

Social Studies cont.

Elements of Geographical Study and Analysis

- ◆ Use and evaluate geographic research sources to process and report information to solve problems and make predictions.
- ◆ Construct maps.
- ◆ Locate states of the United States.
- ◆ Locate cities and topographic features of the United States.
- ◆ Locate and describe geographic places, using absolute and relative locations.
- ◆ Analyze physical characteristics, such as climate, topography, relationship to water and ecosystems.
- ◆ Analyze human characteristics, such as people's education, language, diversity, economies, religions, settlement patterns, ethnic background and political system.
- ◆ Compare major patterns of population distribution, demographics, and migrations in the United States and the impact of those patterns on cultures and community life.
- ◆ Explain how changes in transportation, communication and other technologies affect the movement of people, products and ideas.
- ◆ Explain how regions of the US relate to one another and change over time.
- ◆ Use geography to interpret the past, explain the present and plan for the future.

Relationship of Individuals to a Group

- ◆ Analyze how a person becomes a member of a group or institution and what factors influence inclusion or exclusion from a group.
- ◆ Describe how laws and events affect members of groups and relationships among groups.
- ◆ Assess how personal and group experiences influence people's perceptions and judgments of events
- ◆ Analyze how ideas, concepts, and traditions have changed over time.

Tools of Social Science Inquiry

- ◆ Select investigate and present a topic using primary and secondary resources.
- ◆ Use maps, graphs, statistical data, timelines, charts, and diagrams to interpret, draw conclusions and make predictions.
- ◆ Create maps, graphs, timelines and diagrams to communicate information.
- ◆ Use technological tools for research and presentation.
- ◆ Distinguish between fact and opinion and recognize bias and points of view.
- ◆ Identify, research and defend a point of view/position.

Missouri School for the Blind

What to expect in Eighth Grade



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Communication Arts

By the end of 8th grade, students will:

Reading

- Use the appropriate media: Regular Print, Large Print or Braille to access print media.
- Apply decoding strategies to problem-solve unknown words when reading.
- Read grade-level instructional text with fluency, accuracy and appropriate expression, adjusting reading rate to difficulty and type of text.
- Develop vocabulary through text, using roots and affixes, context clues, glossary, dictionary and thesaurus.
- Apply pre-reading strategies to aid comprehension: access prior knowledge, preview, predict, and set a purpose and rate for reading.
- During reading, utilize strategies to self-question and correct, infer, visualize, predict and check using cueing systems: meaning, structure, visual.
- Apply post-reading skills to comprehend and interpret text: question to clarify, reflect, analyze, draw conclusions, summarize, and paraphrase.
- Compare, contrast, analyze and evaluate connections between: information and relationships in various fiction and non-fiction works, text ideas and own experiences, text ideas and the world by analyzing the relationship between literature and its historical period and culture.
- Locate, interpret and apply information in title, table of contents and glossary, and recognize the text features of fiction, poetry, and drama in grade level text.
- Identify and explain figurative language in poetry and prose.
- Use details from text to analyze point of view, mood and theme, interpret actions, behaviors and motives of characters, evaluate problem-solving processes of characters, consequences of character's actions and effectiveness of solutions.
- Evaluate the author's use of text features to clarify meaning.

- Identify and interpret figurative language in nonfiction text; emphasize jargon, dialect and slang.
- Use details from text to evaluate adequacy of evidence presented by the author, determine author's purpose based on text analysis, analyze the text for word choice and connotations, selection of details, organizational effectiveness, accuracy of information; analyze multiple texts (compare and contrast, determine importance of information, analyze authors' viewpoint); identify problem solving processes and explain the effectiveness of solutions.
- Read and follow multi-step directions to complete a complex task.

Writing

- Follow a writing process to create a variety of appropriate graphic organizers, applying writing process to write effectively in various forms and types of writing.
- Use conventions of capitalization in written tests within divided quotes, for historical periods and events, geological eras, scientific terms.
- Compose text, using colons and semi-colons, hyphens to divide words into syllables at the end of line.
- Use parts of speech correctly in written text: pronoun case, adverb forms.
- Write, using dictionary, spell-check and other resources to spell correctly.
- Compose text, using precise and vivid language, cohesive devices, editing to eliminate fragments, repetition for effect and parallel structure.
- Write about personal experiences and revise by adding details and literary devices such as metaphors, analogies and symbols.
- Select and use an appropriate method for note-taking.
- Write multi-paragraph expository and persuasive essays (including problem/solutions) with: a thesis statement, supporting details/examples, evidence that readers' concerns and arguments have been anticipated and addressed – effective multi-paragraph expository essays drawn from a variety of sources, a logical response to a newspaper or magazine article, editorial advertisement, political cartoon or news program that includes supporting evidence from text.

Communication Arts cont.

- ◆ Summarize two or more articles and write a brief information paper integrating supporting information from both sources.
- ◆ Compose texts for a workplace communication (i.e. memo or letter) that includes summaries, directives, meeting minutes and/or complaints or concerns that address the same topic from two points of view, using appropriate forms (i.e. interpret a school rule from the perspective of an adult and a student).



Listening and Speaking

- ◆ Listen for enjoyment, for information, for directions, and use clarifying strategies for understanding (i.e. questioning, summarizing and paraphrasing), to recognize how colloquialisms and jargon reflect context, regions and cultures).
- ◆ Use active-listening behaviors (i.e. ask questions of speaker and use body language and facial expressions to indicate agreement, disagreement or confusion).
- ◆ During discussions and presentation use appropriate body language, incorporate media or technology, respond to questions.
- ◆ Give clear and concise multi-step oral directions to complete a complex task.

Information Literacy

- ◆ Develop a research plan to guide investigation and research on focus questions.
- ◆ Locate and use primary and secondary sources to investigate research topics, acquire relevant information, evaluate reliability of information.
- ◆ Record relevant information using a self-selected note-taking or organizational strategy.
- ◆ Document research sources using a given format.
- ◆ Analyze and synthesize two or more messages conveyed in various media (e.g., videos, pictures, web-sites, artwork, plays and/or news programs).

Mathematics

By the end of 8th grade students will:

Numbers and Operation

- ◆ Compare and order rationals and percents including finding their approximate locations on a number line.
- ◆ Use fractions, decimals and percentages to solve problems.
- ◆ Recognize equivalent representations for the same number and generate them by decomposing and composing numbers including scientific notation.
- ◆ Use factors and multiples to describe relationships between and among numbers and justify characteristics of numbers.
- ◆ Describe the effect of multiplication and division on integers.
- ◆ Apply properties of operation to rational numbers including order of operations and inverse operation.
- ◆ Apply the relationships between squares and square roots and cubes and cube roots to solve a problem.
- ◆ Apply all operations on rational numbers.
- ◆ Estimate and justify the results of all operations on rational numbers.
- ◆ Solve problems involving proportions such as scaling and finding equivalent ratios.



Algebraic Relationships

- ◆ Generalize patterns represented graphically or numerically using words or symbolic rules including recursive notation.
- ◆ Compare and contrast various forms of representations of patterns.
- ◆ Compare properties of linear functions between or among tables, graphs and equations.
- ◆ Use symbolic algebra to represent and solve problems that involve linear relationships including recursive relationships.
- ◆ Generate equivalent forms for linear equations.
- ◆ Model and solve problems using multiple representations such as graphs, tables, equations or inequalities.
- ◆ Analyze the nature of changes – including slopes and intercepts – in quantities and linear relationships.

Social Studies

By the end of 8th grade students will:

Principles of Constitutional Democracy

- ◆ Analyze important principles in the Declaration of Independence including inalienable rights and government by consent of the governed.
- ◆ Analyze important principles in the Constitution including: limited government, rule of law, majority rule and minority rights, separation of powers, checks and balances, amendment process, federalism, popular sovereignty, due process of law and voting laws.
- ◆ Apply important principles of the Bill of Rights, such as: basic rights and freedoms, protections against the government.
- ◆ Apply knowledge of responsibilities that governments and citizens need to accept in order to carry out the principles in the Bill of Rights.



United States History

- ◆ Analyze the viability and diversity of Native American cultures before Europeans came.
- ◆ Evaluate the importance of the discovery, exploration and early settlement of America.
- ◆ Interpret the American Revolution, including the perspectives of patriots and loyalists and factors that explain why the American colonists were successful.
- ◆ Justify the drafting of the Constitution, and examine its effects on the formation of a new nation.
- ◆ Assess the significance of Westward Expansion including: Louisiana Purchase, Lewis and Clark Expedition, Missouri Compromise, Texas and the Mexican War, Oregon Territory, and the California Gold Rush.
- ◆ Analyze cultural interactions among these groups: Native Americans, Immigrants from Europe, Africans brought to America.
- ◆ Summarize reform movements such as: abolitionism, women's movement, and Jacksonian Democracy .
- ◆ Interpret political, economic and social causes and consequences of the Civil War and Reconstruction.

Principles and Process of Governance Systems

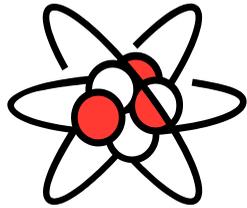
- ◆ Assess rights and responsibilities of individuals.
- ◆ Interpret how laws are made, interpreted and enforced.
- ◆ Interpret how power is distributed among individuals and branches of government.
- ◆ Describe how to participate in government
- ◆ Give examples of how local, state and national governments impact people's lives.

Economic Concepts and Principles

- ◆ Apply the following economic concepts: business cycle, unemployment, and market economy.
- ◆ Assess the role of technology in our economy and how our economy has changed from an agricultural economy to an industrial economy.
- ◆ Interpret the past, explain the present and predict future consequences of economic decisions.
- ◆ Describe how decisions and actions of governments, businesses, groups and individuals affect one another in a market economy.
- ◆ Identify different forms of taxes, such as tariffs, sales taxes and income taxes, and their purposes.

Science cont.

- ◆ Calculate the range and average/mean of a set of data.
- ◆ Use quantitative and qualitative data as support for reasonable explanations (conclusions).
- ◆ Use data as support for observed patterns and relationships, and to make predictions to be tested.
- ◆ Recognize the possible effects of errors in observations, measurements, and calculations on the formulation of explanations (conclusions).
- ◆ Evaluate the reasonableness of an explanation (conclusion).
- ◆ Analyze whether evidence (data) and scientific principles support proposed explanations (hypotheses, laws, theories).
- ◆ Communicate the procedures and results of investigations and explanations through: oral presentations, drawings and maps, data tables, equations and writings

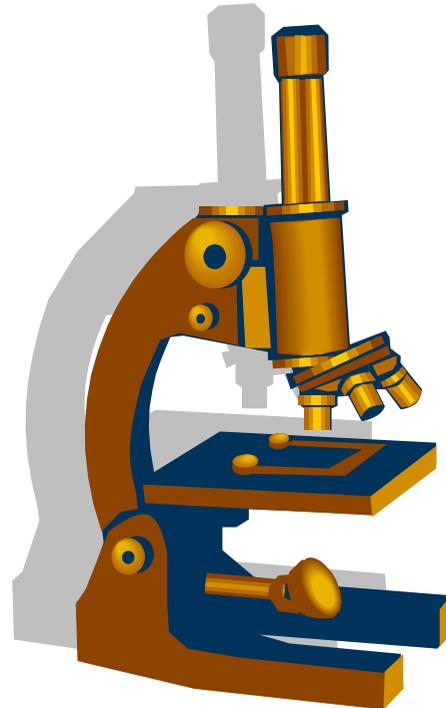


Impact of Science, Technology and Human Activity

- ◆ Explain how technological improvements, such as those developed for use in space exploration, the military, or medicine, have led to the invention of new products that may improve lives here on Earth.
- ◆ Identify the link between technological developments and the scientific discoveries made possible through their development.
- ◆ Describe how technological solutions to problems (i.e. storm water runoff, fiber optics, windmills, efficient car design, electronic trains without conductors, sonar, robotics, Hubble telescope) can have both benefits and draw backs.
- ◆ Describe how the contributions of scientists and inventors, representing different cultures, races, and gender, have contributed to science, technology and human activity (i.e. George Washington Carver, Thomas Edison, Thomas Jefferson, Isaac Newton, Marie Curie, Galileo, Albert Einstein, Mae Jemison, Edwin Hubble, Charles Darwin, Jonas Salk, Louis Pasteur, Jane Goodall, Tom Akers, John Wesley Powell, Rachel Carson).

Science cont.

- ◆ Recognize the difficulty science innovators experience as they attempt to break through accepted ideas (hypotheses, laws, theories) of their time to reach conclusions that may lead to changes in those ideas and serve to advance scientific understanding (e.g., Darwin, Copernicus, Newton).
- ◆ Recognize explanations have changed over time as a result of new evidence.
- ◆ Describe ways in which science and society influence one another (i.e. scientific knowledge and the procedures used by scientists influence the way many individuals in society think about themselves, others, and the environment; societal challenges often inspire questions for scientific research; social priorities often influence research priorities through the availability of funding for research).
- ◆ Identify and evaluate the physical, social, economic, and/or environmental problems that may be over-come using science and technology.



Geometric and Spatial Relationships

- ◆ Describe, classify, and generalize relationships between and among types of two-dimensional and three-dimensional objects.
- ◆ Apply relationships between corresponding sides and corresponding areas of similar polygons to solve problems.
- ◆ Use coordinate geometry to analyze properties of right triangles and quadrilaterals.
- ◆ Reposition shapes under formal transformations such as reflection, rotation and translation.
- ◆ Describe the relationship between the scale factor and the area of image using dilation – stretching/ shrinking.
- ◆ Identify the number of rotational symmetries of regular polygons.
- ◆ Create isometric drawings from a given math plan.
- ◆ Draw or use visual models to represent and solve problems.

Measurement

- ◆ Identify the equivalent volume measures within a system of measurement – i.e. m^3 and cm^3 .
- ◆ Use tools to determine the measure of reflected angles to the nearest degree.
- ◆ Describe how to solve problems involving surface area and/or volume of a rectangular or triangular prism or cylinder.
- ◆ Analyze precision and accuracy in measurement situations and determine number of significant digits.
- ◆ Convert square of cubic units to equivalent square or cubic units within the same system of measurement.

Data and Probability

- ◆ Formulate questions, designing studies and collecting data about a characteristic.
- ◆ Select, create and use appropriate graphical representations of data including scatter plots.
- ◆ Find, use and interpret measures of center, outliers and spread, including range and interquartile range.
- ◆ Compare different representations of the same data and evaluate how well each representation shows important aspects of the data.
- ◆ Make conjectures about possible relationships between two characteristics of a sample on the basis of scatter plots of the data and approximate lines to fit.
- ◆ Make conjectures – based on theoretical probability – about the results of the experiments.

Science

By the end of 8th grade students will:

Properties & Principles of Matter and Energy

- ◆ Recognize elements (unique atoms) and compounds (molecules or crystals) are pure substances that have characteristic properties.
- ◆ Describe the physical and chemical properties (i.e. magnetic attraction, conductivity, melting point and boiling point, reactivity) of pure substances (elements or compounds) (i.e. copper wire, aluminum wire, iron, charcoal, sulfur, water, salt, sugar, sodium bicarbonate, galena, quartz, magnetite, pyrite) using appropriate senses and tools.
- ◆ Describe evidence (i.e. diffusion of colored material into clear material such as water; light reflecting off of dust particles in air; changes in physical properties and reactivity such as gold hammered into foil, oil spreading on the surface of water, decay of organic matter, condensation of water vapor by increased pressure) that supports the theory that matter is composed of moving particles too small to be seen (atoms, molecules).
- ◆ Using the Kinetic Theory model, illustrate and account for the physical properties (i.e. shape, volume, malleability, viscosity) of a solid, liquid, or gas in terms of the arrangement and motion of molecules in a substance.
- ◆ Use the Kinetic Theory model to explain changes in the volume, shape, and viscosity of materials in response to temperature changes during a phase change.
- ◆ Predict the effect of transfer on the physical properties of a substance as it changes to or from a solid, liquid, or gas (i.e. phase changes that occur during freezing, melting, evaporation, boiling, condensation).
- ◆ Recognize more than 100 known elements (unique atoms) exist that may be combined in nature or by man to produce compounds that make up the living and nonliving substances in the environment.
- ◆ Provide evidence that mass is conserved during a chemical change in a closed system (i.e. vinegar + baking soda, mold growing in a closed container, steel wool rusting).
- ◆ Explain that the amount of matter remains constant while being recycled through the rock cycle.
- ◆ Explain that the amount of matter remains constant while being recycled through food chains and food webs.

Science cont.

- ◆ Recognize chemical energy is stored in chemical compounds (i.e. energy stored in and released from food molecules, batteries, nitrogen explosives, fireworks, organic fuels).
- Identify the evidence of different energy transformations (i.e. explosion of light, heat, and sound, temperature change, electrical charge) that may occur as chemical energy is released during a chemical reaction.

Characteristics & Interactions of Living Organisms

- ◆ Recognize that most plants and animals require food and oxygen (needed to release the energy from that food).
- ◆ Identify and contrast the structures of plants and animals that serve similar functions (i.e. taking in water and oxygen, support, response to stimuli, obtaining energy, circulation, digestion, excretion, reproduction).
- ◆ Recognize the cell membrane helps regulate the transfer of materials in and out of the cell.
- ◆ Recognize the function of the chloroplast is photosynthesis
- ◆ Recognize photosynthesis is a chemical change with reactants (water and carbon dioxide) and products (energy-rich sugar molecules and oxygen) that takes place in the presence of light and chlorophyll.
- ◆ Recognize oxygen is needed by all cells of most organisms for the release of energy from nutrient (sugar) molecules.
- ◆ Describe the importance of the transport and exchange of oxygen and carbon dioxide to the survival of the organism.
- ◆ Identify and give examples of each level of organization (cell, tissue, organ, organ system) in multicellular organisms (plants, animals).
- ◆ Illustrate and explain the path water and nutrients take as they move through the transport system of a plant.
- ◆ Explain the interactions between the circulatory and digestive systems as nutrients are processed by the digestive system, passed into the blood stream, and transported in and out of the cell.
- ◆ Compare and contrast the processes of mechanical and chemical digestion, and their role in providing materials necessary for survival of the cell and organism.

Science cont.

- ◆ Identify the importance of the transport and exchange of nutrient and waste molecules to the survival of the cell and organism.
- ◆ Explain the interactions between the circulatory and respiratory systems in exchanging oxygen and carbon dioxide between cells and the atmosphere.
- ◆ Explain the interactions between the nervous and muscular systems when an organism responds to a stimulus.
- ◆ Predict the response the body may take to maintain internal balance during an environmental change.
- ◆ Explain the cause and effect of diseases.
- ◆ Relate some common diseases.
- ◆ Differentiate between infectious and noninfectious diseases.
- ◆ Explain the role of antibiotics and vaccines in the treatment and prevention of diseases.
- ◆ Compare and contrast the processes of asexual and sexual reproduction, including the type and number of cells involved (one body cell in asexual, two sex cells in sexual), and the number of gene sets (body cell has two sets, sex cells have one set each) passed from parent(s) to offspring.
- ◆ Identify examples of asexual reproduction (i.e. plants budding, binary fission of single cell organisms).
- ◆ Compare and contrast the reproductive mechanisms of classes of vertebrates (i.e. internal vs. external fertilization).
- ◆ Explain how flowering plants reproduce sexually.
- ◆ Identify chromosomes as cellular structures that occur in pairs that carry hereditary information in units called genes.
- ◆ Recognize that when asexual reproduction occurs, the same genetic information found in the parent cell is copied and passed on to each new daughter cell (assess only the concept – not the term or process of mitosis).
- ◆ Recognize that when sexual reproduction occurs, genetic material from both parents is passed on and combined to form the genetic code for the new organism (assess only the concept – not the term or process of meiosis).



- ◆ Recognize that when asexual reproduction occurs, the daughter cell is identical to the parent cell (assuming no change in the parent genes).
- ◆ Recognize that when sexual reproduction occurs, the offspring is not identical to either parent due to the combining of the different genetic codes contained in each sex cell.

Changes in Ecosystems and Interactions of Organisms with their Environments

- ◆ Explain the beneficial or detrimental impact that some organisms (i.e. viruses, bacteria, protists, fungi) may have on other organisms.
- ◆ Illustrate the oxygen/carbon dioxide cycles.
- ◆ Describe the processes involved in the recycling of matter in the oxygen/carbon dioxide cycles.

Processes and Interactions of the Earth's Systems

- ◆ Differentiate between minerals and rocks (which are composed of different kinds of minerals).
- ◆ Describe the distinguishing properties that can be used to classify minerals (i.e. texture, smell, luster, hardness, crystal shape, streak, reaction to magnets and acids).
- ◆ Describe the methods used to identify the distinguishing properties of minerals.
- ◆ Classify rocks as sedimentary, igneous, or metamorphic.
- ◆ Explain convection currents are the result of uneven heating inside the mantle resulting in the melting of rock materials, convection of magma, eruption/flow of magma, and movement of crustal plates.
- ◆ Explain how rock layers are affected by the folding, breaking, and uplifting of rock layers due to plate motion.
- ◆ Explain and diagram the external and internal processes of the rock cycle.
- ◆ Describe how the movement of crustal plates can cause earthquakes and volcanic eruptions that can result in mountain building and trench formation.
- ◆ Explain how heating and cooling in the mantle layer leads to the formation of metamorphic rocks and some igneous rocks.
- ◆ Describe the methods used to estimate geologic time and the age of the Earth.

- ◆ Make inferences about the formation of igneous and metamorphic rocks from their physical properties (i.e. crystal size indicates rate of cooling, air pockets or glassy texture indicate volcanic activity).
- ◆ Use rock and fossil evidence to make inferences about the age, history, and changing life forms and environment of the Earth (i.e. changes in successive layers of sedimentary rock and the fossils contained within them, similarities between fossils in different geographic locations, similarities between fossils and organisms present today, fossils of organisms indicating changes in climate, fossils of extinct organisms).

Scientific Inquiry

- ◆ Formulate testable questions and hypotheses.
- ◆ Recognize the importance of the independent variable, dependent variables, control of constants, and multiple trials to the design of a valid experiment.
- ◆ Design and conduct a valid experiment.
- ◆ Evaluate the design of an experiment and make suggestions for reasonable improvements or extensions of an experiment.
- ◆ Recognize that different kinds of questions suggest different kinds of scientific investigations (i.e. some involve observing and describing objects, organisms, or events; some involve collecting specimens; some involve experiments; some involve making observations in nature; some involve discovery of new objects and phenomena; some involve making models).
- ◆ Acknowledge there is no fixed procedure called “the scientific method”, but some investigations involve systematic observations, carefully collected and relevant evidence, logical reasoning, and imagination in developing hypotheses and other explanations.
- ◆ Make qualitative observations using the five senses.
- ◆ Determine the appropriate tools and techniques to collect data.
- ◆ Use a variety of tools and equipment to gather data (i.e. microscopes, thermometers, analog and digital meters, computers, spring scales, balances, metric rulers, graduated cylinders, stopwatches).
- ◆ Measure length to the nearest millimeter, mass to the nearest gram, volume to the nearest milliliter, force (weight) to the nearest Newton, temperature to the nearest degree Celsius, time to the nearest second.
- ◆ Compare amounts/measurements.
- ◆ Judge whether measurements and computation of quantities are reasonable.