Sixth Grade

ELA: Literature (A - Fiction) & Informational Text (B - Non-Fiction)
Standards Statement
1. **(A) (B)** Cite textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.
☐ Explain the meaning of textual evidence.
☐ Explain and give an example of an inference.
☐ Explain precisely what a text is saying.
☐ Explain inferences in a text.
Standards Statement
2. **(A) (B)** Determine a theme or central idea of a text and how it is conveyed through particular details; provide a summary of the text distinct from personal opinions or judgments.
☐ Define theme.
☐ Analyze details to determine the theme.
☐ Give a summary of a text without adding my own opinion.
Standards Statement
3. **(A)** Describe how a particular story's or drama's plot unfolds in a series of episodes as well as how the characters respond or change as the plot moves toward a resolution.
☐ Tell how a plot develops through episodes (events) of the characters.
☐ Explain a character's change in a story.
(B) Analyze in detail how a key individual, event, or idea is introduced, illustrated, and elaborated in a text (e.g., through examples or anecdotes).
☐ Use details in the story that show how a key individual is introduced and developed.
☐ Use details in the story that show how an event is introduced and developed.
Standards Statement
4. **(A)** Determine the meaning of words and phrases as they are used in a text, including figurative and connotative meanings; analyze the impact of a specific word choice on meaning and tone.
☐ Explain the meaning of words and phrases found in a text.
☐ Explain both figurative and connotative meanings in a text.
(B) Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings.
☐ Explain technical meaning found in a text.

ELA: Literature (A - Fiction) & Informational Text (B - Non-Fiction) Cont.
Standards Statement
5. **(A)** Analyze how a particular sentence, chapter, scene, or stanza fits into the overall structure of a text and contributes to the development of the theme, setting, or plot.
☐ Explain how sentences, chapters, scenes, or stanzas contributes to the theme, setting or plot.
(B) Analyze how a particular sentence, paragraph, chapter, or section fits into the overall structure of a text and contributes to the development of the ideas.
☐ Explain how sentences, paragraph, chapter or section contributes to the idea.
Standards Statement
6. (**A)** Explain how an author develops the point of view of the narrator or speaker in a text.
☐ Explain how an author develops a point of view.
(B) Determine an author's point of view or purpose in a text and explain how it is conveyed in the text.
☐ Explain the author's point of view and how it is written into the text.
Standards Statement
7. **(A)** Compare and contrast the experience of reading a story, drama, or poem to listening to or viewing an audio, video, or live version of the text, including contrasting what they "see" and "hear" when reading the text to what they perceive when they listen or watch.
☐ Compare what I picture when I read to what I see when I watch and hear the story.
☐ Contrast reading a story as to when I warch or hear the story.
(B) Integrate information presented in different media or formats (e.g., visually, quantitatively) as well as in words to develop a coherent understanding of a topic or issue
☐ Use information from word and media formats to develop a deeper understanding of the topic.
Standards Statement
8. **(A)** (Not applicable to literature) **(B)** Trace and evaluate the argument and specific claims in a text, distinguishing claims that are supported by reasons and evidence from claims that are not.
☐ Follow and evaluate the evidence an author presents as supporting or not supporting.
Standards Statement
9. **(A)** Compare and contrast text in different forms or genres (e.g., stories and poems; historical novels and fantasy stories) in terms of their approaches to similar themes and topics.
☐ Name different genres and explain their characteristics.
☐ Compare two or more different genres as show how they have the same theme.
☐ Contrast two or more different genres as show how they have the same theme.

ELA: Literature (A - Fiction) & Informational Text (B - Non-Fiction) Cont.
(B) Compare and contrast one author's presentation of events with that of another (e.g., a memoir written by and a biography on the same person).
☐ Compare and contrast two or more author's writing of the same topics.
Standards Statement
10. **(A)** By the end of the year, read and comprehend literature, including stories, dramas, and poems, in the grades 6-8 text complexity band proficiently, with scaffolding as needed at the high end of the range.
☐ Read and understand literature that is appropriate to my reading level.
(B) By the end of the year, read and comprehend literature nonfiction in the grades 6-8 text complexity band proficiently, with scaffolding as needed at the high end of the range.
☐ Read and understand nonfiction that is appropriate to my reading level.
Writing
Standards Statement
1. Write arguments to support claims with clear reasons and relevant evidence. a. Introduce claim(s) and organize the reasons and evidence clearly. b. Support claims(s) with clear reasons and relevant evidence, using credible sources and demonstrating an understanding of the topic or text. c. Use words, phrases, and clauses to clarify the relationships among claim(s) and reasons. d. Establish and maintain a formal style. e. Provide a concluding statement or section that follows from the argument presented.
☐ Write an argument that provides clear evidence and reason and a concluding statement.
☐ Use credible resources.
☐ Use a formal style when writing and argument.
Standards Statement
2. Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content. a. Introduce a topic; organize ideas, concepts, and information, using strategies such as definition, classification, classification, comparison/contrast, and cause/effect; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension. b. Develop the topic with relevant facts, definitions, concrete details, quotations, or other information and examples. c. Use appropriate transitions to clarify the relationships among ideas and concepts. d. Use precise language and domain-specific vocabulary to inform about or explain the topic. e. Establish and maintain a formal style. f. Provide a concluding statement or section that follows from the information or explanation presented.

Writing
☐ Write an informative text that examines a topic and provides ideas through my choice of materials, organization and analysis of the information
☐ Use transitions that help clarify concepts in the text.
☐ Use words that relate to my topic.
☐ Present my information in a formal style with a concluding statement.
Standards Statement
3. Write narratives to develop real or imagined experiences or events using effective technique, relevant descriptive details, and well-structured event sequences. a. Engage and orient the reader by establishing a context and introducing a narrator and/or characters; organize an event sequence that unfolds naturally and logically. b. Use narrative techniques, such as dialogue, pacing, and description, to develop experiences, events, and/or characters. c. Use a variety of transition words, phrases, and clauses to convey sequence and signal shifts from one time frame or setting to another. d. Use precise words and phrases, relevant descriptive details, and sensory language to convey experiences and events. e. Provide a conclusion that follows from the narrated experiences or events.
☐ Define a narrative.
☐ Write a narrative with detail and well-structured events.
☐ Identify narrative techniques.
☐ Write a narrative using narrative techniques to create the story.
☐ Use transition words to create a change in time.
☐ Bring my narrative to a logical conclusion.
Standards Statement
4. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1-3).
☐ Write a clear and organized piece of writing that shows my understanding of a specific writing style.
Standards Statement
5. With some guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach. (Editing for conventions should demonstrate command of Language standards 1-3 up to and including grade 6.)
☐ Plan, revise, edit and rewrite to strengthen my writing.
☐ Recognize when I need to change my approach.

Writing – Cont.
Standards Statement
6. Use technology, including the Internet, to produce and publish writing as well as to interact and collaborate with others; demonstrate sufficient command of keyboarding skills to type a minimum of three pages in a single sitting.
☐ Identify the technologies that will help me write and publish my writing.
☐ Use proper keyboarding skills to type a minimum of three pages in a single sitting.
Standards Statement
7. Conduct short research projects to answer a question, drawing on several sources and refocusing the inquiry when appropriate.
☐ Use a variety of sources to conduct a short research project.t
Standards Statement
8. Gather relevant information from multiple print and digital sources; assess the credibility of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and providing basic bibliographic information for sources.
☐ Collect information from a variety of sources.
☐ Determine the credibility of the resources.
☐ Quote or paraphrase information.
☐ List bibliographic information.
Standards Statement
9. Draw evidence from literary or informational texts to support analysis, reflection, and research. a. Apply *grade 6 Reading standards* to literature (e.g., "Compare and contrast texts in different forms or genres [e.g., stories and poems; historical novels and fantasy stories] in terms of their approaches to similar themes and topics"). b. Apply *grade 6 Reading standards* to literary nonfiction (e.g., "Trace and evaluate the argument and specific claims in a text, distinguishing claims that are supported by reasons and evidence from claims that are not").
☐ Compare and contrast different genres with similar themes or topics.
☐ Determine arguments that are supported by reason and those that are not.
Standards Statement
10. Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.
☐ Write over an extended period of time.
☐ Write in a single or two day setting.

Speaking & Listening
Standards Statement
1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on *grade 6 topics, texts, and issues*, building on others' ideas and expressing their own clearly. a. Come to discussions prepared having read or studied required material; explicitly draw on that preparation by referring to evidence on the topic, text, or issue to probe and reflect on ideas under discussion. b. Follow rules for collegial discussions, set specific goals and deadlines, and define individual roles as needed. c. Pose and respond to specific questions with elaboration and detail by making comments that contribute to the topic, text, or issue under discussion. d. Review the key ideas expressed and demonstrate understanding of multiple perspectives through reflection and paraphrasing.
☐ Prepare for a discussion by reading and studying material about the topic.
☐ Follow the rules for talking in a group.
☐ Answers questions using details that add to the topic.
☐ Summarize the key ideas from the discussion that show more than one point of view.
Standards Statement
2. Interpret information presented in diverse media and formats (e.g., visually, quantitatively, orally) and explain how it contributes to a topic, text, or issue under study.
☐ Interpret information found in media and explain how is adds to the information.
Standards Statement
3. Delineate a speaker's argument and specific claims, distinguishing claims that are supported by reasons and evidence from claims that are not.
☐ Identify claims that are reasonable and those that are not.
Standards Statement
4. Present claims and findings, sequencing ideas logically and using pertinent descriptions, facts, and details to accentuate main ideas or themes; use appropriate eye contact, adequate volume, and clear pronunciation.
☐ Present my information in a logical sequence using pertinent information, eye contact, volume and clear pronunciation.
Standards Statement
5. Include multimedia components (e.g., graphics, images, music, sound) and visual displays in presentations to clarify information.
☐ Include multimedia in presentations when appropriate.

Speaking & Listening – Cont.
Standards Statement
6. Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate.
☐ Adapt a speech to a variety of audiences.
Language
Standards Statement
1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking. a. Ensure that pronouns are in the proper case (subjective, objective, possessive). b. Use intensive pronouns (e.g., *myself, ourselves*). c. Recognize and correct inappropriate shifts in pronoun number and person. d. Recognize and correct vague pronouns (i.e., ones with unclear or ambiguous antecedents). e. Recognize variations from standard English in their own and others' writing and speaking, and identify and use strategies to improve expression in conventional language.
☐ Use pronouns correctly in my work and correct others.
Standards Statement
2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing. a. Use punctuation (commas, parentheses, dashes) to set off nonrestrictive parenthetical elements. b. Spell correctly.
☐ Use parentheses and dashes correctly.
☐ Find and correct misspelled words.
Standards Statement
3. Use knowledge of language and its conventions when writing, speaking, reading, or listening. a. Vary sentence patterns for meaning, reader/listener interest, and style. b. Maintain consistency in style and tone.
☐ Use a variety of sentence patterns in my writing.
☐ Use a variety of sentence patterns in my speaking.

Language – Cont.
Standards Statement
4. Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on *grade 6 reading and content,* choosing flexibly from a range of strategies. a. Use context (e.g., the overall meaning of a sentence or paragraph; a word's position or function in a sentence) as a clue to the meaning of a word or phrase. b. Use common, grade-appropriate Greek or Latin affixes and roots as clues to the meaning of a word (e.g., *audience, auditory, audible).* c. Consult reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning or its part of speech. d. Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).
☐ Use context to help determine the meaning of a word or phrase.
☐ Use Greek or Latin affixes and roots as clues to determine the meaning of a word.
☐ Use reference materials to help understand the pronunciation or meaning of a word.
Standards Statement
5. Demonstrate understanding of figurative language, word relationships, and nuances in word meanings. a. Interpret figures of speech (e.g., personification) in context. b. Use the relationship between particular words (e.g., cause/effect, part/whole, item/category) to better understand each of the words. c. Distinguish among the connotations (associations) of words with similar denotations (definitions) (e.g., *stingy, scrimping, economical, unwasteful, thrifty*).
☐ Tell the meaning of figures of speech.
☐ Use the relationship of words to help understand words.
☐ Explain connotations.
☐ Explain denotations.
Standards Statement
6. Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases; gather vocabulary knowledge when considering a word or phrase important to comprehension or expression.
☐ Correctly use grade–appropriate words and phrases.

Rocks, Minerals and Soil (ESS)
Content Statement
1. Minerals have specific, quantifiable properties.
☐ Identify the different processes and/or environments in which minerals can form (e.g., evaporation, chemical processes, sedimentary, igneous or metamorphic).
☐ Classify and/or identify minerals based on their measurable properties.
☐ Compare and contrast rocks and minerals.
☐ Test the properties of minerals in order to identify them (luster, hardness, cleavage, streak, magnetism, fluorescence, and/or crystal shape).
☐ Use appropriate tools and safety procedures to test mineral properties.
☐ Use technology to help research minerals.
☐ Use minerals to help identify the rocks they are found in (e.g., calcite, halite, dolomite, gypsum, quartzes, feldspars, micas, talc, kaolinite, chalk, topaz, corundum).
Content Statement
2. Igneous, metamorphic and sedimentary rocks have unique characteristics that can be used for identification and/or classification.
☐ Experiment with different types of rocks for the purposes of identification and classification (igneous rock must include: granite, rhyolite, basalt, obsidian, pumice and andesite; metamorphic rock must include: schist, gneiss, slate, marble, anthracite and phyllite; sedimentary rock must include: limestone, sandstone, shale, conglomerate and breccias; others must include bituminous coal, coquina, and chert).
☐ Use proper safety protocol and procedures when testing rocks.
☐ Use the identification of the minerals, the mineral arrangement, and other measurable characteristics within the rock to identify the rock.
☐ Use rock characteristics to interpret its history of formation, breakdown (weathering) and transport (erosion).
☐ Research current identification methods and techniques of investigating rocks.
Content Statement
3. Igneous, metamorphic and sedimentary rocks form in different ways.
☐ Identify the main components of the rock cycle.
☐ Use the rock cycle to describe the formation of igneous, sedimentary and metamorphic rocks
☐ Understand that rocks and minerals in rocks form in specific types of environments.
☐ Read geologic, physical and topographical maps to see how the types of geologic structures and features help identify the types of rock that may be found in specific areas and to understand the environmental conditions that needed to exist during the formation.

Rocks, Minerals and Soil (ESS) – Cont.
☐ Research rocks and minerals in Ohio to understand their history of formation (e.g., formation of Ohio sandstone and limestone indicates that a shallow sea once covered Ohio, Ohio's geologic history and past environmental conditions help understand the existing bedrock in Ohio).
☐ Make connections between the typical pattern of coal formation and energy in Ohio.
Content Statement
4. Soil is unconsolidated material that contains nutrient matter and weathered rock.
☐ Investigate soil in order to determine its texture, color, composition, permeability and porosity.
☐ Use the properties of soil to observe, identify and measure soil horizons.
☐ Determine proper uses for soil based on its properties (e.g., some soils may be recommended for agriculture, while others may be used for brick making or creating a pond).
☐ Understand that soil forms at different rates and different measurable properties, depending on the environmental conditions.
☐ Make connections between environmental conditions, types of bedrock and soil properties.
☐ Investigate different soil sampling testing methods and equipment.
☐ Use soil maps (paper or digital) combined with geologic, aerial or topographic maps to help identify local soil formations.
☐ Make connections between soil depletion and natural events (e.g., desertification, mass wasting, erosion, landslide, dust bowl, etc.).
☐ Recognize that soil forms in layers known as horizons that can be distinguished from one another by properties that can be measured.
Content Statement
5. Rocks, minerals and soils have common and practical uses.
☐ Recognize that the characteristics of soil, rocks and minerals determine how they can be used.
☐ Research different uses of minerals, soil and rock within the community and within Ohio.
☐ Identify examples of different ways that soil, rocks and minerals can be used including: ☐ construction (e.g., gypsum, metals, gravel, sand, lime, clay), ☐ energy (e.g., fossil fuels, radioactive materials), ☐ transportation (e.g., road salt, asphalt), ☐ agriculture (e.g., lime, peat, minerals for fertilizers, pesticides),

Rocks, Minerals and Soil (ESS) – Cont.
☐ domestic use (e.g., metals and gems for jewelry, clay for pottery or sculpting, natural dyes for clothing or paint) and ☐ technology (e.g., lithium, silica).
☐ Describe different methods of extracting rocks, minerals and soils.
☐ Describe ways to conserve resources through the management of resources (e.g., extraction methods, use, storage and disposal).
☐ Understand that almost all manufactured materials require some kind of geologic resource.
☐ Recognize that rocks, minerals and soil are examples of geologic resources that are nonrenewable.
Cellular to Multicellular (LS)
Content Statement
6. Cells are the fundamental unit of life.
☐ Describe how the structure of specialized cells that form tissues (e.g., xylem, phloem, connective, muscle, nervous) relates to the function that the cells perform.
☐ Build a model of a plant or animal cell and explain how the cellular structures and their functions contribute to the survival of the cell.
☐ Use a microscope, micrograph, model or illustration to observe a single-celled organism label the visible cellular structures, and explain how a single-celled organism carries out all functions required for life.
☐ Understand that the cells of multicellular organisms can be organized at various levels to carry out all the basic functions of life.
☐ Recognize that different body tissues and organs can be made up of different kinds of cells.
☐ Understand that cells in similar tissues and organs in animals are similar while the tissues and organs found in plants differ slightly from similar tissues in animals.
☐ Use the Modern Cell Theory to explain how scientific theories are developed over time.
☐ Use microscopes, micrographs, safety procedures, models and illustrations to observe cells from many different types of organisms: ☐ Eubacteria (cyanobacteria) ☐ Protista (algae, amoeba, diatoms, euglena, volvox) ☐ Fungi (common mushrooms, bread molds) ☐ Plantae (mosses, ferns, angiosperms)
☐ Use a microscope to view cells, tissues (xylem, phloem, connective, muscle, nervous) and organs (leaf, stem, flower, spore, ganglia, blood vessels, eyes) to compare and contrast their similarities and differences.

Cellular to Multicellular (LS)- Cont.	
☐	Use a microscope to view cells, tissues (xylem, phloem, connective, muscle, nervous) and organs (leaf, stem, flower, spore, ganglia, blood vessels, eyes) to compare and contrast their similarities and differences.
	Content Statement
	7. All cells come from pre-existing cells.
☐	Recall that the Modern Cell Theory states that all cells come from pre-existing cells.
☐	Understand that reproduction is necessary to continue a species because individual organisms do not live forever.
☐	Realize that traits are passed onto the next generation through reproduction.
☐	Recognize that single-celled organisms reproduce by dividing into 2 new cells (binary fission).
☐	Recognize that in multicellular organisms, cells multiply for growth and repair.
☐	Describe chromosomes as a structure in cells that contains the genetic material.
☐	Generally explain the process/purpose of mitosis.
☐	Observe cells from different organisms in the process of dividing by using microscopes, micrographs, models and illustrations.
☐	Understand why spontaneous generation is not true.
☐	Discuss how Redi and Pasteur show how evidence can lead to new knowledge, better explanations and spur new technology.
☐	Model the movement of chromosomes during plant cell division focusing on how the process ensures genetic information is passed from one generation to the next.
	Content Statement
	8. Cells carry on specific functions that sustain life.
☐	Describe the different structures in a cell as it is related to their functions.
☐	Recognize that the functions of cell structures are regulated and controlled (e.g., a cell membrane controls what can enter and leave the cell).
☐	Explain the role of cells, tissues, organs and organ systems that carry out life functions for organisms.
☐	Identify and explain the roles of systems including: homeostasis, gas exchange, energy transfers and transformation, transportation of molecules, disposal of wastes and synthesis of new molecules.
☐	Make connections between organelles and processes.
☐	Explore conditions that optimize and/or minimize cellular function in a cell or organism.

Cellular to Multicellular (LS) – Cont.	
☐	Predict and test what will happen when a cell is placed in a variety of solutions (e.g., an Elodea cell placed in tap water, distilled water and salt water).
☐	Compare sample cells from different tissues (e.g., muscle, skin, root, stem, leaf) in plants and animals.
	Content Statement
	9. Living systems at all levels of organization demonstrate the complementary nature of structure and function.
☐	Recognize that all parts of an organism perform specialized functions as a whole to ensure the survival of the organism.
☐	Recognize that groups of specialized cells form a tissue.
☐	Compare the four major types of tissues (epithelial, connective, nerve and muscle).
☐	Make distinctions among organisms (e.g., body plans, symmetry, internal structures) in order to classify them into a scientifically based group (types of plants, animals, etc.).
☐	Group organisms based on their similar external structures, internal structures and processes.
☐	Explore how all things are similar by observing tissues, organs, cell structures, systems, and symmetry for plants and animals.
☐	Use inquiry and mathematical relationships to link cell size and the cell's ability to transport necessary materials into its interior.
☐	Compare an organism's ability to survive in its environment with its body plans, symmetry and internal structures.
Matter and Motion (PS)	
	Content Statement
	10. All matter is made up of small particles called atoms.
☐	Recognize that all matter is made of atoms.
☐	Describe atoms as particles that are too small to be seen, even with a light microscope.
☐	Realize that there is empty space between the atoms that make up a substance.
☐	Describe an element as a chemical substance that cannot be broken down into simpler substances.
☐	Realize that all atoms of any one element are alike, but are different from atoms of other elements.
☐	Understand that there are naturally occurring elements and elements that were made in a laboratory (but these elements are not stable).
☐	Describe the behavior of atomic particles for each state of matter (solid, liquid, gas).

Matter and Motion (PS) – Cont.	
☐	Draw a model/pictorial representation that depicts the behavior of atomic particles for each state of matter (solid, liquid, gas).
☐	Calculate the volume of a rectangular solid from its dimensions.
☐	Calculate the volume of an irregularly shaped solid using the water displacement method.
☐	Recognize that all substances are composed of one or more elements.
☐	Recall that compounds are elements joined together chemically and each compound has its own unique, unchanging composition of type and number of elements and atoms.
☐	Realize that both elements and compounds can form molecules.
☐	Understand that all particles of a pure substance have nearly identical mass while particles of different substances usually have different masses, depending on their atomic composition.
☐	Differentiate between mass and volume.
☐	Experiment to prove that equal volumes of different substances usually have different masses.
☐	Distinguish between materials that have a lot of mass in a relatively small space (e.g., lead, gold) and those that have a small mass in a relatively large amount of space (e.g., Styrofoam©, air).
☐	Compare substances by the amount of mass the substance has in a given volume to determine density.
☐	Experiment to show that density generally remains constant no matter how much of a material is present while mass and volume of a material can change depending upon how much there is of the material.
☐	Identify different materials using density.
☐	Calculate density by dividing the mass by the volume.
☐	Use mass vs. volume graphs to determine which material has the greater density.
☐	Recognize that atoms can join together in large three-dimensional networks..
Content Statement	
11.	Changes of state are explained by a model of matter composed of atoms and/or molecules that are in motion.
☐	Explain in terms of the atomic theory why gases can be easily compressed, while liquids and solids cannot.
☐	Explain how the arrangement of atoms determines the specific properties (e.g., compressibility, ability to take the shape of a container, speed of particle movement, attraction between particles, space between particles, etc.) of solids, liquids and gases.

Matter and Motion (PS) – Cont.
☐ Explain the many different traits of thermal energy: ☐ Total amount of kinetic energy present in a substance (the random motion of its atoms and molecules), ☐ When it increases, total kinetic energy of the particles in the system increases, and ☐ Depends upon the mass of the substance (temperature does not!), the nature of the material making up the substance, and the average kinetic energy of the particles of the substance.
☐ Identify the state of matter of a substance based on the arrangement and movement of its particles.
☐ Realize that when substances undergo changes of state, neither atoms nor molecules themselves are changed in structure.
☐ Demonstrate that the mass of a substance does not change during a phase change because the particles are not created or destroyed (there is simply a change in the motion of and spacing between particles).
☐ Explain what happens to the particles of a substance when it rearranges to form new substances.
☐ Use virtual labs to experiment with temperature, phase changes and particle motion.
☐ Understand that the higher the temperature of the substance, the greater the average kinetic energy and motion of the particles.
Content Statement
12. There are two categories of energy: kinetic and potential.
☐ Identify all types of energy as either kinetic or potential.
☐ Explore, identify and describe: ☐ Gravitational potential energy ☐ Electrical energy ☐ Thermal energy ☐ Sound energy
☐ Investigate the relationship between height and gravitational potential energy: height increases gravitational potential energy.
☐ Recall that an object can have potential energy due to its position relative to another object and can have kinetic energy due to its motion.
☐ Investigate energy transfers in a simple design (e.g., waterwheel): ☐ Classify the energy at each state in the design as kinetic, potential or a combination of the two. ☐ Identify effective and ineffective design features ☐ Redesign to incorporate best design practices.

Matter and Motion (PS) – Cont.	
Content Statement	
13. An object's motion can be described by its speed and the direction in which it is moving.	
☐	Describe the motion of an object by indicating direction and speed.
☐	Create/use a position vs. time graph to investigate motion.
☐	Use a position vs. time graph to compare and analyze motion of an object.
☐	Use speed vs. time graph to determine the time at which an object has a particular speed.
☐	Calculate the average speed of an object given the distance and time.
☐	Identify what is changing and what is not changing for an object moving at constant speed.
☐	Recognize that if a force on an object acts toward a single center, the object's path may curve into an orbit around the center (e.g., a sponge attached to the end of a string will travel in a circular path when whirled; the string continually pulls the sponge toward the center, resulting in circular motion).

History
Content Statement & Elaborations
1. Events can be arranged in order of occurrence using the conventions of B.C. and A.D. or B.C.E. and C.E.
☐ Apply the conventions of B.C.E. and C.E. or B.C. and A.D. to arrange and analyze events in chronological order.
☐ Arrange events on single and multiple-tier timelines using B.C.E. and C.E. or B.C. and A.D.
Content Statement & Elaborations
2. Early civilizations (India, Egypt, China and Mesopotamia) with unique governments, economic systems, social structures, religions, technologies and agricultural practices and products flourished as a result of favorable geographic characteristics. The cultural practices and products of these early civilizations can be used to help understand the Eastern Hemisphere today
☐ Describe the influence of geography on the development of unique civilizations in India, Egypt, China and Mesopotamia.
☐ Describe the governments, cultures, economic systems, technologies and agricultural practices and products of early civilizations and their enduring influence in the Eastern Hemisphere today.
Geography
Content Statement & Elaborations
3. Globes and other geographic tools can be used to gather, process and report information about people, places and environments. Cartographers decide which information to include and how it is displayed.
☐ Use appropriate maps, globes and geographic tools to gather, process and report information about people, places and environments.
☐ Understand that maps are created for specific purposes and represent the context in which they were created.
Content Statement & Elaborations
4. Latitude and longitude can be used to identify absolute location.
☐ Use latitude and longitude coordinates to identify absolute location.
Content Statement & Elaborations
5. Regions can be determined, classified and compared using various criteria (e.g., landforms, climate, population, culture, economic).
☐ Use various criteria to describe, classify and compare regions.

Geography – Cont.
Content Statement & Elaborations
6. Variations among physical environments within the Eastern Hemisphere influence human activities. Human activities also alter the physical environment.
☐ Explain how variations among physical environments in the Eastern Hemisphere influence human activities.
☐ Explain how human activities have altered the physical environments of the Eastern Hemisphere.
Content Statement & Elaborations
7. Political, environmental, social and economic factors cause people, products and ideas to move from place to place in the Eastern Hemisphere in the past and today.
☐ Explain political, environmental, social and economic factors that cause the movement of people, products and ideas in the Eastern Hemisphere. -Political factors include changes in political leadership, citizen rights, etc. -Environmental factors include climate, natural disasters, etc. -Social factors include discrimination, intolerance, religious freedom, etc. -Economic factors include the availability of resources, changes in trade patterns, employment opportunities, etc.
☐ Describe the lasting impact of the movement of people, products and ideas in the Eastern Hemisphere.
Content Statement & Elaborations
8. Modern cultural practices and products show the influence of tradition and diffusion, including the impact of major world religions (Buddhism, Christianity, Hinduism, Islam and Judaism).
☐ Explain how tradition and diffusion have influenced modern cultural practices and products in the Eastern Hemisphere (e.g., silk was a prized commodity in Ancient China and continues to be a luxury product today).
☐ Describe the influence of religious diffusion in the modern world (including geographic origins, founding teachers and teachings of different religions).
Government
Content Statement & Elaborations
9. Different perspectives on a topic can be obtained from a variety of historic and contemporary sources. Sources can be examined for accuracy.
☐ Use a variety of historic and contemporary sources to obtain multiple perspectives on a topic. ☐ Examine a variety of sources for accuracy: -Can the information be verified in other sources? -What are the author's sources of information?

Government – Cont.
-Is the information original or reprinted/excerpted from another source? -How does the source compare with others on the same topic?
Content Statement & Elaborations
10. Governments can be categorized as monarchies, theocracies, dictatorships or democracies, but categories may overlap and labels may not accurately represent how governments function. The extent of citizens' liberties and responsibilities varies according to limits on governmental authority.
☐ Describe the relationship between those in power and individual citizens in a democracy, dictatorship, monarchy and theocracy.
☐ Understand that the characteristics of governments often overlap and can misrepresent the actual relationship between those governing and those being governed (e.g., Democratic People's Republic of Korea (North Korea), which in reality is a communist state led by a dictator).
☐ Understand that some countries may use a combination of two governmental systems (e.g., the United Kingdom has a royal family, which suggests a monarchy, but as a constitutional monarchy is in practice much closer to a democracy).
☐ Understand that the extent of a citizen's liberties and responsibilities varies according to the limits of the governing body's authority (e.g., governmental authority is limited in most democracies, resulting in broad citizen liberties and responsibilities. Conversely, under most dictatorships, the dictator's authority is unlimited, resulting in strict limits on citizens' liberties and responsibilities).
Economics
Content Statement & Elaborations
11. Economists compare data sets to draw conclusions about relationships among them.
☐ Compare economic data sets to identify relationships and draw conclusions.
Content Statement & Elaborations
12. The choices people make have both present and future consequences. The evaluation of choices is relative and may differ across individuals and societies.
☐ Predict the present and future consequences of an economic decision and explain how individuals and societies may evaluate the choices differently.
Content Statement & Elaborations
13. The fundamental questions of economics include what to produce, how to produce and for whom to produce.
☐ Explain how individuals and societies answer the fundamental questions of economics.

Economics – Cont.
Content Statement & Elaborations
14. When regions and/or countries specialize, global trade occurs.
☐ Explain how specialization leads to global trade.
☐ Investigate examples of trade within the Eastern Hemisphere and globally, tracking the production and sale of goods and services using economic data (e.g., production and consumption of oil, agricultural products (coffee, soybeans) or manufactured items (toys, clothing).
Content Statement & Elaborations
15. The interaction of supply and demand, influenced by competition, helps to determine price in a market. This interaction also determines the quantities of outputs produced and the quantities of inputs (human resources, natural resources and capital) used.
☐ Explain how supply, demand and competition interact to determine price.
☐ Explain how supply, demand and competition interact to influence quantities of inputs and outputs. *For example*: - *Interaction of supply and demand:* The availability of a good or service and the demand for that good or service interacts to determine price. For instance, if demand for gasoline increases beyond the capacity of refineries to provide adequate supplies, prices for gasoline will rise. When refinery production exceeds demand, producers will drop prices for gasoline in an attempt to get car owners to purchase more gasoline. - *Influence of competition:* Price is influenced by competition among producers who compete to sell their goods and services. When multiple producers compete to sell a product that is in high-demand, consumers may benefit as the producers lower their prices to increase sales and compete for customers. For instance, when several stores sell the same video game system, they are in competition with one another, and often choose to lower prices to attract consumers. *Quantities of outputs produced and inputs used:* The interaction of supply, demand and competition influences the quantities of goods and services produced (outputs) and therefore the quantities of productive resources used (inputs). As supply, demand and competition interact to determine the price of a product, the number of products created also is affected. For example, video game manufacturers might produce more copies of a popular game in anticipation of holiday shopping. As the demand for a game increases during the holiday season, manufacturers will increase their outputs (copies of the game), as well as their use of inputs (productive resources like plastic to create discs and workers to package them).

Economics – Cont.
Content Statement & Elaborations
16. When selecting items to buy, individuals can compare the price and quality of available goods and services.
☐ Explain how individuals compare price and quality when selecting goods and services to buy (including print and web-based advertising, personal recommendations and independent reviews).
☐ Explore reasons why items manufactured in Asia (e.g., clothing, toys, electronics) might have lower prices than those produced in the United States.
☐ Discuss the pros and cons of purchasing foreign-made products, including price and quality.

Ratios & Proportional Relationships
Cluster
1. Understand ratio concepts and use ratio reasoning to solve problems.
☐ Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. *For example, "The ratio of wings to beaks in the bird house at the zoo was 2:1, because for every 2 wings there was 1 beak." "For every vote candidate A received, candidate C received nearly three votes."*
☐ Understand the concept of a unit rate a/b associated with a ratio *a*:*b*, and use rate language in the context of a ratio relationship. *For example, "This recipe has a ratio of 3 cups of flour to 4 cups of sugar, so there is 3/4 cup of flour for each cup of sugar." "We paid $75 for 15 hamburgers, which is a rate of $5 per hamburger."*
☐ Use ratio and rate reasoning to solve real-world and mathematical problems by using various diagrams. ☐ a. Make tables of equivalent ratios relating quantities with whole-number measurements - Find missing values in the tables - Plot the pairs of values on the coordinate plane - Use tables to compare ratios ☐ b. Solve unit rate problems including those involving unit pricing and constant speed. *For example, if it took 7 hours to mow 4 lawns, then at that rate, how many lawns could be mowed in 35 hours? At what rate were lawns being mowed?* ☐ c. Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means 30/100 times the quantity). - Solve problems involving finding the whole, given a part and the percent. ☐ d. Use ratio reasoning to convert measurement units. - Manipulate and transform units appropriately when multiplying or dividing quantities.
The Number System
Cluster
2. Apply and extend previous understandings of multiplication and division to divide fractions by fractions.
☐ Interpret and compute quotients of fractions.
☐ Solve word problems involving division of fractions by fractions. *For example, create a story context for (2/3) ÷ (3/4) and use a visual fraction model to show the quotient; use the relationship between multiplication and division to explain that (2/3) ÷ (3/4) = 8/9 because 3/4 of 8/9 is 2/3. (In general, (a/b) ÷ (c/d) = ad/bc.) How much chocolate will each person get if 3 people share 1/2 lb of chocolate equally? How many 3/4-cup servings are in 2/3 of a cup of yogurt? How wide is a rectangular strip of land with length 3/4 mi and area 1/2 square mi?*

The Number System – Cont.
Cluster
3. Compute fluently with multi-digit numbers and find common factors and multiples.
☐ Fluently divide multi-digit numbers using the standard algorithm (process).
☐ Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.
☐ Find the greatest common factor of two whole numbers less than or equal to 100.
☐ Find the least common multiple of two whole numbers less than or equal to 12.
☐ Use the distributive property to express a sum of two whole numbers 1–100 with a common factor as a multiple of a sum of two whole numbers with no common factor. *For example, express 36 + 8 as 4* (*9 + 2*).
Cluster
4. Apply and extend previous understandings of numbers to the system of rational numbers.
☐ Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge).
☐ Use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation.
☐ Understand a rational number as a point on the number line.
☐ Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates. ☐ a. Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line. -Recognize that the opposite of the opposite of a number is the number itself, e.g., –(–3) = 3, and that 0 is its own opposite. ☐ b. Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane. -Recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes. ☐ c. Find and position integers and other rational numbers on a horizontal or vertical number line diagram. -Find and position pairs of integers and other rational numbers on a coordinate plane.

The Number System – Cont.

☐ Understand ordering and absolute value of rational numbers.

☐ a. Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram. *For example, interpret –3 > –7 as a statement that –3 is located to the right of –7 on a number line oriented from left to right.*

☐ b. Write, interpret, and explain statements of order for rational numbers in real-world contexts. *For example, write –3 ^{o}C > –7 ^{o}C to express the fact that –3 ^{o}C is warmer than –7 ^{o}C.*

☐ c. Understand the absolute value of a rational number as its distance from 0 on the number line.

- Interpret absolute value as magnitude for a positive or negative quantity in a real-world situation. *For example, for an account balance of –30 dollars, write |–30| = 30 to describe the size of the debt in dollars.*

☐ d. Distinguish comparisons of absolute value from statements about order. *For example, recognize that an account balance less than –30 dollars represents a debt greater than 30 dollars.*

☐ Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.

Expressions & Equations

Cluster

5. Apply and extend previous understandings of arithmetic to algebraic expressions.

☐ Write and evaluate numerical expressions involving whole-number exponents.

☐ Write, read, and evaluate expressions in which letters stand for numbers.

☐ a. Write expressions that record operations with numbers and with letters standing for numbers. *For example, express the calculation "Subtract y from 5" as 5 – y.*

☐ b. Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, co-efficient).

- View one or more parts of an expression as a single entity *For example, describe the expression 2 (8 + 7) as a product of two factors; view (8 + 7) as both a single entity and a sum of two terms.*

☐ c. Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems.

- Perform arithmetic operations, including those involving whole- number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations). *For example, use the formulas $V = s^3$ and $A = 6s^2$ to find the volume and surface area of a cube with sides of length s = 1/2.*

Expressions & Equations	
	Cluster
☐	Apply the properties of operations to generate equivalent expressions. *For example, apply the distributive property to the expression 3 (2 + x) to produce the equivalent expression 6 + 3x; apply the distributive property to the expression 24x + 18y to produce the equivalent expression 6 (4x + 3y); apply properties of operations to y + y + y to produce the equivalent expression 3y.*
☐	Identify when two expressions are equivalent (i.e., when the two expressions name the same number regardless of which value is substituted into them). *For example, the expressions y + y + y and 3y are equivalent because they name the same number regardless of which number y represents.*
	Cluster
6.	Reason about and solve one-variable equations and inequalities.
☐	Understand solving an equation or inequality as a process of answering a question which leads to finding the values from a specified set, if any, that make the equation or inequality true.
☐	Use substitution to determine whether a given number in a specified set makes an equation or inequality true.
☐	Use variables to represent numbers and write expressions when solving a real-world or mathematical problem.
☐	Understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set.
☐	Solve real-world and mathematical problems by writing and solving equations of the form $x + p = q$ and $px = q$ for cases in which p, q and x are all nonnegative rational numbers and p & q are given.
☐	Write an inequality of the form $x > c$ or $x < c$ to represent a constraint or condition in a real-world or mathematical problem.
☐	Recognize that inequalities of the form $x > c$ or $x < c$ have infinitely many solutions.
☐	Represent solutions of such inequalities on number line diagrams.
	Cluster
7.	Represent and analyze quantitative relationships between dependent and independent variables.
☐	Use variables to represent two quantities in a real-world problem that change in relationship to one another.
☐	Write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable.

Geometry – Cont.	
☐	Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation. *For example, in a problem involving motion at constant speed, list and graph ordered pairs of distances and times, and write the equation d = 65t to represent the relationship between distance and time.*
	Cluster
8.	Solve real-world and mathematical problems involving area, surface area, and volume.
☐	Find the area of right triangles, other triangles, special quadrilaterals (parallelograms, trapezoids, etc.), and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the context of solving real-world and mathematical problems.
☐	Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism.
☐	Apply the formulas V = l w h and V = B h to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.
☐	Draw polygons in the coordinate plane given coordinates for the vertices.
☐	Use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate.
☐	Apply these techniques in the context of solving real-world and mathematical problems.
☐	Represent three-dimensional figures using nets made up of rectangles and triangles.
☐	Use the nets to find the surface area of these figures.
☐	Apply these techniques in the context of solving real-world and mathematical problems.
Statistics & Probability	
	Cluster
9.	Develop understanding of statistical variability.
☐	Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers. *For example, "How old am I?" is not a statistical question, but "How old are the students in my school?" is a statistical question because one anticipates variability in students' ages.*
☐	Understand that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape.
☐	Recognize that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation describes how its values vary with a single number.

Statistics & Probability – Cont.
Cluster
10. Summarize and describe distributions.
☐ Display numerical data in plots on a number line, (line plot) including dot plots, histograms, and box plots.
☐ Decide and explain which type of plot is the best way to display my data depending on what I want to communicate about my data.
☐ Summarize numerical data sets in relation to their context, such as by: ☐ a. Reporting the number of observations. ☐ b. Describing the nature of the attribute under investigation, including how it was measured and its units of measurement. ☐ c. Giving quantitative measures of center (median and/or mean) and variability (interquartile range and/or mean absolute deviation), as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered. ☐ d. Relating the choice of measures of center and variability to the shape of the data distribution and the context in which the data were gathered.