(5)(C). Duplicate – Same Grade = Occurs when discussing water cycle
(C)	compare and contrast a variety of mixtures, <u>and including</u> solutions such as rocks in sand, sand in water, or sugar in water.	Clarification = Clarification prevents misconception that solutions are not mixtures. Not needed = Unnecessary examples

(6)	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:	
(A)	differentiate among forms of energy, including mechanical, sound, electrical, light, and heat /thermal;	VA = Thermal is used in 5 th grade. Vertical progression from 3 rd grade heat/thermal to thermal in 4 th and 5 th grade. Survey = Survey responses support changing heat/thermal to thermal for TEKS 4(6)(A)
(B)	differentiate between conductors and insulators <u>of thermal and electrical energy</u> ;	Clarification = Narrows the scope and makes the language of the TEKS more clear. Matches language of the grade level introduction. VA = 5 th grade ME and FME strand
(C)	demonstrate that electricity travels in a closed path, creating an electrical circuit, and explore an electromagnetic field ; and	Not needed = Not developmentally appropriate, above scope of 4 th grade knowledge
(D)	design a <u>descriptive investigation</u> experiment to <u>explore</u> test the effect of force on an object such as a push or a pull, gravity, friction, or magnetism.	Clarification = Aligned to the process TEKS 4(2)(A) for 4 th grade which requires a descriptive investigations in which students will explore a concept, not test. Survey = Survey responses support changing experiment to descriptive investigation for TEKS 4(6)(D)
(7)	Earth and space. The students know that Earth consists of useful resources and its surface is constantly changing. The student is expected to:	
(A)	examine properties of soils, including color and texture, capacity to retain water, and ability to support the growth of plants;	
(B)	observe and identify slow changes to Earth's surface caused by weathering, erosion, and deposition from water, wind, and ice; and	
(C)	identify and classify Earth's renewable resources, including air, plants, water, and animals; and nonrenewable resources, including coal, oil, and natural gas; and the importance of conservation.	
(8)	Earth and space. The student knows that there are recognizable patterns in the natural world and among the Sun, Earth, and Moon system. The student is expected to:	
(A)	measure and record changes in weather and make predictions using weather maps, weather symbols, and a map key ;	Not needed = Not developmentally appropriate Survey = Survey responses support deleting weather maps, symbols, and map keys from TEKS 4(8)(A)

(B)	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	
(C)	collect and analyze data to identify sequences and predict patterns of change in shadows, tides , seasons, and the observable appearance of the Moon over time.	Not needed = Tides is not developmentally appropriate, difficult to collect data and predict patterns in Texas. All remaining patterns of change are observable by a student everywhere in the state. Survey = Survey responses support deleting tides from 4(8)(C), multiple entries suggested removal of tides specifically from TEKS.
(9)	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:	
(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; and	
(B)	describe the flow of energy through food webs, beginning with the Sun, and predict how changes in the ecosystem affect the food web such as a fire in a forest.	Not needed = Unnecessary example, removal makes the language of the TEKS more clear and reduces misconceptions
(10)	Organisms and environments. The student knows that organisms undergo similar life processes and have structures that help them survive within their environment. The student is expected to:	
(A)	explore how adaptations enable organisms to survive in their environment such as comparing birds' beaks and leaves on plants;	Duplicate – Different Grade = 3(10)(A) Keeps consistent language with 3-5 grades. Removal allows students more time for mastery of inherited traits and learned behaviors Survey = Survey responses supports deleting TEKS 4(10)(A), sited duplicate in another grade.
(B)	explore and describe examples demonstrate that of some likenesses-traits between parents and offspring that are inherited from parents to offspring, passed from generation to generation such as eye color in humans and shapes of leaves, in plants. Other likenesses are and that some behaviors are learned such as table manners or reading a book and seals balancing balls on their noses <u>a lioness teaching her cub to hunt</u> ; and	Clarification = Better aligned SE's grades 3-5. Wording is clearer and shares common language making it vertically aligned. Streamlining the content to improve instructional efficiency. Provides a focused instructional approach for teachers without increasing the need for new instructional materials. Not needed = Unnecessary examples, seals balancing balls on their noses is a correct example of a learned behavior but may leads to the misconception that humans are the only one to teach animals behaviors. A lioness teaching her cub to hunt is a real world example of an animal learning a behavior from their parent.

(C)	explore, illustrate, and compare life cycles in living organisms such as butterflies , beetles, crickets , radishes, or lima beans.	Clarification = Butterfly is still a valid example, however, crickets undergo incomplete metamorphosis and are readily available, while beetles and butterflies both undergo complete metamorphosis. Allows exploration for a variety of life cycles. VA = Added butterflies and grasshoppers to second grade TEKS 2(10)(C)
-----	--	--

DRAFT

§112.16. Science, Grade 5, 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 50% of instructional time.	
(4)	In Grade 5, investigations are used to learn about the natural world. Students should understand that certain types of questions can be answered by investigations and that methods, models, and conclusions built from these investigations change as new observations are made. Models of objects and events are tools for understanding the natural world and can show how systems work. They have limitations and based on new discoveries are constantly being modified to more closely reflect the natural world.	
(A)	Within the physical environment, students learn about the physical properties of matter, including magnetism, physical states of matter, relative density, solubility in water, and the ability to conduct or insulate electrical and heat <u>thermal</u> energy. Students explore the uses of light, thermal, electrical, <u>mechanical</u> , and sound energies.	Clarification – 5 th grade TEKS refer to thermal and mechanical energy, not heat. 5(6)(A)
(B)	Within the natural environment, students learn how changes occur on Earth's surface and that predictable patterns occur in the sky. Students learn that the natural world consists of resources, including nonrenewable <u>and</u> renewable, and alternative energy sources .	Not needed – Duplicate of different grade (alternative energy sources) 6(7)(A).
(C)	Within the living environment, students learn that structure and function of organisms can improve the survival of members of a species. Students learn to differentiate between inherited traits and learned behaviors. Students learn that life cycles occur in animals and plants and that the carbon dioxide-oxygen cycle occurs naturally to support the living environment .	Not needed = not developmentally appropriate. Better addressed in 7 th grade. Survey = Survey responses support deleting TEKS 5(9)(D)

(b)	Knowledge and skills.	
(1)	Scientific investigation and reasoning. The student conducts classroom and outdoor investigations following home and school safety procedures and environmentally appropriate and ethical practices. The student is expected to:	
(A)	demonstrate safe practices and the use of safety equipment as described in the Texas Safety Standards during classroom and outdoor investigations; and	
(B)	make informed choices in the conservation, disposal, and recycling of materials.	
(2)	Scientific investigation and reasoning. The student uses scientific methods during laboratory and outdoor investigations. The student is expected to:	
(A)	describe, plan, and implement simple experimental investigations testing one variable;	
(B)	ask well-defined questions, formulate testable hypotheses, and select and use appropriate equipment and technology;	
(C)	collect <u>and record</u> information <u>by using</u> detailed observations and accurate measuring;	Clarification = for vertical alignment with 4 th grade 4(2)(B). Correcting a vertical alignment error between 4 th and 5 th grade. Not able to do TEKS 5(2)(D-G) without recording data.
(D)	analyze and interpret information to construct reasonable explanations from direct (observable) and indirect (inferred) evidence;	Clarification = Not developmentally appropriate Survey = Survey responses support deleting indirect evidence from TEKS 5(2)(D)
(E)	demonstrate that repeated investigations may increase the reliability of results;	
(F)	communicate valid conclusions in both written and verbal forms; and	
(G)	construct appropriate simple graphs, tables, maps, and charts using technology, including computers, to organize, examine, and evaluate information.	
(3)	Scientific investigation and reasoning. The student uses critical thinking and scientific problem solving to make informed decisions. The student is expected to:	
(A)	in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student;	VA = To be consistent with middle school and high school. Difficult to examine all sides of scientific evidence.

(B)	<p>evaluate the accuracy of the information related to promotional materials for products and services such as nutritional labels;</p>	<p>Not needed = unrelated to content for grade level</p> <p>Duplicate – Same Grade = Skill appears in Language Arts TEKS 5(14)(A-C) and Social Studies TEKS 5(24)(C)</p> <p>Duplicate – Same Grade = Skill appears in 5(3)(A)</p> <p>Survey = Survey responses support deleting TEKS 5(3)(B)</p>
(C)	<p>draw or develop a model that represents how something works or looks that cannot be seen such as the Sun, Earth, and Moon system and formation of sedimentary rock such as how a soda dispensing machine works; and</p>	<p>Not needed = example is unrelated to content for grade level,</p> <p>Clarification = new examples alignment with content for grade level, no impact on instructional materials as these models can be drawn by students</p> <p>Survey = Survey responses support deleting soda dispensing machine from TEKS 5(3)(C)</p>
(D)	<p>connect grade-level appropriate science concepts with the history of science, science careers, and contributions of scientists.</p>	
(4)	<p>Scientific investigation and reasoning. The student knows how to use a variety of tools and methods to conduct science inquiry. The student is expected to:</p>	
(A)	<p>collect, record, and analyze information using tools, including calculators, microscopes, cameras, computers, hand lenses, metric rulers, Celsius thermometers, prisms, mirrors, pan balances, triple beam balances, spring scales, graduated cylinders, beakers, hot plates, meter sticks, magnets, collecting nets, and notebooks; timing devices, including clocks and stopwatches; and materials to support observations of habitats or organisms such as terrariums and aquariums; and</p>	<p>Not needed = allows latitude to select correct timing device for investigation and age.</p> <p>MV = Lack of funding to support microscopes in elementary classrooms, lack of standards that drives the use of microscopes</p>
(B)	<p>use safety equipment, including safety goggles and gloves.</p>	
(5)	<p>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:</p>	

(A)	classify matter based on 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;	Clarification = Mass is measurable but cannot be classified. Mass is more authentic when discussed within the context of relative density, rather than by itself. Clarification = “in water as a reference point” reduces scope of SE, support CCR of density where water is used a reference point
(B)	identify the boiling and freezing/melting points of water on the Celsius scale;	Survey = Survey responses supports deleting TEKS 5(5)(B). VA = Process of adding and removing heat has been a concept since Kindergarten. This is a memorization of a fact and the knowledge is not required 6 th -8 th grades.
(C)	demonstrate that some mixtures maintain physical properties of their ingredients such as iron filings and sand; and or sand and water ; and	Clarification = To clarify that a mixture is both a solid/solid and solid/liquid. This will not have an impact on instructional materials.
(D)	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.	
(6)	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:	
(A)	explore the uses of energy, including mechanical, light, thermal, electrical, and sound energy;	
(B)	demonstrate that the flow of electricity in circuits requires a complete path through which an electric current can pass and can produce light, heat, and sound;	Duplicate – Different Grade = The concept of closed path appears in 4 th grade TEKS 4(6)(C).
(C)	demonstrate that light travels in a straight line until it strikes an object and is reflected or travels through one medium to another and demonstrate that light can be reflected such as the use of mirrors or other shiny surfaces and is refracted such as the appearance of an object when observed through water ; and	Clarification = unnecessary examples and rewording to clarify.
(D)	design an experiment investigation that tests the effect of force on an object.	Clarification = Aligns with 4 th grade wording, supports wording in process skills for 5 th grade 5(2)(A) – experimental investigations. Will not have an impact on instructional materials.

(7)	Earth and space. The student knows Earth's surface is constantly changing and consists of useful resources. The student is expected to:	
(A)	explore the processes that led to the formation of sedimentary rocks and fossil fuels; <u>and</u>	
(B)	recognize how landforms such as deltas, canyons, and sand dunes are the result of changes to Earth's surface by wind, water, and ice;	
(C)	identify alternative energy resources such as wind, solar, hydroelectric, geothermal, and biofuels; and	Duplicate – different grade – 6(7)(A) Students discuss and research the advantages and disadvantages of using coal, oil, natural gas, nuclear power, biomass, wind, hydropower, geothermal, and solar resources. 5 th grade TEKS is low level. Survey = Survey responses support deleting TEKS 5(7)(C).
(D)	identify fossils as evidence of past living organisms and the nature of the environments at the time using models.	Moved = Aligns with Organisms and Environments Strand
(8)	Earth and space. The student knows that there are recognizable patterns in the natural world and among the Sun, Earth, and Moon system. The student is expected to:	
(A)	differentiate between weather and climate;	
(B)	explain how the Sun and the ocean interact in the water cycle;	
(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; and	
(D)	identify and compare the physical characteristics of the Sun, Earth, and Moon.	
(9)	Organisms and environments. The student knows that there are relationships, systems, and cycles within environments. The student is expected to:	
(A)	identify fossils as evidence of past living organisms and the nature of the environments at the time using models;	Moved = Aligns with Organisms and Environments Strand. Focus of the SE is organisms and the nature of the environments.
(A)(B)	observe the way organisms live and survive in their ecosystem by interacting with the living <u>(includes once living)</u> and non-living elements;	Clarification = Clarification adds to the clarity of the TEKS and alleviates misconceptions (biotic/abiotic), alignment with Kindergarten and First Grade TEKS on living/nonliving

(B)(C)	describe how the flow of energy <u>within a food web, to include the role of</u> derived from the Sun, used by producers, to create their own food, is transferred through a food chain and food web to consumers, and decomposers; <u>and</u>	Clarification = Deleted food chain because duplicated with grades 1-3. Scope of the SE describes how the energy flows throughout the food web. Decomposers are about the cycling of matter, not the flow of energy within a food web/chain. Survey = Survey responses support defining/clarifying the role of decomposers in the food web from TEKS 5(9)(B).
(C)(D)	predict the effects of changes in ecosystems caused by living organisms, including humans, such as the overpopulation of grazers or the building of highways; and	
(D)(E)	identify the significance of the carbon dioxide-oxygen cycle to the survival of plants and animals.	Not needed = not developmentally appropriate. Better addressed in 7 th grade.
(10)	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:	
(A)	compare the structures and functions of different species that help them live and survive such as hooves on prairie animals or webbed feet in aquatic animals; <u>and</u>	
(B)	differentiate between inherited traits of plants and animals such as spines on a cactus or shape of a beak and learned behaviors such as an animal learning tricks or a child riding a bicycle; and	
(C)	describe the differences between complete and incomplete metamorphosis of insects.	Survey = Survey responses support deleting TEKS 5(10)(C). Not a building block for future middle school TEKS. Duplicate – different grade - This concept is redundant in grades 2-4, students are exposed the life cycle of insects.