

Language Arts

The English language arts are the vehicles of communication by which we live, work, share, and build ideas and understandings of the present, reflect on the past, and imagine the future.

Michigan Curriculum Framework
A portion of the Vision Statement

Genre, Craft, and Conventions of Language

- Narrative focus: historical fiction, mystery, drama
- Non-fiction focus: persuasive essay, technical writing
- Write narrative using dialogue flashbacks, imagery, logical resolution, minor characters, redherring (mystery), rising and falling action, symbolism, transitional language
- Write expository using elements from previous grades and preface, illustrations, author's page, examples, marginal notes
- Identify and use participial phrases, dashes, ellipses, gerunds, infinitives
- Use correct spelling conventions
- Public speaking influences audience

Literature and Understanding

- Universal themes of loyalty, invention/innovation, truth in classic and contemporary literature examined from cultural, personal, and author's perspective

Creating Communication Products for Various Purposes and Audiences

- Written and spoken narratives and expository pieces related to universal themes using focus genres
- Vocabulary that defines critical attributes of key concepts of loyalty, invention/innovation, truth, and vocabulary relative to English Language Arts

Skills, Strategies, and Processes

Comprehension

- Use essential comprehension strategies before, during, and after reading, to support proficient, independent reading. These strategies include: make connections, monitor and correct, determine order of importance, visualize, ask questions, make inferences, synthesize

Writing

- Writing includes six essential traits of writing
- Use writing process

Research

- Brainstorm, generate and evaluate questions to initiate research related to universal themes
- Select and use information from a variety of sources that represent several perspectives
- Organize and analyze information
- Present/publish research

Metacognition

- Plan and evaluate skills, strategies and processes to construct and convey meaning when reading, listening, speaking and viewing

Critical Standards

- Compare purposes and contexts in which shared, individual and expert standards are used in order to assess own work and that of others

Connected Mathematics Instructional Program

The goal of Connected Mathematics is to help students develop mathematical knowledge, understanding and skill, as well as an awareness and appreciation of the rich connections among mathematical strands and between mathematics and other disciplines. Every unit develops a big idea, that is, an important cluster of related concepts, skills, procedures and ways of thinking. Below is an overview of the 8th grade program.

Title of Unit <i>Big Idea</i>	Concept & Skills
Thinking with Mathematical Models <i>Linear and Inverse Variation</i>	Algebraic relationships: linear, inverse, exponential.
Looking for Pythagoras <i>The Pythagorean Theorem</i>	The Pythagorean Theorem; irrational numbers; connecting coordinates, slope, distance and area.
Growing, Growing, Growing <i>Exponential Relationship</i>	Recognize and compare exponential and linear relationships using tables, graphs, and equations
Say It With Symbols <i>Algebraic Reasoning</i>	Equivalent expressions; order of operations; solving linear equations and simple quadratic equations.
Kaleidoscopes, Hubcaps & Mirrors <i>Symmetry and Transformations</i>	Recognize and describe symmetries of figures; perform symmetry transformation of figures including reflections, translations and rotations
The Shapes of Algebra <i>Solving Linear Inequalities</i>	Create and use equations of circles Find solutions to inequalities when given a graph or an equation

Number and Operations

- Convert from fraction to decimal and decimal to fraction using rational numbers
- Express a number in exponential and standard form
- Solve appropriate consumer problems involving commission, interest, taxes, percent increase, percent decrease and compound growth
- Write inequalities using square roots
- Efficiently and accurately apply operations with all rational numbers in solving problems
- Develop and apply the appropriate method of computation from mental mathematics, estimation, paper/pencil or by using a calculator with rational numbers
- Know which operation to perform in a given situation

Algebra

- Write an equation that fits a given graph or table
- Match a graph to a set of values
- Classify patterns as linear, near-linear, non-linear, exponential or quadratic
- Use patterns to solve real world problems
- Solve problems involving exponents and exponential growth
- Express linear relationships graphically, algebraically and verbally
- Test and evaluate predictions based on observed patterns
- Evaluate expressions for a specific value of a variable
- Solve linear equations and inequalities
- Graph values from a table
- Solve simple quadratic equations symbolically
- Develop understanding of equivalent expressions
- Develop awareness of quadratic functions and how to recognize them from patterns in tables, graphs and equations

Geometry

- Identify data distributions according to the shape of graphs
- Identify the characteristics of various triangles
- Combine, dissect and transform shapes
- Deduce the Pythagorean Theorem through explorations
- Determine the transformations written in a tessellation
- Identify which figures have rotational, reflectional and translational symmetry
- Use Pythagorean Theorem to find areas of squares

Data and Probability

- Collect, organize and present data using a variety of formats and strategies
- Present data in box and whisker plots, double stem-leaf plots, scattergrams, line graphs and histograms
- Identify and use a process for approaching data analysis problems
- Compare results of repeated samples from the same population, use sampling distributions, measure of center and measures of spread
- Consider how the size of a sample influences the outcome
- Develop and implement a sampling plan

Science

It is important that students come to understand that science is an evidence-based process, as well as learning the main ideas of science. Science is a way of understanding nature. Scientific research may begin by generating new scientific questions that can be answered through replicable scientific investigations that are logically developed and conducted systematically. Scientific conclusions and explanations result from careful analysis of empirical evidence and the use of logical reasoning. Some questions in science are addressed through indirect rather than direct observation, evaluating the consistency of new evidence with results predicted by models of natural processes. Results from investigations are communicated in reports that are scrutinized through a peer review process.

Force and Motion

Position — Time

An object's position can be measured and graphed as a function of time. An object's speed can be calculated and graphed as a function of time.

Velocity — Time

The motion of an object can be described by its position and velocity as functions of time and by its average speed and average acceleration during intervals of time.

Forces and Motion

Basic Forces in Nature

Objects can interact with each other by "direct contact" (e.g., pushes or pulls, friction) or at a distance (e.g., gravity, electromagnetism, nuclear).

Net Forces

Forces have magnitude and direction. The net force on an object is the sum of all the forces acting on the object. Objects change their speed and/or direction only when a net force is applied. If the net force on an object is zero, there is no change in motion (Newton's First Law).

Newton's Third Law

Whenever one object exerts a force on another object, a force equal in magnitude and opposite in direction is exerted back on the first object.

Forces and Acceleration

The change of speed and/or direction (acceleration) of an object is proportional to the net force and inversely proportional to the mass of the object. The acceleration and net force are always in the same direction.

Energy, Waves, Sound and Light

Energy Transfer

Moving objects and waves transfer energy from one location to another. They also transfer energy to objects during interactions (e.g., sunlight transfers energy to the ground when it warms the ground; sunlight also transfers energy from the Sun to the Earth).

Energy Transformation

Energy is often transformed from one form to another. The amount of energy before a transformation is equal to the amount of energy after the transformation. In most energy transformations, some energy is converted to thermal energy.

Mechanical Wave Propagation

Vibrations in matter initiate mechanical waves (e.g., water waves, sound waves, seismic waves), which may propagate in all directions and decrease in intensity in proportion to the distance squared for a point source. Waves transfer energy from one place to another without transferring mass.

Electromagnetic Waves

Electromagnetic waves (e.g., radio, microwave, infrared, visible light, ultraviolet, x-ray) are produced by changing the motion (acceleration) of charges or by changing magnetic fields. Electromagnetic waves can travel through matter, but they do not require a material medium. (That is, they also travel through empty space.) All electromagnetic waves move in a vacuum at the speed of light. Types of electromagnetic radiation are distinguished from each other by their wavelength and energy.

Wave Behavior — Reflection and Refraction

The laws of reflection and refraction describe the relationships between incident and reflected/refracted waves.

Nature of Light

Light interacts with matter by reflection, absorption, or transmission.

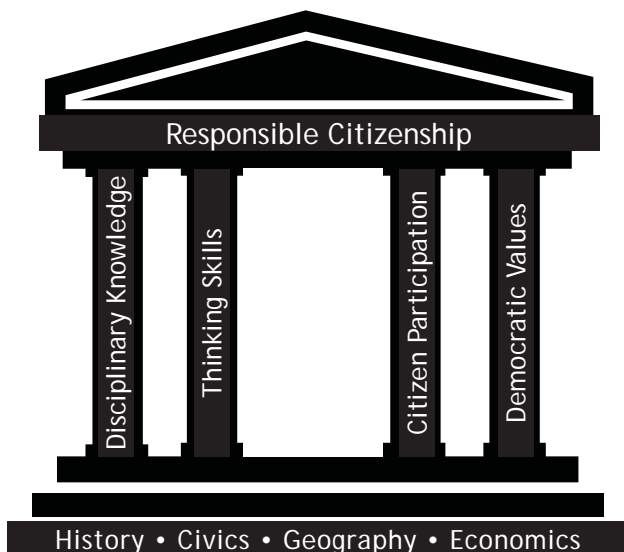
Grade

8

Social Studies

Social Studies is the integrated study of the social sciences to prepare young people to become responsible citizens. Responsible citizens display social understanding and civic efficacy. Social understanding includes knowledge of the human condition, how it has changed over time, the variations that occur in different physical environments and cultural settings, and the emerging trends that appear likely to shape the future in an interdependent world. Civic efficacy is the readiness and willingness to assume responsibilities of citizenship, knowing how, when, and where to make informed and reasoned decisions for the public good in a democratic society.

GRADES K-8 SOCIAL STUDIES CONTENT EXPECTATIONS,
MICHIGAN DEPARTMENT OF EDUCATION



Foundations of a New Nation Expansion and Reform Civil War and Reconstruction America in the last half of the 19th century

The eighth grade social studies curriculum introduces students to the history of the United States from the Articles of Confederation to the end of the 19th century. Using primary and secondary sources, they explore time and place in nineteenth century America. Beginning with the political and intellectual transformations that preceded the Articles of Confederation, students review the ideas and principles that form the basis of our constitutional republic.

Students further their understanding of American government from an in-depth study of the United States Constitution and the evolution of the government created during its first century. Students explore the challenges faced by the new nation and the role of political and social leaders in meeting these challenges. Students also analyze the nature and effect of territorial, demographic, and economic growth in the 19th century. They analyze and evaluate early attempts to abolish or contain slavery and to realize the ideals of the Declaration of Independence for all. In studying the Civil War and Reconstruction, students evaluate multiple causes, key events, and complex consequences of the war and its aftermath.

Students are introduced to some of the major changes in American society in the last part of the 19th century as they explore large-scale changes over time in the development of the United States. As students examine contemporary public issues during the course, they explore connections to issues of the past. Throughout the course, students learn to use historical evidence to both support historical arguments and to construct historical narratives.