

Texas Essential Knowledge and Skills for Grade 5

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§110.16. English Language Arts and Reading, Grade 5, Beginning with School Year 2009-2010.

(a) Introduction.

- (1) The English Language Arts and Reading Texas Essential Knowledge and Skills (TEKS) are organized into the following strands: Reading, where students read and understand a wide variety of literary and informational texts; Writing, where students compose a variety of written texts with a clear controlling idea, coherent organization, and sufficient detail; Research, where students are expected to know how to locate a range of relevant sources and evaluate, synthesize, and present ideas and information; Listening and Speaking, where students listen and respond to the ideas of others while contributing their own ideas in conversations and in groups; and Oral and Written Conventions, where students learn how to use the oral and written conventions of the English language in speaking and writing. The standards are cumulative--students will continue to address earlier standards as needed while they attend to standards for their grade. In fifth grade, students will engage in activities that build on their prior knowledge and skills in order to strengthen their reading, writing, and oral language skills. Students should read and write on a daily basis.
- (2) For students whose first language is not English, the students' native language serves as a foundation for English language acquisition.
 - (A) English language learners (ELLs) are acquiring English, learning content in English, and learning to read simultaneously. For this reason, it is imperative that reading instruction should be comprehensive and that students receive instruction in phonemic awareness, phonics, decoding, and word attack skills while simultaneously being taught academic vocabulary and comprehension skills and strategies. Reading instruction that enhances ELL's ability to decode unfamiliar words and to make sense of those words in context will expedite their ability to make sense of what they read and learn from reading. Additionally, developing fluency, spelling, and grammatical conventions of academic language must be done in meaningful contexts and not in isolation.
 - (B) For ELLs, comprehension of texts requires additional scaffolds to support comprehensible input. ELL students should use the knowledge of their first language (e.g., cognates) to further vocabulary development. Vocabulary needs to be taught in the context of connected discourse so that language is meaningful. ELLs must learn how

rhetorical devices in English differ from those in their native language. At the same time English learners are learning in English, the focus is on academic English, concepts, and the language structures specific to the content.

- (C) During initial stages of English development, ELLs are expected to meet standards in a second language that many monolingual English speakers find difficult to meet in their native language. However, English language learners' abilities to meet these standards will be influenced by their proficiency in English. While English language learners can analyze, synthesize, and evaluate, their level of English proficiency may impede their ability to demonstrate this knowledge during the initial stages of English language acquisition. It is also critical to understand that ELLs with no previous or with interrupted schooling will require explicit and strategic support as they acquire English and learn to learn in English simultaneously.
 - (3) To meet Public Education Goal 1 of the Texas Education Code, §4.002, which states, "The students in the public education system will demonstrate exemplary performance in the reading and writing of the English language," students will accomplish the essential knowledge, skills, and student expectations at Grade 5 as described in subsection (b) of this section.
 - (4) To meet Texas Education Code, §28.002(h), which states, "... each school district shall foster the continuation of the tradition of teaching United States and Texas history and the free enterprise system in regular subject matter and in reading courses and in the adoption of textbooks," students will be provided oral and written narratives as well as other informational texts that can help them to become thoughtful, active citizens who appreciate the basic democratic values of our state and nation.
- (b) Knowledge and skills.
- (1) Reading/Fluency. Students read grade-level text with fluency and comprehension. Students are expected to read aloud grade-level stories with fluency (rate, accuracy, expression, appropriate phrasing) and comprehension.
 - (2) Reading/Vocabulary Development. Students understand new vocabulary and use it when reading and writing. Students are expected to:
 - (A) determine the meaning of grade-level academic English words derived from Latin, Greek, or other linguistic roots and affixes;
 - (B) use context (e.g., in-sentence restatement) to determine or clarify the meaning of unfamiliar or multiple meaning words;
 - (C) produce analogies with known antonyms and synonyms;
 - (D) identify and explain the meaning of common idioms, adages, and other sayings; and
 - (E) use a dictionary, a glossary, or a thesaurus (printed or electronic) to determine the meanings, syllabication, pronunciations, alternate word choices, and parts of speech of words.

- (3) Reading/Comprehension of Literary Text/Theme and Genre. Students analyze, make inferences and draw conclusions about theme and genre in different cultural, historical, and contemporary contexts and provide evidence from the text to support their understanding. Students are expected to:
 - (A) compare and contrast the themes or moral lessons of several works of fiction from various cultures;
 - (B) describe the phenomena explained in origin myths from various cultures; and
 - (C) explain the effect of a historical event or movement on the theme of a work of literature.
- (4) Reading/Comprehension of Literary Text/Poetry. Students understand, make inferences and draw conclusions about the structure and elements of poetry and provide evidence from text to support their understanding. Students are expected to analyze how poets use sound effects (e.g., alliteration, internal rhyme, onomatopoeia, rhyme scheme) to reinforce meaning in poems.
- (5) Reading/Comprehension of Literary Text/Drama. Students understand, make inferences and draw conclusions about the structure and elements of drama and provide evidence from text to support their understanding. Students are expected to analyze the similarities and differences between an original text and its dramatic adaptation.
- (6) Reading/Comprehension of Literary Text/Fiction. Students understand, make inferences and draw conclusions about the structure and elements of fiction and provide evidence from text to support their understanding. Students are expected to:
 - (A) describe incidents that advance the story or novel, explaining how each incident gives rise to or foreshadows future events;
 - (B) explain the roles and functions of characters in various plots, including their relationships and conflicts; and
 - (C) explain different forms of third-person points of view in stories.
- (7) Reading/Comprehension of Literary Text/Literary Nonfiction. Students understand, make inferences and draw conclusions about the varied structural patterns and features of literary nonfiction and provide evidence from text to support their understanding. Students are expected to identify the literary language and devices used in biographies and autobiographies, including how authors present major events in a person's life.
- (8) Reading/Comprehension of Literary Text/Sensory Language. Students understand, make inferences and draw conclusions about how an author's sensory language creates imagery in literary text and provide evidence from text to support their understanding. Students are expected to evaluate the impact of sensory details, imagery, and figurative language in literary text.
- (9) Reading/Comprehension of Text/Independent Reading. Students read independently for sustained periods of time and produce evidence of their reading. Students are expected to read independently for a sustained period of time and summarize or paraphrase what the reading was

- about, maintaining meaning and logical order (e.g., generate a reading log or journal; participate in book talks).
- (10) Reading/Comprehension of Informational Text/Culture and History. Students analyze, make inferences and draw conclusions about the author's purpose in cultural, historical, and contemporary contexts and provide evidence from the text to support their understanding. Students are expected to draw conclusions from the information presented by an author and evaluate how well the author's purpose was achieved.
- (11) Reading/Comprehension of Informational Text/Expository Text. Students analyze, make inferences and draw conclusions about expository text and provide evidence from text to support their understanding. Students are expected to:
- (A) summarize the main ideas and supporting details in a text in ways that maintain meaning and logical order;
 - (B) determine the facts in text and verify them through established methods;
 - (C) analyze how the organizational pattern of a text (e.g., cause-and-effect, compare-and-contrast, sequential order, logical order, classification schemes) influences the relationships among the ideas;
 - (D) use multiple text features and graphics to gain an overview of the contents of text and to locate information; and
 - (E) synthesize and make logical connections between ideas within a text and across two or three texts representing similar or different genres.
- (12) Reading/Comprehension of Informational Text/Persuasive Text. Students analyze, make inferences and draw conclusions about persuasive text and provide evidence from text to support their analysis. Students are expected to:
- (A) identify the author's viewpoint or position and explain the basic relationships among ideas (e.g., parallelism, comparison, causality) in the argument; and
 - (B) recognize exaggerated, contradictory, or misleading statements in text.
- (13) Reading/Comprehension of Informational Text/Procedural Texts. Students understand how to glean and use information in procedural texts and documents. Students are expected to:
- (A) interpret details from procedural text to complete a task, solve a problem, or perform procedures; and
 - (B) interpret factual or quantitative information presented in maps, charts, illustrations, graphs, timelines, tables, and diagrams.
- (14) Reading/Media Literacy. Students use comprehension skills to analyze how words, images, graphics, and sounds work together in various forms to impact meaning. Students continue to

- apply earlier standards with greater depth in increasingly more complex texts. Students are expected to:
- (A) explain how messages conveyed in various forms of media are presented differently (e.g., documentaries, online information, televised news);
 - (B) consider the difference in techniques used in media (e.g., commercials, documentaries, news);
 - (C) identify the point of view of media presentations; and
 - (D) analyze various digital media venues for levels of formality and informality.
- (15) Writing/Writing Process. Students use elements of the writing process (planning, drafting, revising, editing, and publishing) to compose text. Students are expected to:
- (A) plan a first draft by selecting a genre appropriate for conveying the intended meaning to an audience, determining appropriate topics through a range of strategies (e.g., discussion, background reading, personal interests, interviews), and developing a thesis or controlling idea;
 - (B) develop drafts by choosing an appropriate organizational strategy (e.g., sequence of events, cause-effect, compare-contrast) and building on ideas to create a focused, organized, and coherent piece of writing;
 - (C) revise drafts to clarify meaning, enhance style, include simple and compound sentences, and improve transitions by adding, deleting, combining, and rearranging sentences or larger units of text after rethinking how well questions of purpose, audience, and genre have been addressed;
 - (D) edit drafts for grammar, mechanics, and spelling; and
 - (E) revise final draft in response to feedback from peers and teacher and publish written work for appropriate audiences.
- (16) Writing/Literary Texts. Students write literary texts to express their ideas and feelings about real or imagined people, events, and ideas. Students are expected to:
- (A) write imaginative stories that include:
 - (i) a clearly defined focus, plot, and point of view;
 - (ii) a specific, believable setting created through the use of sensory details; and
 - (iii) dialogue that develops the story; and
 - (B) write poems using:
 - (i) poetic techniques (e.g., alliteration, onomatopoeia);

- (ii) figurative language (e.g., similes, metaphors); and
 - (iii) graphic elements (e.g., capital letters, line length).
- (17) Writing. Students write about their own experiences. Students are expected to write a personal narrative that conveys thoughts and feelings about an experience.
- (18) Writing/Expository and Procedural Texts. Students write expository and procedural or work-related texts to communicate ideas and information to specific audiences for specific purposes. Students are expected to:
 - (A) create multi-paragraph essays to convey information about the topic that:
 - (i) present effective introductions and concluding paragraphs;
 - (ii) guide and inform the reader's understanding of key ideas and evidence;
 - (iii) include specific facts, details, and examples in an appropriately organized structure; and
 - (iv) use a variety of sentence structures and transitions to link paragraphs;
 - (B) write formal and informal letters that convey ideas, include important information, demonstrate a sense of closure, and use appropriate conventions (e.g., date, salutation, closing); and
 - (C) write responses to literary or expository texts and provide evidence from the text to demonstrate understanding.
- (19) Writing/Persuasive Texts. Students write persuasive texts to influence the attitudes or actions of a specific audience on specific issues. Students are expected to write persuasive essays for appropriate audiences that establish a position and include sound reasoning, detailed and relevant evidence, and consideration of alternatives.
- (20) Oral and Written Conventions/Conventions. Students understand the function of and use the conventions of academic language when speaking and writing. Students continue to apply earlier standards with greater complexity. Students are expected to:
 - (A) use and understand the function of the following parts of speech in the context of reading, writing, and speaking:
 - (i) verbs (irregular verbs and active voice);
 - (ii) collective nouns (e.g., class, public);
 - (iii) adjectives (e.g., descriptive, including origins: French windows, American cars) and their comparative and superlative forms (e.g., good, better, best);
 - (iv) adverbs (e.g., frequency: usually, sometimes; intensity: almost, a lot);

- (v) prepositions and prepositional phrases to convey location, time, direction, or to provide details;
 - (vi) indefinite pronouns (e.g., all, both, nothing, anything);
 - (vii) subordinating conjunctions (e.g., while, because, although, if); and
 - (viii) transitional words (e.g., also, therefore);
- (B) use the complete subject and the complete predicate in a sentence; and
- (C) use complete simple and compound sentences with correct subject-verb agreement.
- (21) Oral and Written Conventions/Handwriting, Capitalization, and Punctuation. Students write legibly and use appropriate capitalization and punctuation conventions in their compositions. Students are expected to:
- (A) use capitalization for:
 - (i) abbreviations;
 - (ii) initials and acronyms; and
 - (iii) organizations;
 - (B) recognize and use punctuation marks including:
 - (i) commas in compound sentences; and
 - (ii) proper punctuation and spacing for quotations; and
 - (C) use proper mechanics including italics and underlining for titles and emphasis.
- (22) Oral and Written Conventions/Spelling. Students spell correctly. Students are expected to:
- (A) spell words with more advanced orthographic patterns and rules:
 - (i) consonant changes (e.g., /t/ to /sh/ in select, selection; /k/ to /sh/ in music, musician);
 - (ii) vowel changes (e.g., long to short in crime, criminal; long to schwa in define, definition; short to schwa in legality, legal); and
 - (iii) silent and sounded consonants (e.g., haste, hasten; sign, signal; condemn, condemnation);
 - (B) spell words with:

- (i) Greek Roots (e.g., tele, photo, graph, meter);
 - (ii) Latin Roots (e.g., spec, scribe, rupt, port, ject, dict);
 - (iii) Greek suffixes (e.g., -ology, -phobia, -ism, -ist); and
 - (iv) Latin derived suffixes (e.g., -able, -ible; -ance, -ence);
- (C) differentiate between commonly confused terms (e.g., its, it's; affect, effect);
- (D) use spelling patterns and rules and print and electronic resources to determine and check correct spellings; and
- (E) know how to use the spell-check function in word processing while understanding its limitations.
- (23) Research/Research Plan. Students ask open-ended research questions and develop a plan for answering them. Students are expected to:
- (A) brainstorm, consult with others, decide upon a topic, and formulate open-ended questions to address the major research topic; and
 - (B) generate a research plan for gathering relevant information about the major research question.
- (24) Research/Gathering Sources. Students determine, locate, and explore the full range of relevant sources addressing a research question and systematically record the information they gather. Students are expected to:
- (A) follow the research plan to collect data from a range of print and electronic resources (e.g., reference texts, periodicals, web pages, online sources) and data from experts;
 - (B) differentiate between primary and secondary sources;
 - (C) record data, utilizing available technology (e.g., word processors) in order to see the relationships between ideas, and convert graphic/visual data (e.g., charts, diagrams, timelines) into written notes;
 - (D) identify the source of notes (e.g., author, title, page number) and record bibliographic information concerning those sources according to a standard format; and
 - (E) differentiate between paraphrasing and plagiarism and identify the importance of citing valid and reliable sources.
- (25) Research/Synthesizing Information. Students clarify research questions and evaluate and synthesize collected information. Students are expected to:
- (A) refine the major research question, if necessary, guided by the answers to a secondary set of questions; and

- (B) evaluate the relevance, validity, and reliability of sources for the research.
- (26) **Research/Organizing and Presenting Ideas.** Students organize and present their ideas and information according to the purpose of the research and their audience. Students are expected to synthesize the research into a written or an oral presentation that:
- (A) compiles important information from multiple sources;
 - (B) develops a topic sentence, summarizes findings, and uses evidence to support conclusions;
 - (C) presents the findings in a consistent format; and
 - (D) uses quotations to support ideas and an appropriate form of documentation to acknowledge sources (e.g., bibliography, works cited).
- (27) **Listening and Speaking/Listening.** Students use comprehension skills to listen attentively to others in formal and informal settings. Students continue to apply earlier standards with greater complexity. Students are expected to:
- (A) listen to and interpret a speaker's messages (both verbal and nonverbal) and ask questions to clarify the speaker's purpose or perspective;
 - (B) follow, restate, and give oral instructions that include multiple action steps; and
 - (C) determine both main and supporting ideas in the speaker's message.
- (28) **Listening and Speaking/Speaking.** Students speak clearly and to the point, using the conventions of language. Students continue to apply earlier standards with greater complexity. Students are expected to give organized presentations employing eye contact, speaking rate, volume, enunciation, natural gestures, and conventions of language to communicate ideas effectively.
- (29) **Listening and Speaking/Teamwork.** Students work productively with others in teams. Students continue to apply earlier standards with greater complexity. Students are expected to participate in student-led discussions by eliciting and considering suggestions from other group members and by identifying points of agreement and disagreement.

Reading and Comprehension Skills—Fifth Grade

[Figure: 19 TAC §110.10\(b\)](#)

Reading/Comprehension Skills. Students use a flexible range of metacognitive reading skills in both assigned and independent reading to understand an author's message. Students will continue to apply earlier standards with greater depth in increasingly more complex texts as they become self-directed, critical readers. The student is expected to:

- (A) establish purposes for reading selected texts based upon own or others' desired outcome to enhance comprehension;

- (B) ask literal, interpretive, evaluative, and universal questions of text;
- (C) monitor and adjust comprehension (e.g., using background knowledge, creating sensory images, re-reading a portion aloud, generating questions);
- (D) make inferences about text and use textual evidence to support understanding;
- (E) summarize and paraphrase texts in ways that maintain meaning and logical order within a text and across texts; and
- (F) make connections (e.g., thematic links, author analysis) between and across multiple texts of various genres and provide textual evidence.

§111.7. Mathematics, Grade 5, 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) For students to become fluent in mathematics, students must develop a robust sense of number. The National Research Council's report, "Adding It Up," defines procedural fluency as "skill in carrying out procedures flexibly, accurately, efficiently, and appropriately." As students develop procedural fluency, they must also realize that true problem solving may take time, effort, and perseverance. Students in Grade 5 are expected to perform their work without the use of calculators.

- (4) The primary focal areas in Grade 5 are solving problems involving all four operations with positive rational numbers, determining and generating formulas and solutions to expressions, and extending measurement to area and volume. These focal areas are supported throughout the mathematical strands of number and operations, algebraic reasoning, geometry and measurement, and data analysis. In Grades 3-5, the number set is limited to positive rational numbers. In number and operations, students will apply place value and identify part-to-whole relationships and equivalence. In algebraic reasoning, students will represent and solve problems with expressions and equations, build foundations of functions through patterning, identify prime and composite numbers, and use the order of operations. In geometry and measurement, students will classify two-dimensional figures, connect geometric attributes to the measures of three-dimensional figures, use units of measure, and represent location using a coordinate plane. In data analysis, students will represent and interpret data.
- (5) 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, compare, and order positive rational numbers and understand relationships as related to place value. The student is expected to:
- (A) represent the value of the digit in decimals through the thousandths using expanded notation and numerals;

- (B) compare and order two decimals to thousandths and represent comparisons using the symbols $>$, $<$, or $=$; and
 - (C) round decimals to tenths or hundredths.
- (3) Number and operations. The student applies mathematical process standards to develop and use strategies and methods for positive rational number computations in order to solve problems with efficiency and accuracy. The student is expected to:
- (A) estimate to determine solutions to mathematical and real-world problems involving addition, subtraction, multiplication, or division;
 - (B) multiply with fluency a three-digit number by a two-digit number using the standard algorithm;
 - (C) solve with proficiency for quotients of up to a four-digit dividend by a two-digit divisor using strategies and the standard algorithm;
 - (D) represent multiplication of decimals with products to the hundredths using objects and pictorial models, including area models;
 - (E) solve for products of decimals to the hundredths, including situations involving money, using strategies based on place-value understandings, properties of operations, and the relationship to the multiplication of whole numbers;
 - (F) represent quotients of decimals to the hundredths, up to four-digit dividends and two-digit whole number divisors, using objects and pictorial models, including area models;
 - (G) solve for quotients of decimals to the hundredths, up to four-digit dividends and two-digit whole number divisors, using strategies and algorithms, including the standard algorithm;
 - (H) represent and solve addition and subtraction of fractions with unequal denominators referring to the same whole using objects and pictorial models and properties of operations;
 - (I) represent and solve multiplication of a whole number and a fraction that refers to the same whole using objects and pictorial models, including area models;
 - (J) represent division of a unit fraction by a whole number and the division of a whole number by a unit fraction such as $1/3 \div 7$ and $7 \div 1/3$ using objects and pictorial models, including area models;
 - (K) add and subtract positive rational numbers fluently; and
 - (L) divide whole numbers by unit fractions and unit fractions by whole numbers.
- (4) Algebraic reasoning. The student applies mathematical process standards to develop concepts of expressions and equations. The student is expected to:

- (A) identify prime and composite numbers;
 - (B) represent and solve multi-step problems involving the four operations with whole numbers using equations with a letter standing for the unknown quantity;
 - (C) generate a numerical pattern when given a rule in the form $y = ax$ or $y = x + a$ and graph;
 - (D) recognize the difference between additive and multiplicative numerical patterns given in a table or graph;
 - (E) describe the meaning of parentheses and brackets in a numeric expression;
 - (F) simplify numerical expressions that do not involve exponents, including up to two levels of grouping;
 - (G) use concrete objects and pictorial models to develop the formulas for the volume of a rectangular prism, including the special form for a cube ($V = l \times w \times h$, $V = s \times s \times s$, and $V = Bh$); and
 - (H) represent and solve problems related to perimeter and/or area and related to volume.
- (5) Geometry and measurement. The student applies mathematical process standards to classify two-dimensional figures by attributes and properties. The student is expected to classify two-dimensional figures in a hierarchy of sets and subsets using graphic organizers based on their attributes and properties.
- (6) Geometry and measurement. The student applies mathematical process standards to understand, recognize, and quantify volume. The student is expected to:
- (A) recognize a cube with side length of one unit as a unit cube having one cubic unit of volume and the volume of a three-dimensional figure as the number of unit cubes (n cubic units) needed to fill it with no gaps or overlaps if possible; and
 - (B) determine the volume of a rectangular prism with whole number side lengths in problems related to the number of layers times the number of unit cubes in the area of the base.
- (7) Geometry and measurement. The student applies mathematical process standards to select appropriate units, strategies, and tools to solve problems involving measurement. The student is expected to solve problems by calculating conversions within a measurement system, customary or metric.
- (8) Geometry and measurement. The student applies mathematical process standards to identify locations on a coordinate plane. The student is expected to:
- (A) describe the key attributes of the coordinate plane, including perpendicular number lines (axes) where the intersection (origin) of the two lines coincides with zero on each number line and the given point $(0, 0)$; the x -coordinate, the first number in an ordered pair, indicates movement parallel to the x -axis starting at the origin; and the y -coordinate, the second number, indicates movement parallel to the y -axis starting at the origin;

- (B) describe the process for graphing ordered pairs of numbers in the first quadrant of the coordinate plane; and
 - (C) graph in the first quadrant of the coordinate plane ordered pairs of numbers arising from mathematical and real-world problems, including those generated by number patterns or found in an input-output table.
- (9) Data analysis. The student applies mathematical process standards to solve problems by collecting, organizing, displaying, and interpreting data. The student is expected to:
- (A) represent categorical data with bar graphs or frequency tables and numerical data, including data sets of measurements in fractions or decimals, with dot plots or stem-and-leaf plots;
 - (B) represent discrete paired data on a scatterplot; and
 - (C) solve one- and two-step problems using data from a frequency table, dot plot, bar graph, stem-and-leaf plot, or scatterplot.
- (10) Personal financial literacy. The student applies mathematical process standards to manage one's financial resources effectively for lifetime financial security. The student is expected to:
- (A) define income tax, payroll tax, sales tax, and property tax;
 - (B) explain the difference between gross income and net income;
 - (C) identify the advantages and disadvantages of different methods of payment, including check, credit card, debit card, and electronic payments;
 - (D) develop a system for keeping and using financial records;
 - (E) describe actions that might be taken to balance a budget when expenses exceed income; and
 - (F) balance a simple budget.

§112.16. Science, Grade 5, Beginning with School Year 2010-2011.

- (a) Introduction.
 - (1) Science, as defined by the National Academy of Sciences, is the "use of evidence to construct testable explanations and predictions of natural phenomena, as well as the knowledge generated through this process."
 - (2) Recurring themes are pervasive in sciences, mathematics, and technology. These ideas transcend disciplinary boundaries and include patterns, cycles, systems, models, and change and constancy.

- (3) The study of elementary science includes planning and safely implementing classroom and outdoor investigations using scientific processes, including inquiry methods, analyzing information, making informed decisions, and using tools to collect and record information, while addressing the major concepts and vocabulary, in the context of physical, earth, and life sciences. Districts are encouraged to facilitate classroom and outdoor investigations for at least 50% of instructional time.
 - (4) In Grade 5, investigations are used to learn about the natural world. Students should understand that certain types of questions can be answered by investigations and that methods, models, and conclusions built from these investigations change as new observations are made. Models of objects and events are tools for understanding the natural world and can show how systems work. They have limitations and based on new discoveries are constantly being modified to more closely reflect the natural world.
 - (A) Within the physical environment, students learn about the physical properties of matter, including magnetism, physical states of matter, relative density, solubility in water, and the ability to conduct or insulate electrical and heat energy. Students explore the uses of light, thermal, electrical, and sound energies.
 - (B) Within the natural environment, students learn how changes occur on Earth's surface and that predictable patterns occur in the sky. Students learn that the natural world consists of resources, including nonrenewable, renewable, and alternative energy sources.
 - (C) Within the living environment, students learn that structure and function of organisms can improve the survival of members of a species. Students learn to differentiate between inherited traits and learned behaviors. Students learn that life cycles occur in animals and plants and that the carbon dioxide-oxygen cycle occurs naturally to support the living environment.
- (b) Knowledge and skills.
- (1) Scientific investigation and reasoning. The student conducts classroom and outdoor investigations following home and school safety procedures and environmentally appropriate and ethical practices. The student is expected to:
 - (A) demonstrate safe practices and the use of safety equipment as described in the Texas Safety Standards during classroom and outdoor investigations; and
 - (B) make informed choices in the conservation, disposal, and recycling of materials.
 - (2) Scientific investigation and reasoning. The student uses scientific methods during laboratory and outdoor investigations. The student is expected to:
 - (A) describe, plan, and implement simple experimental investigations testing one variable;
 - (B) ask well-defined questions, formulate testable hypotheses, and select and use appropriate equipment and technology;
 - (C) collect information by detailed observations and accurate measuring;

- (D) analyze and interpret information to construct reasonable explanations from direct (observable) and indirect (inferred) evidence;
 - (E) demonstrate that repeated investigations may increase the reliability of results;
 - (F) communicate valid conclusions in both written and verbal forms; and
 - (G) construct appropriate simple graphs, tables, maps, and charts using technology, including computers, to organize, examine, and evaluate information.
- (3) Scientific investigation and reasoning. The student uses critical thinking and scientific problem solving to make informed decisions. The student is expected to:
- (A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student;
 - (B) evaluate the accuracy of the information related to promotional materials for products and services such as nutritional labels;
 - (C) draw or develop a model that represents how something works or looks that cannot be seen such as how a soda dispensing machine works; and
 - (D) connect grade-level appropriate science concepts with the history of science, science careers, and contributions of scientists.
- (4) Scientific investigation and reasoning. The student knows how to use a variety of tools and methods to conduct science inquiry. The student is expected to:
- (A) collect, record, and analyze information using tools, including calculators, microscopes, cameras, computers, hand lenses, metric rulers, Celsius thermometers, prisms, mirrors, pan balances, triple beam balances, spring scales, graduated cylinders, beakers, hot plates, meter sticks, magnets, collecting nets, and notebooks; timing devices, including clocks and stopwatches; and materials to support observations of habitats or organisms such as terrariums and aquariums; and
 - (B) use safety equipment, including safety goggles and gloves.
- (5) Matter and energy. The student knows that matter has measurable physical properties and those properties determine how matter is classified, changed, and used. The student is expected to:
- (A) classify matter based on physical properties, including mass, magnetism, physical state (solid, liquid, and gas), relative density (sinking and floating), solubility in water, and the ability to conduct or insulate thermal energy or electric energy;
 - (B) identify the boiling and freezing/melting points of water on the Celsius scale;

- (C) demonstrate that some mixtures maintain physical properties of their ingredients such as iron filings and sand; and
 - (D) identify changes that can occur in the physical properties of the ingredients of solutions such as dissolving salt in water or adding lemon juice to water.
- (6) Force, motion, and energy. The student knows that energy occurs in many forms and can be observed in cycles, patterns, and systems. The student is expected to:
- (A) explore the uses of energy, including mechanical, light, thermal, electrical, and sound energy;
 - (B) demonstrate that the flow of electricity in circuits requires a complete path through which an electric current can pass and can produce light, heat, and sound;
 - (C) demonstrate that light travels in a straight line until it strikes an object or travels through one medium to another and demonstrate that light can be reflected such as the use of mirrors or other shiny surfaces and refracted such as the appearance of an object when observed through water; and
 - (D) design an experiment that tests the effect of force on an object.
- (7) Earth and space. The student knows Earth's surface is constantly changing and consists of useful resources. The student is expected to:
- (A) explore the processes that led to the formation of sedimentary rocks and fossil fuels;
 - (B) recognize how landforms such as deltas, canyons, and sand dunes are the result of changes to Earth's surface by wind, water, and ice;
 - (C) identify alternative energy resources such as wind, solar, hydroelectric, geothermal, and biofuels; and
 - (D) identify fossils as evidence of past living organisms and the nature of the environments at the time using models.
- (8) Earth and space. The student knows that there are recognizable patterns in the natural world and among the Sun, Earth, and Moon system. The student is expected to:
- (A) differentiate between weather and climate;
 - (B) explain how the Sun and the ocean interact in the water cycle;
 - (C) demonstrate that Earth rotates on its axis once approximately every 24 hours causing the day/night cycle and the apparent movement of the Sun across the sky; and
 - (D) identify and compare the physical characteristics of the Sun, Earth, and Moon.

- (9) Organisms and environments. The student knows that there are relationships, systems, and cycles within environments. The student is expected to:
- (A) observe the way organisms live and survive in their ecosystem by interacting with the living and non-living elements;
 - (B) describe how the flow of energy derived from the Sun, used by producers to create their own food, is transferred through a food chain and food web to consumers and decomposers;
 - (C) predict the effects of changes in ecosystems caused by living organisms, including humans, such as the overpopulation of grazers or the building of highways; and
 - (D) identify the significance of the carbon dioxide-oxygen cycle to the survival of plants and animals.
- (10) Organisms and environments. The student knows that organisms undergo similar life processes and have structures that help them survive within their environments. The student is expected to:
- (A) compare the structures and functions of different species that help them live and survive such as hooves on prairie animals or webbed feet in aquatic animals;
 - (B) differentiate between inherited traits of plants and animals such as spines on a cactus or shape of a beak and learned behaviors such as an animal learning tricks or a child riding a bicycle; and
 - (C) describe the differences between complete and incomplete metamorphosis of insects.

§113.16. Social Studies, Grade 5, Beginning with School Year 2011-2012.

- (a) Introduction.
- (1) In Grade 5, students survey the history of the United States from 1565 to the present. Historical content includes the colonial period, the American Revolution, the establishment of the U.S. Constitution and American identity, westward expansion, the Civil War and Reconstruction, immigration and industrialization, and the 20th and 21st centuries. Students study a variety of regions in the United States that result from physical features and human activity and identify how people adapt to and modify the environment. Students explain the characteristics and benefits of the free enterprise system and describe economic activities in the United States. Students identify the roots of representative government in this nation as well as the important ideas in the Declaration of Independence and the U.S. Constitution. Students study the fundamental rights guaranteed in the Bill of Rights. Students examine the importance of effective leadership in a constitutional republic and identify important leaders in the national government. Students recite and explain the meaning of the Pledge of Allegiance to the United States Flag. Students describe the cultural impact of various racial, ethnic, and religious groups in the nation and identify the accomplishments of notable individuals in the fields of science and technology. Students explain symbols, traditions, and landmarks that represent American beliefs and

principles. Students use critical-thinking skills to sequence, categorize, and summarize information and to draw inferences and conclusions.

- (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 documents, biographies, novels, speeches, letters, poetry, songs, and artworks is encouraged. Motivating resources are available from museums, historical sites, presidential libraries, and local and state preservation societies.
- (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: "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 identify and discuss how the actions of U.S. citizens and the local, state, and federal governments have either met or failed to meet the ideals espoused in the founding documents.

(b) Knowledge and skills.

- (1) History. The student understands the causes and effects of European colonization in the United States beginning in 1565, the founding of St. Augustine. The student is expected to:
- (A) explain when, where, and why groups of people explored, colonized, and settled in the United States, including the search for religious freedom and economic gain; and
 - (B) describe the accomplishments of significant individuals during the colonial period, including William Bradford, Anne Hutchinson, William Penn, John Smith, John Wise, and Roger Williams.
- (2) History. The student understands how conflict between the American colonies and Great Britain led to American independence. The student is expected to:
- (A) identify and analyze the causes and effects of events prior to and during the American Revolution, including the French and Indian War and the Boston Tea Party;
 - (B) identify the Founding Fathers and Patriot heroes, including John Adams, Samuel Adams, Benjamin Franklin, Nathan Hale, Thomas Jefferson, the Sons of Liberty, and George Washington, and their motivations and contributions during the revolutionary period; and
 - (C) summarize the results of the American Revolution, including the establishment of the United States and the development of the U.S. military.
- (3) History. The student understands the events that led from the Articles of Confederation to the creation of the U.S. Constitution and the government it established. The student is expected to:
- (A) identify the issues that led to the creation of the U.S. Constitution, including the weaknesses of the Articles of Confederation; and
 - (B) identify the contributions of individuals, including James Madison, and others such as George Mason, Charles Pinckney, and Roger Sherman who helped create the U.S. Constitution.
- (4) History. The student understands political, economic, and social changes that occurred in the United States during the 19th century. The student is expected to:
- (A) describe the causes and effects of the War of 1812;
 - (B) identify and explain how changes resulting from the Industrial Revolution led to conflict among sections of the United States;

- (C) identify reasons people moved west;
 - (D) identify significant events and concepts associated with U.S. territorial expansion, including the Louisiana Purchase, the expedition of Lewis and Clark, and Manifest Destiny;
 - (E) identify the causes of the Civil War, including sectionalism, states' rights, and slavery, and the effects of the Civil War, including Reconstruction and the 13th, 14th, and 15th amendments to the U.S. Constitution;
 - (F) explain how industry and the mechanization of agriculture changed the American way of life; and
 - (G) identify the challenges, opportunities, and contributions of people from various American Indian and immigrant groups.
- (5) History. The student understands important issues, events, and individuals in the United States during the 20th and 21st centuries. The student is expected to:
- (A) analyze various issues and events of the 20th century such as industrialization, urbanization, increased use of oil and gas, the Great Depression, the world wars, the civil rights movement, and military actions;
 - (B) analyze various issues and events of the 21st century such as the War on Terror and the 2008 presidential election; and
 - (C) identify the accomplishments of individuals and groups such as Jane Addams, Susan B. Anthony, Dwight Eisenhower, Martin Luther King Jr., Rosa Parks, Cesar Chavez, Franklin D. Roosevelt, Ronald Reagan, Colin Powell, the Tuskegee Airmen, and the 442nd Regimental Combat Team who have made contributions to society in the areas of civil rights, women's rights, military actions, and politics.
- (6) Geography. The student uses geographic tools to collect, analyze, and interpret data. The student is expected to:
- (A) apply geographic tools, including grid systems, legends, symbols, scales, and compass roses, to construct and interpret maps; and
 - (B) translate geographic data into a variety of formats such as raw data to graphs and maps.
- (7) Geography. The student understands the concept of regions in the United States. The student is expected to:
- (A) describe a variety of regions in the United States such as political, population, and economic regions that result from patterns of human activity;
 - (B) describe a variety of regions in the United States such as landform, climate, and vegetation regions that result from physical characteristics such as the Great Plains, Rocky Mountains, and Coastal Plains;

- (C) locate on a map important political features such as the ten largest urban areas in the United States, the 50 states and their capitals, and regions such as the Northeast, the Midwest, and the Southwest; and
 - (D) locate on a map important physical features such as the Rocky Mountains, Mississippi River, and Great Plains.
- (8) Geography. The student understands the location and patterns of settlement and the geographic factors that influence where people live. The student is expected to:
- (A) identify and describe the types of settlement and patterns of land use in the United States;
 - (B) explain the geographic factors that influence patterns of settlement and the distribution of population in the United States, past and present; and
 - (C) analyze the reasons for the location of cities in the United States, including capital cities, and explain their distribution, past and present.
- (9) Geography. The student understands how people adapt to and modify their environment. The student is expected to:
- (A) describe how and why people have adapted to and modified their environment in the United States, past and present, such as the use of human resources to meet basic needs; and
 - (B) analyze the positive and negative consequences of human modification of the environment in the United States, past and present.
- (10) Economics. The student understands the basic economic patterns of early societies in the United States. The student is expected to:
- (A) explain the economic patterns of early European colonists; and
 - (B) identify major industries of colonial America.
- (11) Economics. The student understands the development, characteristics, and benefits of the free enterprise system in the United States. The student is expected to:
- (A) describe the development of the free enterprise system in colonial America and the United States;
 - (B) describe how the free enterprise system works in the United States; and
 - (C) give examples of the benefits of the free enterprise system in the United States.
- (12) Economics. The student understands the impact of supply and demand on consumers and producers in a free enterprise system. The student is expected to:
- (A) explain how supply and demand affects consumers in the United States; and

- (B) evaluate the effects of supply and demand on business, industry, and agriculture, including the plantation system, in the United States.
- (13) Economics. The student understands patterns of work and economic activities in the United States. The student is expected to:
- (A) compare how people in different parts of the United States earn a living, past and present;
 - (B) identify and explain how geographic factors have influenced the location of economic activities in the United States;
 - (C) analyze the effects of immigration, migration, and limited resources on the economic development and growth of the United States;
 - (D) describe the impact of mass production, specialization, and division of labor on the economic growth of the United States; and
 - (E) explain the impact of American ideas about progress and equality of opportunity on the economic development and growth of the United States.
- (14) Government. The student understands the organization of governments in colonial America. The student is expected to:
- (A) identify and compare the systems of government of early European colonists, including representative government and monarchy; and
 - (B) identify examples of representative government in the American colonies, including the Mayflower Compact and the Virginia House of Burgesses.
- (15) Government. The student understands important ideas in the Declaration of Independence, the U.S. Constitution, and the Bill of Rights. The student is expected to:
- (A) identify the key elements and the purposes and explain the importance of the Declaration of Independence;
 - (B) explain the purposes of the U.S. Constitution as identified in the Preamble; and
 - (C) explain the reasons for the creation of the Bill of Rights and its importance.
- (16) Government. The student understands the framework of government created by the U.S. Constitution of 1787. The student is expected to:
- (A) identify and explain the basic functions of the three branches of government;
 - (B) identify the reasons for and describe the system of checks and balances outlined in the U.S. Constitution; and
 - (C) distinguish between national and state governments and compare their responsibilities in the U.S. federal system.

- (17) Citizenship. The student understands important symbols, customs, celebrations, and landmarks that represent American beliefs and principles and contribute to our national identity. The student is expected to:
- (A) explain various patriotic symbols, including Uncle Sam, and political symbols such as the donkey and elephant;
 - (B) sing or recite "The Star-Spangled Banner" and explain its history;
 - (C) recite and explain the meaning of the Pledge of Allegiance to the United States Flag;
 - (D) describe the origins and significance of national celebrations such as Memorial Day, Independence Day, Labor Day, Constitution Day, Columbus Day, and Veterans Day; and
 - (E) explain the significance of important landmarks, including the White House, the Statue of Liberty, and Mount Rushmore.
- (18) Citizenship. The student understands the importance of individual participation in the democratic process at the local, state, and national levels. The student is expected to:
- (A) explain the duty individuals have to participate in civic affairs at the local, state, and national levels; and
 - (B) explain how to contact elected and appointed leaders in local, state, and national governments.
- (19) Citizenship. The student understands the importance of effective leadership in a constitutional republic. The student is expected to:
- (A) explain the contributions of the Founding Fathers to the development of the national government;
 - (B) identify past and present leaders in the national government, including the president and various members of Congress, and their political parties; and
 - (C) identify and compare leadership qualities of national leaders, past and present.
- (20) Citizenship. The student understands the fundamental rights of American citizens guaranteed in the Bill of Rights and other amendments to the U.S. Constitution. The student is expected to:
- (A) describe the fundamental rights guaranteed by each amendment in the Bill of Rights, including freedom of religion, speech, and press; the right to assemble and petition the government; the right to keep and bear arms; the right to trial by jury; and the right to an attorney; and
 - (B) describe various amendments to the U.S. Constitution such as those that extended voting rights of U.S. citizens.

- (21) Culture. The student understands the relationship between the arts and the times during which they were created. The student is expected to:
- (A) identify significant examples of art, music, and literature from various periods in U.S. history such as the painting *American Progress*, "Yankee Doodle," and "Paul Revere's Ride"; and
 - (B) explain how examples of art, music, and literature reflect the times during which they were created.
- (22) Culture. The student understands the contributions of people of various racial, ethnic, and religious groups to the United States. The student is expected to:
- (A) identify the similarities and differences within and among various racial, ethnic, and religious groups in the United States;
 - (B) describe customs and traditions of various racial, ethnic, and religious groups in the United States; and
 - (C) summarize the contributions of people of various racial, ethnic, and religious groups to our national identity.
- (23) Science, technology, and society. The student understands the impact of science and technology on society in the United States. The student is expected to:
- (A) identify the accomplishments of notable individuals in the fields of science and technology, including Benjamin Franklin, Eli Whitney, John Deere, Thomas Edison, Alexander Graham Bell, George Washington Carver, the Wright Brothers, and Neil Armstrong;
 - (B) identify how scientific discoveries, technological innovations, and the rapid growth of technology industries have advanced the economic development of the United States, including the transcontinental railroad and the space program;
 - (C) explain how scientific discoveries and technological innovations in the fields of medicine, communication, and transportation have benefited individuals and society in the United States; and
 - (D) predict how future scientific discoveries and technological innovations could affect society in the United States.
- (24) Social studies skills. The student applies critical-thinking skills to organize and use information acquired from a variety of valid sources, including electronic technology. The student is expected to:
- (A) differentiate between, locate, and use valid primary and secondary sources such as computer software; interviews; biographies; oral, print, and visual material; documents; and artifacts to acquire information about the United States;

- (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 in outlines, reports, databases, and visuals, including graphs, charts, timelines, and maps;
 - (D) identify different points of view about an issue, topic, or current event; and
 - (E) identify the historical context of an event.
- (25) 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;
 - (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; and
 - (E) use standard grammar, spelling, sentence structure, and punctuation.
- (26) Social studies skills. The student uses problem-solving and decision-making skills, working independently and with others, in a variety of settings. The student is expected to:
- (A) use a problem-solving process 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; and
 - (B) use a decision-making process to identify a situation that requires a decision, gather information, identify options, predict consequences, and take action to implement a decision.

§114.4. Languages Other Than English, Elementary, 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 the elementary grades in immersion or Foreign Language in Elementary Schools (FLES) settings with consistent and frequent exposure. For districts that offer languages in elementary school, the expected student outcomes are the same as those designated at levels I-IV in Subchapter C of this chapter (relating to Texas Essential Knowledge and Skills for Languages Other Than English).

- (b) 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.
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§115.7. Health Education, Grade 5.

- (a) Introduction.
- (1) In health education, students acquire the health information and skills necessary to become healthy adults and learn about behaviors in which they should and should not participate. To achieve that goal, students will understand the following: students should first seek guidance in the area of health from their parents; personal behaviors can increase or reduce health risks throughout the lifespan; health is influenced by a variety of factors; students can recognize and utilize health information and products; and personal/interpersonal skills are needed to promote individual, family, and community health.
 - (2) In addition to age-appropriate information about personal health habits, students in Grade 5 are taught about the human body and the changes that come with puberty. Students are taught how to maintain healthy body systems and prevent disease. Students also learn how technology and the media influence personal health and how to apply problem-solving skills to improve or protect their health.
- (b) Knowledge and skills.
- (1) Health information. The student knows ways to enhance and maintain personal health throughout the life span. The student is expected to:
 - (A) examine and analyze food labels and menus for nutritional content;
 - (B) apply information from the food guide pyramid to making healthy food choices;
 - (C) identify foods that are sources of one or more of the six major nutrients;
 - (D) calculate the relationship between caloric intake and energy expenditure;
 - (E) differentiate between health-related and skill-related physical activities; and
 - (F) analyze the components of a personal health maintenance plan for individuals and families such as stress management and personal safety.
 - (2) Health information. The student recognizes the basic structures and functions of the human body and how they relate to personal health throughout the life span. The student is expected to:
 - (A) describe the structure, functions, and interdependence of major body systems; and
 - (B) identify and describe changes in male and female anatomy that occur during puberty.

- (3) Health information. The student knows how to utilize health information. The student is expected to:
- (A) describe methods of accessing health information; and
 - (B) demonstrate ways to communicate health information such as posters, videos, and brochures.
- (4) Health behaviors. The student recognizes behaviors that prevent disease and speed recovery from illness. The student is expected to:
- (A) explain how to maintain the healthy status of body systems such as avoiding smoking to protect the lungs;
 - (B) relate the importance of immunizations in disease prevention;
 - (C) distinguish between myth and fact related to disease and disease prevention;
 - (D) list the effects of harmful viruses on the body such as polio, Human Immunodeficiency Virus (HIV), and the common cold; and
 - (E) explain how to manage common minor illnesses such as colds and skin infections.
- (5) Health behaviors. The student comprehends behaviors that reduce health risks throughout the life span. The student is expected to:
- (A) describe the use and abuse of prescription and non-prescription medications such as over-the-counter;
 - (B) compare and contrast the effects of medications and street drugs;
 - (C) analyze the short-term and long-term harmful effects of alcohol, tobacco, and other substances on the functions of the body systems such as physical, mental, social, and legal consequences;
 - (D) identify and describe alternatives to drug and substance use;
 - (E) demonstrate strategies for preventing and responding to deliberate and accidental injuries;
 - (F) explain strategies for avoiding violence, gangs, weapons and drugs;
 - (G) describe response procedures for emergency situations;
 - (H) describe the value of seeking advice from parents and educational personnel about unsafe behaviors; and
 - (I) explain the impact of neglect and abuse.

- (6) Influencing factors. The student understands how relationships influence individual and family health including the skills necessary for building and maintaining relationships. The student is expected to:
- (A) distinguish between healthy and harmful influences of friends and others;
 - (B) describe the characteristics of healthy and unhealthy friendships;
 - (C) identify ways to enhance personal communication skills;
 - (D) analyze respectful ways to communicate with family, adults, and peers;
 - (E) demonstrate ways of communicating with individuals who communicate in unique ways such as having a speech defect and not speaking English;
 - (F) apply and practice strategies for self-control; and
 - (G) describe strategies for stress management.
- (7) Influencing factors. The student comprehends ways in which media and technology influence individual and community health. The student is expected to:
- (A) research the effect of media on health-promoting behaviors; and
 - (B) identify the use of health-related technology in the school such as audiometry and the Internet.
- (8) Influencing factors. The student knows how various factors influence individual, family, and community health throughout the life span. The student is expected to:
- (A) explain the importance of communication skills as a major influence on the social and emotional health of the individual and family;
 - (B) describe daily and weekly activities that promote the health of a family;
 - (C) describe how a safe school environment relates to a healthy community; and
 - (D) identify environmental protection programs that promote community health such as recycling, waste disposal, or safe food packaging.
- (9) Personal/interpersonal skills. The student demonstrates critical-thinking, decision-making, goal-setting and problem-solving skills for making healthy decisions. The student is expected to:
- (A) describe health-related situations that require parent/adult assistance such as a discussion of the health-related consequences of high-risk health behaviors or going to a doctor;

- (B) assess the role of assertiveness, refusal skills, and peer pressure on decision making and problem solving;
 - (C) utilize critical thinking in decision making and problem solving;
 - (D) describe benefits in setting and implementing short and long-term goals;
 - (E) explain the necessity of perseverance to achieve goals; and
 - (F) explain the importance of parent/trusted adult guidance in goal setting.
- (10) Bullying prevention. The student understands positive bystander prevention strategies in helping to maintain positive relationships and respect. The student is expected to:
- (A) analyze respectful ways to communicate with friends, family, teachers, and others;
 - (B) describe appropriate ways to address bullying on behalf of a friend or peer;
 - (C) explain the differences among teasing, joking, playing around, and bullying;
 - (D) identify methods available through which to report bullying; and
 - (E) describe the difference between reporting and tattling.

§116.7. Physical Education, Grade 5.

- (a) Introduction.
- (1) In Physical Education, students acquire the knowledge and skills for movement that provide the foundation for enjoyment, continued social development through physical activity, and access to a physically-active lifestyle. The student exhibits a physically-active lifestyle and understands the relationship between physical activity and health throughout the lifespan.
 - (2) Fifth grade students demonstrate competence such as improved accuracy in manipulative skills in dynamic situations. Basic skills such as jumping rope, moving to a beat, and catching and throwing should have been mastered in previous years and can now be used in game-like situations. Students continue to assume responsibility for their own safety and the safety of others. Students can match different types of physical activities to health-related fitness components and explain ways to improve fitness based on the principle of frequency, intensity, and time. Students continue to learn the etiquette of participation and can resolve conflicts during games and sports in acceptable ways.
- (b) Knowledge and skills.
- (1) Movement. The student demonstrates competency in movement patterns and proficiency in a few specialized movement forms. The student is expected to:

- (A) demonstrate appropriate use of levels in dynamic movement situations such as jumping high for a rebound and bending knees and lowering center of gravity when guarding an opponent;
 - (B) demonstrate smooth combinations of fundamental locomotor skills such as running and dodging and hop-step-jump;
 - (C) demonstrate attention to form, power, accuracy, and follow-through in performing movement skills;
 - (D) demonstrate controlled balance on a variety of objects such as balance board, stilts, scooters, and skates;
 - (E) demonstrate simple stunts that exhibit agility such as jumping challenges with proper landings;
 - (F) combine traveling and rolling with smooth transitions;
 - (G) combine weight transfer and balance on mats and equipment;
 - (H) demonstrate the ability to contrast a partner's movement;
 - (I) perform selected folk dances;
 - (J) jump a rope using various rhythms and foot patterns repeatedly;
 - (K) demonstrate competence in manipulative skills in dynamic situations such as overhand throw, catch, shooting, hand dribble, foot dribble, kick, and striking activities such as hitting a softball; and
 - (L) demonstrate combinations of locomotor and manipulative skills in complex and/or game-like situations such as pivoting and throwing, twisting and striking, and running and catching.
- (2) Movement. The student applies movement concepts and principles to the learning and development of motor skills. The student is expected to:
- (A) identify common phases such as preparation, movement, follow through, or recovery in a variety of movement skills such as tennis serve, handstand, and free throw;
 - (B) identify the importance of various elements of performance for different stages during skill learning such as form, power, accuracy, and consistency; and
 - (C) choose appropriate drills/activities to enhance the learning of a specific skill.
- (3) Physical activity and health. The student exhibits a health-enhancing, physically-active lifestyle that provides opportunities for enjoyment and challenge. The student is expected to:

- (A) participate in moderate to vigorous physical activities on a daily basis that develop health-related fitness;
 - (B) identify appropriate personal fitness goals in each of the components of health-related fitness; and
 - (C) explain the value of participation in community physical activities such as little league and parks and recreation.
- (4) Physical activity and health. The student knows the benefits from involvement in daily physical activity and factors that affect physical performance. The student is expected to:
- (A) relate ways that aerobic exercise strengthens and improves the efficiency of the heart and lungs;
 - (B) self-monitor the heart rate during exercise;
 - (C) match different types of physical activity with health-related fitness components;
 - (D) define the principle of frequency, intensity, and time and describe how to incorporate these principles to improve fitness;
 - (E) describe the structure and function of the muscular and skeletal system as they relate to physical performance such as muscles pull on bones to cause movement, muscles work in pairs, and muscles work by contracting and relaxing;
 - (F) identify the relationship between optimal body function and a healthy eating plan such as eating a variety of foods in moderation according to U. S. dietary guidelines;
 - (G) describe common skeletal problems and their effect on the body such as spinal curvatures;
 - (H) describe the changes that occur in the cardiorespiratory system as a result of smoking and how those changes affect the ability to perform physical activity; and
 - (I) describe how movement and coordination are effected by alcohol and other drugs.
- (5) Physical activity and health. The student understands and applies safety practices associated with physical activities. The student is expected to:
- (A) use equipment safely and properly;
 - (B) select and use proper attire that promotes participation and prevents injury;
 - (C) describe the importance of taking personal responsibility for reducing hazards, avoiding accidents, and preventing injuries during physical activity; and
 - (D) identify potentially dangerous exercises and their adverse effects on the body.

- (6) Social development. The student understands basic components such as strategies and rules of structured physical activities including, but not limited to, games, sports, dance, and gymnastics. The student is expected to:
- (A) describe fundamental components and strategies used in net/wall, invasion, target, and fielding games such as basic positions-goalie, offense, or defense; and
 - (B) explain the concept and importance of team work.
- (7) Social development. The student develops positive self-management and social skills needed to work independently and with others in physical activity settings. The student is expected to:
- (A) follow rules, procedures, and etiquette;
 - (B) use sportsmanship skills for settling disagreements in socially acceptable ways such as remaining calm, identifying the problem, listening to others, generating solutions, or choosing a solution that is acceptable to all; and
 - (C) describe how physical activity with a partner or partners can increase motivation and enhance safety.

§117.117. Art, Grade 5, Adopted 2013.

- (a) Introduction.
- (1) The fine arts incorporate the study of dance, music, theatre, and the visual arts to offer unique experiences and empower students to explore realities, relationships, and ideas. These disciplines engage and motivate all students through active learning, critical thinking, and innovative problem solving. The fine arts develop cognitive functioning and increase student academic achievement, higher-order thinking, communication, and collaboration skills, making the fine arts applicable to college readiness, career opportunities, workplace environments, social skills, and everyday life. Students develop aesthetic and cultural awareness through exploration, leading to creative expression. Creativity, encouraged through the study of the fine arts, is essential to nurture and develop the whole child.
 - (2) Four basic strands--foundations: observation and perception; creative expression; historical and cultural relevance; and critical evaluation and response--provide broad, unifying structures for organizing the knowledge and skills students are expected to acquire. Each strand is of equal value and may be presented in any order throughout the year. Students rely on personal observations and perceptions, which are developed through increasing visual literacy and sensitivity to surroundings, communities, memories, imaginings, and life experiences, as sources for thinking about, planning, and creating original artworks. Students communicate their thoughts and ideas with innovation and creativity. Through art, students challenge their imaginations, foster critical thinking, collaborate with others, and build reflective skills. While exercising meaningful problem-solving skills, students develop the lifelong ability to make informed judgments.

- (3) 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) Foundations: observation and perception. The student develops and expands visual literacy skills using critical thinking, imagination, and the senses to observe and explore the world by learning about, understanding, and applying the elements of art, principles of design, and expressive qualities. The student uses what the student sees, knows, and has experienced as sources for examining, understanding, and creating artworks. The student is expected to:
 - (A) develop and communicate ideas drawn from life experiences about self, peers, family, school, or community and from the imagination as sources for original works of art;
 - (B) use appropriate vocabulary when discussing the elements of art, including line, shape, color, texture, form, space, and value, and the principles of design, including emphasis, repetition/pattern, movement/rhythm, contrast/variety, balance, proportion, and unity; and
 - (C) discuss the elements of art as building blocks and the principles of design as organizers of works of art.
 - (2) Creative expression. The student communicates ideas through original artworks using a variety of media with appropriate skills. The student expresses thoughts and ideas creatively while challenging the imagination, fostering reflective thinking, and developing disciplined effort and progressive problem-solving skills. The student is expected to:
 - (A) integrate ideas drawn from life experiences to create original works of art;
 - (B) create compositions using the elements of art and principles of design; and
 - (C) produce drawings; paintings; prints; sculpture, including modeled forms; and other art forms such as ceramics, fiber art, constructions, digital art and media, and photographic imagery using a variety of materials.
 - (3) Historical and cultural relevance. The student demonstrates an understanding of art history and culture by analyzing artistic styles, historical periods, and a variety of cultures. The student develops global awareness and respect for the traditions and contributions of diverse cultures. The student is expected to:
 - (A) compare the purpose and effectiveness of artworks from various times and places, evaluating the artist's use of media and techniques, expression of emotions, or use of symbols;
 - (B) compare the purpose and effectiveness of artworks created by historic and contemporary men and women, making connections to various cultures;

- (C) connect art to career opportunities for positions such as architects, animators, cartoonists, engineers, fashion designers, film makers, graphic artists, illustrators, interior designers, photographers, and web designers; and
 - (D) investigate connections of visual art concepts to other disciplines.
- (4) Critical evaluation and response. The student responds to and analyzes artworks of self and others, contributing to the development of lifelong skills of making informed judgments and reasoned evaluations. The student is expected to:
- (A) evaluate the elements of art, principles of design, general intent, media and techniques, or expressive qualities in artworks of self, peers, or historical and contemporary artists;
 - (B) use methods such as written or oral response or artist statements to identify themes found in collections of artworks created by self, peers, and major historical or contemporary artists in real or virtual portfolios, galleries, or art museums; and
 - (C) compile collections of personal artworks for purposes of self-assessment or exhibition such as physical artworks, electronic images, sketchbooks, or portfolios.

§117.118. Music, Grade 5, Adopted 2013.

- (a) Introduction.
 - (1) The fine arts incorporate the study of dance, music, theatre, and the visual arts to offer unique experiences and empower students to explore realities, relationships, and ideas. These disciplines engage and motivate all students through active learning, critical thinking, and innovative problem solving. The fine arts develop cognitive functioning and increase student academic achievement, higher-order thinking, communication, and collaboration skills, making the fine arts applicable to college readiness, career opportunities, workplace environments, social skills, and everyday life. Students develop aesthetic and cultural awareness through exploration, leading to creative expression. Creativity, encouraged through the study of the fine arts, is essential to nurture and develop the whole child.
 - (2) Four basic strands--foundations: music literacy; creative expression; historical and cultural relevance; and critical evaluation and response--provide broad, unifying structures for organizing the knowledge and skills students are expected to acquire. The foundation of music literacy is fostered through reading, writing, reproducing, and creating music, thus developing a student's intellect. Through creative expression, students apply their music literacy and the critical-thinking skills of music to sing, play, read, write, and/or move. By experiencing musical periods and styles, students will understand the relevance of music to history, culture, and the world, including the relationship of music to other academic disciplines and the vocational possibilities offered. Through critical listening, students analyze, evaluate, and respond to music, developing criteria for making critical judgments and informed choices.

- (3) 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) Foundations: music literacy. The student describes and analyzes musical sound. The student is expected to:
- (A) distinguish among a variety of musical timbres, including those of children's voices and soprano, alto, tenor, and bass adult voices;
 - (B) distinguish among a variety of musical timbres, including those of woodwind, brass, string, percussion, keyboard, electronic instruments, and instruments of various cultures;
 - (C) use known music symbols and terminology referring to rhythm; melody; timbre; form; tempo, including *accelerando* and *ritardando*; dynamics; articulation; and meter, including simple and compound, to explain musical sounds presented aurally; and
 - (D) identify and label small and large musical forms such as *abac*, *AB*, and *ABA*; *rondo*; and theme and variations presented aurally in simple songs and larger works.
- (2) Foundations: music literacy. The student reads, writes, and reproduces music notation using a system. Technology and other tools may be used to read, write, and reproduce musical examples. The student is expected to:
- (A) read, write, and reproduce rhythmic patterns using standard notation, including syncopated patterns, and previously learned note values in 2/4, 3/4, or 4/4 meters as appropriate;
 - (B) read, write, and reproduce extended pentatonic and diatonic melodic patterns using standard staff notation; and
 - (C) identify and interpret new and previously learned music symbols and terms referring to tempo, including *accelerando* and *ritardando*; dynamics; articulation; and meter, including simple and compound.
- (3) Creative expression. The student performs a varied repertoire of developmentally appropriate music in informal or formal settings. The student is expected to:
- (A) sing and play classroom instruments independently or in groups with accurate intonation and rhythm;
 - (B) sing or play a varied repertoire of music such as American folk songs, patriotic music, and folk songs representative of local and world cultures independently or in groups;
 - (C) move alone and with others to a varied repertoire of music using gross motor, fine motor, locomotor, and non-locomotor skills and integrated movement such as hands and feet moving together;

- (D) perform various folk dances and play parties;
 - (E) perform simple two-part music, including rhythmic and melodic ostinati, rounds, partner songs, and counter melodies; and
 - (F) interpret through performance new and previously learned music symbols and terms referring to tempo, including *accelerando* and *ritardando*; dynamics; articulation; and meter, including simple and compound.
- (4) Creative expression. The student creates and explores new musical ideas within specified guidelines. The student is expected to:
- (A) create rhythmic phrases through improvisation and composition;
 - (B) create melodic phrases through improvisation and composition; and
 - (C) create simple accompaniments through improvisation and composition.
- (5) Historical and cultural relevance. The student examines music in relation to history and cultures. The student is expected to:
- (A) perform a varied repertoire of songs, movement, and musical games representative of diverse cultures such as historical folk songs of Texas and America and European and African cultures in America;
 - (B) perform music representative of Texas and America, including "The Star Spangled Banner";
 - (C) identify and describe music from diverse genres, styles, periods, and cultures; and
 - (D) examine the relationships between music and interdisciplinary concepts.
- (6) Critical evaluation and response. The student listens to, responds to, and evaluates music and musical performances. The student is expected to:
- (A) exhibit audience etiquette during live and recorded performances;
 - (B) identify known rhythmic and melodic elements in aural examples using appropriate vocabulary;
 - (C) describe specific musical events such as changes in timbre, form, tempo, dynamics, or articulation in aural examples using appropriate vocabulary;
 - (D) respond verbally and through movement to short musical examples;
 - (E) evaluate a variety of compositions and formal or informal musical performances using specific criteria; and

- (F) justify personal preferences for specific music works and styles using music vocabulary.

§117.119. Theatre, Grade 5, Adopted 2013.

- (a) Introduction.
- (1) The fine arts incorporate the study of dance, music, theatre, and the visual arts to offer unique experiences and empower students to explore realities, relationships, and ideas. These disciplines engage and motivate all students through active learning, critical thinking, and innovative problem solving. The fine arts develop cognitive functioning and increase student academic achievement, higher-order thinking, communication, and collaboration skills, making the fine arts applicable to college readiness, career opportunities, workplace environments, social skills, and everyday life. Students develop aesthetic and cultural awareness through exploration, leading to creative expression. Creativity, encouraged through the study of the fine arts, is essential to nurture and develop the whole child.
 - (2) Four basic strands--foundations: inquiry and understanding; creative expression; historical and cultural relevance; and critical evaluation and response--provide broad, unifying structures for organizing knowledge and skills students are expected to acquire. Through the foundations: inquiry and understanding strand, students develop a perception of self, human relationships, and the world using elements of drama and conventions of theatre. Through the creative expression strand, students communicate in a dramatic form, engage in artistic thinking, build positive self-concepts, relate interpersonally, and integrate knowledge with other content areas in a relevant manner. Through the historical and cultural relevance strand, students increase their understanding of heritage and traditions in theatre and the diversity of world cultures as expressed in theatre. Through the critical evaluation and response strand, students engage in inquiry and dialogue, accept constructive criticism, revise personal views to promote creative and critical thinking, and develop the ability to appreciate and evaluate live theatre.
 - (3) 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) Foundations: inquiry and understanding. The student develops concepts about self, human relationships, and the environment using elements of drama and conventions of theatre. The student is expected to:
 - (A) develop characterization using sensory and emotional recall;
 - (B) develop body awareness and spatial perceptions using pantomime;
 - (C) respond to sounds, music, images, language, and literature using movement;
 - (D) express emotions and relate ideas using interpretive and planned movement and dialogue;
 - (E) integrate life experiences in dramatic play;

- (F) portray environment, character, and actions; and
 - (G) demonstrate correct use of basic theatrical terminology.
- (2) Creative expression: performance. The student interprets characters using the voice and body expressively and creates dramatizations. The student is expected to:
- (A) demonstrate safe use of the voice and body;
 - (B) describe characters, their relationships, and their surroundings in detail;
 - (C) create movements and portray a character using dialogue appropriately;
 - (D) dramatize literary selections in unison, pairs, or groups, demonstrating a logical connection of events and describing the characters, their relationships, and their surroundings; and
 - (E) create simple stories collaboratively through imaginative play, improvisations, and story dramatizations, demonstrating a logical connection of events describing the characters, their relationships, and their surroundings.
- (3) Creative expression: production. The student applies design, directing, and theatre production concepts and skills. The student is expected to:
- (A) demonstrate character, environment, action, and theme using props, costumes, and visual elements;
 - (B) alter space appropriately to create suitable performance environments for playmaking;
 - (C) plan dramatizations collaboratively; and
 - (D) interact cooperatively with others in dramatizations.
- (4) Historical and cultural relevance. The student relates theatre to history, society, and culture. The student is expected to:
- (A) explain theatre as a reflection of life in particular times, places, cultures, and oral traditions specific to American history;
 - (B) examine the role of live theatre, film, television, or electronic media throughout American history; and
 - (C) analyze and compare theatre artists and their contributions to theatre and society.
- (5) Critical evaluation and response. The student responds to and evaluates theatre and theatrical performances. The student is expected to:
- (A) analyze and apply appropriate audience behavior at a variety of performances;

- (B) compare visual, aural, oral, and kinetic aspects of informal and formal theatre with the elements of art, dance, or music; and
 - (C) identify and discuss how movement, music, or visual elements enhance ideas and emotions depicted in theatre.
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§126.7. Technology Applications, Grades 3-5.

(a) Introduction.

- (1) The technology applications curriculum has six strands based on the National Educational Technology Standards for Students (NETS•S) and performance indicators developed by the International Society for Technology in Education (ISTE): creativity and innovation; communication and collaboration; research and information fluency; critical thinking, problem solving, and decision making; digital citizenship; and technology operations and concepts.
- (2) Through the study of the six strands in technology applications, students use creative thinking and innovative processes to construct knowledge and develop products. Students communicate and collaborate both locally and globally to reinforce and promote learning. Research and information fluency includes the acquisition and evaluation of digital content. Students develop critical-thinking, problem-solving, and decision-making skills by collecting, analyzing, and reporting digital information. Students practice digital citizenship by behaving responsibly while using technology tools and resources. Through the study of technology operations and concepts, students learn technology related terms, concepts, and data input strategies.
- (3) 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) Creativity and innovation. The student uses creative thinking and innovative processes to construct knowledge and develop digital products. The student is expected to:
 - (A) create original products using a variety of resources;
 - (B) analyze trends and forecast possibilities, developing steps for the creation of an innovative process or product; and
 - (C) use virtual environments to explore systems and issues.
- (2) Communication and collaboration. The student collaborates and communicates both locally and globally using digital tools and resources to reinforce and promote learning. The student is expected to:
 - (A) draft, edit, and publish products in different media individually and collaboratively;

- (B) use font attributes, color, white space, and graphics to ensure that products are appropriate for multiple communication media, including monitor display, web, and print;
 - (C) collaborate effectively through personal learning communities and social environments;
 - (D) select and use appropriate collaboration tools;
 - (E) evaluate the product for relevance to the assignment or task; and
 - (F) perform basic software application functions, including opening applications and creating, modifying, printing, and saving files.
- (3) Research and information fluency. The student acquires and evaluates digital content. The student is expected to:
- (A) use various search strategies such as keyword(s); the Boolean identifiers *and*, *or*, and *not*; and other strategies appropriate to specific search engines;
 - (B) collect and organize information from a variety of formats, including text, audio, video, and graphics;
 - (C) validate and evaluate the relevance and appropriateness of information; and
 - (D) acquire information appropriate to specific tasks.
- (4) Critical thinking, problem solving, and decision making. The student researches and evaluates projects using digital tools and resources. The student is expected to:
- (A) identify information regarding a problem and explain the steps toward the solution;
 - (B) collect, analyze, and represent data to solve problems using tools such as word processing, databases, spreadsheets, graphic organizers, charts, multimedia, simulations, models, and programming languages;
 - (C) evaluate student-created products through self and peer review for relevance to the assignment or task; and
 - (D) evaluate technology tools applicable for solving problems.
- (5) Digital citizenship. The student practices safe, responsible, legal, and ethical behavior while using digital tools and resources. The student is expected to:
- (A) adhere to acceptable use policies reflecting positive social behavior in the digital environment;
 - (B) respect the intellectual property of others;

- (C) abide by copyright law and the Fair Use Guidelines for Educational Multimedia;
 - (D) protect and honor the individual privacy of oneself and others;
 - (E) follow the rules of digital etiquette;
 - (F) practice safe, legal, and responsible use of information and technology; and
 - (G) comply with fair use guidelines and digital safety rules.
- (6) Technology operations and concepts. The student demonstrates knowledge and appropriate use of technology systems, concepts, and operations. The student is expected to:
- (A) demonstrate an understanding of technology concepts, including terminology for the use of operating systems, network systems, virtual systems, and learning systems appropriate for Grades 3-5 learning;
 - (B) manipulate files using appropriate naming conventions; file management, including folder structures and tagging; and file conversions;
 - (C) navigate systems and applications accessing peripherals both locally and remotely;
 - (D) troubleshoot minor technical problems with hardware and software using available resources such as online help and knowledge bases; and
 - (E) use proper touch keyboarding techniques and ergonomic strategies such as correct hand and body positions and smooth and rhythmic keystrokes.