

6

SIXTH GRADE



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LANGUAGE ARTS

By the end of Sixth Grade, students will:

READING STANDARDS FOR LITERATURE

Key Ideas & Details

- Cite textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.
- 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.
- Describe how a particular story's or drama's plot unfolds in a series of episodes as well as how characters respond or change as the plot moves toward a resolution.

Craft and Structure

- 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.
- 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 an author develops the point of view of the narrator or speaker in a text.

Integration of Knowledge and Ideas

- 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 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.

Range and Level of Text Complexity

- 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.

READING STANDARDS FOR INFORMATIONAL TEXT

Key Ideas and Details

- Cite textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.
- Determine a 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.
- Analyze in detail how a key individual, event, or idea is introduced, illustrated, and elaborated in a text (e.g., through examples or anecdotes).

Craft and Structure

- Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings.
- 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.
- Determine an author's point of view or purpose in a text and explain how it is conveyed in the text.

Integration of Knowledge and Ideas

- 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.
- 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 one author's presentation of events with that of another (e.g., a memoir written by and a biography on the same person).

Range of Reading and Level of Text Complexity

- By the end of the year, read and comprehend literary nonfiction in the grades 6-8 text complexity band proficiently, with scaffolding as needed at the high end of the range.

WRITING STANDARDS

Text Types and Purposes

- Write arguments to support claims with clear reasons and relevant evidence.
- Write informative/ explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.
- Write narratives to develop real or imagined experiences or events using effective technique, relevant descriptive details, and well-structured event sequences.

Production and Distribution of Writing

- Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
- 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.
- 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.

Research to Build Knowledge

- Conduct short research projects to answer a question, drawing on several sources and refocusing the inquiry when appropriate.
- 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.
- Draw evidence from literary or informational texts to support analysis, reflection, and research.

Range of Writing

- 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.

SPEAKING & LISTENING STANDARDS

Comprehension and Collaboration

- 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.
- 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.
- Delineate a speaker's argument and specific claims, distinguishing claims that are supported by reasons and evidence from claims that are not.

Presentation of Knowledge and Ideas

- Present claims and findings (e.g., argument, narrative, informative, response to literature presentations), and sequencing ideas logically and using pertinent descriptions, facts, and details and nonverbal elements to accentuate main ideas or themes; use appropriate eye contact, adequate volume, and clear pronunciation.

- Include multimedia components (e.g., graphics, images, music, sound) and visually displays in presentations to clarify information.
- Adapt speech to variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate.

LANGUAGE STANDARDS

Conventions of Standard English

- Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
- Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.

Knowledge of Language

- Use knowledge of language and its conventions when writing, speaking, reading, or listening.

Vocabulary Acquisition and Use

- 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.
- Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.
- 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.

READING & WRITING STANDARDS FOR HISTORY, SOCIAL STUDIES, & SCIENCE

The standards below are examples of grades 6-8 reading and writing standards in history, social studies, science, and technical subjects.

- Cite specific textual evidence to support analysis of primary and secondary sources.
- Integrate visual information (e.g. in charts, graphs, photographs, videos, or maps) with other information in print and digital texts.
- Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.
- Analyze the author's purpose in providing an explanation, describing a procedure, or discussing an experiment in a text.
- Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.
- Identify key steps in a text's description of a process related to history/social studies (e.g., how a bill becomes law, how interest rates are raised or lowered).

MATHEMATICS

By the end of Sixth Grade, students will:

RATIOS AND PROPORTIONAL RELATIONSHIPS

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.
- Understand the concept of a unit rate and use rate language in the context of a ratio relationship.
- Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations.

THE NUMBER SYSTEM

Apply and extend previous understandings of multiplication and division to divide fractions by fractions.

- Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions.

Compute fluently with multi-digit numbers and find common factors and multiples.

- Fluently divide multi-digit numbers using the standard algorithm.
- 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 and 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 $4(9 + 2)$.

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. 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.
- Understand ordering and absolute value of rational numbers. Write, interpret, and explain statements of order for rational numbers in real-world contexts. 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.

EXPRESSIONS AND EQUATIONS

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. Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, coefficient).
- 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 $6 + 3x$.
- Identify when two expressions are equivalent (i.e., when the two expressions name the same number regardless of which value is substituted into them).

Reason about and solve one-variable equations and inequalities.

- Understand solving an equation or inequality as a process of answering a question: which values from a specified set, if any, 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.
- 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.
- Write an inequality of the form $x > c$ or $x < c$ to represent a real-world or mathematical problem and that these inequalities have

an infinite number of possibilities. Represent solutions of such inequalities on number line diagrams.

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. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation.

GEOMETRY

Solve real-world and mathematical problems involving area, surface area, and volume.

- Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes. Apply this knowledge to real-world problems.
- Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas $V = lwh$ and $V = bh$ to find volumes 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.
- Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures.

STATISTICS AND PROBABILITY

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.
- 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.

Summarize and describe distributions.

- Display numerical data in plots on a number line, including dot plots, histograms, and box plots.
- Summarize numerical data sets in relation to their context, such as by reporting the number of observations, describing the nature of the attribute, describing any overall patterns in measures of center and variability, and interpreting the data distribution.

SCIENCE

By the end of Sixth Grade, students will:

LIFE SCIENCES

- Conduct an investigation to provide evidence that living things are made of cells, either one cell or many different numbers and types of cells.
- Develop and use a model to describe the function of a cell as a whole and how parts of cells contribute to that function.
- Use evidence to support the argument that the body is a system of interacting subsystems composed of groups of cells.

- Use empirical evidence and scientific reasoning to support an explanation that characteristic animal behaviors and specialized plant structures affect the probability of successful continuation of animals and plants.
- Construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms.
- Gather and synthesize information that sensory receptors respond to stimuli by sending messages to the brain for immediate behavior or storage as memories.
- Develop and use a model to describe why different types of offspring have identical genetic information as their parents, while others have genetic variations.

EARTH & SPACE SCIENCES

- Develop a model to describe how the cycling of water through Earth's systems is driven by energy from the sun and the force of gravity.
- Collect data to provide evidence for how the motions and complex interactions of air masses result in changes in weather conditions.
- Develop and use a model to describe how unequal heating and rotation of the Earth cause patterns of atmospheric and oceanic circulation that determine regional climates.
- Apply scientific principles to design a method for monitoring and minimizing an impact on the environment (e.g., water usage, land usage, pollution).
- Ask questions to clarify evidence of the factors that have caused changes in the Earth's temperature over the past century.

PHYSICAL SCIENCES

- Apply scientific principles to design, construct, and test a device that either minimizes or maximizes thermal energy transfer.
- Plan an investigation to determine the relationships among the energy transferred, the type of matter, the mass, and the change in the average kinetic energy of the particles as measured by the temperature of the sample.
- Construct, use, and present arguments to support the claim that when the kinetic energy of an object changes, energy is transferred to or from the object.

ENGINEERING DESIGN (GRADES 6-8)

- Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.
- Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.
- Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.
- Develop a model to generate data for repeated testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.

HISTORY/SOCIAL SCIENCE

By the end of Sixth Grade, students will:

WORLD HISTORY AND GEOGRAPHY: ANCIENT CIVILIZATIONS

The Paleolithic Era to the Agricultural Revolution

- Learn about the early physical and cultural development of mankind from the Paleolithic Era to the agricultural revolution.
- Study hunter-gatherer societies, their characteristics, locations, and adaptations to various environments.

Civilizations of Mesopotamia, Egypt, and Kush

- Analyze the geographic, political, economic, religious, and social structures and impact of the early civilizations of Mesopotamia, Egypt, and Kush.

Ancient Hebrews

- Analyze the geographic, political, economic, religious, and social structures and impact of the early civilizations of the Ancient Hebrews.

Ancient Greece

- Analyze the geographic, political, economic, religious, and social structures and impact of the early civilizations of Ancient Greece.

India

- Analyze the geographic, political, economic, religious, and social structures and impact of the early civilizations of India.

China

- Analyze the geographic, political, economic, religious, and social structures and impact of the early civilizations of China.

Rome

- Analyze the geographic, political, economic, religious, and social structures and impact of the development of Rome.