

## Texas Essential Knowledge and Skills for 6<sup>th</sup> Grade

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### **§110.22. English Language Arts and Reading, Grade 6, Adopted 2017.**

#### (a) Introduction.

(1) The English language arts and reading Texas Essential Knowledge and Skills (TEKS) embody the interconnected nature of listening, speaking, reading, writing, and thinking through the seven integrated strands of developing and sustaining foundational language skills; comprehension; response; multiple genres; author's purpose and craft; composition; and inquiry and research. The strands focus on academic oracy (proficiency in oral expression and comprehension), authentic reading, and reflective writing to ensure a literate Texas. The strands are integrated and progressive with students continuing to develop knowledge and skills with increased complexity and nuance in order to think critically and adapt to the ever-evolving nature of language and literacy.

(2) The seven strands of the essential knowledge and skills for English language arts and reading are intended to be integrated for instructional purposes and are recursive in nature. Strands include the four domains of language (listening, speaking, reading, writing) and their application in order to accelerate the acquisition of language skills so that students develop high levels of social and academic language proficiency. Although some strands may require more instructional time, each strand is of equal value, may be presented in any order, and should be integrated throughout the year. Additionally, students should engage in academic conversations, write, read, and be read to on a daily basis with opportunities for cross-curricular content and student choice.

(3) Text complexity increases with challenging vocabulary, sophisticated sentence structures, nuanced text features, cognitively demanding content, and subtle relationships among ideas (Texas Education Agency, *STAAR Performance Level Descriptors*, 2013). As skills and knowledge are obtained in each of the seven strands, students will continue to apply earlier standards with greater depth to increasingly complex texts in multiple genres as they become self-directed, critical learners who work collaboratively while continuously using metacognitive skills.

(4) English language learners (ELLs) are expected to meet standards in a second language; however, their proficiency in English influences the ability to meet these standards. To demonstrate this knowledge throughout the stages of English language acquisition, comprehension of text requires additional scaffolds such as adapted text, translations, native language support, cognates, summaries, pictures, realia, glossaries, bilingual dictionaries, thesauri, and other modes of comprehensible input. ELLs can and should be encouraged to use knowledge of their first language to enhance vocabulary development; vocabulary needs to be in the context of connected discourse so that it is meaningful. Strategic use of the student's first language is important to ensure linguistic, affective, cognitive, and academic development in English.

(5) Current research stresses the importance of effectively integrating second language acquisition with quality content area education in order to ensure that ELLs acquire social and academic language proficiency in English, learn the knowledge and skills, and reach their full academic potential. Instruction must be linguistically accommodated in accordance with the English Language Proficiency Standards (ELPS) and the student's English language proficiency levels to ensure the mastery of knowledge and skills in the required curriculum is accessible. For a further understanding of second language acquisition needs, refer to the ELPS and proficiency-level descriptors adopted in Chapter 74, Subchapter A, of this title (relating to Required Curriculum).

(6) Oral language proficiency holds a pivotal role in school success; verbal engagement must be maximized across grade levels (Kinsella, 2010). In order for students to become thinkers and proficient speakers in science, social studies, mathematics, fine arts, language arts and reading, and career and technical education, they must have multiple opportunities to practice and apply the academic language of each discipline (Fisher, Frey, & Rothenberg, 2008).

(7) Statements that contain 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) Developing and sustaining foundational language skills: listening, speaking, discussion, and thinking--oral language. The student develops oral language through listening, speaking, and discussion. The student is expected to:

(A) listen actively to interpret a message, ask clarifying questions, and respond appropriately;

(B) follow and give oral instructions that include multiple action steps;

(C) give an organized presentation with a specific stance and position, employing eye contact, speaking rate, volume, enunciation, natural gestures, and conventions of language to communicate ideas effectively; and

(D) participate in student-led discussions by eliciting and considering suggestions from other group members, taking notes, and identifying points of agreement and disagreement.

(2) Developing and sustaining foundational language skills: listening, speaking, reading, writing, and thinking--vocabulary. The student uses newly acquired vocabulary expressively. The student is expected to:

(A) use print or digital resources to determine the meaning, syllabication, pronunciation, word origin, and part of speech;

(B) use context such as definition, analogy, and examples to clarify the meaning of words; and

(C) determine the meaning and usage of grade-level academic English words derived from Greek and Latin roots such as mis/mit, bene, man, vac, scrib/script, and jur/jus.

(3) Developing and sustaining foundational language skills: listening, speaking, reading, writing, and thinking--fluency. The student reads grade-level text with fluency and comprehension. The student is expected to adjust fluency when reading grade-level text based on the reading purpose.

(4) Developing and sustaining foundational language skills: listening, speaking, reading, writing, and thinking--self-sustained reading. The student reads grade-appropriate texts independently. The student is expected to self-select text and read independently for a sustained period of time.

(5) Comprehension skills: listening, speaking, reading, writing, and thinking using multiple texts. The student uses metacognitive skills to both develop and deepen comprehension of increasingly complex texts. The student is expected to:

- (A) establish purpose for reading assigned and self-selected text;
- (B) generate questions about text before, during, and after reading to deepen understanding and gain information;
- (C) make and correct or confirm predictions using text features, characteristics of genre, and structures;
- (D) create mental images to deepen understanding;
- (E) make connections to personal experiences, ideas in other texts, and society;
- (F) make inferences and use evidence to support understanding;
- (G) evaluate details read to determine key ideas;
- (H) synthesize information to create new understanding; and
- (I) monitor comprehension and make adjustments such as re-reading, using background knowledge, asking questions, and annotating when understanding breaks down.

(6) Response skills: listening, speaking, reading, writing, and thinking using multiple texts. The student responds to an increasingly challenging variety of sources that are read, heard, or viewed. The student is expected to:

- (A) describe personal connections to a variety of sources, including self-selected texts;
- (B) write responses that demonstrate understanding of texts, including comparing sources within and across genres;

- (C) use text evidence to support an appropriate response;
- (D) paraphrase and summarize texts in ways that maintain meaning and logical order;
- (E) interact with sources in meaningful ways such as notetaking, annotating, freewriting, or illustrating;
- (F) respond using newly acquired vocabulary as appropriate;
- (G) discuss and write about the explicit or implicit meanings of text;
- (H) respond orally or in writing with appropriate register, vocabulary, tone, and voice; and
- (I) reflect on and adjust responses as new evidence is presented.

(7) Multiple genres: listening, speaking, reading, writing, and thinking using multiple texts--literary elements. The student recognizes and analyzes literary elements within and across increasingly complex traditional, contemporary, classical, and diverse literary texts. The student is expected to:

- (A) infer multiple themes within and across texts using text evidence;
- (B) analyze how the characters' internal and external responses develop the plot;
- (C) analyze plot elements, including rising action, climax, falling action, resolution, and non-linear elements such as flashback; and
- (D) analyze how the setting, including historical and cultural settings, influences character and plot development.

(8) Multiple genres: listening, speaking, reading, writing, and thinking using multiple texts--genres. The student recognizes and analyzes genre-specific characteristics, structures, and purposes within and across increasingly complex traditional, contemporary, classical, and diverse texts. The student is expected to:

- (A) demonstrate knowledge of literary genres such as realistic fiction, adventure stories, historical fiction, mysteries, humor, and myths;

(B) analyze the effect of meter and structural elements such as line breaks in poems across a variety of poetic forms;

(C) analyze how playwrights develop characters through dialogue and staging;

(D) analyze characteristics and structural elements of informational text, including:

(i) the controlling idea or thesis with supporting evidence;

(ii) features such as introduction, foreword, preface, references, or acknowledgements to gain background information; and

(iii) organizational patterns such as definition, classification, advantage, and disadvantage;

(E) analyze characteristics and structures of argumentative text by:

(i) identifying the claim;

(ii) explaining how the author uses various types of evidence to support the argument; and

(iii) identifying the intended audience or reader; and

(F) analyze characteristics of multimodal and digital texts.; and

(9) Author's purpose and craft: listening, speaking, reading, writing, and thinking using multiple texts. The student uses critical inquiry to analyze the authors' choices and how they influence and communicate meaning within a variety of texts. The student analyzes and applies author's craft purposefully in order to develop his or her own products and performances. The student is expected to:

(A) explain the author's purpose and message within a text;

(B) analyze how the use of text structure contributes to the author's purpose;

(C) analyze the author's use of print and graphic features to achieve specific purposes;

(D) describe how the author's use of figurative language such as metaphor and personification achieves specific purposes;

(E) identify the use of literary devices, including omniscient and limited point of view, to achieve a specific purpose;

(F) analyze how the author's use of language contributes to mood and voice; and

(G) explain the differences between rhetorical devices and logical fallacies.

(10) Composition: listening, speaking, reading, writing, and thinking using multiple texts--writing process. The student uses the writing process recursively to compose multiple texts that are legible and uses appropriate conventions. The student is expected to:

(A) plan a first draft by selecting a genre appropriate for a particular topic, purpose, and audience using a range of strategies such as discussion, background reading, and personal interests;

(B) develop drafts into a focused, structured, and coherent piece of writing by:

(i) organizing with purposeful structure, including an introduction, transitions, coherence within and across paragraphs, and a conclusion; and

(ii) developing an engaging idea reflecting depth of thought with specific facts and details;

(C) revise drafts for clarity, development, organization, style, word choice, and sentence variety;

(D) edit drafts using standard English conventions, including:

(i) complete complex sentences with subject-verb agreement and avoidance of splices, run-ons, and fragments;

(ii) consistent, appropriate use of verb tenses;

(iii) conjunctive adverbs;

(iv) prepositions and prepositional phrases and their influence on subject-verb agreement;

(v) pronouns, including relative;

(vi) subordinating conjunctions to form complex sentences and correlative conjunctions such as either/or and neither/nor;

(vii) capitalization of proper nouns, including abbreviations, initials, acronyms, and organizations;

(viii) punctuation marks, including commas in complex sentences, transitions, and introductory elements; and

(ix) correct spelling, including commonly confused terms such as its/it's, affect/effect, there/their/they're, and to/two/too; and

(E) publish written work for appropriate audiences.

(11) Composition: listening, speaking, reading, writing, and thinking using multiple texts--genres. The student uses genre characteristics and craft to compose multiple texts that are meaningful. The student is expected to:

(A) compose literary texts such as personal narratives, fiction, and poetry using genre characteristics and craft;

(B) compose informational texts, including multi-paragraph essays that convey information about a topic, using a clear controlling idea or thesis statement and genre characteristics and craft;

(C) compose multi-paragraph argumentative texts using genre characteristics and craft; and

(D) compose correspondence that reflects an opinion, registers a complaint, or requests information in a business or friendly structure.

(12) Inquiry and research: listening, speaking, reading, writing, and thinking using multiple texts. The student engages in both short-term and sustained recursive inquiry processes for a variety of purposes. The student is expected to:

(A) generate student-selected and teacher-guided questions for formal and informal inquiry;



- (B) develop and revise a plan;
- (C) refine the major research question, if necessary, guided by the answers to a secondary set of questions;
- (D) identify and gather relevant information from a variety of sources;
- (E) differentiate between primary and secondary sources;
- (F) synthesize information from a variety of sources;
- (G) differentiate between paraphrasing and plagiarism when using source materials;
- (H) examine sources for:
  - (i) reliability, credibility, and bias; and
  - (ii) faulty reasoning such as hyperbole, emotional appeals, and stereotype;
- (I) display academic citations and use source materials ethically; and
- (J) use an appropriate mode of delivery, whether written, oral, or multimodal, to present results.

*Source: The provisions of this §110.22 adopted to be effective September 25, 2017, 42 TexReg 4999; amended to be effective August 1, 2019, 44 TexReg 3835*

## §111.26. Math Grade 6, Adopted 2012.

### (a) Introduction.

(1) The desire to achieve educational excellence is the driving force behind the Texas essential knowledge and skills for mathematics, guided by the college and career readiness standards. By embedding statistics, probability, and finance, while focusing on computational thinking, mathematical fluency, and solid understanding, Texas will lead the way in mathematics education and prepare all Texas students for the challenges they will face in the 21st century.

(2) The process standards describe ways in which students are expected to engage in the content. The placement of the process standards at the beginning of the knowledge and skills listed for each grade and course is intentional. The process standards weave the other knowledge and skills together so that students may be successful problem solvers and use mathematics efficiently and effectively in daily life. The process standards are integrated at every grade level and course. When possible, students will apply mathematics to problems arising in everyday life, society, and the workplace. Students will use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution. Students will select appropriate tools such as real objects, manipulatives, algorithms, paper and pencil, and technology and techniques such as mental math, estimation, number sense, and generalization and abstraction to solve problems. Students will effectively communicate mathematical ideas, reasoning, and their implications using multiple representations such as symbols, diagrams, graphs, computer programs, and language. Students will use mathematical relationships to generate solutions and make connections and predictions. Students will analyze mathematical relationships to connect and communicate mathematical ideas. Students will display, explain, or justify mathematical ideas and arguments using precise mathematical language in written or oral communication.

(3) The primary focal areas in Grade 6 are number and operations; proportionality; expressions, equations, and relationships; and measurement and data. Students use concepts, algorithms, and properties of rational numbers to explore mathematical relationships and to describe increasingly complex situations. Students use concepts of proportionality to explore, develop, and communicate mathematical relationships. Students use algebraic thinking to describe how a change in one quantity in a relationship results in a change in the other. Students connect verbal, numeric, graphic, and symbolic

representations of relationships, including equations and inequalities. Students use geometric properties and relationships, as well as spatial reasoning, to model and analyze situations and solve problems. Students communicate information about geometric figures or situations by quantifying attributes, generalize procedures from measurement experiences, and use the procedures to solve problems. Students use appropriate statistics, representations of data, and reasoning to draw conclusions, evaluate arguments, and make recommendations. While the use of all types of technology is important, the emphasis on algebra readiness skills necessitates the implementation of graphing technology.

(4) Statements that contain 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) Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:

(A) apply mathematics to problems arising in everyday life, society, and the workplace;

(B) use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution;

(C) select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems;

(D) communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate;

(E) create and use representations to organize, record, and communicate mathematical ideas;

(F) analyze mathematical relationships to connect and communicate mathematical ideas; and

(G) display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication.

(2) Number and operations. The student applies mathematical process standards to represent and use rational numbers in a variety of forms. The student is expected to:

(A) classify whole numbers, integers, and rational numbers using a visual representation such as a Venn diagram to describe relationships between sets of numbers;

(B) identify a number, its opposite, and its absolute value;

(C) locate, compare, and order integers and rational numbers using a number line;

(D) order a set of rational numbers arising from mathematical and real-world contexts; and

(E) extend representations for division to include fraction notation such as  $a/b$  represents the same number as  $a \div b$  where  $b \neq 0$ .

(3) Number and operations. The student applies mathematical process standards to represent addition, subtraction, multiplication, and division while solving problems and justifying solutions. The student is expected to:

(A) recognize that dividing by a rational number and multiplying by its reciprocal result in equivalent values;

(B) determine, with and without computation, whether a quantity is increased or decreased when multiplied by a fraction, including values greater than or less than one;

(C) represent integer operations with concrete models and connect the actions with the models to standardized algorithms;

(D) add, subtract, multiply, and divide integers fluently; and

(E) multiply and divide positive rational numbers fluently.

(4) Proportionality. The student applies mathematical process standards to develop an understanding of proportional relationships in problem situations. The student is expected to:

(A) compare two rules verbally, numerically, graphically, and symbolically in the form of  $y = ax$  or  $y = x + a$  in order to differentiate between additive and multiplicative relationships;

(B) apply qualitative and quantitative reasoning to solve prediction and comparison of real-world problems involving ratios and rates;

(C) give examples of ratios as multiplicative comparisons of two quantities describing the same attribute;

(D) give examples of rates as the comparison by division of two quantities having different attributes, including rates as quotients;

(E) represent ratios and percents with concrete models, fractions, and decimals;

(F) represent benchmark fractions and percents such as 1%, 10%, 25%,  $33\frac{1}{3}\%$ , and multiples of these values using 10 by 10 grids, strip diagrams, number lines, and numbers;

(G) generate equivalent forms of fractions, decimals, and percents using real-world problems, including problems that involve money; and

(H) convert units within a measurement system, including the use of proportions and unit rates.

(5) Proportionality. The student applies mathematical process standards to solve problems involving proportional relationships. The student is expected to:

(A) represent mathematical and real-world problems involving ratios and rates using scale factors, tables, graphs, and proportions;

(B) solve real-world problems to find the whole given a part and the percent, to find the part given the whole and the percent, and to find the percent given the part and the whole, including the use of concrete and pictorial models; and

(C) use equivalent fractions, decimals, and percents to show equal parts of the same whole.

(6) Expressions, equations, and relationships. The student applies mathematical process standards to use multiple representations to describe algebraic relationships. The student is expected to:

(A) identify independent and dependent quantities from tables and graphs;

(B) write an equation that represents the relationship between independent and dependent quantities from a table; and

(C) represent a given situation using verbal descriptions, tables, graphs, and equations in the form  $y = kx$  or  $y = x + b$ .

(7) Expressions, equations, and relationships. The student applies mathematical process standards to develop concepts of expressions and equations. The student is expected to:

(A) generate equivalent numerical expressions using order of operations, including whole number exponents and prime factorization;

(B) distinguish between expressions and equations verbally, numerically, and algebraically;

(C) determine if two expressions are equivalent using concrete models, pictorial models, and algebraic representations; and

(D) generate equivalent expressions using the properties of operations: inverse, identity, commutative, associative, and distributive properties.

(8) Expressions, equations, and relationships. The student applies mathematical process standards to use geometry to represent relationships and solve problems. The student is expected to:

(A) extend previous knowledge of triangles and their properties to include the sum of angles of a triangle, the relationship between the lengths of sides and measures of angles in a triangle, and determining when three lengths form a triangle;

(B) model area formulas for parallelograms, trapezoids, and triangles by decomposing and rearranging parts of these shapes;

(C) write equations that represent problems related to the area of rectangles, parallelograms, trapezoids, and triangles and volume of right rectangular prisms where dimensions are positive rational numbers; and

(D) determine solutions for problems involving the area of rectangles, parallelograms, trapezoids, and triangles and volume of right rectangular prisms where dimensions are positive rational numbers.

(9) Expressions, equations, and relationships. The student applies mathematical process standards to use equations and inequalities to represent situations. The student is expected to:

(A) write one-variable, one-step equations and inequalities to represent constraints or conditions within problems;

(B) represent solutions for one-variable, one-step equations and inequalities on number lines; and

(C) write corresponding real-world problems given one-variable, one-step equations or inequalities.

(10) Expressions, equations, and relationships. The student applies mathematical process standards to use equations and inequalities to solve problems. The student is expected to:

(A) model and solve one-variable, one-step equations and inequalities that represent problems, including geometric concepts; and

(B) determine if the given value(s) make(s) one-variable, one-step equations or inequalities true.

(11) Measurement and data. The student applies mathematical process standards to use coordinate geometry to identify locations on a plane. The student is expected to graph points in all four quadrants using ordered pairs of rational numbers.

(12) Measurement and data. The student applies mathematical process standards to use numerical or graphical representations to analyze problems. The student is expected to:

(A) represent numeric data graphically, including dot plots, stem-and-leaf plots, histograms, and box plots;

(B) use the graphical representation of numeric data to describe the center, spread, and shape of the data distribution;

(C) summarize numeric data with numerical summaries, including the mean and median (measures of center) and the range and interquartile range (IQR) (measures of spread), and use these summaries to describe the center, spread, and shape of the data distribution; and

(D) summarize categorical data with numerical and graphical summaries, including the mode, the percent of values in each category (relative frequency table), and the percent bar graph, and use these summaries to describe the data distribution.

(13) Measurement and data. The student applies mathematical process standards to use numerical or graphical representations to solve problems. The student is expected to:

(A) interpret numeric data summarized in dot plots, stem-and-leaf plots, histograms, and box plots; and

(B) distinguish between situations that yield data with and without variability.

(14) Personal financial literacy. The student applies mathematical process standards to develop an economic way of thinking and problem solving useful in one's life as a knowledgeable consumer and investor. The student is expected to:

(A) compare the features and costs of a checking account and a debit card offered by different local financial institutions;

(B) distinguish between debit cards and credit cards;

(C) balance a check register that includes deposits, withdrawals, and transfers;

(D) explain why it is important to establish a positive credit history;



(E) describe the information in a credit report and how long it is retained;

(F) describe the value of credit reports to borrowers and to lenders;

(G) explain various methods to pay for college, including through savings, grants, scholarships, student loans, and work-study; and

(H) compare the annual salary of several occupations requiring various levels of post-secondary education or vocational training and calculate the effects of the different annual salaries on lifetime income.

*Source: The provisions of this §111.26 adopted to be effective September 10, 2012, 37  
TexReg 7109*

## §112.18. Science, Grade 6, Adopted 2017.

### (a) Introduction.

(1) Grade 6 science is interdisciplinary in nature; however, much of the content focus is on physical science. 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 6 include the following.

#### (A) Scientific investigations 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.

(i) Matter can be classified as elements, compounds, or mixtures. Students have already had experience with mixtures in Grade 5, so Grade 6 will concentrate on developing an understanding of elements and compounds. It is important that students learn the differences between elements and compounds based on observations, description of physical properties, and chemical reactions. Elements are represented by chemical symbols, while compounds are represented by chemical formulas. Subsequent grades will learn about the differences at the molecular and atomic level.

(ii) Elements are classified as metals, nonmetals, and metalloids based on their physical properties. The elements are divided into three groups on the Periodic Table. Each different substance usually has a different density, so density can be used as an identifying property. Therefore, calculating density aids classification of substances.

(iii) Energy resources are available on a renewable or nonrenewable basis. Understanding the origins and uses of these resources enables informed decision making. Students should consider the ethical/social issues surrounding Earth's natural energy resources, while looking at the advantages and disadvantages of their long-term uses.

(C) Force, motion, and energy. Energy occurs in two types, potential and kinetic, and can take several forms. Thermal energy can be transferred by conduction, convection, or radiation. It can also be changed from one form to another. Students will investigate the relationship between force and motion using a variety of means, including calculations and measurements.

(D) Earth and space. The focus of this strand is on introducing Earth's processes. Students should develop an understanding of Earth as part of our solar system. The topics include organization of our solar system, the role of gravity, and space exploration.

(E) Organisms and environments. Students will gain an understanding of the broadest taxonomic classifications of organisms and how characteristics determine their classification. The other major topics developed in this strand include the interdependence between organisms and their environments and the levels of organization within an ecosystem.

(2) Science, as defined by the National Academy of Science, 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 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 a model of Earth's layers;

(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) Scientific 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 journals/notebooks, beakers, Petri dishes, meter sticks, graduated cylinders, hot plates, test tubes, balances, microscopes, thermometers, calculators, computers, timing devices, 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 the differences between elements and compounds. The student is expected to:

(A) know that an element is a pure substance represented by a chemical symbol and that a compound is a pure substance represented by a chemical formula;

(B) recognize that a limited number of the many known elements comprise the largest portion of solid Earth, living matter, oceans, and the atmosphere; and

(C) identify the formation of a new substance by using the evidence of a possible chemical change such as production of a gas, change in temperature, production of a precipitate, or color change.

(6) Matter and energy. The student knows matter has physical properties that can be used for classification. The student is expected to:

(A) compare metals, nonmetals, and metalloids using physical properties such as luster, conductivity, or malleability;

(B) calculate density to identify an unknown substance; and

(C) test the physical properties of minerals, including hardness, color, luster, and streak.

(7) Matter and energy. The student knows that some of Earth's energy resources are available on a nearly perpetual basis, while others can be renewed over a relatively short period of time. Some energy resources, once depleted, are essentially nonrenewable. The student is expected to

research and discuss the advantages and disadvantages of using coal, oil, natural gas, nuclear power, biomass, wind, hydropower, geothermal, and solar resources.

(8) Force, motion, and energy. The student knows force and motion are related to potential and kinetic energy. The student is expected to:

(A) compare and contrast potential and kinetic energy;

(B) identify and describe the changes in position, direction, and speed of an object when acted upon by unbalanced forces;

(C) calculate average speed using distance and time measurements;

(D) measure and graph changes in motion; and

(E) investigate how inclined planes can be used to change the amount of force to move an object.

(9) Force, motion, and energy. The student knows that the Law of Conservation of Energy states that energy can neither be created nor destroyed, it just changes form. The student is expected to:

(A) investigate methods of thermal energy transfer, including conduction, convection, and radiation;

(B) verify through investigations that thermal energy moves in a predictable pattern from warmer to cooler until all the substances attain the same temperature such as an ice cube melting; and

(C) demonstrate energy transformations such as energy in a flashlight battery changes from chemical energy to electrical energy to light energy.

(10) Earth and space. The student understands the structure of Earth, the rock cycle, and plate tectonics. The student is expected to:

(A) build a model to illustrate the compositional and mechanical layers of Earth, including the inner core, outer core, mantle, crust, asthenosphere, and lithosphere;

(B) classify rocks as metamorphic, igneous, or sedimentary by the processes of their formation;

(C) identify the major tectonic plates, including Eurasian, African, Indo-Australian, Pacific, North American, and South American; and

(D) describe how plate tectonics causes major geological events such as ocean basin formation, earthquakes, volcanic eruptions, and mountain building.

(11) Earth and space. The student understands the organization of our solar system and the relationships among the various bodies that comprise it. The student is expected to:

(A) describe the physical properties, locations, and movements of the Sun, planets, moons, meteors, asteroids, and comets;

(B) understand that gravity is the force that governs the motion of our solar system; and

(C) describe the history and future of space exploration, including the types of equipment and transportation needed for space travel.

(12) Organisms and environments. The student knows all organisms are classified into domains and kingdoms. Organisms within these taxonomic groups share similar characteristics that allow them to interact with the living and nonliving parts of their ecosystem. The student is expected to:

(A) understand that all organisms are composed of one or more cells;

(B) recognize that the presence of a nucleus is a key factor used to determine whether a cell is prokaryotic or eukaryotic;

(C) recognize that the broadest taxonomic classification of living organisms is divided into currently recognized domains;



(D) identify the basic characteristics of organisms, including prokaryotic or eukaryotic, unicellular or multicellular, autotrophic or heterotrophic, and mode of reproduction, that further classify them in the currently recognized kingdoms;

(E) describe biotic and abiotic parts of an ecosystem in which organisms interact; and

(F) diagram the levels of organization within an ecosystem, including organism, population, community, and ecosystem.

*Source: The provisions of this §112.18 adopted to be effective August 4, 2009, 34 TexReg 5063; amended to be effective August 27, 2018, 42 TexReg 5052.*

## **§113.18. Social Studies, Grade 6, Adopted 2018.**

### **(a) Introduction.**

(1) In Grade 6, students study people, places, and societies of the contemporary world. Societies for study are from the following regions of the world: Europe, Russia and the Eurasian republics, North America, Central America and the Caribbean, South America, Southwest Asia-North Africa, Sub-Saharan Africa, South Asia, East Asia, Southeast Asia, Australia, and the Pacific realm. Students describe the influence of individuals and groups on historical and contemporary events in those societies and identify the locations and geographic characteristics of various societies. Students identify different ways of organizing economic and governmental systems. The concepts of limited and unlimited government are introduced, and students describe the nature of citizenship in various societies. Students compare institutions common to all societies such as government, education, and religious institutions. Students explain how the level of technology affects the development of the various societies and identify different points of view about events. The concept of frame of reference is introduced as an influence on an individual's point of view.

(2) To support the teaching of the essential knowledge and skills, the use of a variety of rich primary and secondary source material such as biographies, autobiographies, novels, speeches, letters, poetry, songs, and artworks is encouraged. Motivating resources are available from museums, art galleries, and historical sites.

(3) The eight strands of the essential knowledge and skills for social studies are intended to be integrated for instructional purposes. Skills listed in the social studies skills strand in subsection (b) of this section should be incorporated into the teaching of all essential knowledge and skills for social studies. A greater depth of understanding of complex content material can be attained when integrated social studies content from the various disciplines and critical-thinking skills are taught together. Statements that contain the word "including" reference content that must be mastered, while those containing the phrase "such as" are intended as possible illustrative examples.

(4) Students identify the role of the U.S. free enterprise system within the parameters of this course and understand that this system may also be referenced as capitalism or the free market system.

(5) Throughout social studies in Kindergarten-Grade 12, students build a foundation in history; geography; economics; government; citizenship; culture; science, technology, and society; and social studies skills. The content, as appropriate for the grade level or course, enables students to understand the importance of patriotism, function in a free enterprise society, and appreciate the basic democratic values of our state and nation as referenced in the Texas Education Code (TEC), §28.002(h).

(6) Students understand that a constitutional republic is a representative form of government whose representatives derive their authority from the consent of the governed, serve for an established tenure, and are sworn to uphold the constitution.

(7) State and federal laws mandate a variety of celebrations and observances, including Celebrate Freedom Week.

(A) Each social studies class shall include, during Celebrate Freedom Week as provided under the TEC, §29.907, or during another full school week as determined by the board of trustees of a school district, appropriate instruction concerning the intent, meaning, and importance of the Declaration of Independence and the U.S. Constitution, including the Bill of Rights, in their historical contexts. The study of the Declaration of Independence must include the study of the relationship of the ideas expressed in that document to subsequent American history, including the relationship of its ideas to the rich diversity of our people as a nation of immigrants, the American Revolution, the formulation of the U.S. Constitution, and the abolitionist movement, which led to the Emancipation Proclamation and the women's suffrage movement.

(B) Each school district shall require that, during Celebrate Freedom Week or other week of instruction prescribed under subparagraph (A) of this paragraph, students in Grades 3-12 study and recite the following text from the Declaration of Independence: "We hold these Truths to be self-evident, that all Men are created equal, that they are endowed by their Creator with certain unalienable Rights, that among these are Life, Liberty and the Pursuit of Happiness--That to secure these Rights, Governments are instituted among Men, deriving their just Powers from the Consent of the Governed."

(8) Students discuss how and whether the actions of U.S. citizens and the local, state, and federal governments have achieved the ideals espoused in the founding documents.

(b) Knowledge and skills.

(1) History. The student understands that historical events influence contemporary events. The student is expected to:

(A) trace characteristics of various contemporary societies in regions that resulted from historical events or factors such as colonization, immigration, and trade; and

(B) analyze the historical background of various contemporary societies to evaluate relationships between past conflicts and current conditions.

(2) History. The student understands the influences of individuals and groups from various cultures on various historical and contemporary societies. The student is expected to:

(A) identify and describe the historical influence of individuals or groups on various contemporary societies; and

(B) describe the social, political, economic, and cultural contributions of individuals and groups from various societies, past and present.

(3) Geography. The student understands the factors that influence the locations and characteristics of locations of various contemporary societies on maps and/or globes. The student is expected to:

(A) identify and explain the geographic factors responsible for patterns of population in places and regions;

(B) explain ways in which human migration influences the character of places and regions;

(C) identify and locate major physical and human geographic features such as landforms, water bodies, and urban centers of various places and regions; and

(D) identify the location of major world countries for each of the world regions.

(4) Geography. The student understands how geographic factors influence the economic development and political relationships of societies. The student is expected to:

(A) explain the geographic factors responsible for the location of economic activities in places and regions; and

(B) identify geographic factors such as location, physical features, transportation corridors and barriers, and distribution of natural resources that influence a society's political relationships.

(5) Geography. The student understands the impact of interactions between people and the physical environment on the development and conditions of places and regions. The student is expected to:

(A) describe ways people have been impacted by physical processes such as earthquakes and climate;

(B) identify and analyze ways people have adapted to the physical environment in various places and regions; and

(C) identify and analyze ways people have modified the physical environment such as mining, irrigation, and transportation infrastructure.

(6) Economics. The student understands the factors of production in a society's economy. The student is expected to:

(A) describe ways in which the factors of production (natural resources, labor, capital, and entrepreneurs) influence the economies of various contemporary societies;

(B) identify problems that may arise when one or more of the factors of production is in relatively short supply; and

(C) explain the impact of the distribution of resources on international trade and economic interdependence among and within societies.

(7) Economics. The student understands the various ways in which people organize economic systems. The student is expected to:

(A) compare ways in which various societies organize the production and distribution of goods and services;

(B) compare and contrast free enterprise, socialist, and communist economies in various contemporary societies, including the benefits of the U.S. free enterprise system; and

(C) understand the importance of ethics in maintaining a functional free enterprise system.

(8) Economics. The student understands categories of economic activities and the data used to measure a society's economic level. The student is expected to:

(A) define and give examples of agricultural, retail, manufacturing (goods), and service industries; and

(B) describe levels of economic development of various societies using indicators such as life expectancy, gross domestic product (GDP), GDP per capita, and literacy.

(9) Government. The student understands the concepts of limited and unlimited governments. The student is expected to:

(A) describe and compare examples of limited and unlimited governments such as constitutional (limited) and totalitarian (unlimited);

(B) identify reasons for limiting the power of government; and

(C) identify and describe examples of human rights abuses by limited or unlimited governments such as the oppression of religious, ethnic, and political groups.

(10) Government. The student understands various ways in which people organize governments. The student is expected to:

(A) identify and give examples of governments with rule by one, few, or many;

(B) compare ways in which various societies such as China, Germany, India, and Russia organize government and how they function; and

(C) identify historical origins of democratic forms of government such as Ancient Greece.

(11) Citizenship. The student understands that the nature of citizenship varies among societies. The student is expected to:

(A) describe and compare roles and responsibilities of citizens in various contemporary societies, including the United States; and

(B) explain how opportunities for citizens to participate in and influence the political process vary among various contemporary societies.

(12) Citizenship. The student understands the relationship among individual rights, responsibilities, duties, and freedoms in societies with representative governments. The student is expected to:

(A) identify and explain the duty of civic participation in societies with representative governments; and

(B) explain relationships among rights, responsibilities, and duties in societies with representative governments.

(13) Culture. The student understands the similarities and differences within and among cultures in various world societies. The student is expected to:

(A) identify and describe common traits that define cultures and culture regions;

(B) define a multicultural society;

(C) analyze the experiences and contributions of diverse groups to multicultural societies; and

(D) identify and explain examples of conflict and cooperation between and among cultures.

(14) Culture. The student understands that all societies have basic institutions in common even though the characteristics of these institutions may differ. The student is expected to:

(A) identify institutions basic to all societies, including government, economic, educational, and religious institutions;

(B) compare characteristics of institutions in various contemporary societies; and

(C) analyze the efforts and activities institutions use to sustain themselves over time.

(15) Culture. The student understands relationships that exist among world cultures. The student is expected to:

(A) identify and describe means of cultural diffusion such as trade, travel, and war;

(B) identify and describe factors that influence cultural change such as improvements in communication, transportation, and economic development;

(C) analyze the impact of improved communication technology among cultures; and

(D) identify the impact of cultural diffusion on individuals and world societies.

(16) Culture. The student understands the relationship that exists between the arts and the societies in which they are produced. The student is expected to:

(A) explain the relationships that exist between societies and their architecture, art, music, and literature;

(B) describe ways in which contemporary issues influence creative expressions; and

(C) identify examples of art, music, and literature that convey universal themes such as religion, justice, and the passage of time.

(17) Culture. The student understands the relationships among religion, philosophy, and culture. The student is expected to:

(A) explain the relationship among religious ideas, philosophical ideas, and cultures; and

(B) explain the significance of religious holidays and observances such as Christmas, Easter, Ramadan, the annual hajj, Yom Kippur, Rosh Hashanah, Diwali, and Vaisakhi in various contemporary societies.

(18) Science, technology, and society. The student understands the influences of science and technology on contemporary societies. The student is expected to:

(A) identify examples of scientific discoveries, technological innovations, and scientists and inventors that have shaped the world;



(B) explain how resources, economic factors, and political decisions affect the use of technology; and

(C) make predictions about future social, political, economic, cultural, and environmental impacts that may result from future scientific discoveries and technological innovations.

(19) Social studies skills. The student applies critical-thinking skills to organize and use information acquired through established research methodologies from a variety of valid sources, including technology. The student is expected to:

(A) differentiate between, locate, and use valid primary and secondary sources such as oral, print, and visual material and artifacts to acquire information about various world cultures;

(B) analyze information by sequencing, categorizing, identifying cause-and-effect relationships, comparing, contrasting, finding the main idea, summarizing, making generalizations and predictions, and drawing inferences and conclusions;

(C) organize and interpret information from outlines, reports, databases, and visuals, including graphs, charts, timelines, and maps; and

(D) identify different points of view about an issue or current topic.

(20) Social studies skills. The student uses geographic tools to collect, analyze, and interpret data. The student is expected to:

(A) answer geographic questions, including: Where is it located? Why is it there? What is significant about its location? How is its location related to the location of other people, places, and environments? Using latitude and longitude, where is it located?;

(B) pose and answer questions about geographic distributions and patterns for various world regions and countries shown on maps, graphs, and charts;

(C) compare various world regions and countries using data from maps, graphs, and charts; and

(D) create and interpret regional sketch maps, thematic maps, graphs, and charts depicting aspects such as population, disease, and economic activities of various world regions and countries.

(21) Social studies skills. The student communicates in written, oral, and visual forms. The student is expected to:

(A) use social studies terminology correctly;

(B) incorporate main and supporting ideas in verbal and written communication based on research;

(C) express ideas orally based on research and experiences;

(D) create written and visual material such as journal entries, reports, graphic organizers, outlines, and bibliographies based on research; and

(E) use effective written communication skills, including proper citations to avoid plagiarism.

(22) Social studies skills. The student uses problem-solving and decision-making skills, working independently and with others. The student is expected to use problem-solving and decision-making processes to identify a problem, gather information, list and consider options, consider advantages and disadvantages, choose and implement a solution, and evaluate the effectiveness of the solution.

*Source: The provisions of this §113.18 adopted to be effective August 23, 2010, 35 TexReg 7232; amended to be effective August 1, 2019, 44 TexReg 1988.*

**§114.13. Implementation of Texas Essential Knowledge and Skills for Languages Other Than English, Middle School, Adopted 2014.**

(a) The provisions of this section and §114.14 of this title (relating to Languages Other Than English, Middle School, Adopted 2014) shall be implemented by school districts.

(b) No later than August 31, 2016, the commissioner of education shall determine whether instructional materials funding has been made available to Texas public schools for materials that cover the essential knowledge and skills for languages other than English as adopted in §114.14 of this title.

(c) If the commissioner makes the determination that instructional materials funding has been made available under subsection (b) of this section, §114.14 of this title shall be implemented beginning with the 2017-2018 school year and apply to the 2017-2018 and subsequent school years.

(d) If the commissioner does not make the determination that instructional materials funding has been made available under subsection (b) of this section, the commissioner shall determine no later than August 31 of each subsequent school year whether instructional materials funding has been made available. If the commissioner determines that instructional materials funding has been made available, the commissioner shall notify the State Board of Education and school districts that §114.14 of this title shall be implemented for the following school year.

(e) Section 114.11 of this title (relating to Implementation of Texas Essential Knowledge and Skills for Languages Other Than English, Middle School) and §114.12 of this title (relating to Languages Other Than English, Middle School) shall be superseded by the implementation of this section and §114.14 of this title.

*Source: The provisions of this §114.13 adopted to be effective July 15, 2014, 39 TexReg 5385; amended to be effective December 31, 2014, 39 TexReg 10471.*

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**§114.14. Languages Other Than English, Middle School, Adopted 2014.**

(a) According to the National Standards for Foreign Language Learning, advanced level language proficiency is necessary for college and career readiness. To that end, students should have uninterrupted, consistent access to early standards-based learning experiences in languages other than English. School districts are strongly encouraged to offer languages other than English in middle school. For districts that

offer languages in middle school, the essential knowledge and skills are those designated as levels I-IV in Subchapter C of this chapter (relating to Texas Essential Knowledge and Skills for Languages Other Than English).

(b) Students may be awarded one unit of high school credit per level for successful completion of the level or demonstration of equivalent proficiency and one-half to one unit of high school credit for successful completion of a non-sequential course.

(c) Districts may offer a level of a language in a variety of scheduling arrangements that may extend or reduce the traditional schedule when careful consideration is given to the instructional time available on a campus and the language ability, access to programs, and motivation of students.

*Source: The provisions of this §114.14 adopted to be effective July 15, 2014, 39 TexReg 5385.*