

Typing

CCSS.ELA-LITERACY.W.8.6

Use technology, including the Internet, to produce and publish writing and present the relationships between information and ideas efficiently as well as to interact and collaborate with others.

Vocabulary Acquisition and Use

CCSS.ELA-LITERACY.L.8.4

Determine or clarify the meaning of unknown and multiple-meaning words or phrases based on grade 8 reading and content, choosing flexibly from a range of strategies.

CCSS.ELA-LITERACY.L.8.4.B

Use common, grade-appropriate Greek or Latin affixes and roots as clues to the meaning of a word (e.g., precede, recede, secede).

CCSS.ELA-LITERACY.L.8.5

Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.

CCSS.ELA-LITERACY.L.8.5.A

Interpret figures of speech (e.g. verbal irony, puns) in context.

CCSS.ELA-LITERACY.L.8.5.C

Distinguish among the connotations (associations) of words with similar denotations (definitions) (e.g., bullheaded, willful, firm, persistent, resolute).

CCSS.ELA-LITERACY.L.8.6

Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases; gather vocabulary knowledge when considering a word or phrase important to comprehension or expression.

Conventions of Standard English

CCSS.ELA-LITERACY.L.8.1

Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.

CCSS.ELA-LITERACY.L.8.1.A

Explain the function of verbals (gerunds, participles, infinitives) in general and their function in particular sentences.

CCSS.ELA-LITERACY.L.8.1.B

Form and use verbs in the active and passive voice.

CCSS.ELA-LITERACY.L.8.1.C

Form and use verbs in the indicative, imperative, interrogative, conditional, and subjunctive mood.

CCSS.ELA-LITERACY.L.8.2

Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.

CCSS.ELA-LITERACY.L.8.2.A

Use punctuation (comma, ellipsis, dash) to indicate a pause or break.

CCSS.ELA-LITERACY.L.8.2.B

Use an ellipsis to indicate an omission.

Key Ideas and Details

CCSS.ELA-LITERACY.RL.8.2

Determine a theme or central idea of a text and analyze its development over the course of the text, including its relationship to the characters, setting, and plot; provide an objective summary of the text.

Craft and Structure

CCSS.ELA-LITERACY.RL.8.4

Determine the meaning of words and phrases as they are used in a text, including figurative and connotative meanings; analyze the impact of specific word choices on meaning and tone, including analogies or allusions to other texts.

CCSS.ELA-LITERACY.RL.8.6

Analyze how differences in the points of view of the characters and the audience or reader (e.g., created through the use of dramatic irony) create such effects as suspense or humor.

The Number System

CCSS.MATH.CONTENT.8.NS.A.1

Know that numbers that are not rational are called irrational. Understand informally that every number has a decimal expansion; for rational numbers show that the decimal expansion repeats eventually, and convert a decimal expansion which repeats eventually into a rational number.

Expressions & Equations

CCSS.MATH.CONTENT.8.EE.C.7

Solve linear equations in one variable.

CCSS.MATH.CONTENT.8.EE.C.7.a

Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions. Show which of these possibilities is the case by successively transforming the given equation into simpler forms, until an equivalent equation of the form $x = a$, $a = a$, or $a = b$ results (where a and b are different numbers).

Expressions & Equations

CCSS.MATH.CONTENT.8.EE.C.7.b

Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.

CCSS.MATH.CONTENT.8.EE.C.8

Analyze and solve pairs of simultaneous linear equations.

CCSS.MATH.CONTENT.8.EE.C.8.b

Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection.

Geometry

CCSS.MATH.CONTENT.8.G.A.1

Verify experimentally the properties of rotations, reflections, and translations:

CCSS.MATH.CONTENT.8.G.A.1.a

Lines are taken to lines, and line segments to line segments of the same length.

CCSS.MATH.CONTENT.8.G.A.2

Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that exhibits the congruence between them.

CCSS.MATH.CONTENT.8.G.A.3

Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates.

Geometry

CCSS.MATH.CONTENT.8.G.A.4

Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two dimensional figures, describe a sequence that exhibits the similarity between them.

CCSS.MATH.CONTENT.8.G.A.5

Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles. For example, arrange three copies of the same triangle so that the sum of the three angles appears to form a line, and give an argument in terms of transversals why this is so.

Empowered Learner

ISTE 1.1

Students leverage technology to take an active role in choosing, achieving, and demonstrating competency in their learning goals, informed by the learning sciences.

ISTE 1.1.d

Students understand the fundamental concepts of technology operations, demonstrate the ability to choose, use and troubleshoot current technologies and are able to transfer their knowledge to explore emerging technologies.

Digital Citizen

ISTE 1.2

Students recognize the rights, responsibilities and opportunities of living, learning and working in an interconnected digital world, and they act and model in ways that are safe, legal and ethical.

STE 1.2.a

Students cultivate and manage their digital identity and reputation and are aware of the permanence of their actions in the digital world.

ISTE 1.2.b

Students engage in positive, safe, legal and ethical behavior when using technology, including social interactions online or when using networked devices.

ISTE 1.2.c

Students demonstrate an understanding of and respect for the rights and obligations of using and sharing intellectual property.

ISTE 1.2.d

Students manage their personal data to maintain digital privacy and security and are aware of data-collection technology used to track their navigation online.

Engineering Design

NGSS MS-ETS1-1

Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.

Engineering Design

NGSS MS-ETS1-2

Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.

NGSS MS-ETS1-3

Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.

NGSS MS-ETS1-4

Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.

From Molecules to Organisms: Structures & Processes

NGSS MS-LS1-1

Conduct an investigation to provide evidence that living things are made of cells; either one cell or many different numbers and types of cells.

NGSS MS-LS1-2

Develop and use a model to describe the function of a cell as a whole and ways the parts of cells contribute to the function.

NGSS MS-LS1-3

Use argument supported by evidence for how the body is a system of interacting subsystems composed of groups of cells.

From Molecules to Organisms: Structures & Processes

NGSS MS-LS1-4

Use argument based on empirical evidence and scientific reasoning to support an explanation for how characteristic animal behaviors and specialized plant structures affect the probability of successful reproduction of animals and plants respectively.

NGSS MS-LS1-5

Construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms.

NGSS MS-LS1-6

Construct a scientific explanation based on evidence for the role of photosynthesis in the cycling of matter and flow of energy into and out of organisms.

NGSS MS-LS1-7

Develop a model to describe how food is rearranged through chemical reactions forming new molecules that support growth and/or release energy as this matter moves through an organism.

NGSS MS-LS1-8

Gather and synthesize information that sensory receptors respond to stimuli by sending messages to the brain for immediate behavior or storage as memories.

Ecosystems: Interactions, Energy, and Dynamics

MS-LS2-1

Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem.

Ecosystems: Interactions, Energy, and Dynamics

MS-LS2-2

Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems.

MS-LS2-3

Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem.

MS-LS2-4

Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.

MS-LS2-5

Evaluate competing design solutions for maintaining biodiversity and ecosystem services.

Heredity: Inheritance & Variation of Traits

NGSS MS-LS3-1

Develop and use a model to describe why structural changes to genes (mutations) located on chromosomes may affect proteins and may result in harmful, beneficial, or neutral effects to the structure and function of the organism.

NGSS MS-LS3-2

Develop and use a model to describe why asexual reproduction results in offspring with identical genetic information and sexual reproduction results in offspring with genetic variation.

Biological Evolution: Unity & Diversity

NGSS MS-LS4-1

Analyze and interpret data for patterns in the fossil record that document the existence, diversity, extinction, and change of life forms throughout the history of life on Earth under the assumption that natural laws operate today as in the past.

NGSS MS-LS4-2

Apply scientific ideas to construct an explanation for the anatomical similarities and differences among modern organisms and between modern and fossil organisms to infer evolutionary relationships.

NGSS MS-LS4-3

Analyze displays of pictorial data to compare patterns of similarities in the embryological development across multiple species to identify relationships not evident in the fully formed anatomy.

NGSS MS-LS4-4

Construct an explanation based on evidence that describes how genetic variations of traits in a population increase some individuals' probability of surviving and reproducing in a specific environment.

NGSS MS-LS4-5

Gather and synthesize information about technologies that have changed the way humans influence the inheritance of desired traits in organisms.

NGSS MS-LS4-6

Use mathematical representations to support explanations of how natural selection may lead to increases and decreases of specific traits in populations over time.

Earth's Place in the Universe

NGSS MS-ESS1-1

Develop and use a model of the Earth-sun-moon system to describe the cyclic patterns of lunar phases, eclipses of the sun and moon, and seasons.

NGSS MS-ESS1-2

Develop and use a model to describe the role of gravity in the motions within galaxies and the solar system.

NGSS MS-ESS1-3

Analyze and interpret data to determine scale properties of objects in the solar system.

NGSS MS-ESS1-4

Construct a scientific explanation based on evidence from rock strata for how the geologic time scale is used to organize Earth's 4.6-billion-year-old history.

Earth's Systems

NGSS MS-ESS2-1

Develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process.

NGSS MS-ESS2-2

Construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales.

NGSS MS-ESS2-3

Analyze and interpret data on the distribution of fossils and rocks, continental shapes, and seafloor structures to provide evidence of the past plate motions.

Earth's Systems

NGSS MS-ESS2-4

Develop a model to describe the cycling of water through Earth's systems driven by energy from the sun and the force of gravity.

NGSS MS-ESS2-5

Collect data to provide evidence for how the motions and complex interactions of air masses result in changes in weather conditions.

NGSS MS-ESS2-6

Develop and use a model to describe how unequal heating and rotation of the Earth cause patterns of atmospheric and oceanic circulation that determine regional climates.

Earth and Human Activity

NGSS MS-ESS3-1

Construct a scientific explanation based on evidence for how the uneven distributions of Earth's mineral, energy, and groundwater resources are the result of past and current geoscience processes.

NGSS MS-ESS3-2

Analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects.

NGSS MS-ESS3-3

Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.

NGSS MS-ESS3-4

Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.

Earth and Human Activity **NGSS MS-ESS3-5**

Ask questions to clarify evidence of the factors that have caused the rise in global temperatures over the past century.

Matter & its Interactions

NGSS MS-PS1-1

Develop models to describe the atomic composition of simple molecules and extended structures.

NGSS MS-PS1-2

Analyze and interpret data on the properties of substances before and after the substances interact to determine if a chemical reaction has occurred.

NGSS MS-PS1-3

Gather and make sense of information to describe that synthetic materials come from natural resources and impact society.

NGSS MS-PS1-4

Develop a model that predicts and describes changes in particle motion, temperature, and state of a pure substance when thermal energy is added or removed.

NGSS MS-PS1-5

Develop and use a model to describe how the total number of atoms does not change in a chemical reaction and thus mass is conserved.

NGSS MS-PS1-6

Undertake a design project to construct, test, and modify a device that either releases or absorbs thermal energy by chemical processes.

Motion and Stability: Forces & Interactions

NGSS MS-PS2-1

Apply Newton's Third Law to design a solution to a problem involving the motion of two colliding objects.

NGSS MS-PS2-2

Plan an investigation to provide evidence that the change in an object's motion depends on the sum of the forces on the object and the mass of the object.

NGSS MS-PS2-3

Ask questions about data to determine the factors that affect the strength of electric and magnetic forces.

NGSS MS-PS2-4

Construct and present arguments using evidence to support the claim that gravitational interactions are attractive and depend on the masses of interacting objects.

NGSS MS-PS2-5

Conduct an investigation and evaluate the experimental design to provide evidence that fields exist between objects exerting forces on each other even though the objects are not in contact.

Energy

NGSS MS-PS3-1

Construct and interpret graphical displays of data to describe the relationships of kinetic energy to the mass of an object and to the speed of an object.

Energy

NGSS MS-PS3-2

Develop a model to describe that when the arrangement of objects interacting at a distance changes, different amounts of potential energy are stored in the system.

NGSS MS-PS3-3

Apply scientific principles to design, construct, and test a device that either minimizes or maximizes thermal energy transfer.

NGSS MS-PS3-4

Plan an investigation to determine the relationships among the energy transferred, the type of matter, the mass, and the change in the average kinetic energy of the particles as measured by the temperature of the sample.

NGSS MS-PS3-5

Construct, use, and present arguments to support the claim that when the kinetic energy of an object changes, energy is transferred to or from the object.

Waves and their Applications in Technologies for Information Transfer

NGSS MS-PS4-1

Use mathematical representations to describe a simple model for waves that includes how the amplitude of a wave is related to the energy in a wave.

NGSS MS-PS4-2

Develop and use a model to describe that waves are reflected, absorbed, or transmitted through various materials.

Waves and their Applications in Technologies for Information Transfer

NGSS MS-PS4-3

Integrate qualitative scientific and technical information to support the claim that digitized signals are a more reliable way to encode and transmit information than analog signals.

Geography

California 8.6

Students analyze the divergent paths of the American people from 1800 to the mid-1800s and the challenges they faced, with emphasis on the Northeast.

California 8.7

Students analyze the divergent paths of the American people in the South from 1800 to the mid-1800s and the challenges they faced.

California 8.8

Students analyze the divergent paths of the American people in the West from 1800 to the mid-1800s and the challenges they faced.

California 8.9

Students analyze the early and steady attempts to abolish slavery and to realize the ideals of the Declaration of Independence.

California 8.10

Students analyze the multiple causes, key events, and complex consequences of the Civil War.

Florida SS.8.G.2

Understand physical and cultural characteristics of places.

Geography

Florida SS.8.G.3

Understand the relationships between the Earth's ecosystems and the populations that dwell within them.

Florida SS.8.G.4

Understand the characteristics, distribution, and migration of human populations.

Florida SS.8.G.5

Understand how human actions can impact the environment.

Ohio G.HS.16

The availability of natural resources contributed to the geographic and economic expansion of the United States, sometimes resulting in unintended environmental consequences.

Ohio G.HS.17

The movement of people, products and ideas resulted in new patterns of settlement and land use that influenced the political and economic development of the United States.

Government & Civics

California 8.2

Students analyze the political principles underlying the U.S. Constitution and compare the enumerated and implied powers of the federal government.

California 8.3

Students understand the foundation of the American political system and the ways in which citizens participate in it.

Government & Civics

California 8.4

Students analyze the aspirations and ideals of the people of the new nation.

Florida SS.8.CG.1.1

Compare the views of Patriots, Loyalists and other colonists on limits of government authority, inalienable rights and resistance to tyranny.

Florida SS.8.CG.2.1

Identify the constitutional provisions for establishing citizenship.

Florida SS.8.CG.2.2

Compare the responsibilities of citizens at the local, state and national levels.

Florida SS.8.CG.2.5

Analyze how the Bill of Rights guarantees civil rights and liberties to citizens.

Florida SS.8.C.1

The student will evaluate the roles, rights, and responsibilities of United States citizens and determine methods of active participation in society, government, and the political system.

Florida SS.8.C.2

The student will demonstrate an understanding of the principles, functions, and organization of government.

Ohio GOV.RS.22

The U.S. Constitution established a federal republic, providing a framework for a national government with elected representatives, separation of powers, and checks and balances.

Government & Civics

Ohio GOV.RS.23

The U.S. Constitution protects citizens' rights by limiting the powers of government.

Economics

California 8.12

Students analyze the transformation of the American economy and the changing social and political conditions in the United States in response to the Industrial Revolution.

Florida SS.8.FL.1

Earning Income

Florida SS.8.FL.2

Buying Goods and Services

Florida SS.8.FL.3

Saving

Florida S.8.FL.4

Using Credit

Florida S.8.FL.5

Financial Investing

Florida S.8.FL.6

Protecting and Insuring

American History

Florida SS.8.A.2

Examine the causes, course, and consequences of British settlement in the American colonies.

Florida SS.8.A.3

Demonstrate an understanding of the causes, course, and consequences of the American Revolution and the founding principles of our nation.

Florida SS.8.A.4

Demonstrate an understanding of the domestic and international causes, course, and consequences of westward expansion.

Florida SS.8.A.5

Examine the causes, course, and consequence of the Civil War and Reconstruction including its effects on American peoples.

California 8.1

Students understand the major events preceding the founding of the nation and relate their significance to the development of American constitutional democracy.

California 8.4

Students analyze the aspirations and ideals of the people of the new nation.

California 8.5

Students analyze U.S. foreign policy in the early Republic.

California 8.6

Students analyze the divergent paths of the American people from 1800 to the mid-1800s and the challenges they faced, with emphasis on the Northeast.

American History

California 8.7

Students analyze the divergent paths of the American people in the South from 1800 to the mid-1800s and the challenges they faced.

California 8.8

Students analyze the divergent paths of the American people in the West from 1800 to the mid-1800s and the challenges they faced.

California 8.10

Students analyze the multiple causes, key events, and complex consequences of the Civil War.

California 8.11

Students analyze the character and lasting consequences of Reconstruction

Ohio H.CI.2

North America, originally inhabited by American Indians, was explored and colonized by Europeans for economic and religious reasons.

Ohio H.CI.3

Competition for control of territory and resources in North America led to conflicts among colonizing powers.

Ohio H.CI.5

The ideas of the Enlightenment and dissatisfaction with colonial rule led English colonists to write the Declaration of Independence and launch the American Revolution.

Ohio H.CI.6

Key events and significant figures in American history influenced the course and outcome of the American Revolution.

American History

Ohio H.NN.7

The outcome of the American Revolution was national independence and new political, social and economic relationships for the American people.

Ohio H.E.10

The United States added to its territory through treaties and purchases.

Ohio H.E.11

Westward expansion contributed to economic and industrial development, debates over sectional issues, war with Mexico and the displacement of American Indians.

Ohio H.CWR.12

Disputes over the nature of federalism, complicated by economic developments in the United States, resulted in sectional issues, including slavery, which led to the American Civil War.

Ohio H.CWR.13

Key events and significant figures in American history influenced the course and outcome of the Civil War.

Ohio H.CWR.14

The Reconstruction period resulted in changes to the U.S. Constitution, an affirmation of federal authority and lingering social and political differences.

Ohio H.NN.8

Problems arising under the Articles of Confederation led to debate over the adoption of the U.S. Constitution.