



A Family Guide
To Mastering The TEKS
The Texas Essential Knowledge and Skills
Eighth Grade

Language Arts

Expectations at School

During Eighth Grade, students will:

- Research and evaluate sources of information for spoken and written presentations using a variety of media
- Take notes from and summarize a variety of spoken messages to analyze and evaluate the speaker's purpose and techniques
- Learn new words through a variety of strategies
- Apply higher-level thinking skills through reading and analyzing increasingly difficult materials
- Recognize the special features, such as text structure, of various kinds of literature and other reading materials
- Analyze various types of literary devices such as symbolism, flashback, and foreshadowing
- Read to increase knowledge of various cultures and to understand themes and connections within and across cultures
- Read and respond to classical and contemporary works
- Write to inform, to persuade, and to entertain
- Use the writing process to create, revise, edit, and publish written work
- Revise written work for organization, use of transitions, effective elaboration, and sentence structure
- Use increasingly more mature sentence structure with correctly punctuated dependent and independent clauses
- Apply standard grammar, spelling, and usage to write for a variety of audiences and purposes
- Use a variety of media to interpret, critique, and produce visual images, messages, and meanings.

Language Arts

Support at Home

As parents, provide opportunities for your 8th grader to:

- Read daily for pleasure. Observe you reading and writing
- Use public libraries as a resource
- Attend dramatic productions
- Communicate in writing for formal and informal purposes (ex. letters, lists, notes, emails)
- Express viewpoints by writing to local newspapers and national magazines
- Practice creative writing and increase writing fluency by keeping a personal portfolio, personal journal, and/or travel journal

Language Arts

Support at Home (Continued)

As parents, provide opportunities for your 8th grader to:

- Read and follow directions (ex. model building, cooking, and computer programs)
- Use charts and tables (ex. Nutrition analysis on food packaging, transportation schedules, floor plans, travel brochures, and sports statistics)
- Talk about current issues and analyze political cartoons and editorials
- Read and evaluate newspaper and magazine advertising and television commercials for fact/opinion and propaganda.

Mathematics

Expectations at School

During Eighth Grade, students will:

- Compare, order and apply all forms of rational numbers
- Select and use the appropriate forms of rational numbers (fraction, decimal percent) to solve problems
- Understand the meaning of irrational numbers and approximate the value of commonly used irrational numbers such as π and $\sqrt{2}$
- Express numbers in scientific notation with positive and negative exponents in appropriate problem situations
- Select and use appropriate operations to solve problems involving rational numbers and justify solutions
- Compare and contrast proportional linear relationships
- Multiply by a constant factor using unit rate to find actual values (ex. Use the scale of miles on a map to find actual distance)
- Estimate and find solutions to application problems involving percents and other proportional relationships such as similarity and rates
- Build tables from mathematical patterns, write a verbal description, formulate an algebraic expression and generate the graph of the data set
- Write an algebraic expression from a table, graph or verbal description of a set of data
- Predict, find and justify solutions to application problems using appropriate tables, graphs, and algebraic equations
- Find and evaluate an algebraic expression to determine any term in an arithmetic sequence (with a constant rate of change)
- Generate similar shapes using dilations (enlargements or reductions)
- Graph dilations, reflections and translations on a coordinate plane

Mathematics

Expectations at School (Continued)

During Eighth Grade, students will:

- Draw solids from different perspectives
- Use geometric concepts and properties to solve real-life problems
- Develop and understanding of and use the Pythagorean Theorem to solve real-life problems
- Locate and name points on the coordinate plane using ordered pairs of rational numbers
- Find surface area of prisms and cylinders to solve application problems.
- Find volume of prisms, cylinders, pyramids, and cones to solve application problems
- Describe changes that occur in the perimeter, area, and volume of shapes and solids when the dimensions are halved, doubled, tripled, etc.
- Select the appropriate measure of central tendency or range to describe a set of data and justify the choice for a particular situation
- Draw conclusions and make predictions by analyzing trends in scatterplots
- Select and use an appropriate representation for presenting and displaying relationships among collected data including circle graphs, bar graphs and histograms with and without the use of technology
- Find the probabilities of dependent and independent events
- Use theoretical probabilities and experimental results to make predictions and decisions
- Examine data from polls and surveys to see if results are reliable
- Examine graphs of data to determine bias or fairness
- Use a problem solving model and appropriate problem solving strategies, tools (manipulatives, paper/pencil, and technology including graphing calculator), and techniques (mental math, estimation, and number sense) to solve routine and non-routine problems
- Communicate mathematical ideas using language and graphical, numerical, physical, or algebraic mathematical models and evaluate the effectiveness of different representations to communicate ideas
- Make conjectures from patterns or sets of examples and nonexamples
- Validate his/her conclusions using mathematical properties and relationships

Mathematics

Support at Home

As parents, provide opportunities for your 8th grader to:

- Look to you as a positive role model in learning math
- See you as a problem solver – someone who questions, investigates, and explores a variety of solutions to problems
- Find the practical applications of the various math concepts he/she is studying
- Apply math in real-life situations (budgeting an allowance, managing a savings account, cooking, shopping, hobbies)
- Explain his or her thinking or processes for problems solving (ideas, steps in a process, etc.)
- Solve problems using strategies such as making a list, making a simpler problem, drawing a picture, trial and error, and using computational skills
- Talk to you about mathematical representations found in media (newspaper and other print materials, television and film)
- Have a set time and place for completing homework and other assignments
- Participate in family activities that incorporate mathematical concepts such as games (including cards), and puzzles

Science

Expectations at School

In Eighth Grade, your child will:

Safety

- Demonstrate safe practices during field and laboratory investigations
- Use and conserve resources and dispose of or recycle materials

Use of Scientific Tools

- Use scientific tools to collect, analyze and record information to explain a phenomenon using tools including beakers, Petri dishes, meter sticks, graduated cylinders, weather instruments, dissecting equipment, hotplates, test tubes, safety goggles, spring scales, balances, calculators, field equipment, microscopes, telescopes, thermometers, computers, computer probes, timing devices, and water test kits

Scientific Inquiry Methods and Critical Thinking

- Extrapolate from information to make predictions
- Collect data- observe and measure and communicate valid conclusions
- Organize, analyze, evaluate, make inferences, predict trends from direct and indirect evidence

Science

Expectations at School (Continued)

In Eighth Grade, your child will:

- Construct graphs, tables, maps, charts to organize, examine and evaluate data
- Analyze, review, critique scientific explanations- hypotheses, theories as to strengths and weaknesses
- Represent the natural world using models and identify their limitations
- Draw inferences based on data related to promotional materials for products and services
- Connect science concepts with the history of science and the contributions of scientists
- Identify a design problem and propose a solution
- Design and test a model to solve a problem, evaluate the model and improve on its design

Life Science

- Identify that change in the environment can affect the survival of species
- Distinguish between inherited traits and other characteristics that result from interactions with the environment
- Make predictions about outcomes of genetic combinations
- Analyze how natural or human events may have contributed to the extinction of some species
- Identify interactions among systems in the human organism
- Identify feedback mechanisms that maintain equilibrium of systems such as body temperature, turgor pressure, chemical reactions
- Describe interactions within an ecosystem

Earth Science

- Analyze and predict the sequence of events in the lunar and rock cycle
- Relate the role of oceans to climatic change
- Predict the results of modifying Earth's nitrogen, water and carbon cycles
- Describe the characteristics of the universe such as stars and galaxies
- Explain the use of light years to describe distances in the universe
- Research and describe historical scientific theories of the origin of the universe
- Predict land features resulting from gradual changes such as erosion, continental drift, mountain building, land subsidence
- Describe how human activities have modified soil, water and air quality
- Describe interactions among solar, weather, and ocean systems

Science

Expectations at School (Continued)

In Eighth Grade, your child will:

Physical Science

- Illustrate interactions between matter and energy including specific heat
- Identify and demonstrate that loss or gain of heat energy occurs during exothermic and endothermic chemical reactions
- Demonstrate how unbalanced forces cause changes in the speed or direction of an object's motion
- Recognize that waves are generated and can travel through different media
- Describe the structure and parts of an atom and identify the properties including mass and electrical charge
- Demonstrate that substances may react chemically to form new substances
- Interpret physical and chemical properties used to group elements on the periodic table
- Recognize the importance of formulas and equations to express chemical reactions
- Identify that physical and chemical properties influence development of everyday materials

Science

Support at Home

As parents, provide opportunities for your 8th grader to:

- Safely engage in investigations to answer their questions
- Justify their conclusions citing evidence
- Challenge and debate ideas
- Predict and explain phenomena
- Discuss current science and technology events in the news
- Read and interpret graphs and charts in the newspaper
- Research to find answers to questions about objects, events, and organisms
- Watch and discuss science-oriented programs on television such as the Discovery Channel
- Read nonfiction books and magazines on science topics
- Visit museums, zoos, parks, libraries, etc.
- Participate in science oriented events such as science summer camps

Social Studies

Expectations at School

During Eighth Grade, students will:

- Explain how the following political, economic, and social events and issues affected the United States: colonization, Revolutionary War, U.S. Constitution (creation and ratification), Challenges of the early Republic, Westward Expansion, Sectionalism, Civil War, and Reconstruction
- Analyze the operation of the three branches of the United States federal government, including their relationship to one another
- Analyze how the geography of the United States influenced population distribution, settlement patterns, and economic activities in the United States in the 18th and 19th centuries
- Explain the impact of science and technology (inventions) on daily life and the economic development of the United States
- Use on-level social studies terminology correctly
- Use critical thinking skills, including identifying cause and effect relationships, problem-solving, and decision-making skills
- Organize and interpret information from a database
- Transfer information from statistical data to written or visual form
- Analyze various forms of information by summarizing, drawing inferences and conclusions, and making generalizations
- Locate and use a variety of primary and secondary sources to create oral, written, visual, and computer-generated presentations
- Comprehend various textural materials using a variety of reading strategies
- Identify point of view, frame of reference, and bias in a variety of sources or situations

Social Studies

Support at Home

As parents, provide opportunities for your 8th grader to:

- Discuss current issues and events being reported in the news
- Watch history oriented programs, and discuss the impact of the depicted event, individual, or group with you
- Have your child read and discuss historical novels and biographies with you
- Visit public and university libraries, especially during research projects

Social Studies

Support at Home (Continued)

As parents, provide opportunities for your 8th grader to:

- Visit museums (such as the Museum of Fine Arts) and discuss the exhibits with you
- Evaluate ads for fact/opinion and propaganda techniques.
- Analyze political cartoons
- See you perform civic duties such as voting, serving on a jury, or working on a civic committee
- Develop and use good organizational skills
- Develop and use good verbal and written communication skills
- Read and discuss the *Declaration of Independence* and the *Bill of rights* with you