



WORLD BOOK

Typical Course of Study: Grade 8

LANGUAGE ARTS

Reading Literature and Informational Text and Literacy in History/Social Studies, Science, and Technical Subjects

- Cite evidence from text to support analysis of both explicit and implicit messages within the text
- Cite evidence to support analysis of primary and secondary sources
- Identify themes or central ideas in a text and analyze their development
- Summarize literary and informational or explanatory texts
- Analyze how incidents or specific dialogue moves a story along
- Analyze how a text makes connections between individuals, events, or ideas
- Identify key steps in a text's description of a process related to history or social studies
- Describe how a text presents information
- Follow a multistep written procedure when performing science or technical tasks
- Determine meanings and effects of words, phrases, or symbols as used in a text
- Analyze the structure of a specific part of a text
- Compare and contrast the structure of two or more texts and how each structure contributes to meaning and style
- Analyze the effects of different points of view in a text
- Determine an author's point of view and analyze how the author treats conflicting viewpoints
- Analyze the relationship between a primary and secondary source on the same topic
- Integrate quantitative or technical information presented in text form with information expressed visually
- Determine if a filmed or live production of a story is faithful to the text
- Evaluate the advantages and disadvantages of using different media to present an idea
- Trace and evaluate the argument and supporting reasons in a text
- Analyze whether an author supports a claim with sound reasoning and sufficient evidence
- Analyze two or more texts that provide conflicting information about the same topic
- By the end of the academic year, read and understand grade-level literary and informational texts (including history/social studies, science, and technical subjects) independently and with proficiency

Speaking and Listening

- Participate in collaborative discussions on a variety of grade-level topics
- Express ideas clearly and respectfully in group discussions
- Follow agreed-upon rules and preparation procedures for discussions
- Ask questions and respond to others, building on others' ideas
- Analyze the purpose and motives of information presented in many media and formats

- Identify an argument, claims; evaluate the soundness of reasoning and evidence
- Present claims or information in logical sequence supported with relevant facts and details
- Use clear pronunciation and appropriate eye contact and volume when speaking
- Add multimedia and visual components to clarify ideas in presentations
- Show command of formal English language when speaking for a variety of tasks

Writing

- Write arguments supported with clear reasons and relevant evidence, including arguments in history, social studies, science, and technical topics
- Write informative or explanatory pieces developed with relevant details, including arguments in history, social studies, science, and technical topics
- Write narrations that include details, put events in order, and provide a conclusion
- Produce writing appropriate to the task, purpose, and audience
- Strengthen writing by getting feedback, revising, editing, and rewriting
- Add dialogue and descriptions to develop characters and events
- Use tools, including the Internet, to produce and publish writing
- Cite sources for information used in writing
- Contribute to collaborative group writing projects
- Conduct short research tasks on a topic through investigation
- Gather information from various sources to answer a question
- Assess the credibility and accuracy of sources
- Quote or paraphrase data and conclusions while avoiding plagiarism
- Include evidence from literary or informational texts
- Regularly produce clear writing for a variety of tasks, purposes, and audiences (including writing in history/social studies, science, and technical subjects)

English Language Skills

- Explain the functions of verbals in general and in specific sentences
- Form and use verbs in active and passive voice
- Form and use verbs in indicative, imperative, interrogative, conditional, and subjunctive moods
- Identify and correct inappropriate shifts in verb voice and mood
- Identify and use simple, compound, complex, and compound-complex sentences
- Use conventions of English correctly when writing (*capitalization, punctuation, and spelling*)
- Spell grade-level words correctly
- Choose verb voice and mood to achieve specific effects
- Vary sentence patterns for meaning, interest, and style when writing; avoid passive constructions
- Maintain consistency in style and tone when writing
- Know the difference between formal and informal English and when to use each
- Distinguish shades of meaning among related words
- Distinguish among connotations of words with similar denotations
- Learn and use grade-level general academic vocabulary

Vocabulary

- Use context clues to determine word and phrase meanings
- Use word structure clues to determine meanings of unknown words
- Use relationships between words to better understand each word's meaning

- Use references (print and digital) to determine or verify a word's meanings, find pronunciation or its part of speech
- Interpret and use figurative language in context
- Distinguish literal and nonliteral meanings of words in context
- Distinguish shades of meaning among related words
- Distinguish among connotations of words with similar denotations
- Learn and use grade-level general academic vocabulary

MATHEMATICS

The Number System

- Show the decimal expansion of a rational number
- Know that the decimal expansion of a rational number eventually repeats
- Know that there are numbers that are not rational
- Compare the size of irrational numbers with rational approximations
- Find approximate locations of irrational numbers on a number line
- Estimate the value of irrational number expressions
- Solve real world and mathematical problems with rational numbers using multiple operations

Algebra and Functions

- Work with radicals and integer exponents, including fractional exponents
- Read and write square root and cube root symbols to represent solutions to equations
- Interpret and write scientific notation to estimate very large or small quantities
- Perform operations with numbers expressed in scientific notation
- Analyze, solve, and graph linear equations in one variable with one solution, no solutions, or an infinite number of solutions
- Graph proportional relationships, interpreting the slope of a graph
- Analyze, graph, and solve pairs of simultaneous linear equations
- Write and solve real world problems leading to two linear equations
- Decide whether two quantities are in a proportional relationship from a graph
- Define slope as vertical change for each unit of horizontal change
- Graph a line, given its slope and a point on the line
- Find the slope of a line given its graph
- Define, evaluate, and compare functions
- Understand that a function assigns exactly one y-value (dependent variable) to each x-value (independent variable)
- Express functions algebraically, graphically, verbally, and numerically
- Know that the equation $y = mx + b$ defines a linear function with a straight line graph
- Identify and give examples of functions that are not linear
- Use functions to model relationships between quantities
- Compare properties of two different functions

Geometry

- Understand congruence and similarity of lines, line segments, angles, and figures
- Show properties of rotations, reflections, and translations of lines, line segments, angles, and parallel lines
- Describe effects of dilation, translations, rotations, and reflections of two-dimensional figures using coordinate plane
- Find sums of angles created when parallel lines are cut by a transversal

- Understand and apply the Pythagorean Theorem
- Explain a proof of the Pythagorean Theorem and its converse
- Apply the Pythagorean Theorem to determine unknown side lengths
- Solve real world and mathematical problems involving the Pythagorean Theorem
- Use the Pythagorean Theorem to find distances between points on a coordinate graph
- Know and use the formulas for the volume and surface area of cylinders, cones, spheres, and pyramids
- Solve real world and mathematical problems involving volume and surface area of solid figures

Statistics and Probability

- Investigate patterns of association in bivariate data
- Construct and interpret scatter plots
- Examine and describe patterns of associations between quantities
- Use an equation of a linear model to solve bivariate measurement data problems
- Write and solve equations of linear relationships to make predictions involving bivariate measurement data
- Display frequencies and relative frequencies in a two-way table
- Represent probabilities of compound events with lists, tables, and diagrams
- Find probabilities of compound events using diagrams, tables, lists, or simulations
- Apply the multiplication counting principle to situations with a large number of outcomes

SCIENCE

Life Science

- Plant development and reproduction
- Animal development and reproduction
- Cell division and growth
- Structure and function of genes
- Changes (mutations) to genes
- Genetic diseases
- Genetic engineering
- Variations and adaptations in organisms
- Natural selection
- Existence, diversity, extinction, and change of life forms in Earth's history
- Fossils and the fossil record
- Similarities and differences between organisms today and organisms in the fossil record
- Evolutionary history of life on Earth

Physical Science

- Types of forces and force interaction
- Force and motion
- Energy and motion
- Newton's laws of motion
- Electric and electromagnetic forces
- Gravitational force
- Gravitational forces between objects in the solar system

- Waves (light, heat, sound), their properties, and transmission
- Electromagnetic radiation
- Magnetic fields; Earth's magnetic fields
- Transmission of digital signals as wave pulses

Earth and Space Science

- The universe and its stars
- Observation of the universe
- Classification of celestial objects
- Milky Way and other galaxies
- The structure of Earth's solar system
- Sun, Earth, and moon relationships
- Motions of bodies in the solar system
- Patterns of apparent motion of the sun, moon, and stars
- The tilt of Earth's axis and its effects
- Moon phases
- Tides
- History of planet Earth
- Geologic time scale, interpreted from rock strata and the fossil record
- Renewable and nonrenewable energy sources
- Environmental concerns and conservation

HEALTH AND SAFETY

- Health choices and long-term consequences of choices
- Benefits of, practices for, and personal responsibility for health (*including healthy eating, personal hygiene, exercise, stress-management, adequate sleep, social and emotional health, disease prevention, avoidance of accidents and dangers*)
- Interrelationships of physical, mental, and social health
- Impacts of social pressures on physical, emotional, and social health
- Structure, functions, and interdependence of major body systems
- Causes and effects of poor body image
- Eating disorders and their prevention and treatment
- Changes in anatomy during puberty
- Role of hormones in growth, development, and personal health
- Possible physical, social, and emotional impacts of decisions regarding sexual behavior
- Strategies to resist pressures to become sexually active
- Characteristics of healthy relationships and dating behaviors
- Lifelong strategies for identifying and preventing depression and anxiety
- Importance of regular medical assessment
- Myths and facts related to disease transmission and prevention
- Ways the body defends itself against germs
- Communicable, noncommunicable, and hereditary diseases
- Evaluation of health products
- Basic safety rules for daily and recreational activities
- Understanding of first-aid procedures and emergency response
- Use, abuse, and effects of medications, tobacco, alcohol, and other substances

- Relationship between tobacco, alcohol, and drugs and unsafe situations
- Preventing the use of tobacco, alcohol, and illegal drugs
- Prevention of and response to deliberate and accidental injuries
- Reasons and ways to avoid violence, gangs, weapons, and drugs
- Skills to identify, avoid, report, and cope with potentially dangerous situations
- Positive and negative characteristics of social groups, gangs, clubs, cliques
- Development of self-confidence, self-esteem, and self-control
- Understand 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
- Getting personal support from family
- How and where to get help in making health decisions

SOCIAL SCIENCE

United States History through Reconstruction

- The First Americans
- Exploring the Americas
- European colonization of America
- Colonial life
- The Mayflower Compact
- Moves toward independence
- Founding documents
- The American Revolution
- Challenges of the new government
- Representative government
- Drafting of the *Constitution*
- Federalist Era
- Jeffersonian Era
- Louisiana Purchase
- War of 1812
- Conflicts between the North and South
- Slavery
- Missouri Compromise
- Monroe Doctrine
- Age of Jackson
- Westward expansion
- Conflicts with Native Americans
- Indian Removal Act
- Manifest Destiny
- U.S.-Mexican War
- Gold Rush
- Compromise of 1850
- Civil War
- Reconstruction

ARTS

Note about middle school arts curriculum: Middle-level curriculum often includes and offers experiences and study in a variety of areas in the arts. Some examples are:

- Animation
- Architecture
- Casting
- Ceramics
- Choral music
- Computer graphics and applications
- Construction
- Dance or other creative movement
- Digital arts
- Drama (including mime, storytelling, and technical aspects of theater)
- Drawing
- Film
- Graphic design
- Improvisational music
- Instrumental music
- Mosaics
- Sculpture
- Metal Sculpture
- Textile and fiber art

In the study and practice of any of the performance or visual arts, students encounter such topics as:

- Skills of watching, listening, and responding to works of art
- Background and elements of particular art form
- Understanding of the processes and techniques of particular forms
- Principles of design
- Vocabulary of particular art forms
- Interpretation, analysis, and evaluation of works of art
- Reflecting on own experiences and creations or performances
- Art history
- Well-known artists and works of visual or performing art form
- Cultural contexts and expressions of art
- Style, materials, and techniques used in a work of art
- Generating questions about a work of art
- Considering messages and purposes of a particular work of art
- Responding orally, in writing, or some other way to works of art
- Contributions of artists to society
- Careers in art
- Discipline and mindset for improving and developing skills in art
- Fostering of creativity and self-expression
- Development of artistic awareness, imagination, perception, skill
- Experimenting with a variety of media, forms, and techniques
- Solving design problems
- Use of digital media and tools for producing, viewing, or responding to art
- Polishing and furthering personal skills in a chosen area of art
- Participation in collaborative discussions about works of art

- Participation in collaborative creation of works of art
- Proper safety procedures for activities in the specific arts

TECHNOLOGY

General goal for middle-level students: Use technology **within all content areas** to collaborate, communicate, generate innovative ideas, create original works, and investigate and solve problems.

- Demonstrating proficient keyboarding skills
- Use of a variety of common applications and productivity tools
- Creation of products combining text, images, sound, music, and video
- Use of spreadsheet and concept-mapping software
- Use of interactive tools to design polls or surveys to gather data
- Making contributions to blogs, wikis, and other collaborative forums
- Gathering weather information and predictions
- Use of online databases or simulation software to interpret and predict trends
- Use of digital collaboration tools
- Increasing knowledge about many cultures through digital content
- Use of online interactive tools to communicate with learners from other cultures
- Communicating with multiple audiences through a variety of formats and media
- Increasing understanding of a local or global issue
- Choosing appropriate digital resources to plan a project or solve a problem
- Choosing appropriate search engines or directories
- Selecting and using appropriate online applications for various purposes
- Selecting appropriate, relevant sources for a purpose or audience
- Analysis and synthesis of information to make decisions or develop solutions
- Assessing the credibility and validity of online sources
- Following fair use rules
- Use of bibliography tools to cite sources from digital sources
- Reporting and sharing of results or solutions
- Exploring ways to receive feedback from multiple, appropriate audiences
- Recognition and avoidance of potential online dangers
- Safe and legal use of online sites and information
- Understanding of privacy issues
- Understanding how data are kept and available publicly
- Demonstrating safe use of sharing personal information online
- Practicing ethical and respectful behavior
- Careful, responsible use and maintenance of digital equipment
- Demonstrating openness to learning new technologies and procedures