



WORLD BOOK

Typical Course of Study: Grade 4

Grade 4 Math

Algebraic Thinking and Operations with Whole Numbers

- Use the four operations with whole numbers to solve problems with whole numbers
- Become familiar with factors and multiples within 100
- Generate and analyze mathematical patterns

Number and Operations

- Generalize place value understanding for multi-digit whole numbers
- Understand that the digit in one place is 10 times what it would be in the place to the right
- Read and write multi-digit numerals
- Write numbers in expanded form to show place value of each digit (Example: $26,825 = 20,000 + 6,000 + 800 + 20 + 5$)
- Round multi-digit numerals to any place
- Compare the values of numbers using the symbols $<$, $>$, and $=$
- Use understanding of place value and properties of operations to perform multi-digit arithmetic problems

Geometry and Spatial Relationships

- Draw, identify, and define points, lines, line segments, rays, and angles
- Draw, recognize, and define parallel and nonparallel lines
- Classify shapes by properties of their lines and angles
- Identify different kinds of triangles; recognize right triangles
- Recognize and define lines of symmetry

Fractions and Operations

- Compare and order numbers with different numerators and denominators
- Build fractions from unit fractions
- Decompose a fraction into a sum of fractions with the same denominator
- Add and subtract mixed fractional numbers with like denominators
- Multiply fractions by whole numbers
- Solve word problems involving addition and subtraction of fractions
- Create visual models to represent and solve problems with fractions
- Express a fraction with denominator of 10 as an equivalent fraction with denominator of 100
- Use decimal notation for fractions with denominators 10 or 100
- Compare decimals to one hundredth

Measurement and Data

- Know relative sizes of units in metric and English systems
- Convert units to larger and smaller units
- Solve word problems with time, distance, masses of objects, money, and temperature
- Use formulas to find area and perimeter of rectangles
- Solve real-world problems involving measurement and conversion of measurements from a larger unit to a smaller unit
- Represent and interpret data
- Make a line plot to show data in fractions of units Understand that a circle has 360 degrees
- Use a protractor to measure and draw angles in whole-number degrees
- Understand and show angle measure as additive

- Categorize shapes by their attributes
- Partition shapes into equal areas, describing each part as a unit fraction of the whole (for a shape partitioned into 6 parts with equal area, each part is $\frac{1}{6}$ of the whole)

Numbers and Operations

- Understand and use place value to 1,000
- Round numbers to the nearest 10 or 100
- Add and subtract within 1,000 using place value understandings
- Multiply one-digit whole numbers by multiples of 10

Grade 4 Language Arts

Foundational Skills

- Apply grade-level phonics and word analysis skills in reading unfamiliar words
- Read grade-level texts with purpose and understanding
- Orally read grade-level texts with accuracy, expression, and appropriate rate
- Confirm and self-correct words during oral reading

English Language Skills

- Identify parts of speech and their functions in specific sentences
- Use relative pronouns, progressive verb tenses, and prepositional phrases
- Form and use possessive nouns
- Produce complete sentences; correct incomplete or run-on sentences
- Correctly use words that are frequently confused
- Use conventions of English when writing (capitalization, punctuation, and spelling)
- Punctuate dialogue correctly
- Spell grade-level words correctly
- Consult reference materials to check spellings
- Correctly use the English language when speaking, reading, or writing
- Know the difference between formal and informal English and when to use each

Reading Literature and Informational Text

- Identify main topic, idea, or argument in grade-level text
- Show understanding of key details in a text
- Identify text evidence to support the author's message or reader's responses
- Retell stories, including tales from diverse cultures
- Describe main message, lesson, or moral from stories or other texts
- Describe characters in a story and how their actions contribute to the plot
- Determine meanings of words or phrases as used in a text
- Describe effects and uses of words and phrases in passages
- Describe overall structure of a passage and its effect on the message
- Describe how parts of a story, poem, or drama build on other parts
- Use features in the text and Internet search tools to locate relevant information
- Explain connections between a series of events, ideas, concepts, or steps in a text
- Explain differences between an author's point of view and their own
- Explain how visual images and graphics contribute to and clarify a text
- Combine information from two texts on the same topic
- By the end of the academic year, read and understand grade-level literary and informational texts at grade level independently and with proficiency

Speaking and Listening

- Express ideas and feelings clearly
- Speak clearly and audibly in sensible sentences
- Describe people, places, things, and events with relevant details
- Add visual components to a speech to clarify ideas, feelings, and thoughts
- Create audio recordings of stories or poems

- Describe people, places, things, and events with relevant details
- Give and follow directions
- Participate in conversations with diverse partners and groups
- Follow agreed-upon rules for discussions
- Listen and respond to others with focus and care
- Ask and answer questions about key details heard in an oral or visual presentation
- Present a report or tell a story with appropriate facts, relevant details

Vocabulary

- Use context clues to determine word and phrase meanings
- Use word structure clues to determine word meanings
- Use synonyms and antonyms to clarify and explain word meanings
- Use dictionaries and glossaries (print and digital) to determine or clarify word meaning
- Understand and use figurative language (similes, metaphors, idioms, adages, proverbs, etc.)
- Distinguish literal and nonliteral meanings of words in context
- Distinguish shades of meaning among related words
- Learn and use grade-level general academic vocabulary

Writing

- Write opinion, informative, or explanatory pieces that state a topic or purpose, supplying relevant facts and reasons, and presenting a conclusion
- Write stories that include details, put events in order, and provide a conclusion
- Make improvements and needed changes to written work
- Use transitional words and phrases to connect ideas
- Add dialogue and descriptions to develop characters and events
- Use tools, including digital tools, to produce and publish writing
- Take part in shared research and writing projects
- Gather information from various sources to answer a question
- Create written and visual works to summarize and share information
- Conduct short research tasks on a topic through investigation
- Gather information from print and digital sources and take notes
- Write regularly for a variety of tasks, purposes, and audiences

Grade 4 Science

Life Science

- Plant manufacture of food
- Populations of organisms
- Food chains and food webs
- Plant and animal structures that support growth, reproduction, and behavior
- Plant and animal relationships in an ecosystem
- Plant and animal adaptation and survival
- Human interaction with the environment
- Animal structures specialized to take in and process information

Earth and Space Science

- Earth history
- Earth changes through plate tectonics (earthquake and volcano activity)
- Rock evidence of Earth changes due to forces
- Locations of earthquake and volcano activity
- Earth changes through physical and chemical weathering
- Natural resources and their importance and uses
- How living things affect the physical characteristics of their region
- Hazards that result from natural processes or extreme natural events

Physical Science

- Definitions of energy
- Movement and transfer of energy
- Law of Conservation of Energy
- Conductors and insulators
- Relationship between energy and forces
- Energy in chemical processes
- Electrical circuits
- Energy and fuels from natural resources
- Magnets and magnetic forces
- Electricity and magnetism; electromagnetic radiation
- Safe use of electricity
- Wave properties and motions
- Transfer of digitized information
- Properties of water
- Changes in state of matter (evaporation, melting, condensation, freezing)
- Water cycle
- Floating and sinking

Grade 4 Social Science

Geography

- Comparative locations and features of the state (or province, territory) in relation to the United States (or home country) and world
- Location of one's home in relation to other cities and features in the state (or province, territory)
- State's (or province's, territory's) location using latitude and longitude grid
- State's (or province's, territory's) borders and neighbors
- Physical features, vegetation, and climate
- Major cities and other human-made or cultural features
- Studying and comparing a variety of maps of the state (or province, territory and region)
- Creating maps of physical features of state (or province, territory) and key cities
- The state's (or province's, territory's) natural resources
- Patterns of past and present settlements and population distribution
- Geographic factors influencing settlement and population
- Ways the land has provided for and continues to provide for needs
- Locations of key events in state (or provincial, territorial) history
- Relationship between humans and the environment in the state (or province, territory)

Citizenship and Government

- Rights and responsibilities of citizens in state (or province, territory)
- State (or provincial, territorial) and patriotic symbols, traditions, and celebrations
- Key officials and offices in state (or province, territory) and local area
- Key elements of the state (or provincial, territorial) constitution
- Structure of state (or provincial, territorial) government
- Responsibilities of state (or provincial, territorial) governments
- State (or provincial, territorial) or regional issues

Community and Culture

- Cultural groups that make up one's own state (or province, territory)
- Immigration in the state (or province, territory) and cultural diffusion
- Contributions of different cultural groups in the state (or province, territory)
- Key cultural and social changes in the state (or province, territory)

Economics

- Economic activities and changes over time in the state (or province, territory)
- Businesses and industries in the state (or province, territory)
- State (or provincial, territorial) resources, physical and human
- Relationships between geography and the state (or provincial, territorial) economy
- Creating maps of products or resources
- Trade, exports, and imports
- Economic issues in the state (or province, territory)
- Economic choices in the state (or province, territory)

History

- Early settlements
- Path to status as state (or province, territory) and establishment of government
- Structure and key concepts of state (or provincial, territorial) constitution
- Peoples and groups who settled the state (or province, territory)
- Key events, developments, and decisions in state (or provincial, territorial) history
- Key people in state (or provincial, territorial) history
- Key issues in state (or provincial, territorial) history
- Effects of nationwide or regional events on the state (or province, territory) --American revolution, westward movement, nation-wide or regional conflicts, industrialization, slavery, environmental decisions, national security, the war on terror, etc. (U.S.A.)
- Ways technology changes affected state (or provincial, territorial) development, communication, and transportation

Grade 4 Health and Safety

- Health choices and consequences of choices
- Benefits of health (including healthy eating, exercise, stress-management, adequate sleep, social and emotional health, disease prevention, and avoidance of accidents and dangers)
- Personal responsibility for fitness, stress management, health, and safety
- Influences of peers, media, family, and cultural pressure on physical, emotional, and social health
- Major body systems and their functions
- Nutrients and benefits of nutrients to the body
- Aerobic and anaerobic exercise (contingent on any physical or other limitations)
- Prevention and transmission of disease by individual behaviors
- Communicable and noncommunicable diseases
- Ways body defends itself against germs
- Basic safety rules for daily and recreational activities
- Skills to identify, avoid, and cope with potentially dangerous situations
- Practices for responding to emergencies
- Identify safe behaviors around strangers
- Use, abuse, and effects of medications, tobacco, alcohol, and other substances
- Ways to avoid use of illegal drugs and other harmful substances
- Positive and negative characteristics of social groups gangs, clubs, cliques
- Reporting and getting help in unsafe situations
- Reasons and ways to avoid violence, gangs, and weapons
- Development of self-confidence and self-esteem
- Respect and consideration for all individuals
- Healthy ways of getting attention
- Healthy ways of responding to disrespectful behavior
- Self-control and appropriate ways to express emotions
- Positive social interactions with peers, in home, and in the community
- Bullying, alternative behaviors to bullying, and appropriate responses to bullying
- Strategies for resolving conflicts with peers and others

- Skills for meeting people, making friends, and being a good friend
- Getting personal support from family
- How and where to get help in making health decisions

Grade 4 Arts

- Perform and create artistic movements and patterns
- Understand the physical processes and discipline associated with dance
- Identify melody, rhythm, harmony, and timbre in musical selections
- Respond to sounds and sound patterns with body movements
- Improvise music with classroom instruments
- Listen, describe, and respond to a variety of music
- Read and write patterns with musical notes and rhythmic notation
- Read, write, and perform diatonic scales
- Identify some common musical instruments by sight and sound
- Identify and sing a variety of kinds of music and musical forms
- Improvise dramatizations of stories or ideas
- Take part in writing scripts, designing sets, and performing group dramas
- Create costumes and props for a performance
- Observe patterns in nature and works of art
- Identify and describe elements in works of visual art (line, color, texture, shapes/form, space, value, etc.)
- Create original works of visual art in various media and dimensions
- Express observations, ideas, or feelings through music, drama, or visual art
- Identify and discuss some well-known works of dance, drama, music, or visual arts and some artists, actors, writers, musicians, choreographers, or composers
- Describe and analyze a variety of works of art according to their elements
- Learn and use vocabulary of dance, music, drama, and visual arts
- Describe techniques for a given form of art
- Compare and contrast two works of art
- Identify purposes, effects, and influences of art
- Understand how culture affects art and how art reflects culture
- Demonstrate appropriate audience skills for live artistic performances

Grade 4 Technology

- Concepts, characteristics, and real-life uses of technology
- Knowing parts of technology devices and systems devices
- Developing advanced keyboard skills
- Exploring virtual environments, simulations, programs, models, and applications
- Effective use of available grade-level technology
- Use of tools to produce creative original works
- Use of tools to interact and exchange ideas with peers, teacher, parents, or other students
- Use of tools and devices to develop cultural understanding
- Use of Internet to find, use, summarize, and evaluate information
- Planning and completing a research project to solve a problem or answer a question
- Understand negative uses of technology and ways to avoid them
- Participation in group collaborative interactive projects and activities
- Developing, printing, and publishing in print and digital
- Evaluating content, applications, and programs
- Digital citizenship and etiquette
- Positive attitudes toward technology for learning
- Demonstrating openness to learning and using new technologies

- Legal use, fair use guidelines, and copyrights
- Procedures for safe online behavior, including use of social media
- Responsible care of digital equipment