Paris Crestwood 8th Grade Curriculum Maps

2022-2023 School Year

The following document includes the following:

1. 8th Grade Standards:
    a. Common Core State Standards for ELA and Mathematics
    b. Next Generation Science Standards for Science
    c. Illinois Learning Standards for Social Studies
2. Scope and Sequences:
    a. Literature (broken into Reading and English/Language Arts)
    b. Mathematics (Big Ideas)
    d. Science (Prentice Hall Science Explorer)
    e. Health
    f. Social Studies (Discovery Education)

Common Core State Standards for English/Language Arts

Reading: Literature

- RL.8.1Cite the textual evidence that most strongly supports an analysis of what the text says explicitly as well as inferences drawn from the text.
- 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.
- RL.8.3 Analyze how particular lines of dialogue or incidents in a story or drama propel the action, reveal aspects of a character, or provoke a decision.
- 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.
- RL.8.5 Compare and contrast the structure of two or more texts and analyze how the differing structure of each text contributes to its meaning and style.
- 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.
- RL.8.7 Analyze the extent to which a filmed or live production of a story or drama stays faithful to or departs from the text or script, evaluating the choices made by the director or actors.
- RL.8.9 Analyze how a modern work of fiction draws on themes, patterns of events, or character types from myths, traditional stories, or religious works such as the Bible, including describing how the material is rendered new.
- RL.8.10 By the end of the year, read and comprehend literature, including stories, dramas, and poems, at the high end of grades 6-8 text complexity band independently and proficiently.

Reading: Informational Text

- RI.8.1 Cite the textual evidence that most strongly supports an analysis of what the text says explicitly as well as inferences drawn from the text.
- RI.8.2 Determine a central idea of a text and analyze its development over the course of the text, including its relationship to supporting ideas; provide an objective summary of the text.
- RI.8.3 Analyze how a text makes connections among and distinctions between individuals, ideas, or events (e.g., through comparisons, analogies, or categories).
- RI.8.4 Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the impact of specific word choices on meaning and tone, including analogies or allusions to other texts.
- RI.8.5 Analyze in detail the structure of a specific paragraph in a text, including the role of particular sentences in developing and refining a key concept.
- RI.8.6 Determine an author's point of view or purpose in a text and analyze how the author acknowledges and responds to conflicting evidence or viewpoints.
- RI.8.7 Evaluate the advantages and disadvantages of using different mediums (e.g., print or digital text, video, multimedia) to present a particular topic or idea.
- RI.8.8 Delineate and evaluate the argument and specific claims in a text, assessing whether the reasoning is sound and the evidence is relevant and sufficient; recognize when irrelevant evidence is introduced.
- RI.8.9 Analyze a case in which two or more texts provide conflicting information on the same topic and identify where the texts disagree on matters of fact or interpretation.
- RI.8.10 By the end of the year, read and comprehend literary nonfiction at the high end of the grades 6-8 text complexity band independently and proficiently.

Writing

- W.8.1 Write arguments to support claims with clear reasons and relevant evidence
    - W.8.1.a Introduce claim(s), acknowledge and distinguish the claim(s) from alternate or opposing claims, and organize the reasons and evidence logically.
    - W.8.1.b Support claim(s) with logical reasoning and relevant evidence, using accurate, credible sources and demonstrating an understanding of the topic or text.
    - W.8.1.c Use words, phrases, and clauses to create cohesion and clarify the relationships among claim(s), counterclaims, reasons, and evidence.
    - W.8.1.d Establish and maintain a formal style.
    - W.8.1.e Provide a concluding statement or section that follows from and supports the argument presented.
- W.8.2 Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.
    - W.8.2.a Introduce a topic clearly, previewing what is to follow; organize ideas, concepts, and information into broader categories; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension.
    - W.8.2.b Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples.
    - W.8.2.c Use appropriate and varied transitions to create cohesion and clarify the relationships among ideas and concepts.
    - W.8.2.d Use precise language and domain-specific vocabulary to inform about or explain the topic.
    - W.8.2.e Establish and maintain a formal style.
    - W.8.2.f Provide a concluding statement or section that follows from and supports the information or explanation presented.
- W.8.3 Write narratives to develop real or imagined experiences or events using effective technique, relevant descriptive details, and well-structured event sequences.
    - W.8.3.a Engage and orient the reader by establishing a context and point of view and introducing a narrator and/or characters; organize an event sequence that unfolds naturally and logically.
    - W.8.3.b Use narrative techniques, such as dialogue, pacing, description, and reflection, to develop experiences, events, and/or characters.
    - W.8.3.c Use a variety of transition words, phrases, and clauses to convey sequence, signal shifts from one time frame or setting to another, and show the relationships among experiences and events.
    - W.8.3.d Use precise words and phrases, relevant descriptive details, and sensory language to capture the action and convey experiences and events.
    - W.8.3.e Provide a conclusion that follows from and reflects on the narrated experiences or events.
- W.8.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1-3 above.)
- W.8.5 With some guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on how well purpose and audience have been addressed. (Editing for conventions should demonstrate command of Language standards 1-3 up to and including grade 8 here.)

- 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.
- W.8.7 Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration.
- W.8.8 Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation.
- W.8.9 Draw evidence from literary or informational texts to support analysis, reflection, and research.
    - W.8.9.a Apply grade 8 Reading standards to literature (e.g., "Analyze how a modern work of fiction draws on themes, patterns of events, or character types from myths, traditional stories, or religious works such as the Bible, including describing how the material is rendered new").
    - W.8.9.b Apply grade 8 Reading standards to literary nonfiction (e.g., "Delineate and evaluate the argument and specific claims in a text, assessing whether the reasoning is sound and the evidence is relevant and sufficient; recognize when irrelevant evidence is introduced").
- W.8.10 Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

Language

- L.8.1 Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
    - L.8.1.a Explain the function of verbals (gerunds, participles, infinitives) in general and their function in particular sentences.
    - L.8.1.b Form and use verbs in the active and passive voice.
    - L.8.1.c Form and use verbs in the indicative, imperative, interrogative, conditional, and subjunctive mood.
    - L.8.1.d Recognize and correct inappropriate shifts in verb voice and mood.*
- L.8.2 Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
    - L.8.2.a Use punctuation (comma, ellipsis, dash) to indicate a pause or break.
    - L.8.2.b Use an ellipsis to indicate an omission.
    - L.8.2.c Spell correctly.
- L.8.3 Use knowledge of language and its conventions when writing, speaking, reading, or listening.
    - L.8.3.a Use verbs in the active and passive voice and in the conditional and subjunctive mood to achieve particular effects (e.g., emphasizing the actor or the action; expressing uncertainty or describing a state contrary to fact).
- 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.
    - L.8.4.a Use context (e.g., the overall meaning of a sentence or paragraph; a word's position or function in a sentence) as a clue to the meaning of a word or phrase.
    - 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).

    - L.8.4.c Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning or its part of speech.
    - L.8.4.d Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).
- L.8.5 Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.
    - L.8.5.a Interpret figures of speech (e.g. verbal irony, puns) in context.
    - L.8.5.b Use the relationship between particular words to better understand each of the words.
    - L.8.5.c Distinguish among the connotations (associations) of words with similar denotations (definitions) (e.g., bullheaded, willful, firm, persistent, resolute).
- 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.

Common Core State Standards for Mathematics

The Number System

- 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.
- 8.NS.A.2 Use rational approximations of irrational numbers to compare the size of irrational numbers, locate them approximately on a number line diagram, and estimate the value of expressions (e.g., π2). For example, by truncating the decimal expansion of √2, show that √2 is between 1 and 2, then between 1.4 and 1.5, and explain how to continue on to get better approximations.

Expressions & Equations

- 8.EE.A.1 Know and apply the properties of integer exponents to generate equivalent numerical expressions. For example, 32 × 3-5 = 3-3 = 1/33 = 1/27.
- 8.EE.A.2 Use square root and cube root symbols to represent solutions to equations of the form x2 = p and x3 = p, where p is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that √2 is irrational.
- 8.EE.A.3 Use numbers expressed in the form of a single digit times an integer power of 10 to estimate very large or very small quantities, and to express how many times as much one is than the other. For example, estimate the population of the United States as 3 times 108 and the population of the world as 7 times 109, and determine that the world population is more than 20 times larger.
- 8.EE.A.4 Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities (e.g., use millimeters per year for seafloor spreading). Interpret scientific notation that has been generated by technology
- 8.EE.B.5 Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways. For example, compare a distance-time graph to a distance-time equation to determine which of two moving objects has greater speed.
- 8.EE.B.6 Use similar triangles to explain why the slope m is the same between any two distinct points on a non-vertical line in the coordinate plane; derive the equation y = mx for a line through the origin and the equation y = mx + b for a line intercepting the vertical axis at b.
- 8.EE.C.7 Solve linear equations in one variable.
    - 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).
    - 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.
- 8.EE.C.8 Analyze and solve pairs of simultaneous linear equations.
    - 8.EE.C.8.a Understand that solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs, because points of intersection satisfy both equations simultaneously.

- 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. For example, 3x + 2y = 5 and 3x + 2y = 6 have no solution because 3x + 2y cannot simultaneously be 5 and 6.
- 8.EE.C.8.c Solve real-world and mathematical problems leading to two linear equations in two variables. For example, given coordinates for two pairs of points, determine whether the line through the first pair of points intersects the line through the second pair.

Functions

- 8.F.A.1 Understand that a function is a rule that assigns to each input exactly one output. The graph of a function is the set of ordered pairs consisting of an input and the corresponding output.1
- 8.F.A.2 Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). For example, given a linear function represented by a table of values and a linear function represented by an algebraic expression, determine which function has the greater rate of change.
- 8.F.A.3 Interpret the equation y = mx + b as defining a linear function, whose graph is a straight line; give examples of functions that are not linear. For example, the function A = s2 giving the area of a square as a function of its side length is not linear because its graph contains the points (1,1), (2,4) and (3,9), which are not on a straight line.
- Use functions to model relationships between quantities.
- 8.F.B.4 Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (x, y) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values.
- 8.F.B.5 Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear). Sketch a graph that exhibits the qualitative features of a function that has been described verbally.

Geometry

- 8.G.A.1 Verify experimentally the properties of rotations, reflections, and translations:
  - 8.G.A.1.a Lines are taken to lines, and line segments to line segments of the same length.
  - 8.G.A.1.b Angles are taken to angles of the same measure.
  - 8.G.A.1.c Parallel lines are taken to parallel lines.
- 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.
- 8.G.A.3 Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates.
- 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.
- 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.
- 8.G.B.6 Explain a proof of the Pythagorean Theorem and its converse.
- 8.G.B.7 Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.
- 8.G.B.8 Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.
- 8.G.C.9 Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.

Statistics & Probability

- 8.SP.A.1 Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association.
- 8.SP.A.2 Know that straight lines are widely used to model relationships between two quantitative variables. For scatter plots that suggest a linear association, informally fit a straight line, and informally assess the model fit by judging the closeness of the data points to the line.
- 8.SP.A.3 Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept. For example, in a linear model for a biology experiment, interpret a slope of 1.5 cm/hr as meaning that an additional hour of sunlight each day is associated with an additional 1.5 cm in mature plant height.
- 8.SP.A.4 Understand that patterns of association can also be seen in bivariate categorical data by displaying frequencies and relative frequencies in a two-way table. Construct and interpret a two-way table summarizing data on two categorical variables collected from the same subjects. Use relative frequencies calculated for rows or columns to describe possible association between the two variables. For example, collect data from students in your class on whether or not they have a curfew on school nights and whether or not they have assigned chores at home. Is there evidence that those who have a curfew also tend to have chores?

High School Algebra: Seeing Structure in Expressions

- HSA.SSE.A.1 Interpret expressions that represent a quantity in terms of its context.*
    - HSA.SSE.A.1.a Interpret parts of an expression, such as terms, factors, and coefficients.
    - HSA.SSE.A.1.b Interpret complicated expressions by viewing one or more of their parts as a single entity. For example, interpret P(1+r)n as the product of P and a factor not depending on P.
- HSA.SSE.A.2 Use the structure of an expression to identify ways to rewrite it. For example, see x4 - y4 as (x2)2 - (y2)2, thus recognizing it as a difference of squares that can be factored as (x2 - y2)(x2 + y2).
- HSA.SSE.B.3 Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression.*
    - HSA.SSE.B.3.a Factor a quadratic expression to reveal the zeros of the function it defines.
    - HSA.SSE.B.3.b Complete the square in a quadratic expression to reveal the maximum or minimum value of the function it defines.
    - HSA.SSE.B.3.c Use the properties of exponents to transform expressions for exponential functions. For example the expression 1.15t can be rewritten as (1.151/12)12t ≈ 1.01212t to reveal the approximate equivalent monthly interest rate if the annual rate is 15%.
- HSA.SSE.B.4 Derive the formula for the sum of a finite geometric series (when the common ratio is not 1), and use the formula to solve problems. For example, calculate mortgage payments.*

High School Algebra: Arithmetic with Polynomials & Rational Expressions

- HSA.APR.A.1
- Understand that polynomials form a system analogous to the integers, namely, they are closed under the operations of addition, subtraction, and multiplication; add, subtract, and multiply polynomials.
- HSA.APR.B.2 Know and apply the Remainder Theorem: For a polynomial p(x) and a number a, the remainder on division by x - a is p(a), so p(a) = 0 if and only if (x - a) is a factor of p(x).
- HSA.APR.B.3 Identify zeros of polynomials when suitable factorizations are available, and use the zeros to construct a rough graph of the function defined by the polynomial.
- HSA.APR.C.4 Prove polynomial identities and use them to describe numerical relationships. For example, the polynomial identity (x2 + y2)2 = (x2 - y2)2 + (2xy)2 can be used to generate Pythagorean triples.
- HSA.APR.C.5 (+) Know and apply the Binomial Theorem for the expansion of (x + y)n in powers of x and y for a positive integer n, where x and y are any numbers, with coefficients determined for example by Pascal's Triangle.1
- HSA.APR.D.6 Rewrite simple rational expressions in different forms; write a(x)/b(x) in the form q(x) + r(x)/b(x), where a(x), b(x), q(x), and r(x) are polynomials with the degree of r(x) less than the degree of b(x), using inspection, long division, or, for the more complicated examples, a computer algebra system.
- HSA.APR.D.7 (+) Understand that rational expressions form a system analogous to the rational numbers, closed under addition, subtraction, multiplication, and division by a nonzero rational expression; add, subtract, multiply, and divide rational expressions.

High School Algebra: Creating Equations

- HSA.CED.A.1 Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear and quadratic functions, and simple rational and exponential functions.
- HSA.CED.A.2 Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.
- HSA.CED.A.3 Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or nonviable options in a modeling context. For example, represent inequalities describing nutritional and cost constraints on combinations of different foods.
- HSA.CED.A.4 Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations. For example, rearrange Ohm's law V = IR to highlight resistance R.

High School Algebra: Reasoning with Equations & Inequalities

- HSA.REI.A.1 Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method.
- HSA.REI.A.2 Solve simple rational and radical equations in one variable, and give examples showing how extraneous solutions may arise.
- HSA.REI.B.3 Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.
- HSA.REI.B.4 Solve quadratic equations in one variable.
    - HSA.REI.B.4.a Use the method of completing the square to transform any quadratic equation in x into an equation of the form (x - p)2 = q that has the same solutions. Derive the quadratic formula from this form.

    - HSA.REI.B.4.b Solve quadratic equations by inspection (e.g., for x2 = 49), taking square roots, completing the square, the quadratic formula and factoring, as appropriate to the initial form of the equation. Recognize when the quadratic formula gives complex solutions and write them as a ± bi for real numbers a and b.
- HSA.REI.C.5 Prove that, given a system of two equations in two variables, replacing one equation by the sum of that equation and a multiple of the other produces a system with the same solutions.
- HSA.REI.C.6 Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables.
- HSA.REI.C.7 Solve a simple system consisting of a linear equation and a quadratic equation in two variables algebraically and graphically. For example, find the points of intersection between the line y = -3x and the circle x2 + y2 = 3.
- HSA.REI.C.8 (+) Represent a system of linear equations as a single matrix equation in a vector variable.
- HSA.REI.C.9 (+) Find the inverse of a matrix if it exists and use it to solve systems of linear equations (using technology for matrices of dimension 3 × 3 or greater).
- Represent and solve equations and inequalities graphically.
- HSA.REI.D.10 Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a line).
- HSA.REI.D.11 Explain why the x-coordinates of the points where the graphs of the equations y = f(x) and y = g(x) intersect are the solutions of the equation f(x) = g(x); find the solutions approximately, e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include cases where f(x) and/or g(x) are linear, polynomial, rational, absolute value, exponential, and logarithmic functions.*
- HSA.REI.D.12 Graph the solutions to a linear inequality in two variables as a half-plane (excluding the boundary in the case of a strict inequality), and graph the solution set to a system of linear inequalities in two variables as the intersection of the corresponding half-planes.

Next Generation Science Standards

Physical Science

- MS-PS1-1 Develop models to describe the atomic composition of simple molecules and extended structures.
- 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.
- MS-PS1-3 Gather and make sense of information to describe that synthetic materials come from natural resources and impact society.
- 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.
- 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.
- MS-PS1-6 Undertake a design project to construct, test, and modify a device that either releases or absorbs thermal energy by chemical processes.
- MS-PS2-1 Apply Newton's Third Law to design a solution to a problem involving the motion of two colliding objects.
- 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.
- MS-PS2-3 Ask questions about data to determine the factors that affect the strength of electric and magnetic forces.
- 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.
- 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.
- 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.
- 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.
- MS-PS3-3 Apply scientific principles to design, construct, and test a device that either minimizes or maximizes thermal energy transfer.
- 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.
- 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.
- 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.
- MS-PS4-2 Develop and use a model to describe that waves are reflected, absorbed, or transmitted through various materials.
- 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.

Life Science

- 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.

- MS-LS1-2 Develop and use a model to describe the function of a cell as a whole and ways parts of cells contribute to the function.
- MS-LS1-3 Use argument supported by evidence for how the body is a system of interacting subsystems composed of groups of cells.
- MS-LS1-4 Use argument based on empirical 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.
- MS-LS1-5 Construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms.
- 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.
- 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.
- 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.
- MS-LS2-1 Analyze and interpret data to provide evidence for the effects of resource availability on organisms and population of organisms in an ecosystem.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- MS-LS4-5 Gather and synthesize information about the technologies that have changed the way humans influence the inheritance of desired traits in organisms.
- 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 and Space Sciences

- 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.
- MS-ESS1-2 Develop and use a model to describe the role of gravity in the motions within galaxies and the solar system.
- MS-ESS1-3 Analyze and interpret data to determine scale properties of objects in the solar system.
- 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.
- MS-ESS2-1 Develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process.
- MS-ESS2-2 Construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales.
- 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.
- 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.
- MS-ESS2-5 Collect data to provide evidence for how the motions and complex interactions of air masses results in changes in weather conditions.
- 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.
- 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.
- MS-ESS3-2 Analyze and interpret data on natural hazards to forecast catastrophic events and inform the development of technologies to mitigate their effects.
- MS-ESS3-3 Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.
- 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.
- MS-ESS3-5 Ask questions to clarify evidence of the factors that have caused the rise in global temperatures over the past century.

Engineering and Technology Sciences

- 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.
- MS-ETS1-2 Evaluate competing design solutions using a systemic process to determine how well they meet the criteria and constraints of the problem.
- 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.
- 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.

Illinois Learning Standards for Social Studies

Inquiry Skills

- SS.IS.1.6-8 Create essential questions to help guide inquiry about a topic.
- SS.IS.2.6-8 Ask essential and focusing questions that will lead to independent research.
- SS.IS.3.6-8 Determine sources representing multiple points of view that will assist in organizing a research plan.
- SS.IS.4.6-8.LC Determine the value of sources by evaluating their relevance and intended use.
- SS.IS.4.6-8.MdC Determine the credibility of sources based upon their origin, authority, and context.
- SS.IS.4.6-8.MC Gather relevant information from credible sources and determine whether they support each other.
- SS.IS.5.6-8.LC Appropriately cite all sources utilized.
- SS.IS.5.6-8.MdC Identify evidence from multiple sources to support claims, noting its limitations.
- SS.IS.5.6-8.MC Develop claims and counterclaims while point out the strengths and limitations of both.
- SS.IS.6.6-8.LC Construct arguments using claims and evidence from multiple sources, while acknowledging their strengths and limitations.
- SS.IS.6.6-8.MdC Construct explanations using reasoning, correct sequence, examples and details, while acknowledging their strengths and weaknesses.
- SS.IS.6.6-8.MC Present arguments and explanations that would appeal to audiences and venues outside the classroom using a variety of media.
- SS.IS.7.6-8 Critique the structure and credibility of arguments and explanations (self and others).
- SS.IS.8.6-8.LC Analyze how a problem can manifest itself and the challenges and opportunities faced by those trying to address it.
- SS.IS.8.6-8.MdC Assess individual and collective capacities to take action to address problems and identify potential outcomes.
- SS.IS.8.6-8.MC Apply a range of deliberative and democratic procedures to make decisions and take action in schools and community contexts.

Civics Standards

- SS.CV.1.6-8.LC Identify roles played by citizens (examples: voters, jurors, taxpayers, military, protesters and office holders).
- SS.CV.1.6-8.MdC Describe the roles of political, civil, and economic organizations in shaping people's lives.
- SS.CV.1.6-8.MC Evaluate the powers and responsibilities of citizens, political parties, interest groups, and the media.
- SS.CV.2.6-8.LC Describe the origins, purposes, and impact of constitutions, laws, treaties, and international agreements.
- SS.CV.2.6-8.MdC Explain the origins, functions, and structure of government with reference to the U.S. Constitution, Illinois Constitution, and other systems of government.
- SS.CV.2.6-8.MC Analyze the power and limits of governments, public officials, and bureaucracies at different levels in the United States and other countries.
- SS.CV.3.6-8 Compare the means by which individuals and groups change societies, promote the common good, and protect rights.
- SS.CV.4.6-8.LC Explain the connection between interests and perspectives, civic virtues, and democratic principles when addressing issues in government and society.

- SS.CV.4.6-8.MdC Analyze the ideas and principles contained in the founding documents of the United States and other countries, and explain how they influence the social and political system.
- SS.CV.4.6-8.MC Critique deliberative processes used by a wide variety of groups in various settings.
- SS.CV.5.6-8 Apply civic virtues and democratic principles in school and community settings.
- SS.CV.6.6-8.LC Determine whether specific rules and laws (both actual and proposed) resolve the problems they were meant to address.
- SS.CV.6.6-8.MdC Analyze the purposes, implementation, and consequences of public policies in historic and contemporary settings.
- SS.CV.6.6-8.MC Develop procedures for making decisions in historic and contemporary settings (such as the school, civil society, or local, state, or national government.)

Geography Standards

- SS.G.1.6-8.LC Use geographic representations (maps, photographs, satellite images, etc.) to explain the relationships between the locations (places and regions) and changes in their environment.
- SS.G.1.6-8.MdC Use mapping and graphing to represent and analyze spatial patterns of different environmental and cultural characteristics.
- SS.G.1.6-8.MC Construct different representations to explain the spatial patterns of cultural and environment characteristics.
- SS.G.2.6-8.LC Explain how humans and their environment affect one another.
- SS.G.2.6-8.MdC Compare and contrast cultural and environmental characteristics of different places or regions.
- SS.G.2.6-8.MC Evaluate how cultural and economic decisions influence environments and the daily lives of people in both nearby and distant places.
- SS.G.3.6-8.LC Explain how environmental characteristics impact human migration and settlement.
- SS.G.3.6-8.MdC Explain how changes in transportation and communication influence the spatial connections among human settlements and affect the spread of ideas and culture.
- SS.G.3.6-8.MC Evaluate the influences of long-term human-induced environmental change on spatial patterns of conflict and cooperation.
- SS.G.4.6-8.LC Identify how cultural and environmental characteristics vary among regions of the world.
- SS.G.4.6-8.MdC Explain how global changes in population distribution patterns affect changes in land use.
- SS.G.4.6-8.MC Analyze how the environmental characteristics of places and production of goods influence patterns of world trade.

Economics and Financial Literacy Standards

- SS.EC.1.6-8.LC Explain how economic decisions affect the well-being of individuals, businesses, and society.
- SS.EC.1.6-8.MdC Explain how external benefits and costs influence choices.
- SS.EC.1.6-8.MC Evaluate alternative approaches or solutions to current economic issues in terms of benefits and costs for different groups and society as a whole.
- SS.EC.2.6-8.LC Analyze the role of innovation and entrepreneurship in a market economy.
- SS.EC.2.6-8.MdC Describe the roles of institutions, such as corporations, non-profits, and labor unions in a market economy.

- SS.EC.2.6-8.MC Explain how changes in supply and demand cause changes in prices and quantities of goods and services, labor, credit, and foreign currencies.
- SS.EC.3.6-8.LC Explain why standards of living increase as productivity improves.
- SS.EC.3.6-8.MdC Explain barriers to trade and how those barriers influence trade among nations.
- SS.EC.3.6-8.MC Evaluate employment, unemployment, inflation, total production, income and economic growth data and how they affect different groups.
- SS.EC.4.6-8.LC Analyze the relationship between skills, education, jobs, and income.
- SS.EC.4.6-8.MdC Identify how people choose to buy goods and services while still maintaining a budget based on income, taxes, savings, and fixed and variable interest rates.
- SS.EC.4.6-8.MC Describe the connection between credit, credit options, and interest and credit history.
- SS.EC.5.6-8.LC Explain the roles and relationships between savers, borrowers, interest, time, and the purposes for saving.
- SS.EC.5.6-8.MdC Explain the correlation between investors, investment options (and associated risks), and income/wealth.
- SS.EC.5.6-8.MC Analyze the relationship between financial risks and protection, insurance and costs.

History Standards

- SS.H.1.6-8.LC Classify series of historical events and developments as examples of change and/or continuity.
- SS.H.1.6-8.MdC Analyze connections among events and developments in broader historical contexts.
- SS.H.1.6-8.MC Use questions generated about individuals and groups to analyze why they, and the developments they shaped, are seen as historically significant.
- SS.H.2.6-8.LC Explain how and why perspectives of people have changed over time.
- SS.H.2.6-8.MdC Analyze multiple factors that influenced the perspectives of people during different historical eras.
- SS.H.2.6-8.MC Analyze how people's perspectives influenced what information is available in the historical sources they created.
- SS.H.3.6-8.LC Classify the kinds of historical sources used in secondary interpretation.
- SS.H.3.6-8.MdC Detect possible limitations in the historical record based on evidence collected from different kinds of historical sources.
- SS.H.3.6-8.MC Use other historical sources to infer a plausible maker, date, place of origin, and intended audience for historical sources where information is not easily identified.
- SS.H.4.6-8.LC Explain multiple causes and effects of historical events.
- SS.H.4.6-8.MdC Compare the central historical arguments in secondary works across multiple media.
- SS.H.4.6-8.MC Organize applicable evidence into a coherent argument about the past.

8th Grade Reading Scope and Sequence

Quarter	Topic/Story	Skills	Common Core State Standards
Quarter 1	Memoirs: Author Study – Maya Angelou "I Know Why the Caged Bird Sings"	Narrative Writing	W.8.3A, W.8.3B, W.8.3C, W.8.3D, W.8.3E
Quarter 2	And Then There Were None A Christmas Carol	Plot Elements, Writing for a Real Reason – Author Study, Figurative Language (symbol, personification, metaphor, simile, allusion)	W.8.1A, W.8.1B, W.8.1C, W.8.1D, W.8.1E, W.8.2A, W.8.2B, W.8.2C, W.8.2D, W.8.2E, W.8.2F, RL.8.1, RL.2, RL.8.3
Quarter 3	Historical Fiction: Dreamland Burning & The Road to Memphis	Research: Tulsa Riots, Writer's Perspective, Characters	W.8.7, W.8.8, W.8.9, RI.8.6
Quarter 4	Holocaust Literature: Maus, Boy in Striped Pajamas, The Diary of Anne Frank	Graphic Novel, Fable, Journaling, Characterization, Plot Elements	W.8.4, W.8.5, RI.8.1, RI.8.2, RI.8.9

8th Grade English/Language Arts Vocabulary and Grammar Focus

INSTRUCTIONAL TOOL	COMMON CORE STATE STANDARDS
Daily Mug Shots	L.8.1, L.8.2, L.8.3, L.8.5
Greek and Latin Roots Vocabulary Units	L.8.4

8th Grade High Mathematics Scope and Sequence Curriculum: Big Ideas

CHAPTER	CHAPTER TITLE	# OF LESSONS	ANTICIPATED DAYS TO COMPLETE	COMMON CORE STANDARDS
1	Equations	4	7	8.EE.C.7, 8.EE.C.8
2	Transformations	7	9	8.G.A.1, 8.A.G.2, 8.A.G.3, 8.A.G.4
3	Angles and Triangles	4	6	8.G.A.5
4	Graphing and Writing Linear Equations	7	9	8.EE.B.5, 8.EE.B.6, 8.EE.C.7
5	Systems of Linear Equations	4	6	8.EE.C.8
6	Data Analysis and Displays	4	7	8.SP.A.1, 8.SP.A.2, 8.SP.A.3, 8.SP.A.4
7	Functions	5	7	8.F.A.1, 8.F.A.2, 8.F.A.3, 8.FB.4
8	Exponents and Scientific Notation	7	9	8.EE.A.1, 8.EE.A.2, 8.EE.A.3, 8.EE.A.4
9	Real Numbers and the Pythagorean Theorem	6	8	8.G.B.6, 8.G.B.7, 8.G.B.8
10	Volume and Similar Solids	4	6	8.G.C.9

8th Grade High Mathematics Scope and Sequence Curriculum: Big Ideas Algebra I Book

CHAPTER	CHAPTER TITLE	# OF LESSONS	ANTICIPATED DAYS TO COMPLETE	COMMON CORE STANDARDS
1	Solving Linear Equations	5	12	HSA.REI.A.1, HSA.REI.A.2
2	Solving Linear Inequalities	6	12	HSA.REI.B.3
3	Graphing Linear Functions	7	14	HSA.REI.D.10, HSA.REI.D.11, HSA.REI.D.12, HSF.IF.C.7A
4	Writing Linear Functions	7	14	HSF.BF.A.1
5	Solving Systems of Linear Equations	7	15	HSA.REI.C.5, HSA.REI.C.6,
6	Exponential Functions and Sequences	7	17	HSF.LE.A.2, HSF.LE.A.3, HSF.LE.A.4
7	Polynomial Equations and Factoring	8	19	HSA.APR.A.1, HSA.APR.B.2, HSA.APR.B.3
8	Graphing Quadratic Functions	8	16	HSF.IF.C.7A
9	Solving Quadratic Equations	6	16	HSA.REI.B.4
10	Radical Functions and Equations	4	11	HSF.IF.C.7.B
11	Data Analysis and Displays	5	14	HSS.ID.A.1, HSS.ID.A.2, HSS.ID.A.4

8th Grade Science Scope and Sequence
Curriculum: Prentice Hall Science Explorer

QUARTER	UNIT	UNIT TITLE	ANTICIPATED WEEKS TO COMPLETE	NEXT GENERATION SCIENCE STANDARDS
1	1	Leaves and Photosynthesis	4	MS-LS1-6
	2	Balancing Chemical Equations – Conservation of Mass	1	MS-PS1-5
	3	Microscope Use/Invention	1	Performance Expectation
	4	Definition of Life – Classification System	2	
2	5	Cell Structure	2	MS-LS1-1
	6	Cell Model Project	1	MS-LS1-2
	7	Cell Processes – Diffusion, Osmosis	2	
	8	Cell Division – Mitosis, Cancer	2	High School Standard
3	9	Heredity – Mendel's Discovery	3	MS-LS1-5, MS-LS3-2
	10	Coin Toss Baby Lab	1	MS-LS1-5
	11	Meiosis and Sexual Reproduction – Plants and Animals	2	MS-LS1-4
	12	Human Genes and Disorders	3	MS-LS1-5, MS-LS3-1
	13	Natural Selection	3	MS-LS3-2
4	14	Food Chains and Ecosystems	2	MS-LS1-7, MS-LS2-1, MS-LS2-2
	15	Food Chain Simulation Lab, Predator/Prey Game	1	MS-LS1-7, MS-LS2-2
	16	Bacteria and Viruses	2	
	17	Labs – Epidemic, Testing School for Bacteria	2	

8th Grade Health Scope and Sequence

WEEK	MAIN FOCUS POINTS	ILLINOIS LEARNING STANDARDS
1 & 2	Endocrine System	23.A.7f
2 & 3	Male Reproductive System	23.A.5f, 23.A.5g
4 & 5	Female Reproductive System	23.A.5f, 23.A.5g
6 & 7	Human Life Cycle	23.C.5i
8 & 9	Research on Remaining Body Systems	23.A.3a, 23.B.3a

8th Grade Social Studies Scope and Sequence Curriculum: Discovery Education

UNIT	UNIT TITLE	ANTICIPATED DAYS TO COMPLETE	ILLINOIS LEARNING STANDARDS
1	Building a Nation	10	SS.H.1.6-8, SS.H.2.6-8, SS.H.3.6-8, SS.H.4.6-8
2	Becoming an Independent Nation	20	SS.H.1.6-8, SS.H.2.6-8, SS.H.3.6-8, SS.H.4.6-8
3	A Nation Expands	10	SS.H.1.6-8, SS.H.2.6-8, SS.H.3.6-8, SS.H.4.6-8
4	A Nation Divides	15	SS.H.1.6-8, SS.H.2.6-8, SS.H.3.6-8, SS.H.4.6-8
5	The Dawn of the American Century	10	SS.H.1.6-8, SS.H.2.6-8, SS.H.3.6-8, SS.H.4.6-8
6	Global Upheaval	15	SS.H.1.6-8, SS.H.2.6-8, SS.H.3.6-8, SS.H.4.6-8
7	America in the Postwar World	10	SS.H.1.6-8, SS.H.2.6-8, SS.H.3.6-8, SS.H.4.6-8
8	Entering the Digital Age	15	SS.H.1.6-8
9	Foundations of Civics and Government	25	SS.CV.1.6-8, SS.CV.2.6-8, SS.CV.3.6-8, SS.CV.4.6-8, SS.CV.5.6-8, SS.CV.6.6-8
10	Participating in Government	15	SS.CV.5.6-8
11	Governmental Institutions and the Three Branches & Constitution Test	20	SS.CV.1.6-8, SS.CV.2.6-8
12	Economic Principles and Processes	20	SS.EC.1.6-8, SS.EC.2.6-8, SS.EC.3.6-8, SS.FL.1.6-8, SS.FL.2.6-8