

ENGLISH LANGUAGE ARTS

Reading:

Key Ideas and Details:

- Read closely to determine what the text says explicitly and make logical inferences from it: cite specific textual evidence when writing or speaking to support conclusions drawn from the text
- Determine central ideas or themes of a text and analyze their development, summarize the key supporting details and ideas

Craft and Structure:

- Analyze how and why individuals, events, and ideas develop and interact over the course of a text
- Interpret words and phrases as they are used in a text
- Analyze the structure of texts
- Assess how point of view of purpose shapes the content and style of a text

Integration:

- Integrate and evaluate content presented in diverse formats and media
- Delineate and evaluate the argument and specific claims in a text
- Analyze how two or more texts address similar themes or topics in order to build knowledge or to compare the approaches the authors take
- Read and comprehend complex literary and informational texts independently and proficiently

Writing:

- Produce clear and coherent writing in (arguments, informative/explanatory, and narrative) which the development, organization, and style are appropriate to task, purpose and audience
- Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach
- Use technology, including the internet to produce and publish writing and to interact and collaborate with others
- Conduct short as well as more sustained research projects based on focused questions demonstrating the understanding of the subject under investigation
- Gather relevant information from multiple print and digital sources, assess the credibility

and accuracy of each source

- Draw evidence from literary or informational texts to support analysis, reflection, and research
- Write routinely over extended time frames and shorter time frames for a range of tasks, purposes and audiences

Speaking and Listening:

- Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly and persuasively
- Integrate and evaluate information presented in diverse media and formats, including visually, quantitatively, and orally
- Evaluate a speaker's point of view, reasoning, and use of evidence and rhetoric
- Present information, findings, and supporting evidence such that listeners can follow the line of reasoning and the organization, development, and style are appropriate to task, purpose, and audience
- Adapt speech to a variety of contexts and communicative tasks, demonstrating command of the formal English when indicated or appropriate

MATHEMATICS

The Number System:

- Know that there are numbers that are not rational, and approximate them by rational Numbers

Expressions and Equations:

- Work with radicals and integer exponents
- Understand the connections between proportional relationships, line, and linear Equations
- Analyze and solve linear equations and pairs of simultaneous linear equations

Functions:

- Define, evaluate, and compare functions
- Use functions to model relationships between quantities

Geometry:

- Understand congruence and similarity using physical models, transparencies, or geometry software
- Understand apply the Pythagorean Theorem
- Solve real-world and mathematical problems involving volume of cylinders, cones and spheres

Statistics and Probability:

- Investigate patterns of association in bivariate data

SCIENCE AND TECHNOLOGY

Earth and Space Sciences:

- Develop and use a model of the Earth-sun system to explain the cyclical pattern of seasons,
- Explain the role of gravity in ocean tides, the orbital motions of planets, their moons, and asteroids in the solar system
- Develop and use a model to illustrate that energy from the Earth's interior drives convection which cycles Earth's crust
- Interpret basic weather data to identify patterns
- Describe how interactions involving the ocean affect weather and climate on a regional scale
- Examine and interpret data to describe the role that human activities have played in causing the rise in global temperatures over the past century

Life Science:

- Construct a scientific explanation based on evidence for how environmental and genetic factors influence and growth of organisms
- Describe that food molecules are broken down and rearranged through chemical reactions
- Develop and use a model to describe that structural changes to genes may or may not result in changes to proteins
- Develop and use a model to describe how asexual reproduction results in offspring with genetic variation
- Communicate through writing and in diagrams that chromosomes contain many distinct genes Illustrate that each gene holds the instructions for the production of specific proteins
- Develop and use a model to show that in sexually reproducing organisms individuals have two of each chromosome
- Explain the mechanism of natural selection. Provide evidence that natural selection occurs over many generations

- Synthesize and communicate information about artificial selection

Physical Science:

- Develop a model to describe that atoms combine in a multitude of ways
- Analyze and interpret data on the properties of substances to determine if a chemical reaction has occurred
- Develop a model that describes and predicts changes when thermal energy is added or removed
- Use a model to explain the substances are rearranged during a chemical reaction to form new molecules with new properties
- Present evidence to support the claims that: a. substance are composed of molecules, compounds or atoms; and b. atoms form molecules or compounds
- Develop a model that demonstrates Newton's third law
- Provide evidence that the change in an object's motion depends on the sum of forces on the object and the mass of the object

Technology/Engineering:

- Recognize that materials maintain their composition under various kinds of physical processing
- Describe how a product can be created using the basic processes in manufacturing systems
- Recognize that processes that transform materials into products can be controlled by humans or Computers

SOCIAL STUDIES

The philosophical foundations of the United States political system:

- Explain why the founders of the United States considered the government of Athens the beginning of democracy
- Describe the government of the Roman Republic and aspects of republican principles that are evident in modern democracy
- Explain the influence of Enlightenment thinkers on the American Revolution and government
- Explain how British ideas about practices of government influenced American colonists
- Analyze the evidence for arguments that principals of the United states government were influenced by governments of Native Peoples

The development of the United States govern-

ment:

- Apply knowledge of the American Revolutionary period to determine factors that led to colonist to declare independence
- Analyze the weaknesses of the national government under the Articles of Confederation
- Identify leaders and topics of the Constitutional Convention
- Compare and contrast ideas between Federalists and Anti-Federalist over ratification of the Constitution
- Summarize the Preamble and each article in the Constitution; explain reasons for the addition of the Bill of Rights to the Constitution in 1791

The institutions of the United States government:

- Distinguish the three branches of government
- Examine the interrelationship of the three branches
- Describe the respective roles of each of the branches of government
- Explain the elections in the legislative and executive branches and the process of nomination of individuals in the judicial and executive branches

Rights and responsibility of citizens:

- Explain different ways one becomes a citizen of the United States
- Describe rights and responsibilities of a citizen and distinguish among civic, political, and private life
- Define fundamental principals and values of American political and civic life
- Describe the opportunities democracy provides for citizens
- Evaluate information related elections
- Apply knowledge of the meaning of leadership and qualities of good leaders
- Explain importance of public service
- Analyze issues involving liberty in conflict with equality and authority
- Examine the role of elected representatives and of political protest in a democracy
- Examine the influence of public and private interest groups in democracy

The Constitution, Amendments, and Supreme Court decisions:

- Explain the "necessary and proper" clause and why it is referred to as the "elastic clause"
- Analyze the issues that caused the civil war
- Explain historical context and significance of laws enacted by Congress that expanded civil rights
- Explain how cases come before the Supreme Court

and how cases are dealt with

- Research and analyze one case in which the Supreme Court decisions have made changes in citizen's lives

The structure of Massachusetts states and local government:

- Compare and contrast functions of the state and national government
- Describe the provisions of the United States and Massachusetts Constitution
- Distinguish between enumerated and implied powers in the United states and Massachusetts Constitution
- Compare core documents associated with protection of individual rights
- Explain why the Tenth Amendment to the United States Constitution is important to state government
- Contrast responsibilities of government at the federal, state, and local level
- Explain the major components of local government in Massachusetts

Freedom of the Press and News/Media Literacy:

- Explain why freedom of press was included as a right in the First Amendment to the United States Constitution
- Give examples of how a free press can provide competing information and views about government and politics
- Explain the different functions of news articles, editorials, editorial cartoons, and "op-ed" commentaries
- Evaluate benefits and challenges of digital news and social media to a democratic society
- Explain methods for evaluating information and opinion in print and online media
- Analyze point of view and evaluate the claims of an editorial on a public policy issue at the local, state, or national level

Gardner Public Schools

CURRICULUM
GUIDE
GRADE 8

The purpose of this guide is to identify the major topics, concepts, and skills that are considered essential for this grade level as identified by the Massachusetts Curriculum

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Updated January 2019