

- Analyze the impact of scientific discoveries and technological innovations on Texas.
- Understand the basic principles of a free enterprise system.
- Explain the interdependence of the Texas economy with that of the United States and the world.
- Continue to practice grade-level reading skills, such as locating the main idea, sequencing, comparing/contrasting, etc.
- Write for a variety of audiences and purposes, using on-level standard grammar, spelling, sentence structure, and punctuation.
- Use on-level social studies terminology correctly.
- Use critical-thinking skills appropriate to content and grade level, including problem-solving and decision-making skills.
- Organize and interpret information from outlines and reports.
- Transfer information from statistical to written or visual forms (using computer software as appropriate).
- Demonstrate basic computer proficiency.
- Locate and use a variety of primary and secondary sources to create oral, written, and visual presentations on social studies topics.
- Include an annotated bibliography (works cited) in all research projects.

Outside of School:

As parents, you can provide opportunities for your 7th grader to

- Watch the news, read newspapers, and discuss current issues and events with you.
- Watch the weathercast, and discuss the impact of climate and weather on Texas.
- See you modeling appropriate civic responsibilities, such as voting, writing letters to the editor, completing jury duty, and having civic pride.
- View history-oriented television programs, and discuss them with you.
- Interview various family members about their life experiences and family history.
- Visit historical sites, and attend cultural activities in your area.

- Develop critical thinking skills. Respond to his or her questions by asking further questions instead of by giving direct answers.

Grade 8

Language Arts/Reading

Prerequisites:

Before entering 8th grade, students should be able to

- Use a variety of word-recognition strategies including prefixes, suffixes, and roots to help understand reading material.
- Read alone from a variety of materials.
- Use multiple reference sources and technology to develop and present research products.
- Create a variety of written products that apply standard punctuation, spelling, grammar, and usage with increasing accuracy.
- Listen carefully to understand and judge a message.

Competencies:

During 8th grade, students will

- Research information to judge whether it is valid and relevant.
- Take notes from and summarize a variety of written and spoken messages to analyze and judge the author's or speaker's techniques, including the use of persuasion.
- Learn new words through a variety of strategies, including word origins.
- Apply higher-level thinking skills when reading increasingly-difficult materials, and support conclusions with "text evidence" from the reading material.
- Recognize the special features of various kinds of literature and other reading materials.
- Analyze various types of literary devices such as symbolism, allusion, tone, and mood.
- Read about, describe, and compare themes and connections within and across cultures and texts.
- Read and respond to literature in a variety of ways.
- 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.
- Read classical and contemporary works.
- Write to inform, to influence, and to entertain.
- Use the writing process to create, revise, and edit written work, paying special attention to organization, transition, and development of ideas.

Outside of School:

As parents, you can provide opportunities for your 8th grader to

- Read self-selected material daily.
- Use public libraries as a resource.
- Communicate in writing (example: write opinions with support statements).
- Express viewpoints by writing to local newspapers or national magazines.
- Practice creative writing and keep a personal portfolio.
- Read and follow directions (examples: model building, video games, and VCR functions).
- Use charts and tables (examples: nutrition analysis on food packaging, transportation schedules, floor plans, travel brochures, sports statistics).
- Analyze the editorial page.
- Evaluate magazine advertising and television commercials.

Mathematics

Prerequisites:

Before entering 8th grade, students should be able to

- Apply the problem-solving strategies that will work best for the given problem.
- Recognize simple mathematical patterns.
- Use estimation skills.
- Add, subtract, multiply and divide whole numbers, decimals, and fractions.
- Use the order of operations with whole numbers, decimals, and fractions.
- Compare and order integers.
- Set up and solve proportions.
- Understand percent and solve percent problems.

- Convert among fractions, decimals, and percentages.
- Add, subtract, multiply and divide integers.
- Understand the meaning of similar and congruent figures.
- Generate formulas involving conversions, perimeter, area, circumference, volume, and scaling.
- Show geometric translations in the coordinate plane.
- Locate points in the coordinate plane, given the coordinates.
- Write the coordinates of a given point.
- Read and interpret charts, tables, and graphs.
- Apply and calculate simple statistics such as mean, median, mode, and range.
- Solve one- and two-step equations.
- Calculate square root.

Competencies:

During 8th grade, students will

- Use whole numbers, decimals, fractions, and integers while following order of operations.
- Select, use, and justify the appropriate operation (+, -, \times , \div) when solving a problem.
- Understand the meaning of irrational numbers and approximate the value.
- Express numbers in scientific notation.
- Compare, order, and apply all forms of rational numbers, and select and use the form that best fits the problem at hand.
- Understand proportional relationships, including similarity, ratios, percents, and direct variation.
- Use proportions or scale factors to find missing measurements in similar shapes.
- Compare and contrast proportional and non-proportional relationships.
- Multiply by a constant factor using a unit rate to find actual values (example: use the scale of miles on a map to find actual distance).
- Build tables from mathematical patterns, and draw the graph.
- Write an algebraic expression from a table, and use it to find a term in the pattern.
- Estimate and find solutions to application problems involving percents, similarity, rates, and direct variation.

- Convert among tables, graphs, algebraic equations, and verbal descriptions to represent data and/or problem situations. Explain each representation.
- Analyze statistical data through graphs and scatter plots.
- Graph geometric transformations in the coordinate plane (dilations, reflections, and translations).
- Develop an understanding of the Pythagorean Theorem.
- Use the Pythagorean Theorem to solve real-life problems.
- Draw solids from different views.
- Recognize features of geometric shapes in art and architecture.
- Graph linear equations from tables.
- Generate formulas and calculate the surface area of prisms and cylinders using models and nets.
- Generate formulas and calculate the volume of prisms, cylinders, pyramids, and cones using models.
- Describe changes that occur in the perimeter, area, and volume of shapes and solids when the dimensions are halved, doubled, tripled, etc.
- Estimate and use formulas to solve real-world problems involving surface area and volume.
- Determine the probability of dependent and independent events.
- Select and use models to simulate an event.
- Use theoretical probabilities and experimental results to make predictions and decisions.
- Use central tendencies (mean, median, and mode) to describe a set of data.
- Understand scatter plots to analyze and predict trends.
- Examine data from polls and surveys to see if results are reliable.
- Examine graphs of data to determine bias or fairness.
- Construct a variety of statistical graphs by hand and with the graphing calculator.
- Locate and name points on the coordinate plane using fractions, decimals, and integers.

Outside of School:

As parents, you can provide opportunities for your 8th grader to

- Find practical applications of mathematical concepts.
- Connect math to family life.
- Look to you as a positive role model in learning math.

Science

(Note: Science 8 is not for high school credit.)

Prerequisites:

Before entering 8th grade, students should be able to

- Use safety equipment, and follow safe lab practices.
 - Use a metric ruler, triple-beam balance, thermometer, and graduated cylinder.
 - Identify and use lab equipment.
 - Construct, read, and interpret graphs such as line, pie, and bar.
 - Construct and interpret a data table.
 - Conduct investigations to solve problems.
 - Identify chemical and physical changes.
 - Have a basic understanding of the periodic table.
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Competencies:

During 8th grade, students will

- Continue to conduct safe field and laboratory investigations using scientific methods to solve problems.
- Distinguish between independent/dependent variables, and identify the control in an investigation.
- Construct, read, interpret, and analyze charts, graphs, and tables.
- Distinguish between inherited traits, and make predictions about possible outcomes.
- Identify changes in environmental conditions that affect survival of species.
- Describe interactions that occur in different systems such as human body systems, ecosystems, the solar system, weather, and ocean systems.
- Predict the results of modifying the earth's carbon, nitrogen, and water cycles.

- Analyze how natural or human events may contribute to the extinction of some species.
- Demonstrate the manner in which human activities may have modified soil, water, and air quality.
- Describe the structure and properties of an atom, including mass and electrical charge.
- Identify circumstances that cause chemical reactions.
- Interpret how elements are grouped on the periodic table.
- Use formulas and equations to express what happens in a chemical reaction.
- Identify that chemical and physical properties influence the development of everyday materials.
- Demonstrate an understanding of the interactions between matter and energy.
- Demonstrate the relationship between force and motion.
- Recognize that waves can travel through different materials.
- Analyze and predict the sequence of events in the lunar and rock cycles.
- Describe the characteristics of the universe.
- Research and describe the development of scientific theories regarding the origin of the universe.
- Research and describe theories of plate tectonics.
- Predict how land features are formed.

Outside of School:

As parents, you can provide opportunities for your 8th grader to

- Watch the Discovery Channel, PBS, and nature and science programs on television.
- Discuss current environmental issues, such as recycling, water pollution, conservation, and other ways humans and nature make an impact on the environment.
- Discuss the effect of various natural disasters (volcanic eruptions, earthquakes, etc.).
- Read scientific articles in newspapers and magazines.

Social Studies: United States History to 1877

Prerequisites:

Before entering 8th grade, students should be able to

- Locate important places, including oceans, continents, and U.S. states and capitals.
- Recognize causes and effects of European colonization in the United States.
- Identify and explain basic functions of the branches of federal government, and recognize the basic principles of democracy on which American government is based.
- Recognize rights and responsibilities of United States leaders and individual citizens.
- Read and comprehend on grade level.
- Write using standard grammar, spelling, and punctuation.
- Locate the main idea and supporting details.
- Analyze information by sequencing.
- Compare/contrast ideas with elaboration and detail.
- Organize and interpret information from maps, timelines, charts, and graphs.
- Use a variety of sources to create presentations.
- Demonstrate basic computer proficiency.
- Produce an essay with an introduction, body, and conclusion.
- Use a logical process to consider advantages and disadvantages of various solutions to a problem.

Competencies:

During 8th grade, students will

- Explain how the following political, economic, and social events and issues affected the United States:
 - colonial and revolutionary eras,
 - the creation and ratification of the *U.S. Constitution*,
 - challenges of the early Republic,
 - westward expansion,
 - sectionalism,
 - the Civil War, and
 - Reconstruction.

- Analyze the operations of the three branches of the United States federal government, including their relationships to one another.
- Analyze how physical characteristics of the environment 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 on daily life and on the economic development of the United States.
- Use a variety of reading strategies to promote comprehension of textual material appropriate to the grade level.
- Write for a variety of audiences and purposes, using on-level standard grammar, spelling, sentence structure, and punctuation.
- Use on-level social studies terminology correctly.
- Use critical-thinking skills appropriate to content and grade level, including identifying cause-and-effect relationships, problem-solving, and decision-making skills.
- Organize and interpret information from a database.
- Transfer information from statistical to written or visual forms and from written to visual forms (using computer software as appropriate).
- Analyze information by summarizing and by drawing inferences and conclusions.
- Locate and use a variety of primary and secondary sources to create oral, written, and visual presentations on social studies topics.

- Include an annotated bibliography (works cited) in all research projects.
- Identify points of view, frame of reference, and bias in a variety of sources or situations.

***Outside of School:
As parents, you can provide opportunities
for your 8th grader to***

- Watch the television news with you, and discuss current issues and events.
- View history-oriented programs, and discuss the impact of the depicted event, individual, or group with you.
- Read historical novels and biographies.
- Visit public and university libraries, especially during research projects.
- Evaluate ads for fact/opinion and propaganda techniques.
- Analyze political cartoons.
- Interview various family members about their life experiences and family history.
- Visit museums, and discuss the exhibits with you.
- See you perform civic duties such as voting, serving on a jury, or working on a civic committee.