



Eighth Grade
Curriculum at a Glance
for Parents

Grade Eight Religion

The students will:

- Describe the Bible and the purpose for which it was written.
- Demonstrate appreciation for the Bible, God's Word, the means through which God brings and sustains the saving faith.
- Express confident trust in Jesus, the Promised One, their Savior and King, who restored the broken relationship between God and people and enables them to restore broken relationships between themselves and others.
- Proclaim that, trusting in God's power, we are strong in our weakness.
- Acknowledge God as provider of all blessings physical, mental, emotional, and spiritual.
- Recognize and be moved to serve God and others with their whole hearts.
- Identify childlike qualities that God would have us treasure as we rely upon His strength in our lives and relationships.
- Identify ways in which the love of material things can keep us from fully following Jesus and accepting His offer of eternal life.
- Recognize Jesus as a servant king who came not to establish an earthly kingdom, but rather to earn forgiveness, life, and salvation for us.
- Identify the biblical events recorded as evidence of the resurrection.
- Demonstrate a desire to serve the Lord as faithful disciples and messengers of the Good News, trusting that the Holy Spirit will work to transform the lives of others.
- Express reliance on God's Word as God's answers to our questions and concerns regarding the new life that is ours through faith.
- Explain the importance of having people with differing talents and abilities in the church and rejoice in the diversity God provides.
- Demonstrate reliance on the power of the Holy Spirit to keep us in God's grace until we join those who already live with Christ in our eternal and happy home in glory.
- Anticipate Christ's second coming, confident of His saving love and care for us.
- Identify the marks of a disciple.
- Demonstrate a desire to worship God in thought, word, and deed.
- Demonstrate a desire to serve and honor God in whatever vocations or daily activities they undertake.
- Consider how God desires people to deal with dependency and the means by which He enables people to remain dependent on Him alone.
- Demonstrate a desire to glorify God in their sexuality.
- Demonstrate a godly desire to honor God with their possessions.
- Identify the fruit of the Spirit and evidence of it in their lives.

Grade Eight Mathematics

The Number System

The students will...

- 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
- 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

Expressions and Equations

- Know and apply the properties of integer exponents to generate equivalent numerical expressions
- Use square root and cube root symbols to represent solutions to equations of the form $x^2 = p$ and $x^3 = p$, where p is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that $\sqrt{2}$ is irrational.
- 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
- 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. Interpret scientific notation that has been generated by technology
- Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways
- 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
- Solve linear equations in one variable
 - 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
 - Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms
- Analyze and solve pairs of simultaneous linear equations
 - 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
 - Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection
 - Solve real-world and mathematical problems leading to two linear equations in two variables

Grade Eight Mathematics

Functions

- 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
- Compare properties of two functions each represented in a different way
- 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
- 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
- Describe qualitatively the functional relationship between two quantities by analyzing a graph. Sketch a graph that exhibits the qualitative features of a function that has been described verbally

Geometry

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

Grade Eight Mathematics

Statistics & Probability

- 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
- 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
- Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept
- 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

Algebra

Seeing Structure in Expressions

The students will...

- Interpret expressions that represent a quantity in terms of its context.
 - Interpret parts of an expression, such as terms, factors, and coefficients.
 - Interpret complicated expressions by viewing one or more of their parts as a single entity.
- Use the structure of an expression to identify ways to rewrite it.
- Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression.
 - Factor a quadratic expression to reveal the zeros of the function it defines.
 - Complete the square in a quadratic expression to reveal the maximum or minimum value of the function it defines.
 - Use the properties of exponents to transform expressions for exponential functions. For example the expression $1.15t$ can be rewritten as $(1.151/12)12t \approx 1.01212t$ to reveal the approximate equivalent monthly interest rate if the annual rate is 15%.
- 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.

Arithmetic with Polynomials and Rational Expressions

- 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
- 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 $p(x)$.
- 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.
- Prove polynomial identities and use them to describe numerical relationships.
- 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.
- 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.
- 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.

Creating Equations

- 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.
- Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.
- Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or non-viable options in a modeling context. For example, represent inequalities describing nutritional and cost constraints on combinations of different foods.
- 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 .

Algebra

Reasoning with Equations and Inequalities

- 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.
- Solve simple rational and radical equations in one variable, and give examples showing how extraneous solutions may arise.
- Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.
- Solve quadratic equations in one variable.
 - 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.
 - Solve quadratic equations by inspection (e.g., for $x^2 = 49$), 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 $a \pm bi$ for real numbers a and b .
- 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.
- Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables.
- Solve a simple system consisting of a linear equation and a quadratic equation in two variables algebraically and graphically.
- Represent a system of linear equations as a single matrix equation in a vector variable.
- 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).
- 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).
- 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.
- 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.

Geometry

Congruence

The students will...

- Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.
- Represent transformations in the plane using, e.g., transparencies and geometry software; describe transformations as functions that take points in the plane as inputs and give other points as outputs. Compare transformations that preserve distance and angle to those that do not.
- Given a rectangle, parallelogram, trapezoid, or regular polygon, describe the rotations and reflections that carry it onto itself.
- Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments.
- Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure using graph paper, tracing paper, or geometry software. Specify a sequence of transformations that will carry a given figure onto another.
- Use geometric descriptions of rigid motions to transform figures and to predict the effect of a given rigid motion on a given figure; given two figures, use the definition of congruence in terms of rigid motions to decide if they are congruent.
- Use the definition of congruence in terms of rigid motions to show that two triangles are congruent if and only if corresponding pairs of sides and corresponding pairs of angles are congruent.
- Explain how the criteria for triangle congruence follow from the definition of congruence in terms of rigid motions.
- Prove theorems about lines and angles. Theorems include: vertical angles are congruent; when a transversal crosses parallel lines, alternate interior angles are congruent and corresponding angles are congruent; points on a perpendicular bisector of a line segment are exactly those equidistant from the segment's endpoints.
- Prove theorems about triangles. Theorems include: measures of interior angles of a triangle sum to 180° ; base angles of isosceles triangles are congruent; the segment joining mid-points of two sides of a triangle is parallel to the third side and half the length; the medians of a triangle meet at a point.
- Prove theorems about parallelograms. Theorems include: opposite sides are congruent, opposite angles are congruent, the diagonals of a parallelogram bisect each other, and conversely, rectangles are parallelograms with congruent diagonals.
- Make formal geometric constructions with a variety of tools and methods. Copying a segment; copying an angle; bisecting a segment; bisecting an angle; constructing perpendicular lines, including the perpendicular bisector of a line segment; and constructing a line parallel to a given line through a point not on the line.
- Construct an equilateral triangle, a square, and a regular hexagon inscribed in a circle.

Geometry

Similarity, Right Triangles, and Trigonometry

- Verify experimentally the properties of dilations given by a center and a scale factor:
 - A dilation takes a line not passing through the center of the dilation to a parallel line, and leaves a line passing through the center unchanged.
 - The dilation of a line segment is longer or shorter in the ratio given by the scale factor.
- Given two figures, use the definition of similarity in terms of similarity transformations to decide if they are similar; explain using similarity transformations the meaning of similarity for triangles as the equality of all corresponding pairs of angles and the proportionality of all corresponding pairs of sides.
- Use the properties of similarity transformations to establish the AA criterion for two triangles to be similar.
- Prove theorems about triangles. Theorems include: a line parallel to one side of a triangle divides the other two proportionally, and conversely; the Pythagorean Theorem proved using triangle similarity.
- Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.
- Understand that by similarity, side ratios in right triangles are properties of the angles in the triangle, leading to definitions of trigonometric ratios for acute angles.
- Explain and use the relationship between the sine and cosine of complementary angles.
- Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems.
- Derive the formula $A = \frac{1}{2} ab \sin(C)$ for the area of a triangle by drawing an auxiliary line from a vertex perpendicular to the opposite side.
- Prove the Laws of Sines and Cosines and use them to solve problems.
- Understand and apply the Law of Sines and the Law of Cosines to find unknown measurements in right and non-right triangles (e.g., surveying problems, resultant forces).

Circles

- Prove that all circles are similar.
- Identify and describe relationships among inscribed angles, radii, and chords. Include the relationship between central, inscribed, and circumscribed angles; inscribed angles on a diameter are right angles; the radius of a circle is perpendicular to the tangent where the radius intersects the circle.
- Construct the inscribed and circumscribed circles of a triangle, and prove properties of angles for a quadrilateral inscribed in a circle.
- Construct a tangent line from a point outside a given circle to the circle.
- Derive using similarity the fact that the length of the arc intercepted by an angle is proportional to the radius, and define the radian measure of the angle as the constant of proportionality; derive the formula for the area of a sector.

Geometry

Expressing Geometric Properties with Equations

- Derive the equation of a circle of given center and radius using the Pythagorean Theorem; complete the square to find the center and radius of a circle given by an equation.
- Derive the equation of a parabola given a focus and directrix.
- Derive the equations of ellipses and hyperbolas given the foci, using the fact that the sum or difference of distances from the foci is constant.
- Use coordinates to prove simple geometric theorems algebraically. For example, prove or disprove that a figure defined by four given points in the coordinate plane is a rectangle; prove or disprove that the point $(1, \sqrt{3})$ lies on the circle centered at the origin and containing the point $(0, 2)$.
- Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems.
- Find the point on a directed line segment between two given points that partitions the segment in a given ratio.
- Use coordinates to compute perimeters of polygons and areas of triangles and rectangles.

Geometric Measurement and Dimension

- Give an informal argument for the formulas for the circumference of a circle, area of a circle, volume of a cylinder, pyramid, and cone. Use dissection arguments, Cavalieri's principle, and informal limit arguments.
- Give an informal argument using Cavalieri's principle for the formulas for the volume of a sphere and other solid figures.
- Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems.
- Identify the shapes of two-dimensional cross-sections of three-dimensional objects, and identify three-dimensional objects generated by rotations of two-dimensional objects.

Modeling with Geometry

- Use geometric shapes, their measures, and their properties to describe objects.
- Apply concepts of density based on area and volume in modeling situations.
- Apply geometric methods to solve design problems.
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Grade Eight English Language Arts

Literature

The students will...

- Cite the textual evidence that most strongly supports an analysis of what the text says explicitly as well as inferences drawn from the text
- 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
- 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
- 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
- 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
- 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
- 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
- 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
- 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

Informational Text

- Cite the textual evidence that most strongly supports an analysis of what the text says explicitly as well as inferences drawn from the text
- 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
- Analyze how a text makes connections among and distinctions between individuals, ideas, or events
- 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
- 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
- Determine the author's point of view or purpose in a text and analyze how the author acknowledges and responds to conflicting evidence or viewpoints
- Evaluate the advantages and disadvantages of using different mediums to present a particular topic or idea
- 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
- 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
- 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

Grade Eight English Language Arts

Writing Standards

- Write arguments to support claims with clear reasons and relevant evidence
 - Introduce claim(s), acknowledge and distinguish the claim(s) from alternate or opposing claims, and organize the reasons and evidence logically
 - Support claim(s) with logical reasoning and relevant evidence, using accurate, credible sources and demonstrating an understanding of the topic or text
 - Use words, phrases, and clauses to create cohesion and clarify the relationships among claim(s), counterclaims, reasons, and evidence
 - Establish and maintain a formal style
 - Provide a concluding statement or section that follows from and supports the argument presented
- Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content
 - 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
 - Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples
 - Use appropriate and varied transitions to create cohesion and clarify the relationships among ideas and concepts
 - Use precise language and domain-specific vocabulary to inform about or explain the topic
 - Establish and maintain a formal style
 - Provide a concluding statement or section that follows from and supports the information or explanation presented
- Write narratives to develop real or imagined experiences or events using effective technique, relevant descriptive details, and well-structured event sequences
 - 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.
 - Use narrative techniques, such as dialogue, pacing, description, and reflection, to develop experiences, events, and/or characters.
 - 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
 - Use precise words and phrases, relevant descriptive details, and sensory language to capture the action and convey experiences and events
 - Provide a conclusion that follows from and reflects on the narrated experiences or events
- Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience
- 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
- 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

Grade Eight English Language Arts

- 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
- 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
- Draw evidence from literary or informational texts to support analysis, reflection, and research.
 - Apply grade 8 Reading standards to literature
 - Apply grade 8 Reading standards to literary nonfiction
- 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

Speaking and Listening Standards

- Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher led) with diverse partners on grade 8 topics, texts, and issues, building on others' ideas and expressing their own clearly
 - Come to discussions prepared, having read or researched material under study; explicitly draw on that preparation by referring to evidence on the topic, text, or issue to probe and reflect on ideas under discussion
 - Follow rules for collegial discussions and decision-making, track progress toward specific goals and deadlines, and define individual roles as needed
 - Pose questions that connect the ideas of several speakers and respond to others' questions and comments with relevant evidence, observations, and ideas
 - Acknowledge new information expressed by others, and, when warranted, qualify or justify their own views in light of the evidence presented
- Analyze the purpose of information presented in diverse media and formats (e.g., visually, quantitatively, orally) and evaluate the motives (e.g., social, commercial, political) behind its presentation
- Delineate a speaker's argument and specific claims, evaluating the soundness of the reasoning and relevance and sufficiency of the evidence and identifying when irrelevant evidence is introduced
- Present claims and findings, emphasizing salient points in a focused, coherent manner with relevant evidence, sound valid reasoning, and well-chosen details; use appropriate eye contact, adequate volume, and clear pronunciation
- Integrate multimedia and visual displays into presentations to clarify information, strengthen claims and evidence, and add interest
- Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate

Grade Eight English Language Arts

Language Standards

- Demonstrate command of the conventions of standard English grammar and usage when writing or speaking
 - Explain the function of verbals (gerunds, participles, infinitives) in general and their function in particular sentences
 - Form and use verbs in the active and passive voice
 - Form and use verbs in the indicative, imperative, interrogative, conditional, and subjunctive mood
 - Recognize and correct inappropriate shifts in verb voice and mood
- Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing
 - Use punctuation (comma, ellipsis, dash) to indicate a pause or break
 - Use an ellipsis to indicate an omission
 - Spell correctly
- Use knowledge of language and its conventions when writing, speaking, reading, or listening
 - Use verbs in the active and passive voice and in the conditional and subjunctive mood to achieve particular effects
- 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
 - Use context as a clue to the meaning of a word or phrase
 - Use common, grade-appropriate Greek or Latin affixes and roots as clues to the meaning of a word
 - Consult general and specialized reference materials both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning or its part of speech
 - Verify the preliminary determination of the meaning of a word or phrase
- Demonstrate understanding of figurative language, word relationships, and nuances in word meanings
 - Interpret figures of speech in context
 - Use the relationship between particular words to better understand each of the words
 - Distinguish among the connotations of words with similar denotations
- 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

Grade Eight Social Studies

Establishing America: 1787 – 1830s:

The students will...

- In this unit, students consider the enormous tasks that faced the new nation as well as studying its leaders during this difficult period. The United States had to demonstrate that it could survive as an independent country. Students will recognize and evaluate the changes that occurred with the growth of industry and technology. Americans began moving west during this period affecting the relationship between the United States and other nations and American Indians. Students should investigate and analyze the impact of these changes on American society.

Regionalism and Expansion: 1800s – 1850s:

- This period follows the nation's regional development in the West, Northeast, and South. Students will analyze the influence of the West on politics, economy and culture of the nation. The Industrial Revolution in the Northeast during this period had repercussions throughout the nation. Inventions between the turn of the century and 1850 transformed manufacturing, transportation, mining, communications and agriculture and changed the lives of people. Students should investigate and draw conclusions about these transformations.
- During this period, the South veered away from the democratic and reform movements taking place in other parts of the United States. Students will recognize and evaluate the peculiar institution of slavery and its dramatic effects on the South's political, social, economic and cultural development and its relationship with other areas of the United States.

March to War: 1850s – 1861:

- During this unit, students will explore the different points of view that developed during the continued rise of sectionalism and analyze how the failure of compromise eventually led to the Civil War. The institution of slavery and the abolitionist movement should be evaluated in their historical contexts. The issue of slavery, and its economic impact, became too divisive and led to secession by the Confederate States of America. Students should investigate the challenge to the Constitution and the Union caused by the secession of the Confederate states and their doctrine of nullification.

Toward a More Perfect Union: 1861 – 1877

- Students should recognize and evaluate broad Union and Confederate strategy by investigating significant wartime events and battles such as Gettysburg, Antietam and Sherman's March to the Sea. Students should also analyze the human meaning of the war by investigating the context of the home front as well as the stories of soldiers, free blacks, enslaved persons and women involved. The withdrawal of troops from the former Confederate states following the election of 1876 led to the undermining of progress made by former enslaved persons. The economic changes brought about by Reconstruction are important for students to understand.

The Rise of America: 1870s - 1900

- The period from the end of Reconstruction to the turn of the century was transformative. Students will investigate and analyze the settling and conquering of the West, the expansion of industry, the establishment of large transportation networks, immigration from Europe, urban growth, accumulation of great wealth in the hands of a few, the rise of organized labor and increased American involvement in foreign affairs. Students should also recognize and evaluate the political programs and activities of Populists, Progressives and other reformers.

Middle School Science

Matter and Its Interactions

The Student:

- Develop models to describe the atomic composition of simple molecules and extended structures.
- Analyze and interpret data on the properties of substances before and after the substances interact to determine if a chemical reaction has occurred.
- Gather and make sense of information to describe that synthetic materials come from natural resources and impact society.
- 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.
- 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.
- 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 and Interactions

- Apply Newton's Third Law to design a solution to a problem involving the motion of two colliding objects.
- 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.
- Ask questions about data to determine the factors that affect the strength of electric and magnetic forces.
- Construct and present arguments using evidence to support the claim that gravitational interactions are attractive and depend on the masses of interacting objects.
- 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

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

Middle School Science

Waves and Their Applications in Technologies for Information Transfer

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

From Molecules to Organisms: Structures and Processes

- Conduct an investigation to provide evidence that living things are made of cells; either one cell or many different numbers and types of cells.
- Develop and use a model to describe the function of a cell as a whole and ways parts of cells contribute to the function.
- Use argument supported by evidence for how the body is a system of interacting subsystems composed of groups of cells.
- 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.
- Construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms.
- 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.
- 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.
- 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

- Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem.
- Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems.
- Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem.
- Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.
- Evaluate competing design solutions for maintaining biodiversity and ecosystem services.

Middle School Science

Heredity: Inheritance and Variation of Traits

- 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.
- 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 and Diversity

- 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.
- 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.
- 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.
- Gather and synthesize information about the technologies that have changed the way humans influence the inheritance of desired traits in organisms.
- Analyze how natural selection may lead to increases and decreases of specific traits in populations over time.

Earth & Space

- 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.
- Develop and use a model to describe the role of gravity in the motions within galaxies and the solar system.
- Analyze and interpret data to determine scale properties of objects in the solar system.

Middle School Science

Earth's Systems

- Develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process.
- Construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales.
- Analyze and interpret data on the distribution of fossils and rocks, continental shapes, and seafloor structures to provide evidence of the past plate motions.
- Develop a model to describe the cycling of water through Earth's systems driven by energy from the sun and the force of gravity.
- Collect data to provide evidence for how the motions and complex interactions of air masses results in changes in weather conditions.
- 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

- 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.
- Analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects.
- Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.
- Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.
- Ask questions to clarify evidence of the factors that have caused the rise in global temperatures over the past century.

Engineering Design

- Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific
- Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.
- 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.
- 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.