

## 4

## FOURTH GRADE



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G4

## LANGUAGE ARTS

By the end of Fourth Grade, students will:

## READING STANDARDS FOR LITERATURE

*Key Ideas & Details*

- Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text.
- Determine a theme of a story, drama, or poem from details in the text; summarize the text.
- Describe in depth a character, setting, or event in a story or drama, drawing on specific details in the text (e.g., a character's thoughts, words, or actions).

*Craft & Structure*

- Determine the meaning of words and phrases as they are used in a text, including those that allude to significant characters found in mythology (e.g., Herculean).
- Explain major differences between poems, drama, and prose, and refer to the structural elements of poems (e.g., verse, rhythm, meter) and drama (e.g., casts of characters, settings, descriptions, dialogue, stage directions) when writing or speaking about a text.
- Compare and contrast the point of view from which different stories are narrated, including the difference between first- and third-person narrations.

*Integration of Knowledge & Ideas*

- Make connections between the text of a story or drama and a visual or oral presentation of the text, identifying where each version reflects specific descriptions and directions in the text.
- Compare and contrast the treatment of similar themes and topics (e.g., opposition of good and evil) and patterns of events (e.g., the quest) in stories, myths, and traditional literature from different cultures.

*Range of Reading and Level of Text Complexity*

- By the end of the year, read and comprehend literature, including stories, dramas, and poetry, in the grades 4-5 text complexity band proficiently, with scaffolding as needed at the high end of the range.

## READING STANDARDS FOR INFORMATIONAL TEXT

*Key Ideas & Details*

- Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text.
- Determine the main idea of a text and explain how it is supported by key details; summarize the text.
- Explain events, procedures, ideas, or concepts in a historical, scientific, or technical text, including what happened and why, based on specific information in the text.

*Craft & Structure*

- Determine the meaning of general academic and domain-specific words or phrases in a text relevant to a grade 4 topic or subject area.
- Describe the overall structure (e.g., chronology, comparison, cause/effect, problem/solution) of events, ideas, concepts, or information in a text or part of a text.
- Compare and contrast a firsthand and secondhand account of the same event or topic; describe the differences in focus and the information provided.

*Integration of Knowledge & Ideas*

- Interpret information presented visually, orally, or quantitatively (e.g., in charts, graphs, diagrams, time lines, animations, or interactive elements on Web pages) and explain how the information contributes to an understanding of the text in which it appears.

- Explain how an author uses reasons and evidence to support particular points in a text.
- Integrate information from two texts on the same topic in order to write or speak about the subject knowledgeably.

*Range of Reading and Level of Text Complexity*

- By the end of the year, read and comprehend informational texts, including history/social studies, science, and technical texts, in the grades 4-5 text complexity band proficiently, with scaffolding as needed at the high end of the range.

## READING STANDARDS: FOUNDATIONAL SKILLS

*Phonics & Word Recognition*

- Know and apply grade-level phonics and word analysis skills in decoding words.

*Fluency*

- Read with sufficient accuracy and fluency to support comprehension.

## WRITING STANDARDS

*Text Types & Purposes*

- Write opinion pieces on topics or texts, supporting a point of view with reasons and information.
- Write informative/explanatory texts to examine a topic and convey ideas and information clearly.
- Write narratives to develop real or imagined experiences or events using effective technique, descriptive details, and clear event sequences.

*Production & Distribution of Writing*

- Produce clear and coherent writing (including multiple-paragraph texts) in which the development and organization are appropriate to task, purpose, and audience.
- With guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, and editing.
- With some guidance and support from adults, 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 one page in a single sitting.

*Research to Build & Present Knowledge*

- Conduct short research projects that build knowledge through investigation of different aspects of a topic.
- Recall relevant information from experiences or gather relevant information from print and digital sources; take notes, paraphrase, and categorize information, and provide a list of sources.
- Draw evidence from literary or informational texts to support analysis, reflection, and research.
- Write routinely over extended time frames and shorter time frames (a single sitting or day or two) for a range of discipline-specific task, purpose, and audiences.

*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 disciplines, specific tasks, purposes, and audiences.

## SPEAKING &amp; LISTENING STANDARDS

*Comprehension & Collaboration*

- Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 4 topics and texts, building on others' ideas and expressing their own clearly.

- Paraphrase portions of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.
- Identify the reasons and evidence a speaker or media source provides to support particular points.

*Presentation of Knowledge & Ideas*

- Report on a topic or text, tell a story, or recount an experience in an organized manner, using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.
- Add audio recordings and visual displays to presentations when appropriate to enhance the development of main ideas or themes.
- Differentiate between contexts that call for formal English (e.g., presenting ideas) and situations where informal discourse is appropriate (e.g., small-group discussion); use formal English when appropriate to task and situation.

## 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 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, including those that signal precise actions, emotions, or states of being (e.g., quizzed, whined, stammered) and that are basic to a particular topic (e.g., wildlife, conservation, and endangered animal preservation).

## MATHEMATICS

By the end of Fourth Grade, students will:

## OPERATIONS AND ALGEBRAIC THINKING

*Use the four operations with whole numbers to solve problems.*

- Interpret a multiplication equation as a comparison, e.g., interpret  $35 = 5 \times 7$  as a statement that 35 is 5 times as many as 7 and 7 times as many as 5.
- Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.
- Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted.

*Gain familiarity with factors and multiples.*

- Find all factor pairs for a whole number in the range 1–100.

*Generate and analyze patterns.*

- Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself.



## NUMBER AND OPERATIONS IN BASE TEN

*Generalize place value understanding for multi-digit whole numbers.*

- Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right.
- Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using  $>$ ,  $=$ , and  $<$  symbols to record the results of comparisons.
- Use place value understanding to round multi-digit whole numbers to any place.

*Use place value understanding and properties of operations to perform multi-digit arithmetic.*

- Fluently add and subtract multi-digit whole numbers.
- Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations.
- Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors.

## NUMBER AND OPERATIONS-FRACTIONS

*Extend understanding of fraction equivalence and ordering.*

- Explain and show models for why multiplying a numerator and a denominator by the same number does not change the value of a fraction. Use this principle to recognize and generate equivalent fractions.
- Compare two fractions with different numerators and different denominators by creating common denominators or numerators, or by comparing to a benchmark fraction such as  $1/2$ . Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols  $>$ ,  $=$ , or  $<$ , and justify the conclusions.

*Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers.*

- Understand that improper fractions have a greater numerator than denominator; that addition and subtraction of fractions are joining and separating parts; that fractions can be added, subtracted, or decomposed if they have the same denominator; and solve word problems with fractions that have like denominators.
- Apply and extend previous understandings of multiplication to solve word problems by multiplying a fraction by a whole number.

*Understand decimal notation for fractions, and compare decimal fractions.*

- Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100.
- Use decimal notation for fractions with denominators 10 or 100.
- Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols  $>$ ,  $=$ , or  $<$ , and justify the conclusions, e.g., by using the number line or another visual model.

## MEASUREMENT AND DATA

*Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.*

- Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Express measurements in a larger unit in terms of a smaller unit and record measurement equivalents in a table.

- Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit.
- Apply the area and perimeter formulas for rectangles in real world and mathematical problems.

*Represent and interpret data.*

- Make a line plot to display a data set of measurements in fractions of a unit ( $1/2$ ,  $1/4$ ,  $1/8$ ). Solve problems involving addition and subtraction of fractions by using information presented in line plots.

*Geometric measurement; understand concepts of angle and measure angles.*

- Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand that angles are measured with reference to a circle, with its center at the common endpoint of the rays.
- Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.
- Recognize angle measure as additive. Solve addition and subtraction problems involving angles.

## GEOMETRY

*Draw and identify lines and angles, and classify shapes by properties of their lines and angles.*

- Draw points, lines, line segments, rays, angles, and perpendicular and parallel lines and identify these in two-dimensional figures.
- Classify two-dimensional figures based on their geometrical attributes. Recognize right triangles as a category, and identify right triangles. Two dimensional shapes should include special triangles and quadrilaterals.
- Recognize and draw a line of symmetry for a two-dimensional figure. Identify line-symmetric figures.

# SCIENCE

By the end of Fourth Grade, students will understand:

## PHYSICAL SCIENCE

*Magnetism and Electricity*

- Magnetism and electricity are related, and both are forces with many uses in our everyday lives.
- Magnets have two poles (labeled north and south); like poles repel each other, unlike poles attract each other.
- How to build a simple compass and use it to detect magnetic effects, including Earth's magnetic field.
- Electrically charged objects attract and repel each other (static electricity).
- How to design and build simple series and parallel circuits.
- Electrical energy can be converted to heat, light, and motion.
- Electric currents flowing through a wire produces magnetic fields.
- How to build a simple electromagnet.
- The role of electromagnets in the construction of electric motors, electric generators, and simple devices such as doorbells and earphones.

## LIFE SCIENCE

Living things are interdependent with one another and tie to their physical environment by the transfer and transformation of matter and energy.

*Food Chains*

- Energy (i.e. food) is needed for all living things to stay alive and grow.

- Food chains cycle material from plants to animals and back to plants.
- Plants convert the sun's energy into plant matter through photosynthesis. Plants are the primary source of matter and energy entering most food chains.
- Producers and consumers (herbivores, carnivores, omnivores, and decomposers) are related.
- Decomposers, including many fungi, insects, and microorganisms, recycle matter from dead plants and animals.

*Interdependence*

- Living organisms depend on one another and on their environment for survival.
- Ecosystems can be characterized in terms of their living and nonliving components.
- The living and nonliving components of an environment affect the survival of the living things in that environment.
- Many plants depend on animals for pollination and seed dispersal. Animals depend on plants for food and shelter.
- Most microorganisms do not cause disease and many are beneficial.

## EARTH SCIENCE

Geological Evolution of the Earth

*Rocks and Minerals*

- The properties of rocks and minerals reflect the processes that formed them.
  - How to observe and to differentiate among igneous, sedimentary, and metamorphic rocks by their properties and methods of formation (the rock cycle).
  - How to identify common rock-forming minerals and ore minerals using a table of diagnostic properties.
- Waves, Wind, Water, and Ice*
- Waves, wind, water, and ice shape and reshape the Earth's land surface.
  - Changes in the Earth are due to slow processes, such as erosion, or to rapid processes, such as landslides, volcanic eruptions, and earthquakes.
  - Natural processes, including freezing/thawing and growth of roots, cause rocks to break down into smaller pieces.
  - Moving water erodes landforms, reshaping the land by taking it away from some places and depositing it as pebbles, sand, silt, and mud in other places (weathering, transport, and deposition).

## INVESTIGATION AND EXPERIMENTATION

As a basis for understanding scientific progress, and to address the content in the other three strands, students will understand how to:

- Develop questions and perform investigations.
- Ask meaningful questions and conduct careful investigations.
- Differentiate observation from inference, and know scientists' explanations come partly from what they observe and partly from how they interpret their observations.
- Measure and estimate weight, length, or volume of objects.
- Formulate and justify predictions based on cause and effect relationships.
- Conduct multiple trials to test a prediction and draw conclusions about the relationships between results and predictions.
- Construct and interpret graphs from measurements.
- Follow a set of written instructions for a scientific investigation.

# HISTORY/SOCIAL SCIENCE

By the end of Fourth Grade, students will:

## CALIFORNIA: A CHANGING STATE

*Physical and Human Geography*

- Learn about the physical and human geographic features that define places and regions in California.
- Explain and use the coordinate grid system of latitude and longitude to locate places.
- Identify basic regions of California and how characteristics and physical environment affect human activity.

*Early California History*

Learn about the social, political, cultural, and economic life of the people of California from the pre-Columbian societies to the Spanish mission and Mexican rancho periods, in terms of:

- The major nations of California Indians.
- The early land and sea routes to California, and the European settlements.
- The Spanish exploration and colonization of California.
- The placement and function of the Spanish missions.
- The daily lives of the people who occupied the presidios, missions, ranchos, and pueblos.
- The role of the Franciscans in changing California.
- The effects of the Mexican War for Independence.
- The period of Mexican rule and its attributes.

*California History from the Bear Flag Republic to Statehood*

Learn about the economic, social, cultural and political life of California from the establishment of the Bear Flag Republic through the Mexican-American war, the Gold Rush, and California statehood, in terms of:

- The location of Mexican and other settlements in California.
- Comparisons of how and why people traveled to California and the routes they traveled.
- The effect of the Gold Rush.
- The lives of women who helped build early California.
- How California became a state and how its new government differed from those during the Spanish and Mexican periods.

*California History Since the 1850s*

Study how California became an agricultural and industrial power by tracing the transformation of the California economy and its political and cultural development since the 1850s, in terms of:

- The story and influence of the Pony Express, Overland Mail Service, Western Union, and the building of the Transcontinental Railroad.
- How the Gold Rush transformed the economy of California.
- The immigration and migration to California between 1850 and 1900, and the conflicts and accords among diverse groups.
- Rapid American immigration, internal migration, settlement, and the growth of towns and cities.
- The effects of the Great Depression, the Dust Bowl, and World War II on California.
- The development and location of new industries since the turn of the century.
- How California's water system evolved over time into a network of dams, aqueducts, and reservoirs.
- The history and development of California's public education system.
- The impact of 20th century Californians on the nation's artistic and cultural development.

*Local, State, and Federal Governments*

- Learn about the basic structure, functions, and powers of the United States local, state, and federal governments.
- Learn about the U.S. Constitution and why it is important.