

## STEM in Action: Master TEKS Alignment Grade 3

Color Code: **Grade 1** – **Grade 2** – **Grade K-2** – **Grade 1-2** – **Grade 3** – **Grade 4** – **Grade 5** – **Grade 6**

### §112.14. Science, Grade 3, Adopted 2017

(1) Scientific investigation and reasoning. The student conducts classroom and outdoor investigations following home and school safety procedures and environmentally appropriate practices. The student is expected to:

(A) Demonstrate safe practices as described in Texas Education Agency-approved safety standards during classroom and outdoor investigations using safety equipment as appropriate, including safety goggles or chemical splash goggles, as appropriate, and gloves.

Correlated Lessons:

- STEM in Action, Grade 2: Muddy Mats Exploration
- STEM in Action, Grade 4: Digital Relay Challenge

(B) Make informed choices in the use and conservation of natural resources by recycling or reusing materials such as paper, aluminum cans, and plastics.

Correlated Lessons:

- STEM in Action, Grade 5: Food Deserts Challenge

(2) Scientific investigation and reasoning. The student uses scientific practices during laboratory and outdoor investigations. The student is expected to:

(A) Plan and implement descriptive investigations, including asking and answering questions, making inferences, and selecting and using equipment or technology needed, to solve a specific problem in the natural world.

Correlated Lessons:

- STEM in Action, Grade 1: Shadow Box Theater Exploration
- STEM in Action, Grade 2: Muddy Mats Exploration
- STEM in Action, Grade 2: Seed Rescue Exploration
- STEM in Action, Grade 2: Shrinking Shore Exploration
- STEM in Action, Grade 3: Squeaky Clean Magnets Challenge
- STEM in Action, Grade 3: Wildlife Corridors Challenge
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- STEM in Action, Grade 5: Rainwater Runoff Design Challenge

(B) Collect and record data by observing and measuring using the metric system and recognize differences between observed and measured data.

Correlated Lessons:

- STEM in Action, Grade 1: Shadow Box Theater Exploration
- STEM in Action, Grade 2: Muddy Mats Exploration
- STEM in Action, Grade 2: Seed Rescue Exploration
- STEM in Action, Grade 2: Shrinking Shore Exploration
- STEM in Action, Grade 3: Farmer Grady's Challenge
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- STEM in Action, Grade 5: Rainwater Runoff Design Challenge

(C) Construct maps, graphic organizers, simple tables, charts, and bar graphs using tools and current technology to organize, examine, and evaluate measured data

Correlated Lessons:

- STEM in Action, Grade 2: Muddy Mats Exploration
- STEM in Action, Grade 2: Shrinking Shore Exploration
- STEM in Action, Grade 3: Squeaky Clean Magnets Challenge
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(D) Analyze and interpret patterns in data to construct reasonable explanations based on evidence from investigations

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- STEM in Action, Grade 2: Muddy Mats Exploration
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(E) Demonstrate that repeated investigations may increase the reliability of results.

Correlated Lessons:

- STEM in Action, Grade 1: Shadow Box Theater Exploration
- STEM in Action, Grade 2: Muddy Mats Exploration
- STEM in Action, Grade 2: Seed Rescue Exploration
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(F) Communicate valid conclusions supported by data in writing, by drawing pictures, and through verbal discussion.

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(3) Scientific investigation and reasoning. The student knows that information, critical thinking, scientific problem solving, and the contributions of scientists are used in making decisions. The student is expected to:

(A) analyze, evaluate, and critique scientific explanations by using evidence, logical reasoning, and experimental and observational testing.

Correlated Lessons:

- STEM in Action, Grade 1: Shadow Box Theater Exploration
- STEM in Action, Grade 2: Muddy Mats Exploration
- STEM in Action, Grade 2: Seed Rescue Exploration
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- STEM in Action, Grade 4: Digital Relay Challenge
- STEM in Action, Grade 4: Solar House Design Challenge
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- STEM in Action, Grade 5: Rainwater Runoff Design Challenge

(B) Represent the natural world using models such as volcanoes or the Sun, Earth, and Moon system and identify their limitations, including size, properties, and materials.

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- STEM in Action, Grade 1: Shadow Box Theater Exploration
- STEM in Action, Grade 2: Muddy Mats Exploration
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- STEM in Action, Grade 5: Rainwater Runoff Design Challenge

(C) Connect grade-level appropriate science concepts with the history of science, science careers, and contributions of scientists.

Correlated Lessons:

- STEM in Action, Grade 2: Shrinking Shore Exploration
- STEM in Action, Grade 3: Squeaky Clean Magnets Challenge
- STEM in Action, Grade 4: Digital Relay Challenge

(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 cameras, computers, hand lenses, metric rulers, Celsius thermometers, wind vanes, rain gauges, pan balances, graduated cylinders, beakers, spring scales, hot plates, meter sticks, magnets, collecting nets, notebooks, and Sun, Earth, and Moon system models; timing devices; and materials to support observation of habitats of organisms such as terrariums and aquariums.

Correlated Lessons:

- STEM in Action, Grade 1: Shadow Box Theater Exploration
- STEM in Action, Grade 2: Muddy Mats Exploration
- STEM in Action, Grade 2: Seed Rescue Exploration
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(5) Matter and energy. The student knows that matter has measurable physical properties and those properties determine how matter is classified, changed, and used. The student is expected to:

(A) Measure, test, and record physical properties of matter, including temperature, mass, magnetism, and the ability to sink or float.

Correlated Lessons:

- STEM in Action, Grade 2: Muddy Mats Exploration
- STEM in Action, Grade 3: Farmer Grady's Challenge
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(B) Describe and classify samples of matter as solids, liquids, and gases and demonstrate that solids have a definite shape and that liquids and gases take the shape of their container.

Correlated Lessons:

- STEM in Action, Grade 2: Muddy Mats Exploration
- STEM in Action, Grade 4: Solar House Design Challenge

(C) Predict, observe, and record changes in the state of matter caused by heating or cooling such as ice becoming liquid water, condensation forming on the outside of a glass of ice water, or liquid water being heated to the point of becoming water vapor.

Correlated Lessons:

- STEM in Action, Grade 2: Muddy Mats Exploration
- STEM in Action, Grade 4: Solar House Design Challenge

(D) Explore and recognize that a mixture is created when two materials are combined such as gravel and sand or metal and plastic paper clips.

Correlated Lessons:

- STEM in Action, Grade 5: Rainwater Runoff Design Challenge

(6) Force, motion, and energy. The student knows that forces cause change and that energy exists in many forms. The student is expected to:

(A) Explore different forms of energy, including mechanical, light, sound, and thermal in everyday life.

Correlated Lessons:

- STEM in Action, Grade 1: Shadow Box Theater Exploration
- STEM in Action, Grade 4: Digital Relay Challenge
- STEM in Action, Grade 4: Solar House Design Challenge

(C) Observe forces such as magnetism and gravity acting on objects.

Correlated Lessons:

- STEM in Action, Grade 3: Squeaky Clean Magnets Challenge

(7) Earth and space. The student knows that Earth consists of natural resources and its surface is constantly changing. The student is expected to:

(C) Explore the characteristics of natural resources that make them useful in products and materials such as clothing and furniture and how resources may be conserved.

Correlated Lessons:

- STEM in Action, Grade 4: Solar House Design Challenge
- STEM in Action, Grade 4: Digital Relay Challenge
- STEM in Action, Grade 5: Rainwater Runoff Design Challenge

(8) Earth and space. The student knows that there are recognizable patterns in the natural world and among objects in the sky. The student is expected to:

(B) Describe and illustrate the Sun as a star composed of gases that provides light and thermal energy.

Correlated Lessons:

- STEM in Action, Grade 4: Solar House Design Challenge

(9) Organisms and environments. The student knows and can describe patterns, cycles, systems, and relationships within the environments. The student is expected to:

(B) Identify and describe the flow of energy in a food chain and predict how changes in a food chain affect the ecosystem such as removal of frogs from a pond or bees from a field.

Correlated Lessons:

- STEM in Action, Grade 5: Food Deserts Challenge

(C) Describe environmental changes such as floods and droughts where some organisms thrive and others perish or move to new locations.

Correlated Lessons:

- STEM in Action, Grade 3: Wildlife Corridors Challenge

(10) Organisms and environments. The student knows that organisms undergo similar life processes and have structures that help them survive within their environments. The student is expected to:

(A) Explore how structures and functions of plants and animals allow them to survive in a particular environment.

Correlated Lessons:

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- STEM in Action, Grade 2: Seed Rescue Exploration
- STEM in Action, Grade 3: Wildlife Corridors Challenge
- STEM in Action, Grade 5: Food Deserts Challenge

(B) Investigate and compare how animals and plants undergo a series of orderly changes in their diverse life cycles such as tomato plants, frogs, and lady beetles.

Correlated Lessons:

- STEM in Action, Grade 2: Seed Rescue Exploration

### §110.5. English Language Arts and Reading, Grade 3, Adopted 2017.

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

(A) Listen actively, ask relevant questions to clarify information, and make pertinent comments.

Correlated Lessons:

- STEM in Action, Grade 1: Shadow Box Theater Exploration
- STEM in Action, Grade 2: Muddy Mats Exploration
- STEM in Action, Grade 2: Seed Rescue Exploration
- STEM in Action, Grade 2: Shrinking Shore Exploration
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(B) Follow, restate, and give oral instructions that involve a series of related sequences of action.

Correlated Lessons:

- STEM in Action, Grade 2: Muddy Mats Exploration
- STEM in Action, Grade 3: Squeaky Clean Magnets Challenge
- STEM in Action, Grade 3: Wildlife Corridors Challenge
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(C) Speak coherently about the topic under discussion, employing eye contact, speaking rate, volume, enunciation, and the conventions of language to communicate ideas effectively.

Correlated Lessons:

- STEM in Action, Grade 2: Muddy Mats Exploration
- STEM in Action, Grade 2: Shrinking Shore Exploration
- STEM in Action, Grade 3: Farmer Grady's Challenge
- STEM in Action, Grade 3: Squeaky Clean Magnets Challenge
- STEM in Action, Grade 3: Wildlife Corridors Challenge
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- STEM in Action, Grade 4: Solar House Design Challenge

(D) Work collaboratively with others by following agreed-upon rules, norms, and protocols.

Correlated Lessons:

- STEM in Action, Grade 1: Shadow Box Theater Exploration
- STEM in Action, Grade 2: Muddy Mats Exploration
- STEM in Action, Grade 2: Seed Rescue Exploration
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(2) Developing and sustaining foundational language skills: listening, speaking, reading, writing, and thinking--beginning reading and writing. The student develops word structure knowledge through phonological awareness, print concepts, phonics, and morphology to communicate, decode, and spell. The student is expected to:

(D) Write complete words, thoughts, and answers legibly in cursive leaving appropriate spaces between words.

Correlated Lessons:

- STEM in Action, Grade 5: Food Deserts Challenge

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

(B) Use context within and beyond a sentence to determine the meaning of unfamiliar words and multiple-meaning words.

Correlated Lessons:

- STEM in Action, Grade 2: Muddy Mats Exploration
- STEM in Action, Grade 2: Seed Rescue Exploration
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(5) Developing and sustaining foundational language skills: listening, speaking, reading, writing, and thinking--self-sustained reading. The student reads grade-appropriate texts independently. The student is expected to self-select text and read independently for a sustained period of time.

Correlated Lessons:

- STEM in Action, Grade 5: Food Deserts Challenge

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

(A) Establish purpose for reading assigned and self-selected texts.

Correlated Lessons:

- STEM in Action, Grade 2: Muddy Mats Exploration
- STEM in Action, Grade 2: Shrinking Shore Exploration
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(B) Generate questions about text before, during, and after reading to deepen understanding and gain information.

Correlated Lessons:

- STEM in Action, Grade 1: Shadow Box Theater Exploration
- STEM in Action, Grade 2: Muddy Mats Exploration
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(C) Make, correct, or confirm predictions using text features, characteristics of genre, and structures.

Correlated Lessons:

- STEM in Action, Grade 2: Muddy Mats Exploration
- STEM in Action, Grade 2: Shrinking Shore Exploration

(E) Make connections to personal experiences, ideas in other texts, and society.

Correlated Lessons:

- STEM in Action, Grade 2: Shrinking Shore Exploration
- STEM in Action, Grade 3: Squeaky Clean Magnets Challenge
- STEM in Action, Grade 3: Wildlife Corridors Challenge

(F) Make inferences and use evidence to support understanding.

Correlated Lessons:

- STEM in Action, Grade 1: Shadow Box Theater Exploration
- STEM in Action, Grade 2: Muddy Mats Exploration

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(G) Evaluate details read to determine key ideas.

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(H) Synthesize information to create new understanding.

Correlated Lessons:

- STEM in Action, Grade 2: Shrinking Shore Exploration
- STEM in Action, Grade 3: Squeaky Clean Magnets Challenge
- STEM in Action, Grade 3: Wildlife Corridors Challenge

(I) Monitor comprehension and make adjustments such as re-reading, using background knowledge, asking questions, and annotating when understanding breaks down.

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

(A) Describe personal connections to a variety of sources, including self-selected texts.

Correlated Lessons:

- STEM in Action, Grade 2: Shrinking Shore Exploration
- STEM in Action, Grade 3: Squeaky Clean Magnets Challenge
- STEM in Action, Grade 3: Wildlife Corridors Challenge

(C) Use text evidence to support an appropriate response.

Correlated Lessons:

- STEM in Action, Grade 1: Shadow Box Theater Exploration
- STEM in Action, Grade 2: Muddy Mats Exploration
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- STEM in Action, Grade 4: Solar House Design Challenge
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(D) Retell and paraphrase texts in ways that maintain meaning and logical order.

Correlated Lessons:

- STEM in Action, Grade 2: Muddy Mats Exploration
- STEM in Action, Grade 2: Shrinking Shore Exploration
- STEM in Action, Grade 3: Squeaky Clean Magnets Challenge
- STEM in Action, Grade 3: Wildlife Corridors Challenge
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(E) Interact with sources in meaningful ways such as notetaking, annotating, freewriting, or illustrating.

Correlated Lessons:

- STEM in Action, Grade 2: Muddy Mats Exploration
- STEM in Action, Grade 2: Shrinking Shore Exploration

(F) Respond using newly acquired vocabulary as appropriate.

Correlated Lessons:

- STEM in Action, Grade 2: Shrinking Shore Exploration
- STEM in Action, Grade 3: Squeaky Clean Magnets Challenge
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(G) Discuss specific ideas in the text that are important to the meaning.

Correlated Lessons:

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

(D) Recognize characteristics and structures of informational text, including:

(D.i) The central idea with supporting evidence.

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(D.ii) Features such as sections, tables, graphs, timelines, bullets, numbers, and bold and italicized font to support understanding.

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

(E.ii) Distinguishing facts from opinion.

Correlated Lessons:

- STEM in Action, Grade 5: Food Deserts Challenge

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

(A) Explain the author's purpose and message within a text.

Correlated Lessons:

- STEM in Action, Grade 2: Muddy Mats Exploration

(B) Explain how the use of text structure contributes to the author's purpose.

Correlated Lessons:

- STEM in Action, Grade 2: Muddy Mats Exploration

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

Correlated Lessons:

- STEM in Action, Grade 2: Muddy Mats Exploration
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(11) Composition: listening, speaking, reading, writing, and thinking using multiple texts--writing process. The student uses the writing process recursively to compose multiple texts that are legible and uses appropriate conventions. The student is expected to:

(A) Plan a first draft by selecting a genre for a particular topic, purpose, and audience using a range of strategies such as brainstorming, freewriting, and mapping.

Correlated Lessons:

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

(B.i) Organizing with purposeful structure, including an introduction and a conclusion.

Correlated Lessons:

- STEM in Action, Grade 5: Food Deserts Challenge

(B.ii) Developing an engaging idea with relevant details.

Correlated Lessons:

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

(D.i) Complete simple and compound sentences with subject-verb agreement.

Correlated Lessons:

- STEM in Action, Grade 2: Muddy Mats Exploration

(D.iii) Singular, plural, common, and proper nouns.

Correlated Lessons:

- STEM in Action, Grade 2: Muddy Mats Exploration

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(D.iv) Adjectives, including their comparative and superlative forms.

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(D.v) Adverbs that convey time and adverbs that convey manner.

Correlated Lessons:

- STEM in Action, Grade 2: Muddy Mats Exploration

(D.vi.) Prepositions and prepositional phrases.

Correlated Lessons:

- STEM in Action, Grade 2: Muddy Mats Exploration

(D.vii) Pronouns, including subjective, objective, and possessive cases.

Correlated Lessons:

- STEM in Action, Grade 2: Muddy Mats Exploration

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

(A) Compose literary texts, including personal narratives and poetry, using genre characteristics and craft.

Correlated Lessons:

- STEM in Action, Grade 2: Muddy Mats Exploration

(B) Compose informational texts, including brief compositions that convey information about a topic, using a clear central idea and genre characteristics and craft.

Correlated Lessons:

- STEM in Action, Grade 2: Muddy Mats Exploration
- STEM in Action, Grade 2: Shrinking Shore Exploration
- STEM in Action, Grade 3: Farmer Grady's Challenge
- STEM in Action, Grade 3: Squeaky Clean Magnets Challenge
- STEM in Action, Grade 3: Wildlife Corridors Challenge
- STEM in Action, Grade 4: Solar House Design Challenge

(C) Compose argumentative texts, including opinion essays, using genre characteristics and craft.

Correlated Lessons:

- STEM in Action, Grade 1: Shadow Box Theater Exploration
- STEM in Action, Grade 2: Muddy Mats Exploration
- STEM in Action, Grade 2: Shrinking Shore Exploration
- STEM in Action, Grade 3: Squeaky Clean Magnets Challenge
- STEM in Action, Grade 3: Wildlife Corridors Challenge
- STEM in Action, Grade 4: Digital Relay Challenge
- STEM in Action, Grade 4: Solar House Design Challenge
- STEM in Action, Grade 5: Food Deserts Challenge
- STEM in Action, Grade 5: Rainwater Runoff Design Challenge

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

(B) Develop and follow a research plan with adult assistance.

Correlated Lessons:

- STEM in Action, Grade 2: Muddy Mats Exploration
- STEM in Action, Grade 2: Shrinking Shore Exploration
- STEM in Action, Grade 3: Squeaky Clean Magnets Challenge
- STEM in Action, Grade 3: Wildlife Corridors Challenge
- STEM in Action, Grade 5: Food Deserts Challenge

(C) Identify and gather relevant information from a variety of sources.

Correlated Lessons:

- STEM in Action, Grade 2: Muddy Mats Exploration
- STEM in Action, Grade 2: Seed Rescue Exploration
- STEM in Action, Grade 2: Shrinking Shore Exploration
- STEM in Action, Grade 3: Squeaky Clean Magnets Challenge
- STEM in Action, Grade 3: Wildlife Corridors Challenge

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(E) Demonstrate understanding of information gathered.

Correlated Lessons:

- STEM in Action, Grade 2: Muddy Mats Exploration
- STEM in Action, Grade 2: Seed Rescue Exploration
- STEM in Action, Grade 2: Shrinking Shore Exploration
- STEM in Action, Grade 3: Squeaky Clean Magnets Challenge
- STEM in Action, Grade 3: Wildlife Corridors Challenge

(H) Use an appropriate mode of delivery, whether written, oral, or multimodal, to present results.

Correlated Lessons:

- STEM in Action, Grade 2: Muddy Mats Exploration
- STEM in Action, Grade 2: Shrinking Shore Exploration
- STEM in Action, Grade 3: Farmer Grady's Challenge
- STEM in Action, Grade 3: Squeaky Clean Magnets Challenge
- STEM in Action, Grade 3: Wildlife Corridors Challenge
- STEM in Action, Grade 4: Digital Relay Challenge
- STEM in Action, Grade 4: Solar House Design Challenge

### §111.5. Mathematics, Grade 3, Adopted 2012.

(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.

Correlated Lessons:

- STEM in Action, Grade 2: Muddy Mats Exploration
- STEM in Action, Grade 2: Shrinking Shore Exploration
- STEM in Action, Grade 3: Farmer Grady's Challenge
- STEM in Action, Grade 3: Squeaky Clean Magnets Challenge
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- STEM in Action, Grade 5: Food Deserts Challenge

(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.

Correlated Lessons:

- STEM in Action, Grade 1: Shadow Box Theater Exploration
- STEM in Action, Grade 2: Muddy Mats Exploration
- STEM in Action, Grade 2: Seed Rescue Exploration
- STEM in Action, Grade 2: Shrinking Shore Exploration
- STEM in Action, Grade 3: Farmer Grady's Challenge
- STEM in Action, Grade 3: Squeaky Clean Magnets Challenge
- STEM in Action, Grade 3: Wildlife Corridors Challenge
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- STEM in Action, Grade 5: Rainwater Runoff Design Challenge

(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.

Correlated Lessons:

- STEM in Action, Grade 1: Shadow Box Theater Exploration
- STEM in Action, Grade 2: Muddy Mats Exploration
- STEM in Action, Grade 2: Seed Rescue Exploration
- STEM in Action, Grade 2: Shrinking Shore Exploration
- STEM in Action, Grade 3: Farmer Grady's Challenge
- STEM in Action, Grade 3: Squeaky Clean Magnets Challenge
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(D) Communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate.

Correlated Lessons:

- STEM in Action, Grade 2: Shrinking Shore Exploration
- STEM in Action, Grade 3: Farmer Grady's Challenge
- STEM in Action, Grade 3: Squeaky Clean Magnets Challenge
- STEM in Action, Grade 5: Food Deserts Challenge

(E) Create and use representations to organize, record, and communicate mathematical ideas.

Correlated Lessons:

- STEM in Action, Grade 2: Shrinking Shore Exploration
- STEM in Action, Grade 3: Farmer Grady's Challenge
- STEM in Action, Grade 3: Squeaky Clean Magnets Challenge
- STEM in Action, Grade 5: Food Deserts Challenge

(F) Analyze mathematical relationships to connect and communicate mathematical ideas.

Correlated Lessons:

- STEM in Action, Grade 3: Farmer Grady's Challenge
- STEM in Action, Grade 5: Food Deserts Challenge

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

Correlated Lessons:

- STEM in Action, Grade 2: Shrinking Shore Exploration
- STEM in Action, Grade 3: Farmer Grady's Challenge
- STEM in Action, Grade 3: Squeaky Clean Magnets Challenge

(3) Number and operations. The student applies mathematical process standards to represent and explain fractional units. The student is expected to:

(A) Represent fractions greater than zero and less than or equal to one with denominators of 2, 3, 4, 6, and 8 using concrete objects and pictorial models, including strip diagrams and number lines.

Correlated Lessons:

- STEM in Action, Grade 3: Wildlife Corridors Challenge

(C) Explain that the unit fraction  $\frac{1}{b}$  represents the quantity formed by one part of a whole that has been partitioned into  $b$  equal parts where  $b$  is a non-zero whole number.

Correlated Lessons:

- STEM in Action, Grade 3: Wildlife Corridors Challenge

(F) Represent equivalent fractions with denominators of 2, 3, 4, 6, and 8 using a variety of objects and pictorial models, including number lines.

Correlated Lessons:

- STEM in Action, Grade 3: Wildlife Corridors Challenge

(G) Explain that two fractions are equivalent if and only if they are both represented by the same point on the number line or represent the same portion of a same size whole for an area model.

Correlated Lessons:

- STEM in Action, Grade 3: Wildlife Corridors Challenge

(H) Compare two fractions having the same numerator or denominator in problems by reasoning about their sizes and justifying the conclusion using symbols, words, objects, and pictorial models.

Correlated Lessons:

- STEM in Action, Grade 3: Wildlife Corridors Challenge

(4) Number and operations. The student applies mathematical process standards to develop and use strategies and methods for whole number computations in order to solve problems with efficiency and accuracy. The student is expected to:

(A) Solve with fluency one-step and two-step problems involving addition and subtraction within 1,000 using strategies based on place value, properties of operations, and the relationship between addition and subtraction.

Correlated Lessons:

- STEM in Action, Grade 2: Muddy Mats Exploration
- STEM in Action, Grade 2: Seed Rescue Exploration
- STEM in Action, Grade 3: Farmer Grady's Challenge
- STEM in Action, Grade 4: Solar House Design Challenge

(C) Determine the value of a collection of coins and bills.

Correlated Lessons:

- STEM in Action, Grade 2: Seed Rescue Exploration
- STEM in Action, Grade 5: Rainwater Runoff Design Challenge

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(D) Determine the total number of objects when equally-sized groups of objects are combined or arranged in arrays up to 10 by 10.

Correlated Lessons:

- STEM in Action, Grade 2: Shrinking Shore Exploration
- STEM in Action, Grade 3: Squeaky Clean Magnets Challenge
- STEM in Action, Grade 4: Digital Relay Challenge

(E) Represent multiplication facts by using a variety of approaches such as repeated addition, equal-sized groups, arrays, area models, equal jumps on a number line, and skip counting.

Correlated Lessons:

- STEM in Action, Grade 2: Shrinking Shore Exploration
- STEM in Action, Grade 3: Squeaky Clean Magnets Challenge
- STEM in Action, Grade 4: Digital Relay Challenge

(F) Recall facts to multiply up to 10 by 10 with automaticity and recall the corresponding division facts.

Correlated Lessons:

- STEM in Action, Grade 4: Solar House Design Challenge

(G) Use strategies and algorithms, including the standard algorithm, to multiply a two-digit number by a one-digit number. Strategies may include mental math, partial products, and the commutative, associative, and distributive properties.

Correlated Lessons:

- STEM in Action, Grade 3: Farmer Grady's Challenge
- STEM in Action, Grade 4: Digital Relay Challenge
- STEM in Action, Grade 4: Solar House Design Challenge

(K) Solve one-step and two-step problems involving multiplication and division within 100 using strategies based on objects; pictorial models, including arrays, area models, and equal groups; properties of operations; or recall of facts.

Correlated Lessons:

- STEM in Action, Grade 4: Solar House Design Challenge
- STEM in Action, Grade 4: Digital Relay Challenge

(6) Geometry and measurement. The student applies mathematical process standards to analyze attributes of two-dimensional geometric figures to develop generalizations about their properties. The student is expected to:

(A) Classify and sort two- and three-dimensional solids, including cones, cylinders, spheres, triangular and rectangular prisms, and cubes, based on attributes using formal geometric language.

Correlated Lessons:

- STEM in Action, Grade 1: Shadow Box Theater Exploration

(C) Determine the area of rectangles with whole number side lengths in problems using multiplication related to the number of rows times the number of unit squares in each row.

Correlated Lessons:

- STEM in Action, Grade 3: Squeaky Clean Magnets Challenge
- STEM in Action, Grade 4: Solar House Design Challenge
- STEM in Action, Grade 5: Rainwater Runoff Design Challenge

(7) Geometry and measurement. The student applies mathematical process standards to select appropriate units, strategies, and tools to solve problems involving customary and metric measurement. The student is expected to:

(C) Determine the solutions to problems involving addition and subtraction of time intervals in minutes using pictorial models or tools such as a 15-minute event plus a 30-minute event equals 45 minutes.

Correlated Lessons:

- STEM in Action, Grade 4: Digital Relay Challenge
- STEM in Action, Grade 5: Rainwater Runoff Design Challenge

(D) Determine when it is appropriate to use measurements of liquid volume (capacity) or weight.

Correlated Lessons:

- STEM in Action, Grade 2: Muddy Mats Exploration
- STEM in Action, Grade 3: Squeaky Clean Magnets Challenge
- STEM in Action, Grade 5: Food Deserts Challenge
- STEM in Action, Grade 5: Rainwater Runoff Design Challenge

(E) Determine liquid volume (capacity) or weight using appropriate units and tools.

Correlated Lessons:

- STEM in Action, Grade 2: Muddy Mats Exploration
- STEM in Action, Grade 3: Squeaky Clean Magnets Challenge
- STEM in Action, Grade 5: Food Deserts Challenge
- STEM in Action, Grade 5: Rainwater Runoff Design Challenge

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(8) Data analysis. The student applies mathematical process standards to solve problems by collecting, organizing, displaying, and interpreting data. The student is expected to:

(A) Summarize a data set with multiple categories using a frequency table, dot plot, pictograph, or bar graph with scaled intervals.

Correlated Lessons:

- STEM in Action, Grade 2: Muddy Mats Exploration
- STEM in Action, Grade 2: Shrinking Shore Exploration
- STEM in Action, Grade 3: Squeaky Clean Magnets Challenge
- STEM in Action, Grade 3: Wildlife Corridors Challenge
- STEM in Action, Grade 5: Rainwater Runoff Design Challenge

(B) Solve one- and two-step problems using categorical data represented with a frequency table, dot plot, pictograph, or bar graph with scaled intervals.

Correlated Lessons:

- STEM in Action, Grade 2: Muddy Mats Exploration
- STEM in Action, Grade 2: Shrinking Shore Exploration
- STEM in Action, Grade 3: Squeaky Clean Magnets Challenge
- STEM in Action, Grade 3: Wildlife Corridors Challenge
- STEM in Action, Grade 5: Rainwater Runoff Design Challenge

(9) 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:

(C) Identify the costs and benefits of planned and unplanned spending decisions.

Correlated Lessons:

- STEM in Action, Grade 3: Farmer Grady's Challenge