§112.19. Science, Grade 7~~, Adopted 2017.~~		
TEKS with edits		Work Group Comments/Rationale
(b)	Introduction	
(1)	In Grades 6 – 8, content is organized into recurring strands. The concepts within each grade level build on prior knowledge and prepare students for the next grade level and establish a foundation for high school courses. In Grade 7, the following concepts will be addressed in each strand:	
(A)	Scientific and engineering practices. Scientific inquiry is the planned and deliberate investigation of the natural world using scientific and engineering practices. Scientific methods of investigation are descriptive, comparative, or experimental. The method chosen should be appropriate to the question being asked. Student learning for different types of investigations include descriptive investigations, which involve collecting data and recording observations without making comparisons; comparative investigations, which involve collecting data with variables that are manipulated to compare results; and experimental investigations, which involve processes similar to comparative investigations but in which a control is identified.	
(i)	Scientific practices. Students should be able to ask questions, plan and conduct investigations to answer questions, and explain phenomena using appropriate tools and models.	
(ii)	Engineering practices. Students should be able to identify problems and design solutions using appropriate tools and models.	
(B)	Matter and energy. Students have prior experience with elements in Grade 6 and will develop an understanding that compounds are also pure substances in Grade 7. Students will investigate the differences between elements and compounds through observations, descriptions of physical properties, and chemical reactions. Students will build upon their understanding of solutions by exploring aqueous solutions.	
(C)	Force, motion, and energy. Students will measure, calculate, graph, and investigate how forces impact linear motion. Students will build upon their understanding of the laws of motions by exploring Newton's First Law. Temperature is a measure of the average kinetic energy of molecules. Thermal energy is transferred by conduction, convection, or radiation in order to reach thermal equilibrium.	
(D)	Earth and space. Students will explore characteristics and organization of objects and the role of gravity within our solar system. Earth has a specific set of characteristics that allow life to exist. Students will further their understanding of the geosphere by illustrating how Earth's features change over time through tectonic movement. Students will investigate how humans depend on and affect the hydrosphere.	

(E)	Organisms and environments. Students will further their understanding of organ systems by identifying the main functions of the organs within the human body. During both sexual and asexual reproduction, traits are passed onto the next generation. Students will understand how traits in populations can change through the processes of natural and artificial selection. Students will analyze how energy flows through trophic levels and how biodiversity impacts an ecosystem's sustainability. Students will gain an understanding of the taxonomic classifications of organisms and how characteristics determine their classification.	
(2)	Nature of science. 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." This vast body of changing and increasing knowledge is described by physical, mathematical, and conceptual models. Students should know that some questions are outside the realm of science because they deal with phenomena that are not currently scientifically testable.	
(3)	Scientific hypotheses and theories. Students are expected to know that:	
(A)	hypotheses are tentative and testable statements that must be capable of being supported or not supported by observational evidence. Hypotheses of durable explanatory power that have been tested over a wide variety of conditions are incorporated into theories; and	
(B)	scientific theories are based on natural and physical phenomena and are capable of being tested by multiple independent researchers. Unlike hypotheses, scientific theories are well established and highly reliable explanations, but they may be subject to change as new areas of science and new technologies are developed.	
(4)	Science and social ethics. Scientific decision making is a way of answering questions about the natural world involving its own set of ethical standards about how the process of science should be carried out. Students should be able to distinguish between scientific decision-making practices and ethical and social decisions that involve science.	
(5)	Recurring themes and concepts. Science consists of recurring themes and making connections between overarching concepts. Recurring themes include structure and function, systems, models, and patterns. All systems have basic properties that can be described in space, time, energy, and matter. Stability and change occur in systems as patterns and can be observed, measured, and modeled. These patterns help to make predictions that can be scientifically tested, while models allow for boundary specification and provide a tool for understanding the ideas presented. Students should analyze a system in terms of its components and how these components relate to each other, to the whole, and to the external environment.	
(6)	Statements containing the word "including" reference content that must be mastered, while those containing the phrase "such as" are intended as possible illustrative examples.	

(b)	Knowledge and skills.	
(1)	Scientific and engineering practices. The student, for at least 40% of instructional time, asks questions, identifies problems, and plans and safely conducts classroom, laboratory, and field investigations to answer questions, explain phenomena, or design solutions using appropriate tools and models. The student is expected to:	A separate Scientific and Engineering Practices Work Group developed recommendations for revisions to the current process skills for K-12, which have been incorporated into the Work Group C recommendations chart.
(A)	ask questions and define problems based on observations or information from text, phenomena, models, or investigations;	
(B)	use scientific practices to plan and conduct descriptive, comparative, and experimental investigations and use engineering practices to design solutions to problems;	
(C)	use appropriate safety equipment and practices during laboratory, classroom, and field investigations as outlined in Texas Education Agency approved safety standards;	
(D)	use appropriate tools, such as graduated cylinders, metric rulers, periodic tables, balances, scales, thermometers, temperature probes, laboratory ware, timing devices, pH indicators, hot plates, models, microscopes, slides, life science models, petri dishes, dissecting kits, magnets, spring scales or force sensors, tools that model wave behavior, satellite images, and hand lenses;	Work Group C added appropriate scientific tools for Grade 7.
(E)	collect quantitative data using the International System of Units (SI) and qualitative data as evidence;	
(F)	construct appropriate tables, graphs, maps, and charts using repeated trials and means, to organize data;	
(G)	develop and use models to represent phenomena, systems, processes, or solutions to engineering problems; and	
(H)	distinguish between scientific hypotheses, theories, and laws	
(2)	Scientific and engineering practices. The student analyzes and interprets data to derive meaning, identify features and patterns, and discover relationships or correlations to develop evidence-based arguments or evaluate designs. The student is expected to:	
(A)	identify advantages and limitations of models such as their size, scale, properties, and materials;	
(B)	analyze data by identifying any significant descriptive statistical features, patterns, sources of error, or limitations;	
(C)	use mathematical calculations to assess quantitative relationships in data; and	

(D)	evaluate experimental and engineering designs.	**Multiple Viewpoints on Scientific and Engineering Practices SEs:** Add to 2.D, "evaluate experimental and engineering designs" *using multiple criteria, including cost-benefit analysis*.
(3)	Scientific and engineering practices. The student develops evidence-based explanations and communicates findings, conclusions, and proposed solutions.	
(A)	develop explanations and propose solutions supported by data and models and consistent with scientific ideas, principles, and theories;	
(B)	communicate explanations and solutions individually and collaboratively in a variety of settings and formats; and	
(C)	engage respectfully in scientific argumentation using applied scientific explanations and empirical evidence.	
(4)	Scientific and engineering practices. The students knows the contributions of scientists and recognizes the importance of scientific research and innovation on society. The student is expected to:	
(A)	relate the impact of past and current research on scientific thought and society, including the process of science and contributions of diverse scientists as related to the content;	
(B)	make informed decisions by evaluating evidence from multiple appropriate sources to assess the credibility, accuracy, and methods used; and	
(C)	research and explore connections between grade-level appropriate science concepts and STEM careers.	**Multiple Viewpoints on Scientific and Engineering Practices SEs:** Replace 4.C. "research and explore connections between grade-level appropriate science concepts and STEM careers" with "*4(C)1. Research three resources such as museums, libraries, organizations, private companies, and online platforms where students can investigate STEM careers. 4(C)2. Identify three resources to identify mentors employed in a STEM field who could be interviewed for a discussion of the advantages/disadvantages of pursuing a STEM career."*

(5)	Matter and energy. The student distinguishes between elements and compounds, classifies changes in matter, and understands the properties of solutions. The student is expected to:	**Multiple Viewpoints** *7.5.E Interpret the location of rare earth elements in the Periodic Table.* This TEKS would advance student knowledge of the Periodic Table beyond what was known in 1869, and connect it to elements crucial for modern life, such as cell phones, wind turbines and solar cells.
(A)	compare and contrast elements and compounds in terms of atoms and molecules, structure, chemical symbols, and chemical formulas;	7.5.A: Incorporate parts of current 6.5.A and 8.5.D and change verb from "know" to "compare and contrast" in order to increase rigor of expectations. Standard was moved to grade 7 to build on proposed 6.5B and add complexity to the topics by adding structures of atoms and molecules. The concept of chemical bonding is introduced here without explicitly naming it as such. A more complete description of chemical bonding is left for the chemistry or IPC courses.
(B)	distinguish between physical and chemical changes in matter;	7.5.B: No changes were recommended for this student expectation (7.6).
(C)	describe aqueous solutions in terms of solute and solvent, concentration, and dilution; and	7.5.C: Topic was added to fill in gaps in vertical alignment as recommended by content advisors and Work Group A, and also to align with proposed Biology TEKS.
(D)	investigate and model how temperature, surface area, and agitation affect the rate of dissolution of solid solutes in aqueous solutions.	7.5.D: Topic was added to fill in gaps in vertical alignment as recommended by content advisors and Work Group A, and also to align with proposed Chemistry and IPC TEKS.
(6)	Force, motion, and energy. The student can describe motion and how forces can impact the motion of an object. The student is expected to:	
(A)	calculate average speed using distance and time measurements;	7.6.A Moved from 6.8.C to align with mathematics TEKS
(B)	distinguish between speed and velocity in linear motion in terms of distance, displacement, and direction;	7.6.B Provide a foundational concept of velocity that is extended in 8th grade with Newton's 2nd law. Topic is moved from existing 8.6B but removes acceleration to avoid fostering misconceptions.

(C)	measure, record, and interpret an object's motion using distance-time graphs; and	7.6.C Revises existing 6.8D to clarify the types of graphs that students are expected to engage with. Moved from grade 6 to help with alignment.
(D)	analyze the effect of balanced and unbalanced forces on the state of motion of an object using Newton's First Law of motion.	7.6.D Added to introduce Newton's 1st Law and build on the concept of force introduced in grade 6.
(7)	Force, motion, and energy. The student understands the behavior of thermal energy. The student is expected to:	
(A)	investigate methods of thermal energy transfer, including conduction, convection, and radiation;	7.7.A moved from grade 6 (6.9.A) for better vertical alignment
(B)	investigate how thermal energy moves in a predictable pattern from warmer to cooler until all substances within the system reach thermal equilibrium; and	7.7.B moved from grade 6 (6.9.B) and revised to include systems and use more precise language.
(C)	explain the relationship between temperature and the kinetic energy of the molecules within a substance.	7.7.C was added to build on concepts learned in grade 6 and support future topics in chemistry.
(8)	Earth and space. The student understands the organization and characteristics of objects in our solar system. The student is expected to:	
(A)	describe the physical properties, locations, and movements of the Sun, planets, moons, meteors, asteroids, comets, Kuiper belt, and Oort cloud;	7.8.A moved from 6.11.A for vertical alignment and topics added to be more complete.
(B)	describe how gravity governs the motion of our solar system; and	7.8.B changed verb to be more active and measurable
(C)	analyze the characteristics of Earth that allow life to exist such as the proximity of the Sun, presence of water, and composition of the atmosphere;	7.8.C revised for clarity
(9)	Earth and space. The student understands the causes and effects of plate tectonics. The student is expected to:	
(A)	describe the historical development of evidence that supports plate tectonic theory; and	Existing 8.9.A was moved for vertical alignment.
(B)	describe how plate tectonics causes ocean basin formation, earthquakes, mountain building, and volcanic eruptions, including supervolcanoes and hot spots.	6.10.D was revised to clarify the language and remove the "such as."
(10)	Earth and space. The student understands how human activity can impact the hydrosphere. The student is expected to:	
(A)	analyze positive and negative influences of human activity on groundwater and surface water in a watershed; and	7.10.A Verb is replaced to focus on higher order thinking of "analyze" and includes positive and negative influences.

(B)	describe human dependence and influence on ocean systems and explain how human activities have modified these systems.	7.10.B is revised from existing 8.11.C to increase rigor from "recognize." The "such as" statement is deleted because the examples are not helpful.
(11)	Organisms and environments. The student knows how the systems of an organism function. The student is expected to:	
(A)	identify the main functions of the systems of the human organism, including the circulatory, respiratory, skeletal, muscular, digestive, urinary, reproductive, integumentary, nervous, and endocrine systems; and	7.11.A was revised from current 7.12.B to limit the amount of content and for greater clarity.
(B)	compare the results of uniform or diverse offspring from asexual or sexual reproduction in plants and animals.	7.11.B was revised to limit the amount of content and reduce instructional time required.
(12)	Organisms and environments. The student knows that populations and species inherit many of their unique traits through gradual processes over many generations. The student is expected to:	
(A)	describe how natural and artificial selection change genetic traits in a population over generations.	7.12 was revised to focus on the distinction between natural and artificial selection and to emphasize that these changes occur over generations.
(13)	Organisms and environments. The student understands that energy flows between organisms and the environment. The student is expected to:	
(A)	diagram the flow of energy within trophic levels and describe how the available energy decreases in successive trophic levels in energy pyramids;	7.5.B was divided between 6th & 7th grade to scaffold the learning progression. SE was reworded to bring clarity to the role and use of energy pyramids.
(B)	describe how ecosystems are sustained by biodiversity, the continuous flow of energy, and the recycling of matter and nutrients within the biosphere; and	
(C)	describe how biodiversity contributes to the sustainability of an ecosystem.	7.10.A&B were combined and revised to connect sustainability to the flow of matter & energy in the biosphere. This connects vertically to concepts in 6th grade and horizontally to concepts in other strands
(14)	Organisms and environments. The student knows all organisms are classified into taxonomic groups. The student is expected to:	
(A)	describe the taxonomic system that categorizes organisms based on similarities and differences shared among groups; and	7.14.A was added based on feedback from the biology working group which deleted taxonomy (Biology 8.B) from the HS TEKS.

(B)	describe the characteristics of the recognized kingdoms in ecosystems and their functions such as bacteria aiding digestion or fungi decomposing organic matter.	7.14.B was added to build on new 6.11C and introduce the kingdoms and also incorporate some of B8.C which was deleted by the biology workgroup.
~~(a)~~	~~Introduction.~~	
~~(1)~~	~~Grade 7 science is interdisciplinary in nature; however, much of the content focus is on organisms and the environment. National standards in science are organized as multi-grade blocks such as Grades 5-8 rather than individual grade levels. In order to follow the grade level format used in Texas, the various national standards are found among Grades 6, 7, and 8. Recurring themes are pervasive in sciences, mathematics, and technology. These ideas transcend disciplinary boundaries and include change and constancy, patterns, cycles, systems, models, and scale.~~	
	~~The strands for Grade 7 include the following.~~	
~~(A)~~	~~Scientific investigation and reasoning.~~	
~~(i)~~	~~To develop a rich knowledge of science and the natural world, students must become familiar with different modes of scientific inquiry, rules of evidence, ways of formulating questions, ways of proposing explanations, and the diverse ways scientists study the natural world and propose explanations based on evidence derived from their work.~~	
~~(ii)~~	~~Scientific investigations are conducted for different reasons. All investigations require a research question, careful observations, data gathering, and analysis of the data to identify the patterns that will explain the findings. Descriptive investigations are used to explore new phenomena such as conducting surveys of organisms or measuring the abiotic components in a given habitat. Descriptive statistics include frequency, range, mean, median, and mode. A hypothesis is not required in a descriptive investigation. On the other hand, when conditions can be controlled in order to focus on a single variable, experimental research design is used to determine causation. Students should experience both types of investigations and understand that different scientific research questions require different research designs.~~	
~~(iii)~~	~~Scientific investigations are used to learn about the natural world. Students should understand that certain types of questions can be answered by investigations, and the 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. Models have limitations and based on new discoveries are constantly being modified to more closely reflect the natural world.~~	

(B)	Matter and energy. Matter and energy are conserved throughout living systems. Radiant energy from the Sun drives much of the flow of energy throughout living systems due to the process of photosynthesis in organisms described as producers. Most consumers then depend on producers to meet their energy needs. Subsequent grade levels will learn about the differences at the molecular and atomic level.	
(C)	Force, motion, and energy. Force, motion, and energy are observed in living systems and the environment in several ways. Interactions between muscular and skeletal systems allow the body to apply forces and transform energy both internally and externally. Force and motion can also describe the direction and growth of seedlings, turgor pressure, and geotropism. Catastrophic events of weather systems such as hurricanes, floods, and tornadoes can shape and restructure the environment through the force and motion evident in them. Weathering, erosion, and deposition occur in environments due to the forces of gravity, wind, ice, and water.	
(D)	Earth and space. Earth and space phenomena can be observed in a variety of settings. Both natural events and human activities can impact Earth systems. There are characteristics of Earth and relationships to objects in our solar system that allow life to exist.	
(E)	Organisms and environments.	
(i)	Students will understand the relationship between living organisms and their environment. Different environments support different living organisms that are adapted to that region of Earth. Organisms are living systems that maintain a steady state with that environment and whose balance may be disrupted by internal and external stimuli. External stimuli include human activity or the environment. Successful organisms can reestablish a balance through different processes such as a feedback mechanism. Ecological succession can be seen on a broad or small scale.	
(ii)	Students learn that all organisms obtain energy, get rid of wastes, grow, and reproduce. During both sexual and asexual reproduction, traits are passed onto the next generation. These traits are contained in genetic material that is found on genes within a chromosome from the parent. Changes in traits sometimes occur in a population over many generations. One of the ways a change can occur is through the process of natural selection. Students extend their understanding of structures in living systems from a previous focus on external structures to an understanding of internal structures and functions within living things.	
(iii)	All living organisms are made up of smaller units called cells. All cells use energy, get rid of wastes, and contain genetic material. Students will compare plant and animal cells and understand the internal structures within them that allow them to obtain energy, get rid of wastes, grow, and reproduce in different ways. Cells can organize into tissues, tissues into organs, and organs into organ systems. Students will learn the major functions of human body systems such as the ability of the integumentary system to protect against infection, injury, and ultraviolet (UV) radiation; regulate body temperature; and remove waste.	

(2)	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." This vast body of changing and increasing knowledge is described by physical, mathematical, and conceptual models. Students should know that some questions are outside the realm of science because they deal with phenomena that are not scientifically testable.	
(3)	Scientific hypotheses are tentative and testable statements that must be capable of being supported or not supported by observational evidence. Hypotheses of durable explanatory power that have been tested over a wide variety of conditions become theories. Scientific theories are based on natural and physical phenomena and are capable of being tested by multiple independent researchers. Students should know that scientific theories, unlike hypotheses, are well established and highly reliable, but they may still be subject to change as new information and technologies are developed. Students should be able to distinguish between scientific decision-making methods and ethical/social decisions that involve the application of scientific information.	
(4)	Statements containing the word "including" reference content that must be mastered, while those containing the phrase "such as" are intended as possible illustrative examples.	
(b)	Knowledge and skills.	
(1)	Scientific investigation and reasoning. The student, for at least 40% of the instructional time, conducts laboratory and field investigations following safety procedures and environmentally appropriate and ethical practices. The student is expected to:	
(A)	demonstrate safe practices during laboratory and field investigations as outlined in Texas Education Agency-approved safety standards; and	
(B)	practice appropriate use and conservation of resources, including disposal, reuse, or recycling of materials.	
(2)	Scientific investigation and reasoning. The student uses scientific practices during laboratory and field investigations. The student is expected to:	
(A)	plan and implement comparative and descriptive investigations by making observations, asking well-defined questions, and using appropriate equipment and technology;	
(B)	design and implement experimental investigations by making observations, asking well-defined questions, formulating testable hypotheses, and using appropriate equipment and technology;	
(C)	collect and record data using the International System of Units (SI) and qualitative means such as labeled drawings, writing, and graphic organizers;	

~~(D)~~	~~construct tables and graphs, using repeated trials and means, to organize data and identify patterns; and~~	
~~(E)~~	~~analyze data to formulate reasonable explanations, communicate valid conclusions supported by the data, and predict trends.~~	
~~(3)~~	~~Scientific investigation and reasoning. The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions and knows the contributions of relevant scientists. The student is expected to:~~	
~~(A)~~	~~analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, so as to encourage critical thinking by the student;~~	
~~(B)~~	~~use models to represent aspects of the natural world such as human body systems and plant and animal cells;~~	
~~(C)~~	~~identify advantages and limitations of models such as size, scale, properties, and materials; and~~	
~~(D)~~	~~relate the impact of research on scientific thought and society, including the history of science and contributions of scientists as related to the content.~~	
~~(4)~~	~~Science investigation and reasoning. The student knows how to use a variety of tools and safety equipment to conduct science inquiry. The student is expected to:~~	
~~(A)~~	~~use appropriate tools, including life science models, hand lenses, stereoscopes, microscopes, beakers, Petri dishes, microscope slides, graduated cylinders, test tubes, meter sticks, metric rulers, metric tape measures, timing devices, hot plates, balances, thermometers, calculators, water test kits, computers, temperature and pH probes, collecting nets, insect traps, globes, digital cameras, journals/notebooks, and other necessary equipment to collect, record, and analyze information; and~~	
~~(B)~~	~~use preventative safety equipment, including chemical splash goggles, aprons, and gloves, and be prepared to use emergency safety equipment, including an eye/face wash, a fire blanket, and a fire extinguisher.~~	
~~(5)~~	~~Matter and energy. The student knows that interactions occur between matter and energy. The student is expected to:~~	
~~(A)~~	~~recognize that radiant energy from the Sun is transformed into chemical energy through the process of photosynthesis; and~~	7.5.A This SE was deleted but the topics covered have been addressed in another proposed SE.

~~(B)~~	~~diagram the flow of energy through living systems, including food chains, food webs, and energy pyramids.~~	7.5.B This SE was deleted but the topics covered have been addressed in another proposed SE.
~~(6)~~	~~Matter and energy. The student knows that matter has physical and chemical properties and can undergo physical and chemical changes. The student is expected to~~	
	~~distinguish between physical and chemical changes in matter.~~	Renumbered to 7.5.B.
~~(7)~~	~~Force, motion, and energy. The student knows that there is a relationship among force, motion, and energy. The student is expected to:~~	
~~(A)~~	~~illustrate the transformation of energy within an organism such as the transfer from chemical energy to thermal energy; and~~	Existing 7.7A deleted and combined in new 6.7.B.
~~(B)~~	~~demonstrate and illustrate forces that affect motion in organisms such as emergence of seedlings, turgor pressure, geotropism, and circulation of blood.~~	7.7B This SE was deleted to reduce the scope and streamline the instructional time.
~~(8)~~	~~Earth and space. The student knows that natural events and human activity can impact Earth systems. The student is expected to:~~	
~~(A)~~	~~predict and describe how catastrophic events such as floods, hurricanes, or tornadoes impact ecosystems;~~	Moved to grade 8 and renumbered to 8.13.B.
~~(B)~~	~~analyze the effects of weathering, erosion, and deposition on the environment in ecoregions of Texas; and~~	7.8B This SE was deleted to reduce the scope and streamline the instructional time.
~~(C)~~	~~model the effects of human activity on groundwater and surface water in a watershed.~~	Renumbered to 7.10.A.
~~(9)~~	~~Earth and space. The student knows components of our solar system. The student is expected to:~~	
~~(A)~~	~~analyze the characteristics of objects in our solar system that allow life to exist such as the proximity of the Sun, presence of water, and composition of the atmosphere; and~~	Renumbered to 7.8.C.
~~(B)~~	~~identify the accommodations, considering the characteristics of our solar system, that enabled manned space exploration.~~	7.9.B was deleted to reduce the scope and streamline instructional time.
~~(10)~~	~~Organisms and environments. The student knows that there is a relationship between organisms and the environment. The student is expected to:~~	
~~(A)~~	~~observe and describe how different environments, including microhabitats in schoolyards and biomes, support different varieties of organisms;~~	7.10.A was specifically recommended to be deleted by content advisors.
~~(B)~~	~~describe how biodiversity contributes to the sustainability of an ecosystem; and~~	Renumbered to 7.13.C.
~~(C)~~	~~observe, record, and describe the role of ecological succession such as in a microhabitat of a garden with weeds.~~	Moved to grade 8 and revised to 8.13.B.

~~(11)~~	~~Organisms and environments. The student knows that populations and species demonstrate variation and inherit many of their unique traits through gradual processes over many generations. The student is expected to:~~	
~~(A)~~	~~examine organisms or their structures such as insects or leaves and use dichotomous keys for identification;~~	7.11.A was deleted to reduce scope and streamline instructional time; the topic no longer fits within the vertical alignment and is not a critical skill for middle school.
~~(B)~~	~~explain variation within a population or species by comparing external features, behaviors, or physiology of organisms that enhance their survival such as migration, hibernation, or storage of food in a bulb; and~~	7.11.B was deleted to reduce scope; the topics are included in other SEs.
~~(C)~~	~~identify some changes in genetic traits that have occurred over several generations through natural selection and selective breeding such as the Galapagos Medium Ground Finch (Geospiza fortis) or domestic animals and hybrid plants.~~	Revised and renumbered to 7.12.
~~(12)~~	~~Organisms and environments. The student knows that living systems at all levels of organization demonstrate the complementary nature of structure and function. The student is expected to:~~	
~~(A)~~	~~investigate and explain how internal structures of organisms have adaptations that allow specific functions such as gills in fish, hollow bones in birds, or xylem in plants;~~	7.12.A was deleted but concepts incorporated into other SEs.
~~(B)~~	~~identify the main functions of the systems of the human organism, including the circulatory, respiratory, skeletal, muscular, digestive, excretory, reproductive, integumentary, nervous, and endocrine systems;~~	Revised and renumbered to 7.11.A.
~~(C)~~	~~recognize levels of organization in plants and animals, including cells, tissues, organs, organ systems, and organisms;~~	Moved to grade 6 and renumbered to 6.11.B.
~~(D)~~	~~differentiate between structure and function in plant and animal cell organelles, including cell membrane, cell wall, nucleus, cytoplasm, mitochondrion, chloroplast, and vacuole;~~	Moved to grade 8 and renumbered to 8.11.A.
~~(E)~~	~~compare the functions of cell organelles to the functions of an organ system; and~~	7.12.E deleted to reduce scope and streamline instructional time.
~~(F)~~	~~recognize the components of cell theory.~~	Moved to grade 6 and revised to 6.11.A.
~~(13)~~	~~Organisms and environments. The student knows that a living organism must be able to maintain balance in stable internal conditions in response to external and internal stimuli. The student is expected to:~~	
~~(A)~~	~~investigate how organisms respond to external stimuli found in the environment such as phototropism and fight or flight; and~~	7.13A & 7.13B deleted on recommendation from content advisors and to reduce scope.
~~(B)~~	~~describe and relate responses in organisms that may result from internal stimuli such as wilting in plants and fever or vomiting in animals that allow them to maintain balance.~~	

~~(14)~~	~~Organisms and environments. The student knows that reproduction is a characteristic of living organisms and that the instructions for traits are governed in the genetic material. The student is expected to:~~	
~~(A)~~	~~define heredity as the passage of genetic instructions from one generation to the next generation;~~	7.14.A deleted but concept moved to grade 8
~~(B)~~	~~compare the results of uniform or diverse offspring from asexual or sexual reproduction; and~~	Revised to new 7.11.B.
~~(C)~~	~~recognize that inherited traits of individuals are governed in the genetic material found in the genes within chromosomes in the nucleus.~~	Moved to grade 8 and renumbered to 8.11.B.