

- 3.2.3: Given a polynomial graph, identify key characteristics (end behavior, odd/even degree, local maxima and minima, real zeroes, and domain and range).
- 3.2.4: Solve by pulling out the greatest common factor of a three-term polynomial with a degree greater than 2.
- 3.2.5: Describe a transformation of a polynomial given the parent function.

Level 3

- 3.3.1: Divide polynomials.
- 3.3.2: Upon evaluating a real-life polynomial in function notation, describe the real world context of the solution.
- 3.3.3: Given a polynomial's characteristics, sketch a corresponding graph with that behavior.
- 3.3.4: Factor by grouping, and solve for the zeros.
- 3.3.5: Write a new function given transformations and interpret its meaning.

Level 4

- 3.4.1: Apply the rational root theorem to calculate all 0's, real and complex.

Unit 4: Probability

Unit 4 Priority Standards and Learner Objectives:

Priority Standard 4: Apply probability and statistics to real world thinking.

Level 2

- 4.2.1: Calculate a missing value when given a mean and other values.
- 4.2.2: Solve a word problem involving percent, decimal, and fraction conversions.
- 4.2.3: Apply the fundamental counting principle to calculate the probability of an event.
- 4.2.4: Graph data using appropriate scales in a scatter plot to interpret information and identify the correlation (positive, negative, none).
- 4.2.5: Explain if a given scenario will be independent or dependent.
- 4.2.6 : Given a table, calculate probabilities of inclusive or exclusive events.

Level 3

- 4.3.1: Determine how changes in a data set affect a measure of center.
- 4.3.2: Calculate theoretical and experimental probabilities based on a table while expressing answers multiple ways.
- 4.3.3: Find the probability of geometric based problems.
- 4.3.4: Use constant difference or ratios to determine which function best models the given data set. Then, find the regression that best represents the data, and explain the correlation coefficient.
- 4.3.5: Calculate the probability of a given scenario provided replacement and without replacement scenarios. (independent and dependent).
- 4.3.6: Calculate the probability of an inclusive or exclusive event.

Level 4

4.4.1: Generate the probability of an event, then make and mathematically defend a decision based on the data.

4.4.2: Use mean and standard deviation of a data set to estimate population percentages.

Unit 5: Exponentials

Unit 5 Priority Standards and Learner Objectives:

Priority Standard 5: Graph and explore exponential functions.

Level 2

5.2.1: Graph an exponential function and describe its characteristics. (asymptote, growth/decay, intercepts)

5.2.2: Given a real world scenario and formula, substitute the correct values to find for an unknown variable.

5.2.3: Simplify logarithmic expressions using the correct properties.

Level 3

5.3.1: Graph the inverse of an exponential function.

5.3.2: Given a real life scenario, write an equation to solve for a variable exponent.

5.3.3: Solve a logarithmic and exponential equation. (involving the use of product, quotient, natural log, and power property).

Level 4

5.4.1: Given a function, interpret the transformations, algebraically and graphically.

Unit 6: Rationals

Unit 6 Priority Standards and Learner Objectives:

Priority Standard 6: Graph and explore rational functions.

Level 2

6.2.1: Simplify rational expressions (multiplying, dividing, adding, and subtracting).

6.2.2: Identify characteristics of a rational graph (asymptotes, domain, range)

6.2.3 Write and solve an equation for inverse variation.

Level 3

6.3.1: Solve a rational equation while determining extraneous solutions.

6.3.2: Given a rational equation, identify the vertical and horizontal asymptotes and domain and range. (larger numerator, larger denominator, equal degree)

6.3.3 Write and solve an equation for inverse variation when given a data table or real life scenario.

Level 4

6.4.1: Write and solve a rational equation from a real world context.

Unit 7: Radicals

Unit 7 Priority Standards and Learner Objectives:

Priority Standard 7: Graph and explore radical functions.

Level 2

7.2.1: Given a table of x-values, fill out the table, graph, and describe the domain and range.

7.2.2: Use the properties of rational exponents and nth roots to simplify expressions.

7.2.3: Solve radical equations while determining extraneous solutions with square roots.

Level 3

7.3.1: Given a radical equation, apply and graph transformations.

7.3.2: Use the properties of rational exponents to simplify and solve equations that contain variables as rational exponents

7.3.3: Solve a radical equation while determining extraneous solutions for nth root equations as well as apply knowledge of factoring and foiling when problem solving.

Level 4

7.4.1: Write and solve a radical equation from a real life scenario based on a given equation.
(Could also have them come up with the equation) see examples on pg. 633 of textbook

FOUNDATIONS OF ALGEBRA II and EXTENDED ALGEBRA II

Course Length: 4 Semesters

Credits: 2.0

Recommended Grade Levels: 11-12

Prerequisites: Successful completion of Algebra I and Geometry **AND** admitted in with department approval. Basic knowledge of and experience with graphing calculators.

- **Course Description:** **Course Description:** Aligned to Common Core Mathematical Content Standards, this course extends the traditional Algebra II course over two years (4 semesters), rather than a single year (2 semesters). Foundations of Algebra II and Extended Algebra II are taken consecutively and in the place of traditional Algebra II and Pre-calculus. Students are exposed to topics like number and operations, solving equations, patterns and relations, and linear functions. These topics, as well as, the topics of exponential functions, quadratic functions, and probability simulations allow for the practice of advanced skills. Matrices, logarithmic functions, and radical and rational functions are also addressed. All instruction is aligned with the Common Core Standards for Mathematical Practice with emphasis on the process standards of problem solving, reasoning and proof, communication, representation and connections and the proficiency standards of adaptive reasoning, strategic competence, conceptual understanding, procedural fluency and productive disposition. Course content is taught with a focus on real-world application and problem solving with and without the aid of technology.

FOUNDATIONS OF ALGEBRA II UNIT PROGRESSION

Unit 1: Linear Functions and Systems

Unit 1 Priority Standards and Learner Objectives:

Priority Standard 1: Graph and explore linear functions and systems.

Level 2

- 1.2.1: Given a linear equation, identify the matching graph.
- 1.2.2: Given a linear equation in standard form, convert it to slope-intercept form.
- 1.2.3: Given a linear graph, graph and write an equation for a parallel or perpendicular line.
- 1.2.4: Graph a linear inequality.
- 1.2.5: Solve a system graphically.
- 1.2.6: Solve a system algebraically.

Level 3

- 1.3.1: Given a linear graph, write the linear equation while creating a real-world scenario with given parameters.
- 1.3.2: Write and graph a linear function based on calculating the slope and finding y-intercept.
- 1.3.3: Given a rectangle on a coordinate plane, prove two sides are parallel or perpendicular
- 1.3.4: Write and graph a linear inequality based on a real world context.
- 1.3.5: Graph a given system of linear inequalities and explain a point that satisfies the system.
- 1.3.6: Write a system of linear equations based on a real world context and solve the system.

Level 4

- 1.4.1: Set up and solve a system in 3 variables, in a real world application.

1.4.2: Solve systems of equations utilizing matrices.

Unit 2: Quadratics

Unit 2 Priority Standards and Learner Objectives:

Priority Standard 2: Graph and Explore Quadratic Functions.

Level 2

2.2.1a: Given a quadratic graph, describe its characteristics (max/min, axis of symmetry, vertex, intercepts, directionality).

2.2.1b: Given a quadratic equation, identify all the key characteristics (max/min, axis of symmetry, vertex, intercepts) and graph.

2.2.2: Find the zeros by factoring a quadratic (when $a = 1$, can be factored to 1, or $a \neq 1$)

2.2.3a Add or subtract complex numbers.

2.2.3b: Apply FOIL to multiply complex numbers.

2.2.4: Apply the quadratic formula to find the zeros of a function

2.2.5a: Determine how many solutions a quadratic has using the discriminant

2.2.5b: Simplify a square root

Level 3

2.3.1: Given a real world quadratic equation, graph and interpret information about it. (max/min, zeros, y-intercept, directionality)

2.3.2 Given the x-intercepts, write and graph a quadratic function

2.3.3: Rationalize a denominator (real and complex)

2.3.4: Use quadratic inequalities with business applications.

2.3.5: Solve a quadratic function with imaginary solutions and give exact answers

Level 4

2.4.1: Given three points, write a quadratic function. (example in book)

2.4.2: Complete the square.

Unit 3: Polynomials

Unit 3 Priority Standards and Learner Objectives:

Priority Standard 3: Graph and explore polynomial functions.

Level 2

3.2.1a: Add and subtract polynomials with answers in standard form. (Talk about degree, leading coefficient)

3.2.1b: Multiply polynomials.

3.2.2: Given a list of binomials, identify which is the factor of a polynomial by evaluating.

3.2.3: Given a polynomial graph, identify key characteristics (end behavior, odd/even degree, local maxima and minima, real zeroes, and domain and range).

3.2.4: Solve by pulling out the greatest common factor of a three-term polynomial with a degree greater than 2.

3.2.5: Describe a transformation of a polynomial given the parent function.

Level 3

3.3.1: Divide polynomials.

3.3.2: Upon evaluating a real-life polynomial in function notation, describe the real world context of the solution.

3.3.3: Given a polynomial's characteristics, sketch a corresponding graph with that behavior.

3.3.4: Factor by grouping, and solve for the zeros.

3.3.5: Write a new function given transformations and interpret its meaning.

Level 4

3.4.1: Apply the rational root theorem to calculate all 0's, real and complex.

EXTENDED ALGEBRA II UNIT PROGRESSION

Unit 1: Probability

Unit 1 Priority Standards and Learner Objectives:

Priority Standard 6: Apply probability and statistics to real world thinking.

Level 2

6.2.1: Calculate a missing value when given a mean and other values.

6.2.2: Solve a word problem involving percent, decimal, and fraction conversions.

6.2.3: Apply the fundamental counting principle to calculate the probability of an event.

6.2.4: Calculate permutations and combinations.

6.2.5: Explain if a given scenario will be independent or dependent.

6.2.6: Given a table, calculate probabilities of inclusive or exclusive events.

Level 3

6.3.1: Determine how changes in a data set affect a measure of center.

6.3.2: Calculate theoretical and experimental probabilities based on a table while expressing answers multiple ways.

6.3.3: Find the probability of geometric based problems.

6.3.4: Find probability with permutations or combinations

6.3.5: Calculate the probability of a given scenario provided replacement and without replacement scenarios. (independent and dependent).

6.3.6: Calculate the probability of an inclusive or exclusive event.

Level 4

6.4.1: Generate the probability of an event, then make and mathematically defend a decision based on the data.

6.4.2: Use mean and standard deviation of a data set to estimate population percentages.

Unit 2: Exponentials

Unit 2 Priority Standards and Learner Objectives:

Priority Standard 4: Graph and explore exponential functions.

Level 2

4.2.1: Graph an exponential function and describe its characteristics. (asymptote, growth/decay, intercepts)

4.2.2: Given a real world scenario and formula, substitute the correct values to find for an unknown variable.

4.2.3: Simplify logarithmic expressions using the correct properties.

Level 3

4.3.1: Graph the inverse of an exponential function.

4.3.2: Given a real life scenario, write an equation to solve for a variable exponent.

4.3.3: Solve a logarithmic and exponential equation. (involving the use of product, quotient, natural log, and power property).

Level 4

4.4.1: Given a function, interpret the transformations, algebraically and graphically.

Unit 3: Rationals and Radicals

Unit 3 Priority Standards and Learner Objectives:

Priority Standard 5: Graph and explore rational and radical functions.

Level 2

5.2.1a: Simplify rational expressions involving multiplying or dividing. (one multiply and one divide. one simple one and one where you factor)

5.2.1b: Simplify rational expressions involving adding or subtracting rationals with different denominators.

5.2.2: Identify characteristics of a rational graph (asymptotes, domain, range)

5.2.3: Use the properties of rational exponents to simplify radical expressions.

5.2.4: Given a radical equation, identify the domain and range in order to sketch a graph.

Level 3

5.3.1: Solve a rational equation while determining extraneous solutions.

5.3.2: Given a rational equation, identify the vertical and horizontal asymptotes and domain and range, then sketch the graph.

5.3.3: Solve a radical equation while determining extraneous solutions.

5.3.4: Given a radical equation, apply and graph transformations.

Level 4

5.4.1: Write and solve a rational equation from a real world context.

PRECALCULUS

Course Length: 2 semesters

Credits: 1.0

Recommended Grade Levels: 11, 12

Prerequisites: Successful completion of Algebra I, Geometry, and Algebra II or admitted in with department approval. Knowledge and experience with graphing calculator.

Course Description: In preparation for AP courses and in alignment with the Common Core Mathematical Standards and ACT Quality Core Standards, Precalculus is the precursor to Calculus and is typically taken directly after Algebra II. Topics covered allow for the practice of advanced skills involving many types of functions, matrices and vectors, trigonometric functions, and sequences and series. Conic sections, polar coordinates, parametric equations and a beginning exploration of limits and derivatives are also addressed. All instruction is aligned with the Common Core Standards for Mathematical Practice with emphasis on the process standards of problem solving, reasoning and proof, communication, representation and connections and the proficiency standards of adaptive reasoning, strategic competence, conceptual understanding, procedural fluency and productive disposition. Course content is taught with a focus on real-world application and problem solving with and without the aid of technology.

PRECALCULUS UNIT PROGRESSION

Unit 0: Fundamentals

Unit 0 Learner Objectives:

- Solve linear, quadratic, rational, and radical equations.
- Graph linear, quadratic, polynomial, exponential, logarithmic, sine, and cosine functions.
- Factor polynomials using a variety of methods.
- Use inductive reasoning to make conjectures and deductive reasoning to arrive at valid conclusions.

Unit 0 Common Core Standards:

- HSN-CN.C.7 Solve quadratic equations with real coefficients that have complex solutions.
- HSN-CN.C.8 (+) Extend polynomial identities to the complex numbers. For example, rewrite $x^2 + 4$ as $(x + 2i)(x - 2i)$.
- HSA-REI.A.2 Solve simple rational and radical equations in one variable, and give examples showing how extraneous solutions may arise.
- HSG-SRT.D.10 (+) Prove the Laws of Sines and Cosines and use them to solve problems
- HSF-TF.B.5 Choose trigonometric functions to model periodic phenomena with specified amplitude, frequency, and midline.

Unit 1: Functions

Unit 1 Learner Objectives:

- Apply problem-solving skills (e.g., identifying irrelevant or missing information, making

conjectures, extracting mathematical meaning, recognizing and performing multiple steps when needed, verifying results in the context of the problem) to the solution of real-world problems

- Use the language of mathematics to communicate increasingly complex ideas orally and in writing, using symbols and notations correctly
- Demonstrate the appropriate role of technology (e.g., calculators, software programs) in mathematics (e.g., organize data, develop concepts, explore relationships, decrease time spent on computations after a skill has been established)
- Identify and graph piecewise functions, including greatest integer, step, and absolute value functions
- Identify, graph, and write equations for inverses and transformations of various functions – including polynomial, rational, radical, absolute value, and trigonometric – with and without technology.
- Solve polynomial equations using a variety of methods (e.g., factoring, rational roots theorem)
- Use technology to approximate the real roots of a polynomial equation.
- Use algebraic tests to determine whether the graph of a relation is symmetrical
- Graph and analyze radical functions including square root and cube root functions, with and without technology.
- Graph rational functions using intercepts, symmetry, asymptotes, and removable discontinuities.

Unit 1 Common Core Standards:

- HSN-Q.A.1 Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.
- HSN-Q.A.2 Define appropriate quantities for the purpose of descriptive modeling.
- HSA-SSE.A.2 Use the structure of an expression to identify ways to rewrite it. For example, see $x^4 - y^4$ as $(x^2)^2 - (y^2)^2$, thus recognizing it as a difference of squares that can be factored as $(x^2 - y^2)(x^2 + y^2)$.
- 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 zeroes of polynomials when suitable factorizations are available, and use the zeroes to construct a rough graph of the function defined by the polynomial.
- HSF-IF.C.7 Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases.
- HSF-BF.B.4 Find inverse functions.
- HSF-BF.B.5 (+) Understand the inverse relationship between exponents and logarithms and use this relationship to solve problems involving logarithms and exponents.
- HSF-TF.A.4 (+) Use the unit circle to explain symmetry (odd and even) and periodicity of trigonometric functions.
- HSF-TF.B.6 (+) Understand that restricting a trigonometric function to a domain on which it is always increasing or always decreasing allows its inverse to be constructed.
- HSF-TF.B.7 (+) Use inverse functions to solve trigonometric equations that arise in modeling contexts; evaluate the solutions using technology, and interpret them in terms of the context.

Unit 2: Polynomial and Radical Functions

Unit 2 Learner Objectives:

- Apply problem-solving skills (e.g., identifying irrelevant or missing information, making conjectures, extracting mathematical meaning, recognizing and performing multiple steps when needed, verifying results in the context of the problem) to the solution of real-world problems
- Use a variety of strategies to set up and solve increasingly complex problems
- Represent data, real-world situations, and solutions in increasingly complex contexts (e.g., expressions, formulas, tables, charts, graphs, relations, functions) and understand the relationships
- Use the language of mathematics to communicate increasingly complex ideas orally and in writing, using symbols and notations correctly
- Make appropriate use of estimation and mental mathematics in computations and to determine the reasonableness of solutions to increasingly complex problems
- Make mathematical connections among concepts, across disciplines, and in everyday experiences
- Demonstrate the appropriate role of technology (e.g., calculators, software programs) in mathematics (e.g., organize data, develop concepts, explore relationships, decrease time spent on computations after a skill has been established)
- Solve polynomial equations using a variety of methods (e.g., factoring, rational roots theorem)
- Use technology to approximate the real roots of a polynomial equation.
- Classify functions as even, odd, or neither
- Graph general polynomial functions from given characteristics such as degree, sign of lead coefficient, and roots and their multiplicity
- Find the rational roots, real roots, and complex roots of a polynomial function
- Graph and analyze radical functions including square root and cube root functions, with and without technology.
- Graph rational functions using intercepts, symmetry, asymptotes, and removable discontinuities.
- Use the natural base e to evaluate exponential expressions, solve exponential equations, and graph exponential functions

Unit 2 Common Core Standards:

- HSN-Q.A.1 Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.
- HSN-Q.A.2 Define appropriate quantities for the purpose of descriptive modeling.
- HSA-SSE.A.2 Use the structure of an expression to identify ways to rewrite it. For example, see $x^4 - y^4$ as $(x^2)^2 - (y^2)^2$, thus recognizing it as a difference of squares that can be factored as $(x^2 - y^2)(x^2 + y^2)$.
- 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 zeroes of polynomials when suitable factorizations are available, and use the zeroes to construct a rough graph of the function defined by the polynomial
- 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-APR.B.3 Identify zeroes of polynomials when suitable factorizations are available, and use the zeroes to construct a rough graph of the function defined by the polynomial.
- HSF-IF.C.7 Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases.
- HSF-BF.B.3 Identify the effect on the graph of replacing $f(x)$ by $f(x) + k$, $k f(x)$, $f(kx)$, and $f(x + k)$ for specific values of k (both positive and negative); find the value of k given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology. Include recognizing even and odd functions from their graphs and algebraic expressions for them.
- HSF-TF.A.4 (+) Use the unit circle to explain symmetry (odd and even) and periodicity of trigonometric functions.

Unit 3: Exponential and Logarithmic Functions

Unit 3 Learner Objectives:

- Solve linear, quadratic, rational, and radical equations
- Use a variety of strategies to set up and solve increasingly complex problems
- Represent data, real-world situations, and solutions in increasingly complex contexts (e.g., expressions, formulas, tables, charts, graphs, relations, functions) and understand the relationships
- Use the language of mathematics to communicate increasingly complex ideas orally and in writing, using symbols and notations correctly
- Make appropriate use of estimation and mental mathematics in computations and to determine the reasonableness of solutions to increasingly complex problems
- Make mathematical connections among concepts, across disciplines, and in everyday experiences
- Demonstrate the appropriate role of technology (e.g., calculators, software programs) in mathematics (e.g., organize data, develop concepts, explore relationships, decrease time spent on computations after a skill has been established)
- Use properties of exponents to simplify and evaluate expressions involving real exponents
- Use properties of logarithms to simplify and evaluate expressions involving logarithms
- Solve equations involving real exponents
- Solve equations with variable exponents by using logarithms
- Use the natural base e to evaluate exponential expressions, solve exponential equations, and graph exponential functions
- Solve exponential and logarithmic equations and real-world problems involving exponential and logarithmic equations (e.g., compound interest, exponential growth and decay)

Unit 3 Common Core Standards:

- 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-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.
- HSF-IF.C.8 Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function.
- HSF-BF.B.5 (+) Understand the inverse relationship between exponents and logarithms and use this relationship to solve problems involving logarithms and exponents.
- HSF-LE.A.2 Construct linear and exponential functions, including arithmetic and geometric sequences, given a graph, a description of a relationship, or two input-output pairs (include reading these from a table).
- HSF-LE.A.4 For exponential models, express as a logarithm the solution to $abct = d$ where a , c , and d are numbers and the base b is 2, 10, or e ; evaluate the logarithm using technology.

Unit 4: Trig Functions

Unit 4 Learner Objectives:

- Apply problem-solving skills (e.g., identifying irrelevant or missing information, making conjectures, extracting mathematical meaning, recognizing and performing multiple steps when needed, verifying results in the context of the problem) to the solution of real-world problems
- Use a variety of strategies to set up and solve increasingly complex problems
- Represent data, real-world situations, and solutions in increasingly complex contexts (e.g., expressions, formulas, tables, charts, graphs, relations, functions) and understand the relationships
- Use the language of mathematics to communicate increasingly complex ideas orally and in writing, using symbols and notations correctly
- Make appropriate use of estimation and mental mathematics in computations and to determine the reasonableness of solutions to increasingly complex problems
- Make mathematical connections among concepts, across disciplines, and in everyday experiences
- Demonstrate the appropriate role of technology (e.g., calculators, software programs) in mathematics (e.g., organize data, develop concepts, explore relationships, decrease time spent on computations after a skill has been established)
- Apply previously learned algebraic and geometric concepts to more advanced problems
- Use various methods to find the area of a triangle (e.g., given the length of two sides and the included angle)
- Graph tangent, cotangent, secant, and cosecant functions and their transformations
- State the amplitude, period, phase, and vertical translation of transformations of the sine and cosine functions
- Graph transformations (e.g., vertical and horizontal translations, reflections, stretches) of the sine and cosine functions
- Determine periodicity and amplitude from graphs, stretch and shrink graphs both vertically and horizontally, and translate graphs
- Graph and write the equations of sine and cosine functions given the amplitude, period, phase shift, and vertical translation; use the functions to model real-life situations (e.g.,

- spring problems, ocean tides)
- Identify the sum and difference identities for the sine, cosine, and tangent functions; apply the identities to solve mathematical problems
- Derive, identify, and apply double-angle and half-angle formulas to solve mathematical problems
- Identify and graph inverse sine, cosine, and tangent functions
- Use and evaluate inverse sine, cosine, and tangent functions to solve trigonometric equations

Unit 4 Common Core Standards:

- HSN-Q.A.1 Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.
- HSN-Q.A.2 Define appropriate quantities for the purpose of descriptive modeling.
- HSG-SRT.D.11 (+) 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).
- HSF-TF.B.5 Choose trigonometric functions to model periodic phenomena with specified amplitude, frequency, and midline.
- HSF-TF.B.6 (+) Understand that restricting a trigonometric function to a domain on which it is always increasing or always decreasing allows its inverse to be constructed.
- HSF-TF.B.7 (+) Use inverse functions to solve trigonometric equations that arise in modeling contexts; evaluate the solutions using technology, and interpret them in terms of the content.
- HSF-TF.C.9 (+) Prove the addition and subtraction formulas for sine, cosine, and tangent and use them to solve problems.

Unit 5: Analytical Trig

Unit 5 Learner Objectives:

- Apply problem-solving skills (e.g., identifying irrelevant or missing information, making conjectures, extracting mathematical meaning, recognizing and performing multiple steps when needed, verifying results in the context of the problem) to the solution of real-world problems
- Use a variety of strategies to set up and solve increasingly complex problems
- Represent data, real-world situations, and solutions in increasingly complex contexts (e.g., expressions, formulas, tables, charts, graphs, relations, functions) and understand the relationships
- Use the language of mathematics to communicate increasingly complex ideas orally and in writing, using symbols and notations correctly
- Make appropriate use of estimation and mental mathematics in computations and to determine the reasonableness of solutions to increasingly complex problems
- Make mathematical connections among concepts, across disciplines, and in everyday experiences
- Demonstrate the appropriate role of technology (e.g., calculators, software programs) in mathematics (e.g., organize data, develop concepts, explore relationships, decrease time spent on computations after a skill has been established)
- Apply previously learned algebraic and geometric concepts to more advanced problems
- Identify the sum and difference identities for the sine, cosine, and tangent functions;

- apply the identities to solve mathematical problems
- Derive, identify, and apply double-angle and half-angle formulas to solve mathematical problems
- Use trigonometric identities or technology to solve trigonometric equations

Unit 5 Common Core Standards:

- HSN-Q.A.1 Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.
- HSN-Q.A.2 Define appropriate quantities for the purpose of descriptive modeling.
- HSF-TF.C.9 (+) Prove the addition and subtraction formulas for sine, cosine, and tangent and use them to solve problems.

PERSONAL FINANCE

Course Length: 2 semesters

Credits: 1.0

Recommended Grade Levels: 11, 12

Prerequisites: Successful completion of Algebra I, Geometry, and Algebra II or admitted in with department approval.

Course Description: In preparation for college and career and in alignment with the Common Core Mathematical Standards, Personal Finance is built around Dave Ramsey's Foundations in Personal Finance, which is part of the Financial Peace School Curriculum. Mathematical principals will be used to navigate saving and investing, credit versus debit, financial responsibility, money management, insurance/risk management, and income/careers.

PERSONAL FINANCE UNIT PROGRESSION

Unit 1: Saving and Investing

Unit 1 Learner Objectives:

- List the Baby Steps.
- Explain the three basic reasons for saving money.
- Identify the benefits of having an emergency fund.
- Demonstrate how compound interest works and understand the impact of annual interest rate.
- Explain the KISS rule of investing.
- Examine the relationship between diversification and risk.
- Compare and contrast different types of investments: money markets, bonds, single stocks, mutual funds, rental real estate, and annuities.
- Explain what is meant by "tax-favored dollars."
- List the different types of retirement plans.
- Differentiate between a traditional and Roth IRA.
- Illustrate how a 401(k) company match works and prioritize money into various investments.
- Describe how pre-tax and after-tax investments work.

Unit 1 Common Core Math Standards:

- CC.9-12.F.LE.1b Recognize situations in which one quantity changes at a constant rate per unit interval relative to another.
- CC.9-12.F.LE.1c Recognize situations in which a quantity grows or decays by a constant percent rate per unit interval relative to another.
- CC.9-12.F.LE.3 Observe using graphs and tables that a quantity increasing exponentially eventually exceeds a quantity increasing linearly, quadratically, or (more generally) as a polynomial function.
- CC.9-12.F.1F.4 For a function that models a relationship between two quantities, interpret key features of the graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. Key features include: intercepts, intervals where the function is increasing, decreasing, positive, or

- negative; relative maximums and minimums; symmetries; end behavior; and periodicity.
- CC.9-12.F.IF.5 Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes. For example, if the function $h(n)$ gives the number of person-hours it takes to assemble n engines in a factory, then the positive integers would be an appropriate domain for the function.
- CC.9-12.F.IF.6 Calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Estimate the rate of change from a graph.
- CC.9-12.N.Q.1 Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.
- CC.9-12.F.LE.1 Distinguish between situations that can be modeled with linear functions and with exponential functions
- CC.9-12.F.LE.1a Prove that linear functions grow by equal differences over equal intervals and that exponential functions grow by equal factors over equal intervals.
- CC.9-12.F.IF.7 Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases.
- CC.9-12.F.BF.1 Write a function that describes a relationship between two quantities.

Unit 2: Credit and Debt

Unit 2 Learner Objectives:

- Analyze the history and evolution of credit.
- Demonstrate the various ways people get into debt.
- Compare and contrast credit cards and debit cards.
- Explain how the debt snowball works.
- Evaluate and refute the myths associated with debt.
- List the four major ways companies compete for your money.
- Evaluate the role opportunity cost plays in purchasing decisions.
- Distinguish what constitutes a significant purchase.
- List the five steps to take before making a significant purchase.
- Evaluate the myth of building your credit score.
- Describe precautions that will protect you from identity theft.
- Explain how to correct inaccuracies on a credit report.
- Become familiar with the Federal Fair Debt Collection Practices Act and parameters regulating collectors.

Unit 2 Common Core Math Standards:

- CC.9-12.A.REI.1 Explain each step in solving simple equations 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.
- CC.9-12.A.REI.2 Solve simple rational and radical equations in one variable, and give examples showing how extraneous solutions may arise.
- CC.9-12.A.CED.2 Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.
- CC.9-12.A.CED.3 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.

Unit 3: Financial Responsibility and Money Management

Unit 3 Learner Objectives:

- Explain how money is active.
- Analyze reasons why people do not do a budget.
- Examine common problems associated with budget failures.
- Explain the benefits of a budget.
- Demonstrate how to complete a zero-based budget.
- Explain why you should be honest when negotiating.
- Analyze and use the three keys to getting bargains.
- Describe the seven basic rules of negotiating.
- List places to find a great deal.
- Explain the difference between a commission and an allowance.
- Describe the general differences that exist between men and women as they relate to money.
- Identify the characteristics of a nerd and a free spirit and explain how they approach the budget in different ways.
- Evaluate the importance of doing a budget together when married.
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Unit 3 Common Core Math Standards:

- CC.9-12.F.1F.4 For a function that models a relationship between two quantities, interpret key features of the graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. Key features include: intercepts, intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity.
- CC.9-12.F.1F.5 Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes. For example, if the function $h(n)$ gives the number of person-hours it takes to assemble n engines in a factory, then the positive integers would be an appropriate domain for the function.
- CC.9-12.F.1F.6 Calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Estimate the rate of change from a graph.
- CC.9-12.N.Q.2 Define appropriate quantities for the purpose of descriptive modeling.
- CC.9-12.F.LE.1b Recognize situations in which one quantity changes at a constant rate per unit interval relative to another.
- CC.9-12.F.LE.1c Recognize situations in which a quantity grows or decays by a constant percent rate per unit interval relative to another.
- CC.9-12.A.CED.2 Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.
- CC.9-12.A.CED.3 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.
- CC.9-12.A.REI.1 Explain each step in solving simple equations 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.
- CC. 9-12.A.REI.2 Solve simple rational and radical equations in one variable, and give examples showing how extraneous solutions may arise.

Unit 4: Insurance/Risk Management and Income/Careers

Unit 4 Learner Objectives:

- Identify your personal strengths and weaknesses.
- Evaluate the role of a cover letter, resume and interview.
- Explain the various types of taxes withheld from your paycheck.
- Explain why insurance is an essential part of a healthy financial plan.
- Identify and describe the seven basic types of insurance coverage needed.
- Understand the importance of disability insurance.
- Evaluate the reasons why life insurance is not an investment.
- Differentiate between term and cash value life insurance.
- List types of insurances to avoid.
- Describe the steps to take to maximize the sale of a home.
- Examine what to look for when purchasing a home.
- Evaluate the various types of home mortgages.
- Identify the pros and cons of renting versus owning.
- Compare and contrast a 15-year mortgage to a 30-year mortgage.

Unit 4 Common Core Math Standards:

- CC.9-12.A.SSE.1: Interpret expressions that represent a quantity in terms of its context.
- CC.9-12.A.CED.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.
- CC.9-12.A.CED.2 Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales
- CC.9-12.A.REI.1 Explain each step in solving simple equations 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.
- CC. 9-12.A.REI.2 Solve simple rational and radical equations in one variable, and give examples showing how extraneous solutions may arise.
- CC.9-12.A.CED.3 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.

CC.9-12.F.LE.5 Interpret the parameters in a linear, quadratic, or exponential function in terms of a context

AP CALCULUS

Course Length: 2 semesters

Credits: 1.0

Suggested Grade Levels: 12

Prerequisites: Successful completion of Precalculus or admittance with department approval. Basic knowledge of and experience with graphing calculators.

Course Description: Aligned with standards and objectives set by the AP CollegeBoard, AP Calculus is designed to provide students with experiences that will enable them to build a deep conceptual understanding of the material. Typically taken after Precalculus, there is a large focus on justification and application of skills and knowledge to applicable situations and scenarios. Four major topics which include, limits, derivatives, indefinite integrals, and definite integrals are addressed. All instruction is aligned with the Common Core Standards for Mathematical Practice with emphasis on the process standards of problem solving, reasoning and proof, communication, representation and connections and the proficiency standards of adaptive reasoning, strategic competence, conceptual understanding, procedural fluency and productive disposition. Course content is taught with a focus on real-world application and problem solving with and without the aid of technology. Students demonstrate their mastery of college level Calculus skills on the AP Calculus Exam, given in May. A passing score on the exam may earn students college Calculus credit. Placement and credit are granted by institutions in accordance with their own policies, not by those of the College Board or the AP Program.

AP CALCULUS UNIT PROGRESSION

Unit 1: Functions and Limits

Unit 1 Topics Covered:

- Analysis of Graphs
- Limits of Functions (Two sided and One sided)
- Asymptotic and Unbounded Behavior
- Continuity

Unit 1 CollegeBoard Standards:

- APC.1 - The student will define and apply the properties of elementary functions, including algebraic, trigonometric, exponential, and composite functions and their inverses, and graph these functions, using a graphing calculator. Properties of functions will include domains, ranges, combinations, odd, even, periodicity, symmetry, asymptotes, zeroes, upper and lower bounds, and intervals where the function is increasing or decreasing.
- APC.2 - The student will define and apply the properties of limits of functions. Limits will be evaluated graphically and algebraically. This will include limits of a constant; limits of a sum, product, and quotient; one-sided limits.
- APC.3 - The student will use limits to define continuity and determine where a function is continuous or discontinuous. This will include continuity in terms of limits; continuity at a point and over a closed interval; application of the Intermediate Value Theorem and the Extreme Value Theorem; and geometric understanding and interpretation of continuity

and discontinuity.

- APC.4 - The student will investigate asymptotic and unbounded behavior in functions. This will include describing and understanding asymptotes in terms of graphical behavior and limits involving infinity; and comparing relative magnitudes of functions and their rates of change.

Unit 2: The Derivative

Unit 2 Topics Covered:

- Instantaneous rates of change
- Definition of the derivative
- Derivatives of algebraic functions
- Differentiation Formulas
- Power rule
- Product rule
- Quotient rule
- Applications of natural and social sciences
- Derivatives of trigonometric functions
- The Chain rule
- Implicit Differentiation
- Related Rates

Unit 2 CollegeBoard Standards:

- APC.5 - The student will investigate derivatives presented in graphic, numerical, and analytic contexts and the relationship between continuity and differentiability. The derivative will be defined as the limit of the difference quotient and interpreted as an instantaneous rate of change.
- APC.6 - The student will investigate the derivative at a point on a curve. This will include (a) finding the slope of a curve at a point, including points at which the tangent is vertical and points at which there are no tangents; (b) using local linear approximation to find the slope of a tangent line to a curve at the point; (c) defining instantaneous rate of change as the limit of average rate of change; and (d) approximating rate of change from graphs and tables of values.
- APC.7 - The student will analyze the derivative of a function as a function in itself. This will include (a) comparing corresponding characteristics of the graphs of f , f' , and f'' ; (b) defining the relationship between the increasing and decreasing behavior of f and the sign of f' ; (c) translating verbal descriptions into equations involving derivatives and vice versa; (d) analyzing the geometric consequences of the Mean Value Theorem; (e) defining the relationship between the concavity of f and the sign of f'' ; and (f) identifying points of inflection as places where concavity changes and finding points of inflection.
- APC.8 - The student will apply the derivative to solve problems. This will include (a) analysis of curves and the ideas of concavity and monotonicity; (b) optimization involving global and local extrema; (c) modeling of rates of change and related rates; (d) use of implicit differentiation to find the derivative of an inverse function; (e) interpretation of the derivative as a rate of change in applied contexts, including velocity, speed, and acceleration; and (f) differentiation of nonlogarithmic functions, using the technique of logarithmic differentiation.
- APC.9 - The student will apply formulas to find derivatives. This will include (a)

derivatives of algebraic, trigonometric, exponential, logarithmic, and inverse trigonometric functions; (b) derivations of sums, products, quotients, inverses, and composites (chain rule) of elementary functions; (c) derivatives of implicitly defined functions; and (d) higher order derivatives of algebraic, trigonometric, exponential, and logarithmic, functions.

Unit 3: Applications of Differentiation

Unit 3 Topics Covered:

- Extreme values: Local extrema; Global extrema
- Using the derivative: Mean Value Theorem; Increasing and Decreasing Functions
- Analysis of graphs using first and second derivatives: Critical points; First derivative test for extrema; Concavity and points of inflection; Second derivative test for extrema
- Optimization
- Newton's Method

Unit 3 CollegeBoard Standards:

- APC.7 - The student will analyze the derivative of a function as a function in itself. This will include (a) comparing corresponding characteristics of the graphs of f , f' , and f'' ; (b) defining the relationship between the increasing and decreasing behavior of f and the sign of f' ; (c) translating verbal descriptions into equations involving derivatives and vice versa; (d) analyzing the geometric consequences of the Mean Value Theorem; (e) defining the relationship between the concavity of f and the sign of f'' ; and (f) identifying points of inflection as places where concavity changes and finding points of inflection.
- APC.8 - The student will apply the derivative to solve problems. This will include (a) analysis of curves and the ideas of concavity and monotonicity; (b) optimization involving global and local extrema; (c) modeling of rates of change and related rates; (d) use of implicit differentiation to find the derivative of an inverse function; (e) interpretation of the derivative as a rate of change in applied contexts, including velocity, speed, and acceleration; and (f) differentiation of nonlogarithmic functions, using the technique of logarithmic differentiation.
- APC.9 - The student will apply formulas to find derivatives. This will include (a) derivatives of algebraic, trigonometric, exponential, logarithmic, and inverse trigonometric functions; (b) derivations of sums, products, quotients, inverses, and composites (chain rule) of elementary functions; (c) derivatives of implicitly defined functions; and (d) higher order derivatives of algebraic, trigonometric, exponential, and logarithmic, functions.

Unit 4: Integrals

Unit 4 Topics Covered:

- Approximating areas: Riemann sums; The Definite integral
- The Fundamental Theorem of Calculus
- Indefinite integrals and the Net change Theorem
- The substitution rule

Unit 4 CollegeBoard Standards:

- APC.10 - The student will use Riemann sums and the Trapezoidal Rule to approximate definite integrals of functions represented algebraically, graphically, and by a table of values and will interpret the definite integral as the accumulated rate of change of a quantity over an interval interpreted as the change of the quantity over the interval

$$\int_a^b f'(x) dx = f(b) - f(a).$$

Riemann sums will use left, right, and midpoint evaluation points over equal subdivisions.

- APC.11 - The student will find antiderivatives directly from derivatives of basic functions and by substitution of variables (including change of limits for definite integrals).
- APC.12 - The student will identify the properties of the definite integral. This will include additivity and linearity, the definite integral as an area, and the definite integral as a limit of a sum as well as the fundamental theorem:

$$\frac{d}{dx} \int_a^x f(t) dt = f(x).$$

- APC.13 - The student will use the Fundamental Theorem of Calculus to evaluate definite integrals, represent a particular antiderivative, and facilitate the analytical and graphical analysis of functions so defined.
- APC.14 - The student will find specific antiderivatives, using initial conditions (including applications to motion along a line). Separable differential equations will be solved and used in modeling (in particular, the equation $y' = ky$ and exponential growth).
- APC.15 - The student will use integration techniques and appropriate integrals to model physical, biological, and economic situations. The emphasis will be on using the integral of a rate of change to give accumulated change or on using the method of setting up an approximating Riemann sum and representing its limit as a definite integral. Specific applications will include (a) the area of a region; (b) the volume of a solid with known cross-section; (c) the average value of a function; and (d) the distance traveled by a particle along a line.

Unit 5: Applications of Integration

Unit 5 Topics Covered:

- Area between curves
- Volumes: Volumes of solids with known cross sections; Volumes of solids of revolution
- Average Value of a Function

Unit 5 CollegeBoard Standards:

- APC.15 - The student will use integration techniques and appropriate integrals to model physical, biological, and economic situations. The emphasis will be on using the integral of a rate of change to give accumulated change or on using the method of setting up an approximating Riemann sum and representing its limit as a definite integral. Specific applications will include (a) the area of a region; (b) the volume of a solid with known cross-section; (c) the average value of a function; and (d) the distance traveled by a particle along a line.

Unit 6: Inverse Functions

Unit 6 Topics Covered:

- Derivatives of Inverse functions: Exponential differentiation; Logarithmic differentiation
- Growth and Decay
- Intermediate forms and l'Hopital's rule
- This schedule gives somewhere around 4 weeks dedicated for review in preparation for the AP Exam. During this time students will be provided with a supplemental text and take part in several practice exams.

Unit 6 CollegeBoard Standards:

- APC.15 - The student will use integration techniques and appropriate integrals to model physical, biological, and economic situations. The emphasis will be on using the integral of a rate of change to give accumulated change or on using the method of setting up an approximating Riemann sum and representing its limit as a definite integral. Specific applications will include (a) the area of a region; (b) the volume of a solid with known cross-section; (c) the average value of a function; and (d) the distance traveled by a particle along a line.
- APC.16 - The student will define a series and test for convergence of a series in terms of the limit of the sequence of partial sums. This will include (a) geometric series with applications; (b) harmonic series; (c) alternating series with error bound; (d) terms of series as areas of rectangles and their relationship to improper integrals, including the integral test and its use in testing the convergence of p-series.
- APC.17 - The student will define, restate, and apply Taylor series. This will include (a) Taylor polynomial approximations with graphical demonstration of convergence; (b) Maclaurin series and the general Taylor series centered at $x = a$; (c) Maclaurin series for the functions e^x , $\sin x$, $\cos x$, and $1/(1 - x)$; (d) formal manipulation of Taylor series and shortcuts to computing Taylor series, including substitution, differentiation, antidifferentiation, and the formation of new series from known series; (e) functions defined by power series; (f) radius and interval of convergence of power series.

AP STATISTICS

Course Length: 2 semester

Credits: 1.0

Recommended Grade Level: 12

Prerequisites: Successful completion of Precalculus or admitted in with department approval.
Basic knowledge of and experience with graphing calculators.

Course Description: Aligned with standards and objectives set by the AP CollegeBoard, AP Statistics is designed to help students develop a working knowledge of the ideas and tools of practical statistics. This course is typically taken after Precalculus, in conjunction with or in lieu of AP Calculus. All instruction is aligned with the Common Core Standards for Mathematical Practice with emphasis on the process standards of problem solving, reasoning and proof, communication, representation and connections and the proficiency standards of adaptive reasoning, strategic competence, conceptual understanding, procedural fluency and productive disposition. Course content is taught with a focus on real-world application and problem solving with and without the aid of technology. Students demonstrate their mastery of college level Calculus skills on the AP Statistics Exam, given in May. A passing score on the exam may earn students college Statistics credit. Placement and credit are granted by institutions in accordance with their own policies, not by those of the College Board or the AP Program.

AP STATISTICS UNIT PROGRESSION

Unit 1: Exploring Data

Unit 1 Topics Covered:

- I. Exploring data: describing patterns and departures from patterns
 - A. Constructing and interpreting graphical displays of distributions of univariate data (dotplot, stemplot, histogram, cumulative frequency plot)
 1. Center and spread
 2. Clusters and gaps
 3. Outliers and unusual features
 4. Shape
 - B. Summarizing distributions of univariate data
 1. Measuring center: median, mean
 2. Measuring spread: range, interquartile range, standard deviation
 3. Measuring position: quartiles, percentiles, standardized scores (z-scores)
 4. Using boxplots
 5. The effect of changing units on summary measures
 - C. Comparing distributions of univariate data (dotplots, back-to-back stemplots, parallel boxplots)
 1. Comparing center and spread
 2. Comparing clusters and gaps
 3. Comparing outliers and unusual features
 4. Comparing shape
 - E. Exploring Categorical Data
 1. Frequency tables and bar charts

2. Marginal and joint frequencies for two-way tables
3. Conditional relative frequencies and association
4. Comparing distributions using bar charts

Unit 1 CollegeBoard Themes:

- I. Exploring data: describing patterns and departures from patterns
- II. Sampling and experimentation: planning and conducting a study
- III: Anticipating patterns: exploring random phenomena using probability and simulation
- IV. Statistical inference: estimating population parameters and testing hypotheses

Unit 2: Modeling Distributions of Data

Unit 2 Topics Covered:

- I: Exploring data: describing patterns and departures from patterns
 - A: Constructing and interpreting graphical displays of distributions of univariate data (dotplot, stemplot, histogram, cumulative frequency plot)
 - B: Summarizing distributions of univariate data
 3. Measuring position: quartiles, percentiles, standardized scores (z-scores)
 5. The effect of changing units on summary measures
- III: Anticipating patterns: exploring random phenomena using probability and simulation
 - C: The Normal distribution
 1. Properties of the Normal distribution
 2. Using tables of the Normal distribution
 3. The Normal distribution as a model for measurements

Unit 2 CollegeBoard Themes:

- I. Exploring data: describing patterns and departures from patterns
- II. Sampling and experimentation: planning and conducting a study
- III: Anticipating patterns: exploring random phenomena using probability and simulation
- IV. Statistical inference: estimating population parameters and testing hypotheses

Unit 3: Describing Relationships

Unit 3 Topics Covered:

- I: Exploring Data: Describing patterns and departures from patterns
 - D: Exploring bivariate data
 1. Analyzing patterns in scatterplots
 2. Correlation and linearity
 3. Least-squares regression line
 4. Residual plots, outliers, and influential points
 5. Transformations to achieve linearity: logarithmic and power transformations

Unit 3 CollegeBoard Themes:

- I. Exploring data: describing patterns and departures from patterns

- II. Sampling and experimentation: planning and conducting a study
- III: Anticipating patterns: exploring random phenomena using probability and simulation
- IV. Statistical inference: estimating population parameters and testing hypotheses

Unit 4: Designing Studies

Unit 4 Learner Objectives:

- II. Sampling and experimentation: planning and conducting a study
 - A. Overview of methods of data collection
 - 1. Census
 - 2. Sample survey
 - 3. Experiment
 - 4. Observational study
 - B. Planning and conducting studies
 - 1. Characteristics of a well-designed and well-conducted survey
 - 2. Population, samples, and random selection
 - 3. Sources of bias in sampling and surveys
 - 4. Sampling methods, including simple random sampling, stratified random sampling, and cluster sampling
 - C. Planning and conducting experiments
 - 1. Characteristics of a well-designed and well-conducted experiment
 - 2. Treatments, control groups, experimental units, random assignments, and replication
 - 3. Sources of bias and confounding, including placebo effect and blinding
 - 4. Completely randomized design
 - 5. Randomized block design, including matched pairs design
 - D. Generalizability of results and types of conclusions that can be drawn from observational studies, experiments, and surveys

Unit 4 CollegeBoard Themes:

- I. Exploring data: describing patterns and departures from patterns
- II. Sampling and experimentation: planning and conducting a study
- III: Anticipating patterns: exploring random phenomena using probability and simulation
- IV. Statistical inference: estimating population parameters and testing hypotheses

Unit 5: Probability

Unit 5 Topics Covered:

- I. Exploring data: describing patterns and departures from patterns
 - E. Exploring categorical data
 - 1. Frequency tables and bar charts
 - 2. Marginal and joint frequencies for two-way tables
 - 3. Conditional relative frequencies and association
 - 4. Comparing distributions using bar charts
- III. Anticipating patterns: exploring random phenomena using probability and simulation

- A. Probability
 - 1. Interpreting probability, including long-run relative frequency interpretation
 - 2. “Law of Large Numbers” concept
 - 3. Addition rule, multiplication rule, conditional probability, and independence
 - 4. Discrete random variables and their probability distributions, including binomial and geometric
 - 5. Simulation of random behavior and probability distributions
 - 6. Mean (expected value) and standard deviation of a random variable and linear transformation of a random variable

Unit 5: CollegeBoard Themes:

- I. Exploring data: describing patterns and departures from patterns
- II. Sampling and experimentation: planning and conducting a study
- III: Anticipating patterns: exploring random phenomena using probability and simulation
- IV. Statistical inference: estimating population parameters and testing hypotheses

Unit 6: Random Variables

Unit 6 Topics Covered:

- III. Anticipating patterns: exploring random phenomena using probability and simulation
 - A. Probability
 - 1. Interpreting probability, including long-run relative frequency interpretation
 - 2. “Law of Large Numbers” concept
 - 3. Addition rule, multiplication rule, conditional probability, and independence
 - 4. Discrete random variables and their probability distributions, including binomial and geometric
 - 5. Simulation of random behavior and probability distributions
 - 6. Mean (expected value) and standard deviation of a random variable, and linear transformation of a random variable
 - B. Combining independent random variables
 - 1. Notion of independence versus dependence
 - 2. Mean and standard deviation for sums and differences of independent random variables

Unit 6 CollegeBoard Themes:

- I. Exploring data: describing patterns and departures from patterns
- II. Sampling and experimentation: planning and conducting a study
- III: Anticipating patterns: exploring random phenomena using probability and simulation
- IV. Statistical inference: estimating population parameters and testing hypotheses

Unit 7: Sampling Distributions

Unit 7 Topics Covered:

- III. Anticipating patterns: exploring random phenomena using probability and simulation
 - D. Sampling distributions

1. Sampling distribution of a sample proportion
2. Sampling distribution of a sample mean
3. Central Limit Theorem
4. Sampling distribution of a difference between two independent sample proportions
5. Sampling distribution of a difference between two independent sample means
6. Simulation of sampling distributions
7. t-distribution
8. Chi-square distribution

Unit 7 CollegeBoard Themes:

- I. Exploring data: describing patterns and departures from patterns
- II. Sampling and experimentation: planning and conducting a study
- III: Anticipating patterns: exploring random phenomena using probability and simulation
- IV. Statistical inference: estimating population parameters and testing hypotheses

Unit 8: Estimating with Confidence

Unit 8 Topics Covered:

- III. Anticipating patterns: exploring random phenomena using probability and simulation
 - D. Sampling distributions
 7. t-distribution
- IV. Statistical inference: estimating population parameters and testing hypotheses
 - A. Estimation (point estimators and confidence intervals)
 1. Estimating population parameters and margins of error
 2. Properties of point estimators, including unbiasedness and variability
 3. Logic of confidence intervals, meaning of confidence level and confidence intervals, and properties of confidence intervals
 4. Large-sample confidence interval for a proportion
 5. Large-sample confidence interval for a difference between two proportions
 6. Confidence interval for a mean
 7. Confidence interval for a difference between two means (paired and unpaired)
 8. Confidence interval for the slope of a least-squares regression line

Unit 8 CollegeBoard Themes:

- I. Exploring data: describing patterns and departures from patterns
- II. Sampling and experimentation: planning and conducting a study
- III: Anticipating patterns: exploring random phenomena using probability and simulation
- IV. Statistical inference: estimating population parameters and testing hypotheses

Unit 9: Testing a Claim

Unit 9 Topics Covered:

- IV. Statistical inference: estimating population parameters and testing hypotheses
 - A. Estimation (point estimators and confidence intervals)
 - 7. Confidence interval for a difference between two means (unpaired and paired)
 - B. Tests of significance
 - 1. Logic of significance testing, null and alternative hypotheses; p-values; one- and two- sided tests; concepts of Type I and Type II errors; concept of power
 - 2. Large sample test for a proportion
 - 3. Large sample test for a difference between two proportions
 - 4. Test for a mean
 - 5. Test for a difference between two means (unpaired and paired)
 - 6. Chi-square test for goodness of fit, homogeneity of proportions, and independence (one- and two-way tables)
 - 7. Test for the slope of a least-squares regression line

Unit 9 CollegeBoard Themes:

- I. Exploring data: describing patterns and departures from patterns
- II. Sampling and experimentation: planning and conducting a study
- III: Anticipating patterns: exploring random phenomena using probability and simulation
- IV. Statistical inference: estimating population parameters and testing hypotheses

Unit 10: Comparing Two Populations

Unit 10 Topics Covered:

- III. Anticipating patterns: exploring random phenomena using probability and simulation
 - D. Sampling distributions
 - 4. Sampling distribution of a difference between two independent sample proportions
 - 5. Sampling distribution of a difference between two independent sample means
- IV. Statistical inference: Estimating population parameters and testing hypotheses
 - A. Estimation (point estimators and confidence intervals)
 - 5. Large sample confidence interval for a difference between two proportions
 - 7. Confidence interval for a difference between two means (unpaired and paired)
 - B. Tests of significance
 - 3. Large sample test for a difference between two proportions
 - 7. Test for a difference between two means (unpaired and paired)

Unit 10 CollegeBoard Themes:

- I. Exploring data: describing patterns and departures from patterns
- II. Sampling and experimentation: planning and conducting a study
- III: Anticipating patterns: exploring random phenomena using probability and simulation
- IV. Statistical inference: estimating population parameters and testing hypotheses

Unit 11: Inference for Distributions of Categorical Data

Unit 11 Topics Covered:

- III. Anticipating patterns: exploring random phenomena using probability and simulation
 - D. Sampling distributions
 - 8. Chi-square distribution
- IV. Statistical inference: estimating population parameters and testing hypotheses
 - B. Tests of significance
 - 6. Chi-square test for goodness of fit, homogeneity of proportions, and independence (one- and two-way tables)

Unit 11 CollegeBoard Themes:

- I. Exploring data: describing patterns and departures from patterns
- II. Sampling and experimentation: planning and conducting a study
- III: Anticipating patterns: exploring random phenomena using probability and simulation
- IV. Statistical inference: estimating population parameters and testing hypotheses

Unit 12: More About Regression

Unit 12 Topics Covered:

- I. Exploring data: describing patterns and departures from patterns
 - D. Exploring bivariate data
 - 5. Transformations to achieve linearity: logarithmic and power transformations
- IV. Statistical inference: estimating population parameters and testing hypotheses
 - A. Estimation (point estimators and confidence intervals)
 - 8. Confidence interval for the slope of a least-squares regression line
 - B. Tests of significance
 - 7. Test for the slope of a least-squares regression line

Unit 12 CollegeBoard Themes:

- I. Exploring data: describing patterns and departures from patterns
- II. Sampling and experimentation: planning and conducting a study
- III: Anticipating patterns: exploring random phenomena using probability and simulation
- IV. Statistical inference: estimating population parameters and testing hypotheses

Survey of College Math

Course Length: 2 semesters

Credits: 1.0

Recommended Grade Levels: 12

Prerequisites: Successful completion of Algebra I, Geometry, and Algebra II or admitted in with department approval.

Course Description: In preparation for college and career and in alignment with the Common Core Mathematical Standards, Survey of College math has students explore a semester of personal finance related to banking, budgeting, consumer credit and income taxes. Mathematical principles will be used to navigate saving and investing, credit versus debit, financial responsibility, money management, insurance/risk management, and income/careers. Students are also exposed to a semester of statistics where they will analyze variable data, collect data, and explore probability.

SURVEY OF COLLEGE MATH UNIT PROGRESSION

Unit 1: Analyzing 1 Variable Data

Unit 1 Topics:

Pie Charts, Histogram, Box Plots, Stem Plots, measures of center, Comparing measures of center, standards deviation, range, interquartile range, percentiles, deciles, z-scores, skewed/symmetric shape

Unit 1 Standard(s):

- Organize data and draw conclusions about relationships that may exist in the data.
- Summarize data numerically using central tendency and position statistics.

Unit 2: Analyzing 2 Variable Data

Unit 2 Topics:

Correlation, Regression, Interpreting correlation, Making predictions, creating a scatter plot, Using calculator, Interpreting residuals

Unit 2 Standard(s):

- Organize data and draw conclusions about the association/correlation between two quantitative variables.

Unit 3: Data Collecting

Unit 3 Topics:

Questioning, Population vs. Sample, Good vs. Bad Sampling (Bias), Sampling methods, experiments

Unit 3 Standard(s):

-Construct and carry out a survey using reliable sampling methods.

Unit 4: Probability

Unit 4 Topics:

Two-way table, basic rules, venn diagram, tree diagram with conditional probability, probability simulations

Unit 4 Standard(s):

-Apply general probability rules using two-way tables, venn diagrams, and tree diagrams to interpret various situations.

-Conduct a simulation to estimate the probability of an event.

Unit 5: Banking

Unit 5 Topics:

Exponential Functions:

Exponential Growth and Decay

Limits, Compounding interest, continuous interest

Order of Operations, Natural and Common Logs

Recursive Thinking

Checking account

Unit 5 Standard(s):

-Analyze and apply compound interest, continuous interest and exponential growth and decay to make financial banking decisions.

Unit 6: Budget

Unit 6 Topics:

Circle-Sectors and Central Angles

Budgeting and spreadsheets

Exponential Equations

Unit 6 Standard(s):

-Analyze and construct budget data displays to make financial decisions.

Unit 7: Consumer Credit

Unit 7 Topics:

Measures of Central Tendency

Natural Logarithms, Base e

Quadratic Regression

Credit Scores

Comparing loan/credit cards/interest rates

Unit 7 Standard(s):

-Use understanding of loans, credit cards, and interest rates to make financial decisions.

Unit 8: Income Taxes

Unit 8 Topics:

Percentages

Piecewise Functions

Domains

Rational Equations

Calculating Income Taxes

Unit 8 Standard(s):

-Compute federal income taxes using tax tables and tax schedules.

SCIENCE

Science instruction at PrepNet schools is designed to present information to students in ways that promote scientific thinking, data analysis, and inquiry-based learning. Each course, in addition to focusing on the mastery of essential concepts, endeavors to prepare students for a second phase of Advanced Placement coursework. Where appropriate, labs are used to provide hands-on learning opportunities.

Michigan Merit Curriculum HS Graduation Requirements – 3 credits Science

PrepNet Science Courses Available:

- 7th Grade Science
- 8th Grade Science
- Biology
- Honors Biology
- AP Biology
- Chemistry
- AP Chemistry
- Human Anatomy & Physiology
- AP Environmental Science
- AP Physics I
- AP Physics II

Life Science (Grade 7)

Course Length: 2 semesters

Credits: 1.0

Recommended Grade Levels: 7

Prerequisites: None

Course Description: In preparation for high school and AP courses, and in alignment with the Common Core State Standards, Next Generation Science Standards, ACT College Readiness Guidelines and Michigan High School Content Expectations, Life Science is an introductory middle school science course, typically taken in 7th grade. The course starts with an introduction to Life Science and differentiating plants versus animals, then progresses into ecology. Other units cover cells and cell reproduction, evolution, and the human body. Along with traditional classwork, students are engaged in labs, group projects and research papers throughout the year. The development of critical thinking skills and scientific reasoning are emphasized throughout the course. In preparation for college and career readiness, this course is also aligned to the Common Core Literacy Standards for Science & Technical Subjects.

Life Science Unit Progression

Unit 1: Introduction to Life Science

Unit 1 Priority Standards and Learner Objectives:

Priority Standard 1: Developing and using models to explain the relationship between structure, function, and the emergent properties of biological systems.

Level 2:

1.2.1: Predict the functions of components of a given model.

1.2.2: Identify a simple model illustrating the structural components and characteristics of a biological structure. (i.e. the structure of DNA, cell structure, etc)

1.2.3: Identify major components in models of a biological system.

Level 3:

1.3.1: Identify and describe the functions of components of a given model.

1.3.2: Develop a simple model illustrating the structural components and characteristics of a biological structure. (i.e. the structure of DNA, cell structure, etc)

1.3.3: Compare and contrast different models of a biological system.

Level 4:

1.4.1: Predict and justify how the functions of a higher level system are the result of the structural components of lower level systems. (i.e. relationship between multiple cell walls and its fitness to its environment, DNA mutation and natural selection acting on a population, etc).

1.4.2: Develop a complex model, or series of models, illustrating processes of change and /or relationships between biological systems at different levels (i.e cellular reproduction, genetics over multiple generations, cycles)

Priority Standard 2: Designing and conducting experiments to analyze and interpret data.

Level 2:

2.2.1: Identify the purpose statement of a lab.

2.2.2: Generate a testable hypothesis related to an experiment.

2.2.3: Draw and clearly state a conclusion about the result of a lab experiment.

Level 3:

2.3.1: Identify the dependent variable, independent variable, experimental and control group in a study.

2.3.2: Collect and organize data into a table from an experiment into **GIVEN** formats

2.3.3: Justify whether collected observations or data support or reject a hypothesis.

Level 4:

2.4.1: Design an experimental procedure designed to test the effect of an independent variable on the dependent variable, including a control group when applicable.

2.4.2: Generate a purpose statement for your lab.

2.4.3: Create a supported hypothesis for your experiment

2.4.4: Create an accurate* graph of expected data to support your hypothesis.

Priority Standard 3: Critical reading and analysis of informative texts and data.

Level 2:

3.2.1: Determine the subject or theme of an informational text* by analyzing key vocabulary words.

3.2.2 Identify the main argument or claim presented in an informational text.

3.2.3: Identify specific points or trends on a scientific diagram (chart or graph) that supports a particular claim.

Level 3:

3.3.1: Infer the meaning of unknown scientific vocabulary terms and concepts by analyzing and using context clues.

3.3.2: Evaluate the evidence offered in support of the main claim/idea of the text.

Level 4:

3.4.1: Research additional sources to determine whether a causal or correlational relationship exists.

Unit 2: Cells

Unit 2 Priority Standards and Learner Objectives:

- Same as Unit 1

Unit 3: Plants

Unit 3 Priority Standards and Learner Objectives:

- Same as Unit 1

Unit 4: Animals

Unit 4 Priority Standards and Learner Objectives:

- Same as Unit 1

Unit 5: Human Biology

Unit 5 Priority Standards and Learner Objectives:

- Same as Unit 1

Unit 6: Genetics, Heredity, & Evolution

Unit 6 Priority Standards and Learner Objectives:

- Same as Unit 1

Unit 7: Ecology

Unit 7 Priority Standards and Learner Objectives:

- Same as Unit 1

Environmental Science (Grade 8)

Course Length: 2 semesters

Credits: 1.0

Recommended Grade Levels: 8

Prerequisites: None

Course Description: In preparation for high school and AP courses, and in alignment with the Common Core State Standards, Next Generation Science Standards, and ACT College Readiness Guidelines, Environmental Science is an introductory middle school science course, typically taken in 8th grade. The course starts with an introduction to Environmental Science and progresses into human environmental impact and sustainability. Other units cover including biotic relationships, species interactions, and Earth's resources. Along with traditional classwork, students are engaged in labs, group projects and research papers throughout the year. The development of critical thinking skills and scientific reasoning are emphasized throughout the course. In preparation for college and career readiness, this course is also aligned to the Common Core Literacy Standards for Science & Technical Subjects.

Environmental Science Unit Progression

Unit 1: Introduction to Environmental Science

Unit 1 Priority Standards and Learner Objectives:

Priority Standard 1: Developing and using models to explain the relationship between structure, function, and the emergent properties of biological systems.

Level 2:

1.2.1: Predict the functions of components of a given model.

1.2.2: Identify a simple model illustrating the structural components and characteristics of a biological structure. (i.e. the structure of DNA, cell structure, etc)

1.2.3: Identify major components in models of a biological system.

Level 3:

1.3.1: Identify and describe the functions of components of a given model.

1.3.2: Develop a simple model illustrating the structural components and characteristics of a biological structure. (i.e. the structure of DNA, cell structure, etc)

1.3.3: Compare and contrast different models of a biological system.

Level 4:

1.4.1: Predict and justify how the functions of a higher level system are the result of the structural components of lower level systems. (i.e. relationship between multiple cell walls and its fitness to its environment, DNA mutation and natural selection acting on a population, etc).

1.4.2: Develop a complex model, or series of models, illustrating processes of change and /or relationships between biological systems at different levels (i.e cellular reproduction, genetics over multiple generations, cycles)

Priority Standard 2: Designing and conducting experiments to analyze and interpret data.

Level 2:

2.2.1: Identify the purpose statement of a lab.

2.2.2: Generate a testable hypothesis related to an experiment.

2.2.3: Draw and clearly state a conclusion about the result of a lab experiment.

Level 3:

2.3.1: Identify the dependent variable, independent variable, experimental and control group in a study.

2.3.2: Collect and organize data into a table from an experiment into **GIVEN** formats

2.3.3: Justify whether collected observations or data support or reject a hypothesis.

Level 4:

2.4.1: Design an experimental procedure designed to test the effect of an independent variable on the dependent variable, including a control group when applicable.

2.4.2: Generate a purpose statement for your lab.

2.4.3: Create a supported hypothesis for your experiment

2.4.4: Create an accurate* graph of expected data to support your hypothesis.

Priority Standard 3: Critical reading and analysis of informative texts and data.

Level 2:

3.2.1: Determine the subject or theme of an informational text* by analyzing key vocabulary words.

3.2.2 Identify the main argument or claim presented in an informational text.

3.2.3: Identify specific points or trends on a scientific diagram (chart or graph) that supports a particular claim.

Level 3:

3.3.1: Infer the meaning of unknown scientific vocabulary terms and concepts by analyzing and using context clues.

3.3.2: Evaluate the evidence offered in support of the main claim/idea of the text.

Level 4:

3.4.1: Research additional sources to determine whether a causal or correlational relationship exists.

Unit 2: Ecology

Unit 2 Priority Standards and Learner Objectives:

- Same as Unit 1

Unit 3: Humans & The Environment

Unit 3 Priority Standards and Learner Objectives:

- Same as Unit 1

Unit 4: Earth's Resources

Unit 4 Priority Standards and Learner Objectives:

Priority Standard 1: Developing and using models to explain the relationship between structure, function, and the emergent properties of biological systems.

Level 2:

- 1.2.1: Predict the functions of components of a given model.
- 1.2.2: Identify a simple model illustrating the structural components and characteristics of a biological structure. (i.e. the structure of DNA, cell structure, etc)
- 1.2.3: Identify major components in models of a biological system.

Level 3:

- 1.3.1: Identify and describe the functions of components of a given model.
- 1.3.2: Develop a simple model illustrating the structural components and characteristics of a biological structure. (i.e. the structure of DNA, cell structure, etc)
- 1.3.3: Compare and contrast different models of a biological system.

Level 4:

- 1.4.1: Predict and justify how the functions of a higher level system are the result of the structural components of lower level systems. (i.e. relationship between multiple cell walls and its fitness to its environment, DNA mutation and natural selection acting on a population, etc).
- 1.4.2: Develop a complex model, or series of models, illustrating processes of change and /or relationships between biological systems at different levels (i.e cellular reproduction, genetics over multiple generations, cycles)

Priority Standard 3: Critical reading and analysis of informative texts and data.

Level 2:

- 3.2.1: Determine the subject or theme of an informational text* by analyzing key vocabulary words.
- 3.2.2 Identify the main argument or claim presented in an informational text.
- 3.2.3: Identify specific points or trends on a scientific diagram (chart or graph) that supports a particular claim.

Level 3:

- 3.3.1: Infer the meaning of unknown scientific vocabulary terms and concepts by analyzing and using context clues.
- 3.3.2: Evaluate the evidence offered in support of the main claim/idea of the text.

Level 4:

3.4.1: Research additional sources to determine whether a causal or correlational relationship exists.

Priority Standard 4: Synthesis of multiple sources of information and data in a research project.

Level 2:

4.2.1: Compare and contrast information on a similar topic from multiple sources and explain why the sources are credible

4.2.2: Identify specific points or trends on a scientific diagram(s) that supports a particular claim.

Level 3:

4.3.1: Synthesize information from multiple sources to draw a reasonable conclusion in answer to a scientific question in a research project.

4.3.2: Predict a future result or data-point by analyzing trends in multiple sources.

Level 4:

4.4.1: Create a follow-up research question and complete independent research for current unit.

Unit 5: Sustainability

Unit 5 Priority Standards and Learner Objectives:

- Same as Unit 4

BIOLOGY

Course Length: 2 semesters

Credits: 1.0

Recommended Grade Levels: 9

Prerequisites: None

Course Description: In preparation for AP courses and in alignment with the Common Core State Standards, Next Generation Science Standards, ACT College Readiness Guidelines and Michigan High School Content Expectations, Biology is an introductory high school science course, typically taken in 9th grade. The course starts with an introduction to Science and Science Reasoning and then progresses into taxonomy. Other units cover comparative anatomy, cells and cell reproduction, and photosynthesis and respiration. Basic Chemistry and Biochemistry, central dogma, genetics, biotechnology and bioethics, evolution and ecology are also addressed. Along with traditional classwork, students are engaged in labs, group projects and research papers throughout the year. The development of critical thinking skills and scientific reasoning are emphasized throughout the course. In preparation for college and career readiness, this course is also aligned to the Common Core Literacy Standards for Science & Technical Subjects.

BIOLOGY UNIT PROGRESSION

Unit 1: Introduction to Science and Science Reasoning

Unit 1 Priority Standards and Learner Objectives:

Priority Standard 1: Analyze and interpret data.

Level 2

- 1.2.1: Identify specific data points on scientific diagrams.
- 1.2.2: Organize data points into diagrams (x/y axis, dependent variable, title, units, independent variable, key).
- 1.2.3: Write a legend that includes the independent and dependent variables and treatment(s) to explain what the diagram depicts.

Level 3

- 1.3.1: Analyze and interpret graphical displays of data and/or large data sets to explain relationships.
- 1.3.2: Analyze and interpret data to provide evidence for phenomena (events, processes, systems, etc.).
- 1.3.3: Compare and explain the analysis of data sets from different experiments.

Level 4

- 1.4.1: Use evidence-based patterns to form summative theories.
- 1.4.2: Distinguish between causal and correlational relationships in data.
- 1.4.3: Consider limitations of data analysis (e.g., measurement error), and/or seek to improve precision and accuracy of data.

Priority Standard 2: Plan and conduct and investigation/experiment.

Level 2

- 2.2.1: Justify dependent and independent variables in an experiment.
- 2.2.2: Justify the control group and the experimental group in an experiment.
- 2.2.3: Justify a testable hypothesis for an experiment.
- 2.2.4: Justify the claim that is supported by given evidence for an experiment.
- 2.2.5: Justify a question that an experiment is designed to test.
- 2.2.6: Justify the necessary components of a procedure (trials, sample size, details, steps).

Level 3

- 2.3.1: Generate a testable hypothesis.
- 2.3.2: Generate an experimental group(s) and a control group.
- 2.3.3: Generate an independent variable to manipulate and a dependent variable to measure.
- 2.3.4: Collect and/or diagram data during an experiment (chart/table/graph).
- 2.3.5: Make a claim based on evidence collected and defended with reasoning.
- 2.3.6: Develop a procedure that includes all the necessary components to perform an experiment (trials, sample size, details, steps, etc)

Level 4

- 2.4.1: Revise/create a hypothesis, adapt/conduct your investigation, and compare your original data with your new data.
- 2.4.2: Research and discuss the results of a published scientific investigation in comparison to an investigation you conducted.

Priority Standard 3a: Use, interpret, and develop models to simulate systems and make predictions

Level 2

- 3.2.1: Describe what the components of the model represent.
- 3.2.2: Interpret systems using models.
- 3.2.3: Explain how the model does/does not support a claim.

Level 3

- 3.3.1: Develop a model(s) to provide evidence for phenomena.
- 3.3.2: Revise a model(s) to show the relationships among processes, systems, etc.
- 3.3.3: Predict phenomena using a model(s).

Level 4

- 3.4.1: Justify the relationships, among processes, systems, etc., shown within a model.
- 3.4.2: Evaluate limitations, precision, or reliability of a model.

Unit 2: Taxonomy and Comparative Anatomy

Unit 2 Priority Standards and Learner Objectives:

- Same as Unit 1

Unit 3: Biochemistry

Unit 3 Priority Standards and Learner Objectives:

- Same as Unit 1

Unit 4: Cell Structure and Function

Unit 4 Priority Standards and Learner Objectives:

- Same as Unit 1

Unit 5: Cell Structure & Function

Unit 5 Priority Standards and Learner Objectives:

- Same as Unit 1

Unit 6: DNA

Unit 6 Priority Standards and Learner Objectives:

Priority Standard 3b: Use, interpret, and develop models to simulate systems and make predictions

Level 2

3.2.1: Develop a model(s) to provide evidence for phenomena.

3.2.2: Revise a model(s) to show the relationships among processes, systems, etc.

3.2.3: Predict phenomena using a model(s).

Level 3

3.3.1: Justify the relationships, among processes, systems, etc., shown within a model.

3.3.2: Evaluate limitations, precision, or reliability of a model.

Level 4

3.4.1: Apply your model to a different scenario.

Priority Standard 4: Obtain, evaluate, and effectively communicate information

Level 2

4.2.1: Categorize sources of information as credible or non-credible.

4.2.2: Describe the hypothesis and conclusion in multiple scientific articles.

Level 3

4.3.1: Research a question and generate a conclusion by evaluating scientific literature (including both written text and visual displays).

4.3.2: Evaluate and justify the credibility of multiple sources of information, including accuracy, argumentation, and bias.

4.3.3: Evaluate evidence, hypotheses, and conclusions in multiple scientific articles.

4.3.4: Communicate and defend scientific data and/or claims both in oral and/or written form (e.g. short written work, presentation, lab report, and/or research paper, etc...) including appropriately formatted works cited.

Level 4

4.4.1: Orally defend your position on a current scientific issue based on logical and relevant evidence.

Unit 7: Genetics

Unit 7 Priority Standards and Learner Objectives:

- Same as Unit 6

Unit 8: Evolution

Unit 8 Priority Standards and Learner Objectives:

- Same as Unit 6

AP BIOLOGY

Course Length: 2 semesters

Credits: 1.0

Recommended Grade Levels: 10, 11, 12

Prerequisites: Biology and Chemistry

Course Description: Aligned with standards and objectives set by the AP CollegeBoard, AP Biology is a college level course designed around laboratory experiences and how those experiences can be used to deepen and solidify the content that is covered on a daily basis to provide students with experiences that will enable them to build a deep conceptual understanding of the material. Typically taken directly after Chemistry, with a background in either Biology or Honors Biology, topics covered include the atom and energy, energy use and acquisition, DNA, RNA and biotechnology, Mendelian genetics, and evolution. Cells, structure and function, comparative anatomy and physiology, and ecology and plants are also addressed. In preparation for college level essay writing, an emphasis is placed on scientific essay writing. In preparation for college and career readiness, this course is also aligned to the Common Core Literacy Standards for Science & Technical Subjects. Students demonstrate their mastery of college level Biology knowledge and skills on the AP Biology Exam, given in May. A passing score on the exam may earn students college Biology credit. Placement and credit are granted by institutions in accordance with their own policies, not by those of the College Board or the AP Program.

AP BIOLOGY UNIT PROGRESSION

Unit 1: Atom and Energy

Unit 1 Topics Covered:

- Bonds
- Polarity
- Functional groups
- Major macromolecules and functions
- Enzymes and energy
- Oxidation and reduction
- Water - specific heat, polarity, importance to life

Unit 1 CollegeBoard Standards:

- Enduring understanding 3.A: Heritable information provides for continuity of life.
- Enduring understanding 3.B: Expression of genetic information involves cellular and molecular mechanisms.
- Enduring understanding 4.A: Interactions within biological systems lead to complex properties.
- Enduring understanding 4.B: Competition and cooperation are important aspects of biological systems.
- Enduring understanding 4.C: Naturally occurring diversity among and between components within biological systems affects interactions with the environment.

Unit 2: Energy Use and Acquisition

Unit 2 Topics Covered:

- Energy - Gibbs Free Energy
- Photosynthesis - ox vs. redox, ETC and Calvin, CAM and C4 pathways, cyclic and non-cyclic
- Cell Respiration - ETC and Krebs, Fermentation

Unit 2 CollegeBoard Standards:

- Enduring understanding 2.A: Growth, reproduction and maintenance of the organization of living systems require free energy and matter.
- Enduring understanding 4.A: Interactions within biological systems lead to complex properties.
- Enduring understanding 4.B: Competition and cooperation are important aspects of biological systems.
- Enduring understanding 4.C: Naturally occurring diversity among and between components within biological systems affects interactions with the environment.

Unit 3: DNA, RNA, and Biotech

Unit 3 Topics Covered:

- Structure/Function – Mutations, gene regulations, (i.e. lac operons), Biotech usage

Unit 3 CollegeBoard Standards:

- Enduring understanding 3.A: Heritable information provides for continuity of life.
- Enduring understanding 3.B: Expression of genetic information involves cellular and molecular mechanisms.
- Enduring understanding 4.A: Interactions within biological systems lead to complex properties.
- Enduring understanding 4.B: Competition and cooperation are important aspects of biological systems.
- Enduring understanding 4.C: Naturally occurring diversity among and between components within biological systems affects interactions with the environment.

Unit 3 Common Core Literacy Standards:

- ELA-Literacy.RST.9-10.1 Cite specific textual evidence to support analysis of science and technical texts, attending to the precise details of explanations or descriptions.
- ELA-Literacy.RST.9-10.2 determine the central ideas or conclusions of a text; trace the text's explanation or depiction of a complex process, phenomenon, or concept; provide an accurate summary of the text.
- ELA-Literacy.RST.9-10.3 Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks, attending to special cases or exceptions defined in the text.
- ELA-Literacy.RST.9-10.4 Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 9–10 texts and topics.
- ELA-Literacy.RST.9-10.5 Analyze the structure of the relationships among concepts in a text, including relationships among key terms (e.g., force, friction, reaction force, energy).
- ELA-Literacy.RST.9-10.6 Analyze the author's purpose in providing an explanation,

describing a procedure, or discussing an experiment in a text, defining the question the author seeks to address.

- ELA-Literacy.RST.9-10.7 Translate quantitative or technical information expressed in words in a text into visual form (e.g., a table or chart) and translate information expressed visually or mathematically (e.g., in an equation) into words.
- ELA-Literacy.RST.9-10.8 Assess the extent to which the reasoning and evidence in a text support the author's claim or a recommendation for solving a scientific or technical problem.
- ELA-Literacy.RST.9-10.9 Compare and contrast findings presented in a text to those from other sources (including their own experiments), noting when the findings support or contradict previous explanations or accounts.
- ELA-Literacy.RST.9-10.10 By the end of grade 10, read and comprehend science/technical texts in the grades 9–10 text complexity band independently and proficiently.

Unit 4: Mendelian Genetics

Unit 4 Topics Covered:

- Inheritance (Mendelian and non-Mendelian)
- Interpreting pedigrees

Unit 4 CollegeBoard Standards:

- Enduring understanding 3.A: Heritable information provides for continuity of life.
- Enduring understanding 3.B: Expression of genetic information involves cellular and molecular mechanisms.
- Enduring understanding 4.A: Interactions within biological systems lead to complex properties.
- Enduring understanding 4.C: Naturally occurring diversity among and between components within biological systems affects interactions with the environment.

Unit 5: Evolution

Unit 5 Topics Covered:

- Natural selection
- Speciation
- Other mechanisms of change
- Phylogenies

Unit 5 CollegeBoard Standards:

- Enduring understanding 1.A: Change in the genetic makeup of a population over time is evolution.
- Enduring understanding 1.B: Organisms are linked by lines of descent from common ancestry.
- Enduring understanding 1.C: Life continues to evolve within a changing environment.
- Enduring understanding 1.D: The origin of living systems is explained by natural processes.

- Enduring understanding 3.C: The processing of genetic information is imperfect and is a source of genetic variation.
- Enduring understanding 3.D: Cells communicate by generating, transmitting and receiving chemical signals.
- Enduring understanding 4.A: Interactions within biological systems lead to complex properties.
- Enduring understanding 4.B: Competition and cooperation are important aspects of biological systems.
- Enduring understanding 4.C: Naturally occurring diversity among and between components within biological systems affects interactions with the environment.

Unit 6: Cells

Unit 6 Topics Covered:

- Organelles
- Prokaryotic vs. Eukaryotic (endosymbiosis theory)
- Membranes and transport
- Water potential
- Cell signaling
- Mitosis and meiosis
- Chromosomal mutations
- Alternation of generations
- Sex versus no sex
- Homeostasis
- Cell communication

Unit 6 CollegeBoard Standards:

- Enduring understanding 1.A: Change in the genetic makeup of a population over time is evolution.
- Enduring understanding 1.B: Organisms are linked by lines of descent from common ancestry.
- Enduring understanding 1.C: Life continues to evolve within a changing environment.
- Enduring understanding 1.D: The origin of living systems is explained by natural processes.
- Enduring understanding 2.B: Growth, reproduction and dynamic homeostasis require that cells create and maintain internal environments that are different from their external environments.
- Enduring understanding 2.C: Organisms use feedback mechanisms to regulate growth and reproduction, and to maintain dynamic homeostasis.
- Enduring understanding 2.D: Growth and dynamic homeostasis of a biological system are influenced by changes in the system's environment.
- Enduring understanding 2.E: Many biological processes involved in growth, reproduction and dynamic homeostasis include temporal regulation and coordination.
- Enduring understanding 3.A: Heritable information provides for continuity of life.
- Enduring understanding 3.B: Expression of genetic information involves cellular and molecular mechanisms.
- Enduring understanding 3.D: Cells communicate by generating, transmitting and receiving chemical signals.

- Enduring understanding 3.E: Transmission of information results in changes within and between biological systems.
- Enduring understanding 4.A: Interactions within biological systems lead to complex properties.
- Enduring understanding 4.B: Competition and cooperation are important aspects of biological systems.
- Enduring understanding 4.C: Naturally occurring diversity among and between components within biological systems affects interactions with the environment.

Unit 7: Structure and Function

Unit 7 Topics Covered:

- Embryology
- Development
- Tissues
- Homeostasis
- Cell communication
- Cell signaling
- Physiology
- Nervous System
- Endocrine System
- Cardiovascular System

Unit 7 CollegeBoard Standards:

- Enduring understanding 2.C: Organisms use feedback mechanisms to regulate growth and reproduction, and to maintain dynamic homeostasis.
- Enduring understanding 2.D: Growth and dynamic homeostasis of a biological system are influenced by changes in the system's environment.
- Enduring understanding 2.E: Many biological processes involved in growth, reproduction and dynamic homeostasis include temporal regulation and coordination.
- Enduring understanding 3.D: Cells communicate by generating, transmitting and receiving chemical signals.
- Enduring understanding 3.E: Transmission of information results in changes within and between biological systems.
- Enduring understanding 4.A: Interactions within biological systems lead to complex properties.
- Enduring understanding 4.B: Competition and cooperation are important aspects of biological systems.
- Enduring understanding 4.C: Naturally occurring diversity among and between components within biological systems affects interactions with the environment.

Unit 8: Zombie Apocalypse

Unit 8 Topics Covered:

- Immune System
- Endocrine System
- Nervous System
- Viruses

- Lytic and lysogenic cycles
- Bioethics

Unit 8 CollegeBoard Standards:

- Enduring understanding 1.A: Change in the genetic makeup of a population over time is evolution.
- Enduring understanding 1.C: Life continues to evolve within a changing environment.
- Enduring understanding 2.C: Organisms use feedback mechanisms to regulate growth and reproduction, and to maintain dynamic homeostasis.
- Enduring understanding 2.D: Growth and dynamic homeostasis of a biological system are influenced by changes in the system's environment.
- Enduring understanding 2.E: Many biological processes involved in growth, reproduction and dynamic homeostasis include temporal regulation and coordination.
- Enduring understanding 3.B: Expression of genetic information involves cellular and molecular mechanisms.
- Enduring understanding 3.C: The processing of genetic information is imperfect and is a source of genetic variation.
- Enduring understanding 3.D: Cells communicate by generating, transmitting and receiving chemical signals.
- Enduring understanding 3.E: Transmission of information results in changes within and between biological systems.
- Enduring understanding 4.A: Interactions within biological systems lead to complex properties.
- Enduring understanding 4.B: Competition and cooperation are important aspects of biological systems.
- Enduring understanding 4.C: Naturally occurring diversity among and between components within biological systems affects interactions with the environment.

Unit 9: Ecology and Plants

Unit 9 Topics Covered:

- Plant tissues and structures - phloem and xylem, transport in plants, transpiration
- Plant biotech
- Plant hormones and behavior
- Population Ecology - R and K strategies, Carrying Capacity, Limiting Factors, Life Curves
- Community Ecology – Succession, Ecosystems, trophic levels, Nutrient Cycles, Behavior

Unit 9 CollegeBoard Standards:

- Enduring understanding 2.C: Organisms use feedback mechanisms to regulate growth and reproduction, and to maintain dynamic homeostasis.
- Enduring understanding 2.D: Growth and dynamic homeostasis of a biological system are influenced by changes in the system's environment.
- Enduring understanding 2.E: Many biological processes involved in growth, reproduction and dynamic homeostasis include temporal regulation and coordination.
- Enduring understanding 3.C: The processing of genetic information is imperfect and is a

source of genetic variation.

- Enduring understanding 3.E: Transmission of information results in changes within and between biological systems.
- Enduring understanding 4.A: Interactions within biological systems lead to complex properties.
- Enduring understanding 4.B: Competition and cooperation are important aspects of biological systems.
- Enduring understanding 4.C: Naturally occurring diversity among and between components within biological systems affects interactions with the environment.

CHEMISTRY

Course Length: 2 semesters

Credits: 1.0

Recommended Grade Levels: 10

Prerequisites: None

Course Description: In preparation for AP courses and in alignment with the Common Core State Standards, Next Generation Science Standards, ACT College Readiness Guidelines and Michigan High School Content Expectations, Chemistry is designed as a yearlong introduction to high school chemistry. Typically taken after Biology or Honors Biology, topics include the basics of Chemistry, the atom, chemical nomenclature, chemical reactions, and the mole. Stoichiometry, electrons and the Periodic Table, trends of the Periodic Table, bonding, phase changes and thermodynamics, solutions, gas laws, and thermodynamics, and acids and bases are also addressed. Along with traditional classwork, students are engaged in labs, projects and research papers throughout the year, providing opportunities to apply knowledge learned through discussion and group work exercises. The development of critical thinking skills and scientific reasoning are emphasized throughout the course. In preparation for college and career readiness, this course is also aligned to the Common Core Literacy Standards for Science & Technical Subjects.

CHEMISTRY UNIT PROGRESSION

Unit 1: Basics of Chemistry

Unit 1 Priority Standards and Learner Objectives:

Priority Standard 1: Analyze and interpret data.

Level 2

1.2.1a: Create an appropriate graph with all the appropriate components (titles, legend, axis, variables, trends, scaling, data)

1.2.1b: Identify and describe a logical trend/relationship* within experimental results (patterns/trends/correlations within text or data)

*include all relationships between independent and dependent variables

Level 3

1.3.1: Accurately justify the interpreted data (text or data; with scientific background/reasoning)

1.3.2: Compare and contrast the results of an experiment (such as data sets, experimental results, conclusions, hypotheses, sources, etc.)

1.3.3: Distinguish between causal and correlational relationships in data.

Level 4

1.4.1: Discuss the results of published data from a scientific investigation.

1.4.2: Predict outcomes justify the prediction based on information given.

Unit 2: The Atom

Unit 2 Priority Standards and Learner Objectives:

Priority Standard 1: Analyze and interpret data.

Level 2

1.2.1a: Create an appropriate graph with all the appropriate components (titles, legend, axis, variables, trends, scaling, data)

1.2.1b: Identify and describe a logical trend/relationship* within experimental results (patterns/trends/correlations within text or data)

*include all relationships between independent and dependent variables

Level 3

1.3.1: Accurately justify the interpreted data (text or data; with scientific background/reasoning)

1.3.2: Compare and contrast the results of an experiment (such as data sets, experimental results, conclusions, hypotheses, sources, etc.)

1.3.3: Distinguish between causal and correlational relationships in data.

Level 4

1.4.1: Discuss the results of published data from a scientific investigation.

1.4.2: Predict outcomes justify the prediction based on information given.

Priority Standard 2.0: Utilize models to explain phenomena.

Level 2

2.2.1: Identify components of models and the changes that are represented. (Label and describe)

2.2.2: Determine the most appropriate model for given context through compare and contrast (list or explain)

Level 3

2.3.1: Develop and/or use an appropriate model to explain behavior of matter (i.e. chemical reactions)

2.3.2: Describe limitations and merits in a representation vs the actual event.

2.3.3: Justify (the why) the use of a particular model(s) (i.e. chemical reactions, triple points, colligative properties, gas laws, nomenclature)

Level 4

2.4.1: Create/Defend an argument on which a model would be best suited for a situation.

2.4.2: Develop a complex model that allows for manipulation and testing of a proposed process or system.

Unit 3: Electrons

Unit 3 Priority Standards and Learner Objectives:

Priority Standard 2.0: Utilize models to explain phenomena.

Level 2

2.2.1: Identify components of models and the changes that are represented. (Label and describe)

2.2.2: Determine the most appropriate model for given context through compare and contrast (list or explain)

Level 3

2.3.1: Develop and/or use an appropriate model to explain behavior of matter (i.e. chemical reactions)

2.3.2: Describe limitations and merits in a representation vs the actual event.

2.3.3: Justify (the why) the use of a particular model(s) (i.e. chemical reactions, triple points, colligative properties, gas laws, nomenclature)

Level 4

2.4.1: Create/Defend an argument on which a model would be best suited for a situation.

2.4.2: Develop a complex model that allows for manipulation and testing of a proposed process or system.

Unit 4: Periodic Table

Unit 4 Priority Standards and Learner Objectives:

- Same as Unit 2

Unit 5: Bonding

Unit 5 Priority Standards and Learner Objectives:

- Same as Unit 3

Unit 6: Chemical Reactions

Unit 6 Priority Standards and Learner Objectives:

- Same as Unit 2

Unit 7: Metrics

Unit 7 Priority Standards and Learner Objectives:

Priority Standard 4: Interpret and Manipulate quantitative values to solve problems.

Level 2

- 4.2.1: Accurately* compute simple processes (metric to metric conversions, solving for a variable in an algebraic expression, show work) (*accurately includes units and within ± 1 sig figs)
- 4.2.2: Communicate a logical thought process for solving a problem (ex. concept map, equivalency statement) (need to include identify knowns & unknowns, equations, solving for the variable)
- 4.2.3: Select the appropriate formula to solve a problem.

Level 3

- 4.3.1: Accurately* compute complex processes (not sole metric to metric conversions, not just solving for a variable in an algebraic expression, being able to show work) (*accurately includes units and within ± 1 sig figs)
- 4.3.2: Justify a process, quantity and/or mathematical relationships (how it was solved using scientific reasoning, relate to other values).
- 4.3.3: Manipulate the appropriate formula and correctly solve the problem.

Level 4

- 4.4.1: Combine mathematical concepts from multiple units to solve a problem.
- 4.4.2: Derive the appropriate formula to solve a problem.

Unit 8: Moles

Unit 8 Priority Standards and Learner Objectives:

Priority Standard 3: Develop and communicate conclusions based on evidence.

Level 2

- 3.2.1 Draw scientific conclusion based on evidence to explain a phenomenon (what happened?).
- 3.2.2: Identify and describe* sources of experimental error beyond human error (* = why this is an error)
- 3.2.3: Accurately identify the purpose (the why) a scientific experiment (given or performed)
- 3.2.4: Generate a testable hypothesis.

Level 3

- 3.3.1 - Justify a scientific conclusion based on evidence (collected data) to explain a phenomenon (why did it happen?).
- 3.3.2 - Predict how error can logically affect an experiment's results.
- 3.3.3 - Effectively communicate and defend* scientific claims in oral and/or written form (* = based on scientific knowledge/background).
- 3.3.4 - Justify whether or not a hypothesis was supported or rejected.

Level 4

- 3.4.1 - Identify and correct a scientific misconception.
- 3.4.2 - Develop and explain a strategy to reduce experimental error.
- 3.4.3 - Write a detailed lab report with all of the appropriate components (no template provided).

Unit 9: Stoichiometry

Unit 9 *Priority Standards and Learner Objectives:*

Priority Standard 3: Develop and communicate conclusions based on evidence.

Level 2

- 3.2.1 Draw scientific conclusion based on evidence to explain a phenomenon (what happened?).
- 3.2.2: Identify and describe* sources of experimental error beyond human error (* = why this is an error)
- 3.2.3: Accurately identify the purpose (the why) a scientific experiment (given or performed)
- 3.2.4: Generate a testable hypothesis.

Level 3

- 3.3.1 - Justify a scientific conclusion based on evidence (collected data) to explain a phenomenon (why did it happen?).
- 3.3.2 - Predict how error can logically affect an experiment's results.
- 3.3.3 - Effectively communicate and defend* scientific claims in oral and/or written form (* = based on scientific knowledge/background).
- 3.3.4 - Justify whether or not a hypothesis was supported or rejected.

Level 4

- 3.4.1 - Identify and correct a scientific misconception.
- 3.4.2 - Develop and explain a strategy to reduce experimental error.
- 3.4.3 - Write a detailed lab report with all of the appropriate components (no template provided).

Priority Standard 4: Interpret and Manipulate quantitative values to solve problems.

Level 2

- 4.2.1: Accurately* compute simple processes (metric to metric conversions, solving for a variable in an algebraic expression, show work) (*accurately includes units and within ± 1 sig figs)
- 4.2.2: Communicate a logical thought process for solving a problem (ex. concept map, equivalency statement) (need to include identify knowns & unknowns, equations, solving for the variable)
- 4.2.3: Select the appropriate formula to solve a problem.

Level 3

- 4.3.1: Accurately* compute complex processes (not sole metric to metric conversions, not just solving for a variable in an algebraic expression, being able to show work) (*accurately includes units and within ± 1 sig figs)
- 4.3.2: Justify a process, quantity and/or mathematical relationships (how it was solved using scientific reasoning, relate to other values).
- 4.3.3: Manipulate the appropriate formula and correctly solve the problem.

Level 4

4.4.1: Combine mathematical concepts from multiple units to solve a problem.

4.4.2: Derive the appropriate formula to solve a problem.

Unit 10: Solution Chemistry & Acids/Bases

Unit 10 Priority Standards and Learner Objectives:

- Same as *Unit 9*

Unit 11: Thermochemistry

Unit 11 Priority Standards and Learner Objectives:

- Same as *Unit 9*

Unit 12: Gas Laws

Unit 12 Priority Standards and Learner Objectives:

- Same as *Unit 9*

AP CHEMISTRY

Course Length: 2 semesters

Credits: 1.0

Recommended Grade Levels: 11, 12

Prerequisites: Honors Biology or Biology and Chemistry

Course Description: Aligned with standards and objectives set by the AP CollegeBoard, AP Chemistry is a college level course in Chemistry. Typically taken after the completion of Chemistry and either Biology or Honors Biology, this course covers the structure of matter, stoichiometry and reactions in solutions, chemical energy and thermochemistry, atomic structure and periodicity, and bonding. State of matter and interparticle forces, rates of chemical reactions, equilibrium, entropy and free energy, and electrochemistry are also addressed. Coursework is centered around laboratory experience and how those experiences can be used to deepen and solidify the content that is covered on a daily basis. In preparation for college level essay writing, an emphasis is placed on scientific essay writing. In preparation for college and career readiness, this course is also aligned to the Common Core Literacy Standards for Science & Technical Subjects. Students demonstrate their mastery of college level Chemistry knowledge and skills on the AP Chemistry Exam, given in May. A passing score on the exam may earn students college Chemistry credit. Placement and credit are granted by institutions in accordance with their own policies, not by those of the College Board or the AP Program.

AP CHEMISTRY UNIT PROGRESSION

Unit 1: The Structure of Matter

Unit 1 Learner Objectives:

- Predict the type of bonding present between two atoms in a binary compound based on position in the periodic table and the electronegativity of the elements.
- Create visual representations of ionic substances that connect the microscopic structure to macroscopic properties, and/or use representations to connect the microscopic structure to macroscopic properties (e.g. boiling point, solubility, hardness, brittleness, low volatility, lack of malleability, ductility, or conductivity)
- Create a representation of an ionic solid that shows essential characteristics of the structure and interactions present in the substance.
- Explain a representation that connects properties of an ionic solid to its structural attributes and to the interactions present at the atomic level.
- Use aspects of particulate models (i.e., particle spacing, motion, and forces of attraction) to reason about observed differences between solid and liquid phases and among solid and liquid materials.
- Draw and/or interpret representations of solutions that show the interactions between the solute and solvent.
- Design and/or interpret the results of a separation experiment (filtration, paper chromatography, column chromatography, or distillation) in terms of the relative strength of interactions among and between the components.
- Connect the number of particles, moles, mass, and volume of substances to one another, both qualitatively and quantitatively.

- Select and apply mathematical routines to mass data to identify or infer the composition of pure substances and/or mixtures.
- Use data from mass spectrometry to identify the elements and the masses of individual atoms of a specific element.

Unit 1 CollegeBoard Standards:

- **Enduring understanding 1.A: All matter is made of atoms. There are a limited number of types of atoms; these are the elements.**
 - **Essential knowledge 1.A.2:** Chemical analysis provides a method for determining the relative number of atoms in a substance, which can be used to identify the substance or determine its purity.
 - Because compounds are composed of atoms with known masses, there is a correspondence between the mass percent of the elements in a compound and the relative number of atoms of each element.
 - An empirical formula is the lowest whole number ratio of atoms in a compound. Two molecules of the same elements with identical mass percent of their constituent atoms will have identical empirical formulas.
 - Because pure compounds have a specific mass percent of each element, experimental measurements of mass percents can be used to verify the purity of compounds.
 - **Essential knowledge 1.A.3:** The mole is the fundamental unit for counting numbers of particles on the macroscopic level and allows quantitative connections to be drawn between laboratory experiments, which occur at the macroscopic level, and chemical processes, which occur at the atomic level.
 - Atoms and molecules interact with one another on the atomic level. Balanced chemical equations give the number of particles that react and the number of particles produced. Because of this, expressing the amount of a substance in terms of the number of particles, or moles of particles, is essential to understanding chemical processes.
 - Expressing the mass of an individual atom or molecule in atomic mass unit (amu) is useful because the average mass in amu of one particle (atom or molecule) of a substance will always be numerically equal to the molar mass of that substance in grams.
 - Avogadro's number provides the connection between the number of moles in a pure sample of a substance and the number of constituent particles (or units) of that substance.
 - Thus, for any sample of a pure substance, there is a specific numerical relationship between the molar mass of the substance, the mass of the sample, and the number of particles (or units) present.
- **Enduring understanding 2.C: The strong electrostatic forces of attraction holding atoms together in a unit are called chemical bonds.**
 - **Essential knowledge 2.C.2:** Ionic bonding results from the net attraction between oppositely charged ions, closely packed together in a crystal lattice.
 - The cations and anions in an ionic crystal are arranged in a systematic, periodic 3-D array that maximizes the attractive forces among cations and anions while minimizing the repulsive forces.
 - Coulomb's law describes the force of attraction between the cations and anions in an ionic crystal: Because the force is proportional to the charge

on each ion, larger charges lead to stronger interactions; Because the force is inversely proportional to the square of the distance between the centers of the ions (nuclei), smaller ions lead to stronger interactions.

- **Enduring understanding 2.D: The type of bonding in the solid state can be deduced from the properties of the solid state.**
 - **Essential knowledge 2.D.1:** Ionic solids have high melting points, are brittle, and conduct electricity only when molten or in solution.
 - Many properties of ionic solids are related to their structure.
 - The attractive force between any two ions is governed by Coulomb's law: The force is directly proportional to the charge of each ion and inversely proportional to the square of the distance between the centers of the ions.
 - **Essential knowledge 2.D.3:** Covalent network solids generally have extremely high melting points, are hard, and are thermal insulators. Some conduct electricity.
 - Covalent network solids consist of atoms that are covalently bonded together into a two-dimensional or three-dimensional network.
 - Graphite is an allotrope of carbon that forms sheets of two-dimensional networks.
 - Silicon is a covalent network solid and a semiconductor.
 - **Essential knowledge 2.A.3:** Solutions are homogenous mixtures in which the physical properties are dependent on the concentration of the solute and the strengths of all interactions among the particles of the solutes and solvent.
 - Chromatography (paper and column) separates chemical species by taking advantage of the differential strength of intermolecular interactions between and among the components.
 - Distillation is used to separate chemical species by taking advantage of the differential strength of intermolecular interactions between and among the components and the effects these interactions have on the vapor pressures of the components in the mixture.

Unit 2: Stoichiometry & Reactions in Solutions

Unit 2 Learner Objectives:

- Justify the observation that the ratio of the masses of the constituent elements in any pure sample of that compound is always identical on the basis of the atomic molecular theory.
- Select and apply mathematical routines to mass data to identify or infer the composition of pure substances and/or mixtures.
- Use stoichiometric calculations to predict the results of performing a reaction in the laboratory and/or to analyze deviations from the expected results.
- Relate quantities (measured mass of substances, volumes of solutions, or volumes and pressures of gases) to identify stoichiometric relationships for a reaction, including situations involving limiting reactants and situations in which the reaction has not gone to completion.
- The student can design, and/or interpret data from, an experiment that uses gravimetric analysis to determine the concentration of an analyte in a solution.
- Design and/or interpret the results of a separation experiment (filtration, paper chromatography, column chromatography, or distillation) in terms of the relative strength

- of interactions among and between the components.
- Design a plan in order to collect data on the synthesis or decomposition of a compound to confirm the conservation of matter and the law of definite proportions.
 - Use data from synthesis or decomposition of a compound to confirm the conservation of matter and the law of definite proportions.
 - Design, and/or interpret data from, an experiment that uses titration to determine the concentration of an analyte in a solution.
 - Use stoichiometric calculations to predict the results of performing a reaction in the laboratory and/or to analyze deviations from the expected results.
 - Identify redox reactions and justify the identification in terms of electron transfer.
 - Translate among macroscopic observations of change, chemical equations, and particle views.
 - Translate an observed chemical change into a balanced chemical equation and justify the choice of equation type (molecular, ionic, or net ionic) in terms of utility for the given circumstances.
 - Design and/or interpret the results of an experiment involving a redox titration.
 - Express the law of conservation of mass quantitatively and qualitatively using symbolic representations and particulate drawings.
 - Apply conservation of atoms to the rearrangement of atoms in various processes.
 - Draw and/or interpret representations of solutions that show the interactions between the solute and solvent.
 - Apply Coulomb's law qualitatively (including using representations) to describe the interactions of ions, and the attractions between ions and solvents to explain the factors that contribute to the solubility of ionic compounds.
 - Explain observations regarding the solubility of ionic solids and molecules in water and other solvents on the basis of particle views that include intermolecular interactions and entropic effects.

Unit 2 CollegeBoard Standards:

Enduring understanding 1.A: All matter is made of atoms. There are a limited number of types of atoms; these are the elements.

Essential knowledge 1.A.1: Molecules are composed of specific combinations of atoms; different molecules are composed of combinations of different elements and of combinations of the same elements in differing amounts and proportions.

- The average mass of any large number of atoms of a given element is always the same for a given element.
- A pure sample contains particles (or units) of one specific atom or molecule; a mixture contains particles (or units) of more than one specific atom or molecule.
- Because the molecules of a particular compound are always composed of the identical combination of atoms in a specific ratio, the ratio of the masses of the constituent elements in any pure sample of that compound is always the same.
- Pairs of elements that form more than one type of molecule are nonetheless limited by their

atomic nature to combine in whole number ratios. This discrete nature can be confirmed by calculating the difference in mass percent ratios between such types of molecules.

Essential knowledge 1.A.2: Chemical analysis provides a method for determining the relative number of atoms in a substance, which can be used to identify the substance or determine its purity.

- Because compounds are composed of atoms within known masses, there's a correspondence between the mass percent of the elements that compound in the relative number of atoms of each element.
- An empirical formula is the lowest whole number ratio of atoms in the compound. 2 molecules of the same element with identical mass percent of their constituent atoms with identical empirical formulas.
- Because pure compounds have a specific mass percent of each element, experimental measurements of mass percents can be used to verify the purity of compounds.

Essential knowledge 1.E.2: Conservation of atoms makes it possible to compute the masses of substances involved in physical and chemical processes. Chemical processes result in the formation of new substances, and the amount of these depends on the number and the types and masses of elements in the reactants, as well as the efficiency of the transformation.

- The number of atoms, molecules, or formula units in a given mass of substance can be calculated.
- The subscripts in a chemical formula represent the number of atoms of each type in a molecule.
- The coefficients in a balanced chemical equation represent the relative numbers of particles that are consumed and created when the process occurs.
- The concept of conservation of atoms plays an important role in the interpretation and analysis of many chemical processes on the macroscopic scale.
- In gravimetric analysis, a substance is added to a solution that reacts specifically with a dissolved analyte (the chemical species that is the target of the analysis) to form a solid. The mass of solid formed can be used to infer the concentration of the analyte in the initial sample.
- Titrations may be used to determine the concentration of an analyte in a solution. The titrant has a known concentration of a species that reacts specifically with the analyte. The equivalence of the titration occurs when the analyte is totally consumed by the reacting species in the titrant. The equivalence point is often indicated by a change in a property (such as color) that occurs when the equivalence point is reached. This observable event is called the end point of the titration.

Enduring understanding 2.A: *Matter can be described by its physical properties. The physical properties of a substance generally depend on the spacing between the*

particles (atoms, molecules, ions) that make up the substance and the forces of attraction among them.

Essential knowledge 2.A.3: Solutions are homogenous mixtures in which the physical properties are dependent on the concentration of the solute and the strengths of all interactions among the particles of the solutes and solvent.

- In a solution (homogeneous mixture), the macroscopic properties do not vary throughout the sample. This is in contrast to a heterogeneous mixture in which the macroscopic properties depend upon the location in the mixture. The distinction between heterogeneous and homogeneous depends on the length scale of interest. As an example, colloids may be heterogeneous on the scale of micrometers, but homogeneous on the scale of centimeters.
- Solutions come in the form of solids, liquids, and gases.
- For liquid solutions, the solute may be a gas, a liquid, or a solid.
- Based on the reflections of their structure on the microscopic scale, liquid solutions exhibit several general properties
- Chromatography (paper and column) separates chemical species by taking advantage of the differential strength of intermolecular interactions between and among the components.
- Distillation is used to separate chemical species by taking advantage of the differential strength of intermolecular interactions between and among the components and the effects these interactions have on the vapor pressures of the components in the mixture.

Enduring understanding 2.B: Forces of attraction between particles (including the noble gases and also different parts of some large molecules) are important in determining many macroscopic properties of a substance, including how the observable physical state changes with temperature.

Essential knowledge 2.B.2: Dipole forces result from the attraction among the positive ends and negative ends of polar molecules. Hydrogen bonding is a strong type of dipole-dipole force that exists when very electronegative atoms (N, O, and F) are involved.

- Molecules with dipole moments experience Coulombic interactions that result in a net attractive interaction when they are near each other.
- Hydrogen bonding is a relatively strong type of intermolecular interaction that exists when hydrogen atoms that are covalently bonded to the highly electronegative atoms (N, O, and F) are also attracted to the negative end of a dipole formed by the electronegative atom (N, O, and F) in a different molecule, or a different part of the same molecule. When hydrogen bonding is present, even small molecules may have strong intermolecular attractions.
- Hydrogen bonding between molecules, or between different parts of a single molecule, may be represented by diagrams of molecules with hydrogen bonding and indications of location of hydrogen bonding.

- Ionic interactions with dipoles are important in the solubility of ionic compounds in polar solvents.

Essential knowledge 2.B.3: Intermolecular forces play a key role in determining the properties of substances, including biological structures and interactions.

- Many properties of liquids and solids are determined by the strengths and types of intermolecular forces present.
- Substances with similar intermolecular interactions tend to be miscible or soluble in one another.
- The presence of intermolecular forces among gaseous particles, including noble gases, leads to deviations from ideal behavior, and it can lead to condensation at sufficiently low temperatures and/or sufficiently high pressures.
- Graphs of the pressure-volume relationship for real gases can demonstrate the deviation from ideal behavior; these deviations can be interpreted in terms of the presence and strengths of intermolecular forces.

Enduring understanding 3.A: Chemical changes are represented by a balanced chemical equation that identifies the ratios with which reactants react and products form.

Essential knowledge 3.A.2: Quantitative information can be derived from stoichiometric calculations that utilize the mole ratios from the balanced chemical equations. The role of stoichiometry in real-world applications is important to note, so that it does not seem to be simply an exercise done only by chemists.

- Coefficients of balanced chemical equations contain information regarding the proportionality of the amounts of substances involved in the reaction. These values can be used in chemical calculations that apply the mole concept; the most important place for this type of quantitative exercise is the laboratory.
- The use of stoichiometry with gases also has the potential for laboratory experimentation, particularly with respect to the experimental determination of molar mass of a gas.
- Solution chemistry provides an additional avenue for laboratory calculations of stoichiometry, including titrations.

Essential knowledge 3.B.1: Synthesis reactions are those in which atoms and/or molecules combine to form a new compound. Decomposition is the reverse of synthesis, a process whereby molecules are decomposed, often by the use of heat.

- Synthesis or decomposition reactions can be used for acquisition of basic lab techniques and observations that help students deal with the abstractions of atoms and stoichiometric calculations.

Essential knowledge 3.B.3: In oxidation-reduction (redox) reactions, there is a net transfer of electrons. The species that loses electrons is oxidized, and the species that gains electrons is reduced.

- In a redox reaction, electrons are transferred from the species that is oxidized to the species that is reduced.
- Oxidation numbers may be assigned to each of the atoms in the reactant and products; this is often an effective way to identify the oxidized and reduced species in a redox reaction.
- Balanced chemical equations for redox reactions can be constructed from tabulated half-reactions.
- Recognizing that a reaction is a redox reaction is an important skill; an apt application of this type of reaction is a laboratory exercise where students perform redox titrations.

There are a number of important redox reactions in energy production processes (combustion of hydrocarbons and metabolism of sugars, fats, and proteins).

Unit 3: Chemical Energy and Thermochemistry

Unit 3 Learner Objectives:

- Create or use graphical representations in order to connect the dependence of potential energy to the distance between atoms and factors, such as bond order (for covalent interactions) and polarity (for intermolecular interactions), which influence the interaction strength.
- Relate temperature to the motions of particles, either via particulate representations, such as drawing of particles with arrows indicating velocities, and/or via representations of average kinetic energy and distribution of kinetic energies of the particles, such as plots of the Maxwell-Boltzmann distribution.
- Generate explanations or make predictions about the transfer of thermal energy between systems based on this transfer being due to a kinetic energy transfer between systems arising from molecular collisions.
- Use conservation of energy to relate the magnitudes of the energy changes occurring in two or more interacting systems, including identification of the systems, the type (heat versus work), or the direction of energy flow.
- Interpret observations regarding macroscopic energy changes associated with a reaction or process to generate a relevant symbolic and/or graphical representation of the energy changes.
- Design and/or interpret the results of an experiment in which calorimetry is used to determine the change in enthalpy of a chemical process (heating/cooling, phase transition, or chemical reaction) at constant pressure.
- Draw qualitative and quantitative connections between the reaction enthalpy and the energies involved in the breaking and formation of chemical bonds.
- Use calculations or estimations to relate energy changes associated with heating/cooling a substance to the heat capacity, relate energy changes associated with a phase

transition to the enthalpy of fusion/vaporization, relate energy changes associated with a

work.

- Support the claim about whether a process is a chemical or physical change (or may be classified as both) based on whether the process involves changes in intramolecular versus intermolecular interactions.

Unit 3 CollegeBoard Themes:

- **Enduring understanding 3.C: Chemical and physical transformations may be observed in several ways and typically involve a change in energy.**
 - **Essential knowledge 3.C.2:** Net changes in energy for a chemical reaction can be endothermic or exothermic.
 - Macroscopic observations of energy changes when chemicals react are made possible by measuring temperature changes.
 - These observations should be placed within the context of the language of exothermic and endothermic change.
 - The ability to translate observations made at the macroscopic level in the laboratory to a conceptual framework is aided by a graphical depiction of the process called an energy diagram, which provides a visual representation of the exothermic or endothermic nature of a reaction.
 - It is important to be able to use an understanding of energy changes in chemical reactions to identify the role of endothermic and exothermic reactions in real-world processes.
- **Enduring understanding 5.A: Two systems with different temperatures that are in thermal contact will exchange energy. The quantity of thermal energy transferred from one system to another is called heat.**
 - **Essential knowledge 5.A.1:** Temperature is a measure of the average kinetic energy of atoms and molecules.
 - All of the molecules in a sample are in motion.
 - The Kelvin temperature of a sample of matter is proportional to the average kinetic energy of the particles in the sample. When the average kinetic energy of the particles in the sample doubles, the Kelvin temperature is doubled. As the temperature approaches 0 K (zero Kelvin), the average kinetic energy of a system approaches a minimum near zero.
 - The Maxwell-Boltzmann distribution shows that the distribution of kinetic energies becomes greater (more disperse) as temperature increases.
 - **Essential knowledge 5.A.2:** The process of kinetic energy transfer at the particulate scale is referred to in this course as heat transfer, and the spontaneous direction of the transfer is always from a hot to a cold body.
 - On average, molecules in the warmer body have more kinetic energy than the molecules in the cooler body.
 - Collisions of molecules that are in thermal contact transfer energy.
 - Scientists describe this process as “energy is transferred as heat.”
 - Eventually, thermal equilibrium is reached as the molecular collisions continue. The average kinetic energy of both substances is the same at thermal equilibrium.

- Heat is not a substance, i.e., it makes no sense to say that an object contains a certain amount of heat. Rather, “heat exchange” or “transfer of energy as heat” refers to the process in which energy is transferred from a hot to a cold body in thermal contact.
- The transfer of a given amount of thermal energy will not produce the same temperature change in equal masses of matter with differing specific heat capacities.
- **Enduring understanding 5.B: Energy is neither created nor destroyed, but only transformed from one form to another.**
 - **Essential knowledge 5.B.1:** Energy is transferred between systems either through heat transfer or through one system doing work on the other system.
 - Heating a cold body with a hot body is a form of energy transfer between two systems. The transfer of thermal energy is an important concept in thermodynamics.
 - An additional form of energy transfer is through work. Work is described by other scientific frameworks, such as Newtonian Mechanics or electromagnetism.
 - In this course, calculations involving work are limited to that associated with changes in volume of a gas. An example of the transfer of energy between systems through work is the expansion of gas in a steam engine or car piston. Reasoning about this energy transfer can be based on molecular collisions with the piston: The gas is doing work on the piston, and energy is transferred from the gas to the piston.
 - **Essential knowledge 5.B.2:** When two systems are in contact with each other and are otherwise isolated, the energy that comes out of one system is equal to the energy that goes into the other system. The combined energy of the two systems remains fixed. Energy transfer can occur through either heat exchange or work.
 - When energy is transferred from system 1 to system 2, the energy transferred from system 1 is equal in magnitude to the energy transferred to system 2.
 - If a system transfers energy to another system, its energy must decrease. Likewise, if energy is transferred into a system, its energy must increase.
 - **Essential knowledge 5.B.3:** Chemical systems undergo three main processes that change their energy: heating/cooling, phase transitions, and chemical reactions.
 - Heating a system increases the energy of the system, while cooling a system decreases the energy. A liter of water at 50°C has more energy than a liter of water at 25°C.
 - Energy just be transferred to a system to cause it to melt (or boil). The energy of the system therefore increases as the system undergoes a solid-liquid (or liquid-gas) phase transition. The energy of the system decreases as the system undergoes a liquid-solid (or gas-liquid) phase transition.
 - The amount of energy needed to heat one gram of a substance by 1°C is the specific heat capacity of that substance.
 - The amount of energy needed to vaporize one mole of a pure substance is the molar enthalpy of vaporization, and the energy released in

condensation has an equal magnitude. The molar enthalpy of fusion is the energy absorbed when one mole of a pure solid melts or changes from the solid to liquid state and the energy released when the liquid solidifies has an equal magnitude.

- When a chemical reaction occurs, the energy of the system decreases (exothermic reaction), increases (endothermic reaction), or remains the same. For exothermic reactions, the energy lost by the reacting molecules (system) is gained by the surroundings. The energy is transferred to the surroundings by either heat or work. Likewise, for endothermic reactions, the system gains energy from the surroundings by heat transfer or work done on the system.
- The enthalpy change of reaction gives the amount of energy released (for negative values) or absorbed (for positive values) by a chemical reaction at constant pressure.
- **Essential knowledge 5.B.4:** Calorimetry is an experimental technique that is used to determine the heat exchanged/transferred in a chemical system.
 - The experimental setup for calorimetry is the following: A chemical system is put in thermal contact with a heat bath. The heat bath is a substance, such as water, whose heat capacity has been well established by previous experiments. A process is initiated in the chemical system (heating/cooling, phase transition, or chemical reaction), and the change in temperature of the heat bath is determined.
 - Because the heat capacity of the heat bath is known, the observed change in temperature can be used to determine the amount of energy exchanged between the system and the heat bath.
 - The energy exchanged between the system and the heat bath is equal in magnitude to the change in energy of the system. If the heat bath increased in temperature, its energy increased, and the energy of the system decreased by this amount. If the heat bath decreased in temperature, and therefore energy, the energy of the system increased by this amount.
 - Because calorimetry measures the change in energy of a system, it can be used to determine the heat associated with each of the processes listed in 5.B.3. In this manner, calorimetry may be used to determine heat capacities, enthalpies of vaporization, enthalpies of fusion, and enthalpies of reactions. Only constant pressure calorimetry is required in the course.
- **Enduring understanding 5.C: Breaking bonds requires energy, and making bonds releases energy.**
 - **Essential knowledge 5.C.2:** The net energy change during a reaction is the sum of the energy required to break the bonds in the reactant molecules and the energy released in forming the bonds of the product molecules. The net change in energy may be positive for endothermic reactions where energy is required, or negative for exothermic reactions where energy is released.
 - During a chemical reaction, bonds are broken and/or formed, and these events change the potential energy of the reaction system.
 - The average energy required to break all of the bonds in the reactant molecules can be estimated by adding up the average bond energies or bond enthalpies for all the bonds in the reactant molecules. Likewise, the

average energy released in forming the bonds in the products can be estimated. If the energy released is greater than the energy required, then the reaction is exothermic. If the energy required is greater than the energy released, then the reaction is endothermic.

- For an exothermic reaction, the products are at a lower potential energy compared with the reactants. For an endothermic reaction, the products are at a higher potential energy than the reactants.
 - In an isolated system, energy is conserved. Thus, if the potential energy of the products is lower than that of the reactants, then the kinetic energy of the products must be higher. For an exothermic reaction, the products are at a higher kinetic energy. This means that they are at a higher temperature. Likewise, for an endothermic reaction, the products are at a lower kinetic energy and, thus, at a lower temperature.
 - Because the products of a reaction are at a higher or lower temperature than their surroundings, the products of the reaction move toward thermal equilibrium with the surroundings. Thermal energy is transferred to the surroundings from the hot products in an exothermic reaction. Thermal energy is transferred from the surroundings to the cold products in an endothermic reaction.
 - Although the concept of “state functions” is not required for the course, students should understand these Hess’s law ideas: When a reaction is reversed, the sign of the enthalpy of the reaction is changed; when two (or more) reactions are summed to obtain an overall reaction, the enthalpies of reaction are summed to obtain the net enthalpy of reaction.
 - Tables of standard enthalpies of formation can be used to calculate the standard enthalpy of reactions. Uses should go beyond algorithmic calculations and include, for instance, the use of such tables to compare related reactions, such as extraction of elemental metals from metal oxides.
- ***Enduring understanding 5.D: Electrostatic forces exist between molecules as well as between atoms or ions, and breaking the resultant intermolecular interactions requires energy.***
 - **Essential knowledge 5.D.2:** At the particulate scale, chemical processes can be distinguished from physical processes because chemical bonds can be distinguished from intermolecular interactions.
 - The distinction between chemical and physical processes relates to the nature of the change in molecular interactions. Processes that involve the breaking and/or formation of chemical bonds are classified as chemical processes. Processes that involve only changes in weak intermolecular interactions, such as phase changes, are classified as physical processes.
 - A gray area exists between these two extremes. For instance, the dissolution of a salt in water involves breaking of ionic bonds and the formation of interactions between ions and solvent. The magnitude of these interactions can be comparable to covalent bond strengths, and so plausible arguments can be made for classifying dissolution of a salt as either a physical or chemical process.

Unit 4: Atomic Structure and Periodicity

Unit 4 Learner Objectives:

- Predict and/or justify trends in atomic properties based on location on the periodic table and/or the shell model.
- Students can justify with evidence the arrangement of the periodic table and can apply periodic properties to chemical reactivity.
- Explain the distribution of electrons in an atom or ion based upon data.
- Analyze data relating to electron energies for patterns and relationships.
- Explain the distribution of electrons using Coulomb's law to analyze measured energies.
- Justify with evidence the arrangement of the periodic table and can apply periodic properties to chemical reactivity.
- Justify the selection of a particular type of spectroscopy to measure properties associated with vibrational or electronic motions of molecules.
- Describe the electronic structure of the atom, using PES data, ionization energy data, and/or Coulomb's law to construct explanations of how the energies of electrons within shells in atoms vary.
- Explain why a given set of data suggests, or does not suggest, the need to refine the atomic model from a classical shell model with the quantum mechanical model.
- Given information about a particular model of the atom, the student is able to determine if the model is consistent with specified evidence.

Unit 4 CollegeBoard Standards:

- **Enduring understanding 1.B: The atoms of each element have unique structures arising from interactions between electrons and nuclei.**
 - **Essential knowledge 1.B.1:** The atom is composed of negatively charged electrons, which can leave the atom, and a positively charged nucleus that is made of protons and neutrons. The attraction of the electrons to the nucleus is the basis of the structure of the atom. Coulomb's law is qualitatively useful for understanding the structure of the atom.
 - Based on Coulomb's law, the force between two charged particles is proportional to the magnitude of each of the two charges (q_1 and q_2), and inversely proportional to the square of the distance, r , between them. (Potential energy is proportional to q_1q_2/r .) If the two charges are of opposite sign, the force between them is attractive; if they are of the same sign, the force is repulsive.
 - The first ionization energy is the minimum energy needed to remove the least tightly held electron from an atom or ion. In general, the ionization energy of any electron in an atom or ion is the minimum energy needed to remove that electron from the atom or ion.
 - The relative magnitude of the ionization energy can be estimated through qualitative application of Coulomb's law. The farther an electron is from the nucleus, the lower its ionization energy. When comparing two species with the same arrangement of electrons, the higher the nuclear charge, the higher the ionization energy of an electron in a given subshell.
 - Photoelectron spectroscopy (PES) provides a useful means to engage students in the use of quantum mechanics to interpret spectroscopic data and extract information on atomic structure from such data. In particular,

low-resolution PES of atoms provides direct evidence for the shell model. Light consists of photons, each of which has energy $E = h\nu$, where h is Planck's constant and ν is the frequency of the light. In the photoelectric effect, incident light ejects electrons from a material. This requires the photon to have sufficient energy to eject the electron. Photoelectron spectroscopy determines the energy needed to eject electrons from the material. Measurement of these energies provides a method to deduce the shell structure of an atom. The intensity of the photoelectron signal at a given energy is a measure of the number of electrons in that energy level.

- The electronic structure of atoms with multiple electrons can be inferred from evidence provided by PES. For instance, both electrons in He are identical, and they are both roughly the same distance from the nucleus as in H, while there are two shells of electrons in Li, and the outermost electron is further from the nucleus than in H.
- **Essential knowledge 1.B.2:** The electronic structure of the atom can be described using an electron configuration that reflects the concept of electrons in quantized energy levels or shells; the energetics of the electrons in the atom can be understood by consideration of Coulomb's law.
 - Electron configurations provide a method for describing the distribution of electrons in an atom or ion.
 - Each electron in an atom has a different ionization energy, which can be qualitatively explained through Coulomb's law.
 - In multielectron atoms and ions, the electrons can be thought of as being in "shells" and "subshells," as indicated by the relatively close ionization energies associated with some groups of electrons. Inner electrons are called core electrons, and outer electrons are called valence electrons.
 - Core electrons are generally closer to the nucleus than valence electrons, and they are considered to "shield" the valence electrons from the full electrostatic attraction of the nucleus. This phenomenon can be used in conjunction with Coulomb's law to explain/rationalize/predict relative ionization energies. Differences in electron-electron repulsion are responsible for the differences in energy between electrons in different orbitals in the same shell.
- ***Enduring understanding 1.C: Elements display periodicity in their properties when the elements are organized according to increasing atomic number. This periodicity can be explained by the regular variations that occur in the electronic structures of atoms. Periodicity is a useful principle for understanding properties and predicting trends in properties. Its modern-day uses range from examining the composition of materials to generating ideas for designing new materials.***
 - **Essential knowledge 1.C.1:** Many properties of atoms exhibit periodic trends that are reflective of the periodicity of electronic structure.
 - The structure of the periodic table is a consequence of the pattern of electron configurations and the presence of shells (and subshells) of electrons in atoms.
 - Ignoring the few exceptions, the electron configuration for an atom can be deduced from the element's position in the periodic table.
 - For many atomic properties, trends within the periodic table (and relative

- values for different atoms and ions) can be qualitatively understood and explained using Coulomb's law, the shell model, and the concept of shielding/effective nuclear charge.
- Periodicity is a useful tool when designing new molecules or materials, since replacing an element of one group with another of the same group may lead to a new substance with similar properties. For instance, since SiO_2 can be a ceramic, SnO_2 may be as well.
 - **Essential knowledge 1.C.2:** The currently accepted best model of the atom is based on the quantum mechanical model.
 - Coulomb's law is the basis for describing the energy of interaction between protons and electrons.
 - Electrons are not considered to follow specific orbits. Chemists refer to the region of space in which an electron is found as an orbital.
 - Electrons in atoms have an intrinsic property known as spin that can result in atoms having a magnetic moment. There can be at most two electrons in any orbital, and these electrons must have opposite spin.
 - The quantum mechanical (QM) model addresses known problems with the classical shell model and is also consistent with atomic electronic structures that correspond with the periodic table.
 - **Enduring understanding 1.D: Atoms are so small that they are difficult to study directly; atomic models are constructed to explain experimental data on collections of atoms.**
 - **Essential knowledge 1.D.1:** As is the case with all scientific models, any model of the atom is subject to refinement and change in response to new experimental results. In that sense, an atomic model is not regarded as an exact description of the atom, but rather a theoretical construct that fits a set of experimental data.
 - Scientists use experimental results to test scientific models. When experimental results are not consistent with the predictions of a scientific model, the model must be revised or replaced with a new model that is able to predict/explain the new experimental results. A robust scientific model is one that can be used to explain/predict numerous results over a wide range of experimental circumstances.
 - The construction of a shell model of the atom through ionization energy information provides an opportunity to show how a model can be refined and changed as additional information is considered.
 - **Essential knowledge 1.D.3:** The interaction of electromagnetic waves or light with matter is a powerful means to probe the structure of atoms and molecules, and to measure their concentration.
 - The energy of a photon is related to the frequency of the electromagnetic wave through Planck's equation ($E = h\nu$). When a photon is absorbed (or emitted) by a molecule, the energy of the molecule is increased (or decreased) by an amount equal to the energy of the photon.
 - Different types of molecular motion lead to absorption or emission of photons in different spectral regions. Infrared radiation is associated with transitions in molecular vibrations and so can be used to detect the presence of different types of bonds. Ultraviolet/visible radiation is associated with transitions in electronic energy levels and so can be used to probe electronic structure.

- The amount of light absorbed by a solution can be used to determine the concentration of the absorbing molecules in that solution, via the Beer-Lambert law.

Unit 5: Bonding

Unit 5 Learner Objectives:

- Predict the type of bonding present between two atoms in a binary compound based on position in the periodic table and the electronegativity of the elements.
- Rank and justify the ranking of bond polarity on the basis of the locations of the bonded atoms in the periodic table.
- Use Lewis diagrams and VSEPR to predict the geometry of molecules, identify hybridization, and make predictions about polarity.
- Describe the relationships between the structural features of polar molecules and the forces of attraction between the particles.
- Explain how solutes can be separated by chromatography based on intermolecular interactions.
- Design and/or interpret the results of a separation experiment (filtration, paper chromatography, column chromatography, or distillation) in terms of the relative strength of interactions among and between the components.
- Evaluate the classification of a process as a physical change, chemical change, or ambiguous change based on both macroscopic observations and the distinction between rearrangement of covalent interactions and noncovalent interactions.
- Design and/or interpret the results of an experiment regarding the absorption of light to determine the concentration of an absorbing species in a solution.
- Justify the selection of a particular type of spectroscopy to measure properties associated with vibrational or electronic motions of molecules.

Unit 5 CollegeBoard Themes:

- **Enduring understanding 1.D: Atoms are so small that they are difficult to study directly; atomic models are constructed to explain experimental data on collections of atoms.**
 - **Essential knowledge 1.D.3:** The interaction of electromagnetic waves or light with matter is a powerful means to probe the structure of atoms and molecules, and to measure their concentration.
 - The energy of a photon is related to the frequency of the electromagnetic wave through Planck's equation ($E = h\nu$). When a photon is absorbed (or emitted) by a molecule, the energy of the molecule is increased (or decreased) by an amount equal to the energy of the photon.
 - Different types of molecular motion lead to absorption or emission of photons in different spectral regions. Infrared radiation is associated with transitions in molecular vibrations and so can be used to detect the presence of different types of bonds. Ultraviolet/visible radiation is associated with transitions in electronic energy levels and so can be used to probe electronic structure.
 - The amount of light absorbed by a solution can be used to determine the concentration of the absorbing molecules in that solution, via the Beer-Lambert law.

- **Enduring understanding 2.A: Matter can be described by its physical properties. The physical properties of a substance generally depend on the spacing between the particles (atoms, molecules, ions) that make up the substance and the forces of attraction among them.**
 - **Essential knowledge 2.A.3:** Solutions are homogenous mixtures in which the physical properties are dependent on the concentration of the solute and the strengths of all interactions among the particles of the solutes and solvent.
 - In a solution (homogeneous mixture), the macroscopic properties do not vary throughout the sample. This is in contrast to a heterogeneous mixture in which the macroscopic properties depend upon the location in the mixture. The distinction between heterogeneous and homogeneous depends on the length scale of interest. As an example, colloids may be heterogeneous on the scale of micrometers, but homogeneous on the scale of centimeters.
 - Solutions come in the form of solids, liquids, and gases.
 - For liquid solutions, the solute may be a gas, a liquid, or a solid.
 - Based on the reflections of their structure on the microscopic scale, liquid solutions exhibit several general properties
 - Chromatography (paper and column) separates chemical species by taking advantage of the differential strength of intermolecular interactions between and among the components.
 - Distillation is used to separate chemical species by taking advantage of the differential strength of intermolecular interactions between and among the components and the effects these interactions have on the vapor pressures of the components in the mixture.
- **Enduring understanding 2.B: Forces of attraction between particles (including the noble gases and also different parts of some large molecules) are important in determining many macroscopic properties of a substance, including how the observable physical state changes with temperature.**
 - **Essential knowledge 2.B.2:** Dipole forces result from the attraction among the positive ends and negative ends of polar molecules. Hydrogen bonding is a strong type of dipole-dipole force that exists when very electronegative atoms (N, O, and F) are involved.
 - Molecules with dipole moments experience Coulombic interactions that result in a net attractive interaction when they are near each other.
 - **Essential knowledge 2.B.3:** Intermolecular forces play a key role in determining the properties of substances, including biological structures and interactions.
 - Many properties of liquids and solids are determined by the strengths and types of intermolecular forces present.
 - Substances with similar intermolecular interactions tend to be miscible or soluble in one another.
 - The presence of intermolecular forces among gaseous particles, including noble gases, leads to deviations from ideal behavior, and it can lead to condensation at sufficiently low temperatures and/or sufficiently high pressures.
 - Graphs of the pressure-volume relationship for real gases can demonstrate the deviation from ideal behavior; these deviations can be interpreted in terms of the presence and strengths of intermolecular

forces.

- **Enduring understanding 2.C: The strong electrostatic forces of attraction holding atoms together in a unit are called chemical bonds.**
 - **Essential knowledge 2.C.1:** In covalent bonding, electrons are shared between the nuclei of two atoms to form a molecule or polyatomic ion. Electronegativity differences between the two atoms account for the distribution of the shared electrons and the polarity of the bond.
 - Electronegativity is the ability of an atom in a molecule to attract shared electrons to it.
 - Electronegativity values for the representative elements increase going from left to right across a period and decrease going down a group. These trends can be understood qualitatively through the electronic structure of the atoms, the shell model, and Coulomb's law.
 - Two or more valence electrons shared between atoms of identical electronegativity constitute a nonpolar covalent bond.
 - However, bonds between carbon and hydrogen are often considered to be nonpolar even though carbon is slightly more electronegative than hydrogen. The formation of a nonpolar covalent bond can be represented graphically as a plot of potential energy vs. distance for the interaction of two identical atoms. Hydrogen atoms are often used as an example.
 - Two or more valence electrons shared between atoms of unequal electronegativity constitute a polar covalent bond.
 - All bonds have some ionic character, and the difference between ionic and covalent bonding is not distinct but rather a continuum. The difference in electronegativity is not the only factor in determining if a bond is designated ionic or covalent. Generally, bonds between a metal and nonmetal are ionic, and between two nonmetals the bonds are covalent. Examination of the properties of a compound is the best way to determine the type of bonding.
 - **Essential knowledge 2.C.4:** The localized electron bonding model describes and predicts molecular geometry using Lewis diagrams and the VSEPR model.
 - Lewis diagrams can be constructed according to a well-established set of principles.
 - The VSEPR model uses the Coulombic repulsion between electrons as a basis for predicting the arrangement of electron pairs around a central atom.
 - In cases where more than one equivalent Lewis structure can be constructed, resonance must be included as a refinement to the Lewis structure approach in order to provide qualitatively accurate predictions of molecular structure and properties (in some cases).
 - The combination of Lewis diagrams with the VSEPR model provides a powerful model for predicting structural properties of many covalently bonded molecules and polyatomic ions.
 - Bond formation is associated with overlap between atomic orbitals. In multiple bonds, such overlap leads to the formation of both sigma and pi bonds. The overlap is stronger in sigma than pi bonds, which is reflected in sigma bonds having larger bond energy than pi bonds. The presence of a pi bond also prevents the rotation of the bond, and leads to structural

isomers. In systems, such as benzene, where atomic p-orbitals overlap strongly with more than one other p-orbital, extended pi bonding exists, which is delocalized across more than two nuclei. Such descriptions provide an alternative description to resonance in Lewis structures. A useful example of delocalized pi bonding is molecular solids that conduct electricity. The discovery of such materials at the end of the 1970s overturned a long-standing assumption in chemistry that molecular solids will always be insulators.

- **Enduring understanding 3.C: Chemical and physical transformations may be observed in several ways and typically involve a change in energy.**
 - **Essential knowledge 3.C.1:** Production of heat or light, formation of a gas, and formation of a precipitate and/or a color change are possible evidences that a chemical change has occurred.
 - a. Laboratory observations are made at the macroscopic level, so students must be able to characterize changes in matter using visual clues and then make representations or written descriptions.
 - b. Distinguishing the difference between chemical and physical changes at the macroscopic level is a challenge; therefore, the ability to investigate chemical properties is important.
 - c. In order to develop the ability to distinguish experimentally between chemical and physical changes, students must make observations and collect data from a variety of reactions and physical changes within the laboratory setting.
 - d. Classification of reactions provides important organizational clarity for chemistry; therefore, students need to identify precipitation, acid-base, and redox reactions.

Unit 6: State of Matter and Interparticle Forces

Unit 6 Learner Objectives:

- Relate temperature to the motions of particles, either via particulate representations, such as drawing of particles with arrows indicating velocities, and/or via representations of average kinetic energy and distribution of kinetic energies of the particles, such as plots of the Maxwell-Boltzmann distribution.
- Refine multiple representations of a sample of matter in the gas phase to accurately represent the effect of changes in macroscopic properties on the sample.
- Apply mathematical relationships or estimation to determine macroscopic variables for ideal gases.
- Use KMT and concepts of intermolecular forces to make predictions about the macroscopic properties of gases, including both ideal and nonideal behaviors.
- Qualitatively analyze data regarding real gases to identify deviations from ideal behavior and relate these to molecular interactions.
- Explain the trends in properties and/or predict properties of samples consisting of particles with no permanent dipole on the basis of London dispersion forces.
- Describe the relationships between the structural features of polar molecules and the forces of attraction between the particles.

- Explain the properties (phase, vapor pressure, viscosity, etc.) of small and large molecular compounds in terms of the strengths and types of intermolecular forces.
- Identify the noncovalent interactions within and between large molecules, and/or connect the shape and function of the large molecule to the presence and magnitude of these interactions.
- Make claims and/or predictions regarding relative magnitudes of the forces acting within collections of interacting molecules based on the distribution of electrons within the molecules and the types of intermolecular forces through which the molecules interact.
- Compare the properties of metal alloys with their constituent elements to determine if an alloy has formed, identify the type of alloy formed, and explain the differences in properties using particulate level reasoning.
- Use the electron sea model of metallic bonding to predict or make claims about the macroscopic properties of metals or alloys.
- Create a representation of a metallic solid that shows essential characteristics of the structure and interactions present in the substance.
- Explain a representation that connects properties of a metallic solid to its structural attributes and to the interactions present at the atomic level.
- Support the claim about whether a process is a chemical or physical change (or may be classified as both) based on whether the process involves changes in intramolecular versus intermolecular interactions.

Unit 6 CollegeBoard Standards:

- ***Enduring understanding 2.A: Matter can be described by its physical properties. The physical properties of a substance generally depend on the spacing between the particles (atoms, molecules, ions) that make up the substance and the forces of attraction among them.***
 - **Essential knowledge 2.A.2:** The gaseous state can be effectively modeled with a mathematical equation relating various macroscopic properties. A gas has neither a definite volume nor a definite shape; because the effects of attractive forces are minimal, we usually assume that the particles move independently.
 - Ideal gases exhibit specific mathematical relationships among the number of particles present, the temperature, the pressure, and the volume.
 - In a mixture of ideal gases, the pressure exerted by each component (the partial pressure) is independent of the other components. Therefore, the total pressure is the sum of the partial pressures.
 - Graphical representations of the relationships between P, V, and T are useful to describe gas behavior.
 - Kinetic molecular theory combined with a qualitative use of the Maxwell-Boltzmann distribution provides a robust model for qualitative explanations of these mathematical relationships.
 - Some real gases exhibit ideal or near-ideal behavior under typical laboratory conditions. Laboratory data can be used to generate or investigate the relationships in 2.A.2.a and to estimate absolute zero on the Celsius scale.
 - All real gases are observed to deviate from ideal behavior, particularly under conditions that are close to those resulting in condensation. Except at extremely high pressures that are not typically seen in the laboratory, deviations from ideal behavior are the result of intermolecular attractions

among gas molecules. These forces are strongly distance-dependent, so they are most significant during collisions.

- **Enduring understanding 2.B: Forces of attraction between particles (including the noble gases and also different parts of some large molecules) are important in determining many macroscopic properties of a substance, including how the observable physical state changes with temperature.**
 - **Essential knowledge 2.B.1:** London dispersion forces are attractive forces present between all atoms and molecules. London dispersion forces are often the strongest net intermolecular force between large molecules.
 - A temporary, instantaneous dipole may be created by an uneven distribution of electrons around the nucleus (nuclei) of an atom (molecule).
 - London dispersion forces arise due to the Coulombic interaction of the temporary dipole with the electron distribution in neighboring atoms and molecules.
 - Dispersion forces increase with contact area between molecules and with increasing polarizability of the molecules. The polarizability of a molecule increases with the number of electrons in the molecule, and is enhanced by the presence of pi bonding.
 - **Essential knowledge 2.B.2:** Dipole forces result from the attraction among the positive ends and negative ends of polar molecules. Hydrogen bonding is a strong type of dipole-dipole force that exists when very electronegative atoms (N, O, and F) are involved.
 - Molecules with dipole moments experience Coulombic interactions that result in a net attractive interaction when they are near each other.
- **Enduring understanding 2.D: The type of bonding in the solid state can be deduced from the properties of the solid state.**
 - **Essential knowledge 2.D.2:** Metallic solids are good conductors of heat and electricity, have a wide range of melting points, and are shiny, malleable, ductile, and readily alloyed.
 - A metallic solid can be represented as positive kernels (or cores) consisting of the nucleus and inner electrons of each atom surrounded by a sea of mobile valence electrons.
 - Metallic solids are often pure substances, but may also be mixtures called alloys.
- **Enduring understanding 5.A: Two systems with different temperatures that are in thermal contact will exchange energy. The quantity of thermal energy transferred from one system to another is called heat.**
 - **Essential knowledge 5.A.1:** Temperature is a measure of the average kinetic energy of atoms and molecules.
 - All of the molecules in a sample are in motion.
 - The Kelvin temperature of a sample of matter is proportional to the average kinetic energy of the particles in the sample. When the average kinetic energy of the particles in the sample doubles, the Kelvin temperature is doubled. As the temperature approaches 0 K (zero Kelvin), the average kinetic energy of a system approaches a minimum near zero.
 - The Maxwell-Boltzmann distribution shows that the distribution of kinetic

energies becomes greater (more disperse) as temperature increases.

- **Enduring understanding 5.D: Electrostatic forces exist between molecules as well as between atoms or ions, and breaking the resultant intermolecular interactions requires energy.**
 - **Essential knowledge 5.D.1:** Potential energy is associated with the interaction of molecules; as molecules draw near each other, they experience an attractive force.
 - Chemists categorize intermolecular forces in terms of the nature of the charge distributions in the molecules involved. Thus, dipole-dipole, dipole-induced dipole, and induced dipole-induced dipole (dispersion) can be defined.
 - All substances will manifest dispersion forces, and these forces tend to be larger when the molecules involved have more electrons or have a larger surface area.
 - Hydrogen bonding is a relatively strong type of intermolecular interaction that occurs when hydrogen atoms that are covalently bonded to the highly electronegative atoms (N, O, and F) are also attracted to the negative end of a dipole formed by the electronegative atom (N, O, and F) in a different molecule, or a different part of the same molecule. When hydrogen bonding is present, even small molecules may have strong intermolecular attractions.
 - **Essential knowledge 5.D.2:** At the particulate scale, chemical processes can be distinguished from physical processes because chemical bonds can be distinguished from intermolecular interactions.
 - The distinction between chemical and physical processes relates to the nature of the change in molecular interactions. Processes that involve the breaking and/or formation of chemical bonds are classified as chemical processes. Processes that involve only changes in weak intermolecular interactions, such as phase changes, are classified as physical processes.
 - A gray area exists between these two extremes. For instance, the dissolution of a salt in water involves breaking of ionic bonds and the formation of interactions between ions and solvent. The magnitude of these interactions can be comparable to covalent bond strengths, and so plausible arguments can be made for classifying dissolution of a salt as either a physical or chemical process.
 - **Essential knowledge 5.D.3:** Noncovalent and intermolecular interactions play important roles in many biological and polymer systems.
 - In large biomolecules, noncovalent interactions may occur between different molecules or between different regions of the same large biomolecule.
 - The functionality and properties of molecules depend strongly on the shape of the molecule, which is largely dictated by noncovalent interactions. For example, the function of enzymes is dictated by their structure, and properties of synthetic polymers are modified by manipulating their chemical composition and structure.

Unit 7: Rates of Chemical Reactions

Unit 7 Learner Objectives:

- Design and/or interpret the results of an experiment regarding the factors (i.e., temperature, concentration, surface area) that may influence the rate of a reaction.
- Analyze concentration vs. time data to determine the rate law for a zeroth-, first-, or second-order reaction.
- Connect the half-life of a reaction to the rate constant of a first-order reaction and justify the use of this relation in terms of the reaction being a first-order reaction.
- Connect the rate law for an elementary reaction to the frequency and success of molecular collisions, including connecting the frequency and success to the order and rate constant, respectively.
- Explain the difference between collisions that convert reactants to products and those that do not in terms of energy distributions and molecular orientation.
- Evaluate alternative explanations, as expressed by reaction mechanisms, to determine which are consistent with data regarding the overall rate of a reaction, and data that can be used to infer the presence of a reaction intermediate.
- Translate among reaction energy profile representations, particulate representations, and symbolic representations (chemical equations) of a chemical reaction occurring in the presence and absence of a catalyst.
- Explain changes in reaction rates arising from the use of acid-base catalysts, surface catalysts, or enzyme catalysts, including selecting appropriate mechanisms with or without the catalyst present.

Unit 7 CollegeBoard Themes:

- **Enduring understanding 4.A: Reaction rates that depend on temperature and other environmental factors are determined by measuring changes in concentrations of reactants or products over time.**
 - **Essential knowledge 4.A.1:** The rate of a reaction is influenced by the concentration or pressure of reactants, the phase of the reactants and products, and environmental factors such as temperature and solvent.
 - The rate of a reaction is measured by the amount of reactants converted to products per unit of time.
 - A variety of means exist to experimentally measure the loss of reactants or increase of products as a function of time. One important method involves the spectroscopic determination of concentration through Beer's law.
 - The rate of a reaction is influenced by reactant concentrations (except in zero- order processes), temperature, surface area, and other environmental factors.
 - **Essential knowledge 4.A.2:** The rate law shows how the rate depends on reactant concentrations.
 - The rate law expresses the rate of a reaction as proportional to the concentration of each reactant raised to a power. The power of each reactant in the rate law is the order of the reaction with respect to that reactant. The sum of the powers of the reactant concentrations in the rate law is the overall order of the reaction. When the rate is independent of the concentration of a reactant, the reaction is zeroth order in that

- reactant, since raising the reactant concentration to the power zero is equivalent to the reactant concentration being absent from the rate law.
- In cases in which the concentration of any other reactants remain essentially constant during the course of the reaction, the order of a reaction with respect to a reactant concentration can be inferred from plots of the concentration of reactant versus time. An appropriate laboratory experience would be for students to use spectrophotometry to determine how concentration varies with time.
 - The method of initial rates is useful for developing conceptual understanding of what a rate law represents, but simple algorithmic application should not be considered mastery of the concept. Investigation of data for initial rates enables prediction of how concentration will vary as the reaction progresses.
 - **Essential knowledge 4.A.3:** The magnitude and temperature dependence of the rate of reaction is contained quantitatively in the rate constant.
 - The proportionality constant in the rate law is called the rate constant.
 - The rate constant is an important measurable quantity that characterizes a chemical reaction.
 - Rate constants vary over many orders of magnitude because reaction rates vary widely.
 - The temperature dependence of reaction rates is contained in the temperature dependence of the rate constant.
 - For first-order reactions, half-life is often used as a representation for the rate constant because they are inversely proportional, and the half-life is independent of concentration. For example, radioactive decay processes provide real-world context.
 - **Enduring understanding 4.B: Elementary reactions are mediated by collisions between molecules. Only collisions having sufficient energy and proper relative orientation of reactants lead to products.**
 - **Essential knowledge 4.B.1:** Elementary reactions can be unimolecular or involve collisions between two or more molecules.
 - The order of an elementary reaction can be inferred from the number of molecules participating in a collision: unimolecular reactions are first order, reactions involving bimolecular collisions are second order, etc.
 - Elementary reactions involving the simultaneous collision of three particles are rare.
 - **Essential knowledge 4.B.2:** Not all collisions are successful. To get over the activation energy barrier, the colliding species need sufficient energy. Also, the orientations of the reactant molecules during the collision must allow for the rearrangement of reactant bonds to form product bonds.
 - Unimolecular reactions occur because collisions with solvent or background molecules activate the molecule in a way that can be understood in terms of a Maxwell-Boltzmann thermal distribution of particle energies.
 - Collision models provide a qualitative explanation for order of elementary reactions and the temperature dependence of the rate constant.
 - In most reactions, only a small fraction of the collisions leads to a reaction. Successful collisions have both sufficient energy to overcome

- activation energy barriers and orientations that allow the bonds to rearrange in the required manner.
- The Maxwell-Boltzmann distribution describes the distribution of particle energies; this distribution can be used to gain a qualitative estimate of the fraction of collisions with sufficient energy to lead to a reaction, and also how that fraction depends on temperature.
- **Essential knowledge 4.B.3:** A successful collision can be viewed as following a reaction path with an associated energy profile.
 - Elementary reactions typically involve the breaking of some bonds and the forming of new ones. It is usually possible to view the complex set of motions involved in this rearrangement as occurring along a single reaction coordinate.
 - The energy profile gives the energy along this path, which typically proceeds from reactants, through a transition state, to products.
- **Enduring understanding 4.D: Reaction rates may be increased by the presence of a catalyst.**
 - **Essential knowledge 4.D.1:** Catalysts function by lowering the activation energy of an elementary step in a reaction mechanism, and by providing a new and faster reaction mechanism.
 - A catalyst can stabilize a transition state, lowering the activation energy and thus increasing the rate of a reaction.
 - A catalyst can increase a reaction rate by participating in the formation of a new reaction intermediate, thereby providing a new reaction pathway or mechanism.
 - **Essential knowledge 4.D.2:** Important classes in catalysis include acid- base catalysis, surface catalysis, and enzyme catalysis.
 - In acid-base catalysis, a reactant either gains or loses a proton; this changes the rate of the reaction.
 - In surface catalysis, either a new reaction intermediate is formed, or the probability of successful collisions is modified.
 - Some enzymes accelerate reactions by binding to the reactants in a way that lowers the activation energy. Other enzymes react with reactant species to form a new reaction intermediate.

Unit 8: Equilibrium

Unit 8 Learner Objectives:

- Given a set of experimental observations regarding physical, chemical, biological, or environmental processes that are reversible, construct an explanation that connects the observations to the reversibility of the underlying chemical reactions or processes.
- Given a set of initial conditions (concentrations or partial pressures) and the equilibrium constant, K , use the tendency of Q to approach K to predict and justify the prediction as to whether the reaction will proceed toward products or reactants as equilibrium is approached.
- Given data (tabular, graphical, etc.) from which the state of a system at equilibrium can be obtained, calculate the equilibrium constant, K .
- Given a set of initial conditions (concentrations or partial pressures) and the equilibrium constant, K , use stoichiometric relationships and the law of mass action (Q equals K at

equilibrium) to determine qualitatively and/or quantitatively the conditions at equilibrium for a system involving a single reversible reaction.

- Connect kinetics to equilibrium by using reasoning about equilibrium, such as Le Chatelier's principle, to infer the relative rates of the forward and reverse reactions.
- Given a manipulation of a chemical reaction or set of reactions (e.g., reversal of reaction or addition of two reactions), determine the effects of that manipulation on Q or K .
- Use Le Chatelier's principle to predict the direction of the shift resulting from various possible stresses on a system at chemical equilibrium.
- Use Le Chatelier's principle to design a set of conditions that will optimize a desired outcome, such as product yield.
- Identify compounds as Brønsted-Lowry acids, bases, and/or conjugate acid-base pairs, using proton-transfer reactions to justify the identification.
- Generate or use a particulate representation of an acid (strong or weak or polyprotic) and a strong base to explain the species that will have large versus small concentrations at equilibrium.
- Reason about the distinction between strong and weak acid solutions with similar values of pH, including the percent ionization of the acids, the concentrations needed to achieve the same pH, and the amount of base needed to reach the equivalence point in a titration.
- Identify a given solution as being the solution of a monoprotic weak acid or base (including salts in which one ion is a weak acid or base), calculate the pH and concentration of all species in the solution, and/ or infer the relative strengths of the weak acids or bases from given equilibrium concentrations.
- For a reversible reaction that has a large or small K , to determine which chemical species will have very large versus very small concentrations at equilibrium.
- Identify a solution as being a buffer solution and explain the buffer mechanism in terms of the reactions that would occur on addition of acid or base.
- Given an arbitrary mixture of weak and strong acids and bases (including polyprotic systems), determine which species will react strongly with one another (i.e., with $K > 1$) and what species will be present in large concentrations at equilibrium.
- Can design a buffer solution with a target pH and buffer capacity by selecting an appropriate conjugate acid-base pair and estimating the concentrations needed to achieve the desired capacity.
- Identify a given solution as containing a mixture of strong acids and/or bases and calculate or estimate the pH (and concentrations of all chemical species) in the resulting solution.
- Reason about the distinction between strong and weak acid solutions with similar values of pH, including the percent ionization of the acids, the concentrations needed to achieve the same pH, and the amount of base needed to reach the equivalence point in a titration.
- Predict the solubility of a salt, or rank the solubility of salts, given the relevant K_{sp} values.
- Explain observations regarding the solubility of ionic solids and molecules in water and other solvents on the basis of particle views that include intermolecular interactions and entropic effects.
- Interpret data regarding the relative solubility of salts in terms of factors (common ions, pH) that influence the solubility.
- Interpret data regarding the relative solubility of salts in terms of factors (common ions,

- pH) that influence the solubility.
- Apply Coulomb's law qualitatively (including using representations) to describe the interactions of ions, and the attractions between ions and solvents to explain the factors that contribute to the solubility of ionic compounds.
- Design and/or interpret the results of an experiment regarding the absorption of light to determine the concentration of an absorbing species in a solution.
- Use representations and models to predict the sign and relative magnitude of the entropy change associated with chemical or physical processes.
- Analyze the enthalpic and entropic changes associated with the dissolution of a salt, using particulate level interactions and representations.

Unit 8 CollegeBoard Standards:

- ***Enduring understanding 1.D: Atoms are so small that they are difficult to study directly; atomic models are constructed to explain experimental data on collections of atoms.***
 - **Essential knowledge 1.D.3:** The interaction of electromagnetic waves or light with matter is a powerful means to probe the structure of atoms and molecules, and to measure their concentration.
 - The energy of a photon is related to the frequency of the electromagnetic wave through Planck's equation ($E = h\nu$). When a photon is absorbed (or emitted) by a molecule, the energy of the molecule is increased (or decreased) by an amount equal to the energy of the photon.
 - Different types of molecular motion lead to absorption or emission of photons in different spectral regions. Infrared radiation is associated with transitions in molecular vibrations and so can be used to detect the presence of different types of bonds. Ultraviolet/visible radiation is associated with transitions in electronic energy levels and so can be used to probe electronic structure.
 - The amount of light absorbed by a solution can be used to determine the concentration of the absorbing molecules in that solution, via the Beer-Lambert law.
- ***Enduring understanding 2.B: Forces of attraction between particles (including the noble gases and also different parts of some large molecules) are important in determining many macroscopic properties of a substance, including how the observable physical state changes with temperature.***
 - **Essential knowledge 2.B.2:** Dipole forces result from the attraction among the positive ends and negative ends of polar molecules. Hydrogen bonding is a strong type of dipole-dipole force that exists when very electronegative atoms (N, O, and F) are involved.
 - Molecules with dipole moments experience Coulombic interactions that result in a net attractive interaction when they are near each other.
 - **Essential knowledge 2.B.3:** Intermolecular forces play a key role in determining the properties of substances, including biological structures and interactions.
 - Many properties of liquids and solids are determined by the strengths and types of intermolecular forces present.
 - Substances with similar intermolecular interactions tend to be miscible or soluble in one another.
 - The presence of intermolecular forces among gaseous particles, including

- noble gases, leads to deviations from ideal behavior, and it can lead to condensation at sufficiently low temperatures and/or sufficiently high pressures.
- Graphs of the pressure-volume relationship for real gases can demonstrate the deviation from ideal behavior; these deviations can be interpreted in terms of the presence and strengths of intermolecular forces.
 - **Enduring understanding 3.B: Chemical reactions can be classified by considering what the reactants are, what the products are, or how they change from one into the other. Classes of chemical reactions include synthesis, decomposition, acid-base, and oxidation-reduction reactions.**
 - **Essential knowledge 3.B.2:** In a neutralization reaction, protons are transferred from an acid to a base.
 - The amphoteric nature of water plays an important role in the chemistry of aqueous solutions, since water can both accept protons from and donate protons to dissolved species.
 - Acid-base reactions: Only reactions in aqueous solutions are considered; The Brønsted-Lowry concept of acids and bases is the focus of the course.
 - When an acid or base ionizes in water, the conjugate acid-base pairs can be identified and their relative strengths compared.
 - **Enduring understanding 5.E: Chemical or physical processes are driven by a decrease in enthalpy or an increase in entropy, or both.**
 - **Essential knowledge 5.E.1:** Entropy is a measure of the dispersal of matter and energy.
 - Entropy may be understood in qualitative terms rather than formal statistical terms. Although this is not the most rigorous approach to entropy, the use of qualitative reasoning emphasizes that the goal is for students to be able to make predictions about the direction of entropy change, ΔS° , for many typical chemical and physical processes.
 - Entropy increases when matter is dispersed. The phase change from solid to liquid, or from liquid to gas, results in a dispersal of matter in the sense that the individual particles become more free to move, and generally occupy a larger volume. Another way in which entropy increases in this context is when the number of individual particles increases when a chemical reaction precedes whose stoichiometry results in a larger number of product species than reacting species. Also, for a gas, the entropy increases when there is an increase in volume (at constant temperature), and the gas molecules are able to move within a larger space.
 - Entropy increases when energy is dispersed. From KMT, we know that the distribution of kinetic energy among the particles of a gas broadens as the temperature increases. This is an increase in the dispersal of energy, as the total kinetic energy of the system becomes spread more broadly among all of the gas molecules. Thus, as temperature increases, the entropy increases.
 - **Enduring understanding 6.A: Chemical equilibrium is a dynamic, reversible state in which rates of opposing processes are equal.**

- **Essential knowledge 6.A.1:** In many classes of reactions, it is important to consider both the forward and reverse reaction.
 - Many readily observable processes are reversible. Examples include evaporating and condensing water, absorption of a gas, or dissolving and precipitating a salt. Relevant and interesting contexts include biological examples (binding of oxygen to hemoglobin and the attachment of molecules to receptor sites in the nose) and environmental examples (transfer of carbon between atmosphere and biosphere and transfer of dissolved substances between atmosphere and hydrosphere).
 - Dissolution of a solid, transfer of protons in acid-base reactions, and transfer of electrons in redox reactions are important examples of reversible reactions.
- **Essential knowledge 6.A.2:** The current state of a system undergoing a reversible reaction can be characterized by the extent to which reactants have been converted to products. The relative quantities of reaction components are quantitatively described by the reaction quotient, Q .
 - Given an initial set of reactant and product concentrations, only those sets of concentrations that are consistent with the reaction stoichiometry can be attained. ICE (initial, change, equilibrium) tables are useful for determining which sets of concentration values are possible.
 - The reaction quotient, Q , provides a convenient measure of the current progress of a reaction. Q does not include substances whose concentrations are independent of the amount of substance, such as for a solid in contact with a liquid solution or with a gas, or for a pure solid or liquid in contact with a gas.
 - The value of Q (and so also K) changes when a reaction is reversed. When reactions are added together through the presence of a common intermediate, Q (and so also K) of the resulting reaction is a product of the values of Q (or K) for the original reactions.
- **Essential knowledge 6.A.3:** When a system is at equilibrium, all macroscopic variables, such as concentrations, partial pressures, and temperature, do not change over time. Equilibrium results from an equality between the rates of the forward and reverse reactions, at which point $Q = K$.
 - When equilibrium is reached, no observable changes occur in the system.
 - If the rate of the forward reaction is greater than the reverse reaction, there is a net conversion of reactants to products. If the rate of the reverse reaction is greater than the forward reaction, there is a net conversion of products to reactants. An equilibrium state is reached when these rates balance, at which point the progress of reaction, Q , becomes equal to the equilibrium constant, K .
 - Comparing Q to K allows the determination of whether the reaction is at equilibrium, or will proceed toward products or reactants to reach equilibrium.
 - Equilibrium constants can be determined from experimental measurements of the concentrations of the reactants and products at equilibrium.
 - Given a single reaction, initial concentrations, and K , the concentrations at equilibrium may be predicted.

- Graphs of concentration over time for simple chemical reactions can be used to understand the establishment of chemical equilibrium.
- **Essential knowledge 6.A.4:** The magnitude of the equilibrium constant, K , can be used to determine whether the equilibrium lies toward the reactant side or product side.
 - For many aqueous reactions, K is either very large or very small, and this may be used to reason qualitatively about equilibrium systems.
 - Particulate representations can be used to describe the relationship between the numbers of reactant and product particles present at equilibrium, and the value of the equilibrium constant.
- **Enduring understanding 6.B: Systems at equilibrium are responsive to external perturbations, with the response leading to a change in the composition of the system.**
 - **Essential knowledge 6.B.1:** Systems at equilibrium respond to disturbances by partially countering the effect of the disturbance (Le Chatelier's principle).
 - Le Chatelier's principle can be used to predict the response of a system to the following stresses: addition or removal of a chemical species, change in temperature, change in volume/pressure of a gas phase system, and dilution of a reaction system with water or other solvent.
 - Le Chatelier's principle can be used to reason about the effects a stress will have on experimentally measurable properties, such as pH, temperature, and color of a solution.
 - **Essential knowledge 6.B.2:** A disturbance to a system at equilibrium causes Q to differ from K , thereby taking the system out of the original equilibrium state. The system responds by bringing Q back into agreement with K , thereby establishing a new equilibrium state.
 - Le Chatelier's principle involves qualitative reasoning that is closely connected to the quantitative approach of 6.A.3.
 - Some stresses, such as changes in concentration, cause a change in Q . A change in temperature causes a change in K . In either case, the reaction shifts to bring Q and K back into equality.
- **Enduring understanding 6.C: Chemical equilibrium plays an important role in acid-base chemistry and in solubility.**
 - **Essential knowledge 6.C.1:** Chemical equilibrium reasoning can be used to describe the proton-transfer reactions of acid-base chemistry.
 - The concentrations of hydronium ion and hydroxide ion are often reported as pH and pOH, respectively.
 - Water autoionizes with an equilibrium constant, K_w . For pure water, $pH = pOH$, and this condition is called "neutrality," or a neutral solution. At 25°C , $pK_w = 14$, and thus pH and pOH add to 14. In pure water at 25°C , $pH = pOH = 7$.
 - Common strong acids include HCl, HBr, HI, HClO_4 , H_2SO_4 , and HNO_3 . The molecules of strong acids completely ionize in solution to produce hydronium ions. In other words, 100 percent of the molecules of the strong acid are ionized in a solution (assuming that the concentration is not extremely high). As such, the concentration of H_3O^+ in a strong acid solution is equal to the initial concentration of the strong acid, and thus the pH of the strong acid solution is easily calculated.

- Common strong bases include group I and II hydroxides. When dissolved in solution, strong bases completely dissociate to produce hydroxide ions. Note that some group II hydroxides are slightly soluble in water. However, 100 percent of the dissolved base is ionized.
- Weak acid molecules react with water to transfer a proton to the water molecule. However, weak acid molecules only partially ionize in this way. In other words, only a small percentage of the molecules of a weak acid are ionized in a solution (assuming that the initial concentration is not extremely low). Thus, the concentration of H_3O^+ does not equal the initial concentration of the molecular acid, and the vast majority of the acid molecules remain un-ionized. A solution of a weak acid thus involves equilibrium between an un-ionized acid and its conjugate base. The equilibrium constant for this reaction is K_a , often reported as $\text{p}K_a$. The pH of a weak acid solution can be determined from the initial acid concentration and the $\text{p}K_a$. The common weak acids include carboxylic acids.
- The relative magnitudes of K_a 's are influenced by structural factors such as bond strength, solvation, and electronegativity of the atom bonded to the labile proton.
- The common weak bases include ammonia, amines and pyridines, other nitrogenous bases, and conjugate bases (defined below in g). Weak base molecules in aqueous solutions react with water molecules to produce hydroxide ions. However, only a small percentage of the molecules of a weak base in a solution ionize in this way (assuming that the initial concentration is not extremely low). Thus, the concentration of OH^- in the solution does not equal the initial concentration of the molecular base, and the vast majority of the base molecules remain un-ionized. A solution of a weak base thus involves an equilibrium between an un-ionized base and its conjugate acid. The equilibrium constant for this reaction is K_b , often reported as $\text{p}K_b$. The pH of a weak base solution can be determined from the initial base concentration and the $\text{p}K_b$.
- When an acid molecule loses its proton, it becomes a base, since the resultant ion could react with water as a base. The acid and base are referred to as a conjugate acid-base pair. The ionization constants for the acid-base pair are related to K_w , and at 25°C , $\text{p}K_a + \text{p}K_b = 14$. This relation can be used to reason qualitatively about the relative strengths of conjugate acids and bases. For example, the conjugate base of a strong acid is a much weaker base than H_2O , and therefore does not react as a base in aqueous solutions.
- The pH of an acid solution depends on both the strength of the acid and the concentration of the acid. If we compare solutions of a weak acid and of a strong acid at the same pH, we find that both solutions have the same concentration of H_3O^+ (aq). However, the strong acid is completely dissociated into ions in solution, whereas the weak acid is only partially dissociated into ions in solution. Thus, there are vastly more un-ionized acid molecules in the weak acid solution than in the strong acid solution at the same pH. Thus, to achieve solutions of equal pH, the weak acid solution must be a much greater concentration than the strong acid

solution. If we compare solutions of a weak acid and of a strong acid of the same initial concentration, the concentration of H_3O^+ in the strong acid solution is much larger (and the pH thus lower) since the strong acid is 100 percent ionized.

- Reactions of acids and bases are called neutralization reactions, and these reactions generally have $K > 1$, and thus can be considered to go to completion.
 - For a weak acid solution and a strong acid solution with the same pH, it takes much baser to neutralize the weak acid solution because the initial acid concentration is much larger. The weak acid solution contains a large amount of un-ionized acid molecules. Therefore, a weak acid solution resists changes in pH for a much greater amount of added base.
 - A titration technique exists for neutralization reactions. At the equivalence point, the moles of titrant and the moles of titrate are present in stoichiometric proportions. In the vicinity of the equivalence point, the pH rapidly changes. This can be used to determine the concentration of the titrant.
 - As base is added to either a strong acid solution or a weak acid solution, the H_3O^+ (aq) concentration does not change much. The change in pH is less than ~ 1.5 for the region where 10 to 90 percent of the base needed to reach the equivalence point has been added.
 - The pK_a of an acid can be determined from the pH at the half equivalence point of the titration if the equivalence point is known (i.e., the concentration of both the titrant and analyte are known).
 - Halfway to the equivalence point, the contents of a solution, formed by titrating a weak acid, is different from that formed by titrating a strong acid. For a strong acid, the main species in a solution halfway to the equivalence point are H_3O^+ (aq), the anion from the acid (e.g., Cl^- , NO_3^-), and the cation from the base (e.g., Na^+). The total positive charge is equal to the total negative charge. For a weak acid, the main species in a solution halfway to the equivalence point are H_3O^+ (aq), the anion from the acid (e.g., CH_3COO^- , F^-), the cation from the base (e.g., Na^+), and undissociated acid, HA. The total positive charge is equal to the total negative charge, and $[\text{HA}] = [\text{A}^-]$.
- **Essential knowledge 6.C.2:** The pH is an important characteristic of aqueous solutions that can be controlled with buffers. Comparing pH to pK_a allows one to determine the protonation state of a molecule with a labile proton.
- If $[\text{A}^-]/[\text{HA}]$ starts as 1, it is not until the ratio changes by a factor of 10 that a 1 pH unit change occurs; adding small amounts of either acid or base does not change the ratio much, so the pH changes are much smaller for buffers than unbuffered solutions.
 - Weak acids and their conjugate bases make good buffers. Strong acids and bases do not. It takes much more base to change the pH of a weak acid solution because there is a large reservoir of undissociated weak acid.
 - By comparing the pH of a solution to the pK_a of any acid in the solution, the concentration ratio between the acid and base forms of that acid (the protonation state) can be determined. For example, if $\text{pH} < \text{pK}_a$, the acid

form has a higher concentration than the base form. If $\text{pH} > \text{pK}_a$, the base form has a higher concentration than the acid form. Applications of this relationship include the use of acid-base indicators, the protonation state of protein side chains (including acids or proteins with multiple labile protons), and the pH required for acid-catalyzed reactions in organic chemistry.

- **Essential knowledge 6.C.3:** The solubility of a substance can be understood in terms of chemical equilibrium.
 - The dissolution of a substance in a solvent is a reversible reaction, and so has an associated equilibrium constant. For dissolution of a salt, the reaction quotient, Q , is referred to as the solubility product, and the equilibrium constant for this reaction is denoted as K_{sp} , the solubility-product constant.
 - The solubility of a substance can be calculated from the K_{sp} for the dissolution reaction. This relation can also be used to reason qualitatively about the relative solubility of different substances.
 - The free energy change (ΔG°) for dissolution of a substance reflects both the breaking of the forces that hold the solid together and the interaction of the dissolved species with the solvent. In addition, entropic effects must be considered. Qualitative reasoning regarding solubility requires consideration of all of these contributions to the free energy.
 - All sodium, potassium, ammonium, and nitrate salts are soluble in water.

Unit 9: Entropy and Free Energy

Unit 9 Learner Objectives:

- Predict whether or not a physical or chemical process is thermodynamically favored by determination of (either quantitatively or qualitatively) the signs of both ΔH° and ΔS° , and calculation or estimation of ΔG° when needed.
- Determine whether a chemical or physical process is thermodynamically favorable by calculating the change in standard Gibbs free energy.
- Explain how the application of external energy sources or the coupling of favorable with unfavorable reactions can be used to cause processes that are not thermodynamically favorable to become favorable.
- Predict whether or not a physical or chemical process is thermodynamically favored by determination of (either quantitatively or qualitatively) the signs of both ΔH° and ΔS° , and calculation or estimation of ΔG° when needed.
- Use Le Chatelier's principle to make qualitative predictions for systems in which coupled reactions that share a common intermediate drive formation of a product.
- Make quantitative predictions for systems involving coupled reactions that share a common intermediate, based on the equilibrium constant for the combined reaction.
- Explain why a thermodynamically favored chemical reaction may not produce large amounts of product (based on consideration of both initial conditions and kinetic effects), or why a thermodynamically unfavored chemical reaction can produce large amounts of product for certain sets of initial conditions.

Unit 9 CollegeBoard Standards:

- **Enduring understanding 5.E: Chemical or physical processes are driven by a**

decrease in enthalpy or an increase in entropy, or both.

- **Essential knowledge 5.E.2:** Some physical or chemical processes involve both a decrease in the internal energy of the components ($\Delta H^\circ < 0$) under consideration and an increase in the entropy of those components ($\Delta S^\circ > 0$). These processes are necessarily “thermodynamically favored” ($\Delta G^\circ < 0$).
 - For the purposes of thermodynamic analysis in this course, the enthalpy and the internal energy will not be distinguished.
 - The phrase “thermodynamically favored” means that products are favored at equilibrium ($K > 1$).
 - Historically, the term “spontaneous” has been used to describe processes for which $\Delta G^\circ < 0$. The phrase “thermodynamically favored” is used here to avoid misunderstanding and confusion that can occur because of the common connotation of the term “spontaneous,” which students may believe means “immediately” or “without cause.”
 - For many processes, students will be able to determine, either quantitatively or qualitatively, the signs of both ΔH° and ΔS° for a physical or chemical process. In those cases where $\Delta H^\circ < 0$ and $\Delta S^\circ > 0$, there is no need to calculate ΔG° in order to determine that the process is thermodynamically favored.
 - As noted below in 5.E.5, the fact that a process is thermodynamically favored does not mean that it will proceed at a measurable rate.
 - Any process in which both $\Delta H^\circ > 0$ and $\Delta S^\circ < 0$ are not thermodynamically favored, ($\Delta G^\circ > 0$) and the process must favor reactants at equilibrium ($K < 1$). Because the signs of ΔS° and ΔH° reverse when a chemical or physical process is reversed, this must be the case.
- **Essential knowledge 5.E.2:** Some physical or chemical processes involve both a decrease in the internal energy of the components ($\Delta H^\circ < 0$) under consideration and an increase in the entropy of those components ($\Delta S^\circ > 0$). These processes are necessarily “thermodynamically favored” ($\Delta G^\circ < 0$).
 - For the purposes of thermodynamic analysis in this course, the enthalpy and the internal energy will not be distinguished.
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 - For many processes, students will be able to determine, either quantitatively or qualitatively, the signs of both ΔH° and ΔS° for a physical or chemical process. In those cases where $\Delta H^\circ < 0$ and $\Delta S^\circ > 0$, there is no need to calculate ΔG° in order to determine that the process is thermodynamically favored.
 - As noted below in 5.E.5, the fact that a process is thermodynamically favored does not mean that it will proceed at a measurable rate.
 - Any process in which both $\Delta H^\circ > 0$ and $\Delta S^\circ < 0$ are not thermodynamically favored, ($\Delta G^\circ > 0$) and the process must favor

reactants at equilibrium ($K < 1$). Because the signs of ΔS° and ΔH° reverse when a chemical or physical process is reversed, this must be the case.

- **Essential knowledge 5.E.3:** If a chemical or physical process is not driven by both entropy and enthalpy changes, then the Gibbs free energy change can be used to determine whether the process is thermodynamically favored.
 - Some exothermic reactions involve decreases in entropy.
 - When $\Delta G^\circ > 0$, the process is not thermodynamically favorable. When $\Delta G^\circ < 0$, the process is thermodynamically favorable.
 - In some reactions, it is necessary to consider both enthalpy and entropy to determine if a reaction will be thermodynamically favorable. The freezing of water and the dissolution of sodium nitrate in water provide good examples of such situations.
- **Essential knowledge 5.E.4:** External sources of energy can be used to drive change in cases where the Gibbs free energy change is positive.
 - Electricity may be used to cause a process to occur that is not thermodynamically favored. Useful examples are charging of a battery and the process of electrolysis.
 - Light may also be a source of energy for driving a process that in isolation is not thermodynamically favored.
 - A thermodynamically unfavorable reaction may be made favorable by coupling it to a favorable reaction, such as the conversion of ATP to ADP in biological systems. In this context, coupling means the process involves a series of reactions with common intermediates, such that the reactions add up to produce an overall reaction with a negative ΔG° .
- **Essential knowledge 5.E.5:** A thermodynamically favored process may not occur due to kinetic constraints (kinetic vs. thermodynamic control).
 - Many processes that are thermodynamically favored do not occur to any measurable extent, or they occur at extremely slow rates.
 - Processes that are thermodynamically favored, but do not proceed at a measurable rate, are said to be under “kinetic control.” High activation energy is a common reason for a process to be under kinetic control. The fact that a process does not proceed at a noticeable rate does not mean that the chemical system is at equilibrium. If a process is known to be thermodynamically favored (through qualitative and/or quantitative analysis of ΔH° and ΔS°), and yet it is not occurring at a measurable rate, then the conclusion is that the process is under kinetic control.

Unit 10: Electrochemistry

Unit 10 Learner Objectives:

- Analyze data regarding galvanic or electrolytic cells to identify properties of the underlying redox reactions.
- Translate among macroscopic observations of change, chemical equations, and particle views.
- Identify redox reactions and justify the identification in terms of electron transfer.
- Make qualitative or quantitative predictions about galvanic or electrolytic reactions based on half-cell reactions and potentials and/ or Faraday’s laws.

- To explain how the application of external energy sources or the coupling of favorable with unfavorable reactions can be used to cause processes that are not thermodynamically favorable to become favorable.
- Use stoichiometric calculations to predict the results of performing a reaction in the laboratory and/or to analyze deviations from the expected results.
- Evaluate the classification of a process as a physical change, chemical change, or ambiguous change based on both macroscopic observations and the distinction between rearrangement of covalent interactions and noncovalent interactions.
- Explain how the application of external energy sources or the coupling of favorable with unfavorable reactions can be used to cause processes that are not thermodynamically favorable to become favorable.

Unit 10 CollegeBoard Themes:

- ***Enduring understanding 3.A: Chemical changes are represented by a balanced chemical equation that identifies the ratios with which reactants react and products form.***
 - **Essential knowledge 3.A.2:** Quantitative information can be derived from stoichiometric calculations that utilize the mole ratios from the balanced chemical equations. The role of stoichiometry in real-world applications is important to note, so that it does not seem to be simply an exercise done only by chemists.
 - Coefficients of balanced chemical equations contain information regarding the proportionality of the amounts of substances involved in the reaction. These values can be used in chemical calculations that apply the mole concept; the most important place for this type of quantitative exercise is the laboratory.
 - The use of stoichiometry with gases also has the potential for laboratory experimentation, particularly with respect to the experimental determination of molar mass of a gas.
 - Solution chemistry provides an additional avenue for laboratory calculations of stoichiometry, including titrations.
- ***Enduring understanding 3.B: Chemical reactions can be classified by considering what the reactants are, what the products are, or how they change from one into the other. Classes of chemical reactions include synthesis, decomposition, acid-base, and oxidation-reduction reactions.***
 - **Essential knowledge 3.B.3:** In oxidation-reduction (redox) reactions, there is a net transfer of electrons. The species that loses electrons is oxidized, and the species that gains electrons is reduced.
 - In a redox reaction, electrons are transferred from the species that is oxidized to the species that is reduced.
 - Oxidation numbers may be assigned to each of the atoms in the reactant and products; this is often an effective way to identify the oxidized and reduced species in a redox reaction.
 - Balanced chemical equations for redox reactions can be constructed from tabulated half-reactions.
 - Recognizing that a reaction is a redox reaction is an important skill; an apt application of this type of reaction is a laboratory exercise where students perform redox titrations.
 - There are a number of important redox reactions in energy production

processes (combustion of hydrocarbons and metabolism of sugars, fats, and proteins).

- **Enduring understanding 3.C: Chemical and physical transformations may be observed in several ways and typically involve a change in energy.**
 - **Essential knowledge 3.C.1:** Production of heat or light, formation of a gas, and formation of a precipitate and/or a color change are possible evidences that a chemical change has occurred.
 - Laboratory observations are made at the macroscopic level, so students must be able to characterize changes in matter using visual clues and then make representations or written descriptions.
 - Distinguishing the difference between chemical and physical changes at the macroscopic level is a challenge; therefore, the ability to investigate chemical properties is important.
 - In order to develop the ability to distinguish experimentally between chemical and physical changes, students must make observations and collect data from a variety of reactions and physical changes within the laboratory setting.
 - Classification of reactions provides important organizational clarity for chemistry; therefore, students need to identify precipitation, acid-base, and redox reactions.
 - **Essential knowledge 3.C.3:** Electrochemistry shows the interconversion between chemical and electrical energy in galvanic and electrolytic cells.
 - Electrochemistry encompasses the study of redox reactions that occur within electrochemical cells. The reactions either generate electrical current in galvanic cells, or are driven by an externally applied electrical potential in electrolytic cells. Visual representations of galvanic and electrolytic cells are tools of analysis to identify where half-reactions occur and the direction of current flow.
 - The overall electrical potential of galvanic cells can be calculated by identifying the oxidation half-reaction and reduction half-reaction, and using a table of Standard Reduction Potentials.
 - Many real systems do not operate at standard conditions and the electrical potential determination must account for the effect of concentrations. The qualitative effects of concentration on the cell potential can be understood by considering the cell potential as a driving force toward equilibrium, in that the farther the reaction is from equilibrium, the greater the magnitude of the cell potential. The standard cell potential, E° , corresponds to the standard conditions of $Q = 1$. As the system approaches equilibrium, the magnitude (i.e., absolute value) of the cell potential decreases, reaching zero at equilibrium (when $Q = K$). Deviations from standard conditions that take the cell further from equilibrium than $Q = 1$ will increase the magnitude of the cell potential relative to E° . Deviations from standard conditions that take the cell closer to equilibrium than $Q = 1$ will decrease the magnitude of the cell potential relative to E° . In concentration cells, the direction of spontaneous electron flow can be determined by considering the direction needed to reach equilibrium.
 - ΔG° (standard Gibbs free energy) is proportional to the negative of the

- cell potential for the redox reaction from which it is constructed.
 - Faraday's laws can be used to determine the stoichiometry of the redox reactions occurring in an electrochemical cell.
- ***Enduring understanding 5.E: Chemical or physical processes are driven by a decrease in enthalpy or an increase in entropy, or both.***
 - **Essential knowledge 5.E.4:** External sources of energy can be used to drive change in cases where the Gibbs free energy change is positive.
 - Electricity may be used to cause a process to occur that is not thermodynamically favored. Useful examples are charging of a battery and the process of electrolysis.
 - Light may also be a source of energy for driving a process that in isolation is not thermodynamically favored.

HUMAN ANATOMY & PHYSIOLOGY

Course Length: 2 semesters

Credits: 1.0

Recommended Grade Levels: 11, 12

Prerequisites: None

Course Description: Human Anatomy and Physiology provides a yearlong introduction to the anatomy and physiology of the human body. It is designed around the college level specifications for courses of human anatomy and physiology that anyone pursuing a career in a medical or health field would need. It is also aligned to some Next Generation Science Standards. Typically taken after the completion of Biology and Chemistry, this course covers cells and tissues, skin, the skeleton, joints and muscles. The cardiovascular system, the digestive system, the nervous system and the excretory system are also addressed. Content includes aspects from the basic human anatomy and physiology, cadaver labs, exercise physiology, and kinesiology courses. The learning experience is enhanced with dissections, including a whole cat dissection and a sheep kidney dissection. The development of critical thinking skills and scientific reasoning are emphasized throughout the course. In preparation for college and career readiness, this course is also aligned to the Common Core Literacy Standards for Science & Technical Subjects.

HUMAN ANATOMY & PHYSIOLOGY UNIT PROGRESSION

Unit 1: Anatomical Regions, Directions, & Planes

Unit 1 Priority Standards and Learner Objectives:

Priority Standard 1: Identify, explain, apply information about anatomical structures and functions

Level 2:

- 1.2.1: Identify anatomical structure and their key features using descriptions and diagrams.
- 1.2.2: Identify the general function of a structure using descriptions or diagrams.

Level 3:

- 1.3.1: Explain the process or features of a diagram, medically produced images and/or practical examination.
- 1.3.2: Explain the importance of a function of a structure to a greater system(s).

Level 4:

- 1.4.1: Apply information about anatomical structures and functions to an unknown structure or function discussing how it would impact the function of/change a body system.

Priority Standard 2: Demonstrate understanding of essential concepts of a body system and explore their human health implications

Level 2:

2.2.1: Organize and identify information relevant to answering the question/resolving the problem by providing terms, pictorials, etc.

2.2.2: Develop an accurate, detailed, and relevant connection to the problem or question (written or oral).

Level 3:

2.3.1: Create a visual representation/product to support the explanation of the underlying anatomy and physiology of the problem/question.

2.3.2: Analyze and synthesize evidence from multiple sources to accurately address how the anatomy and physiology relate to the problem/question (written or oral)

Level 4:

2.4.1 Research and explain how the results (data) of a scientific article or study supports your model and conclusion.

2.4.2 Modify the constructed product by adding on to it and explaining how the new addition makes the model more accurate in structure and function

Priority Standard 3: Infer the meaning of unknown scientific vocabulary terms and concepts

Level 2:

3.2.1: Define root words/terms

3.2.2: Use sentence level context as a clue to determine the meaning of a word or phrase

Level 3:

3.3.1: Apply root words/terms to unknown words to determine meaning

3.3.2: Explain how context clues create meaning to an unknown word or phrase

Level 4:

3.4.1: Using root words/terms, create and justify a word based on a scenario

3.4.2: Apply root words/terms to compare and/or contrast unknown terms.

Unit 2: Integumentary System

Unit 2 Priority Standards and Learner Objectives:

- Same as Unit 1

Unit 3: Skeletal System

Unit 3 Priority Standards and Learner Objectives:

- Same as Unit 1

Unit 4: Muscular System

Unit 4 Priority Standards and Learner Objectives:

- Same as Unit 1

Unit 5: Nervous System

Unit 5 Priority Standards and Learner Objectives:

- Same as Unit 1

Unit 6: Cardiovascular System

Unit 6 Priority Standards and Learner Objectives:

- Same as Unit 1

Unit 7: Respiratory & Lymphatic Systems

Unit 7 Priority Standards and Learner Objectives:

- Same as Unit 1

Unit 8: Digestive System

Unit 8 Priority Standards and Learner Objectives:

- Same as Unit 1

Unit 9: Urinary System

Unit 9 Priority Standards and Learner Objectives:

- Same as Unit 1

AP ENVIRONMENTAL SCIENCE

Course Length: 2 semesters

Credits: 1.0

Recommended Grade Levels: 11, 12

Prerequisites: Biology and Chemistry

Course Description: Aligned with standards and objectives set by the AP CollegeBoard, AP Environmental Science is the equivalent of an introductory college course in environmental science. This course provides students with the scientific principles, concepts, and methodologies required to understand the interrelationships of the natural world, to identify and analyze environmental problems both natural and human-made, to evaluate the relative risks associated with these problems, and to examine alternative solutions for resolving or preventing them. In preparation for college and career readiness, this course is also aligned to the Common Core Literacy Standards for Science & Technical Subjects. Students demonstrate their mastery of college level Environmental Science knowledge and skills on the AP Environmental Science Exam, given in May. A passing score on the exam may earn students college Environmental Science credit. Placement and credit are granted by institutions in accordance with their own policies, not by those of the College Board or the AP Program.

AP ENVIRONMENTAL SCIENCE UNIT PROGRESSION

Earth Systems and Resources

- Earth Science Concepts
 - (Geologic time scale; plate tectonics, earthquakes, volcanism; seasons; solar intensity and latitude)
- The Atmosphere
 - (Composition; structure; weather and climate; atmospheric circulation and the Coriolis Effect; atmosphere–ocean interactions; ENSO)
- Global Water Resources and Use
 - (Freshwater/saltwater; ocean circulation; agricultural, industrial, and domestic use; surface and groundwater issues; global problems; conservation)
- Soil and Soil Dynamics
 - (Rock cycle; formation; composition; physical and chemical properties; main soil types; erosion and other soil problems; soil conservation)

The Living World

- Ecosystem Structure
 - (Biological populations and communities; ecological niches; interactions among species; keystone species; species diversity and edge effects; major terrestrial and aquatic biomes)
- Energy Flow
 - (Photosynthesis and cellular respiration; food webs and trophic levels; ecological pyramids)
- Ecosystem Diversity
 - (Biodiversity; natural selection; evolution; ecosystem services)

- Natural Ecosystem Change
 - (Climate shifts; species movement; ecological succession)
- Natural Biogeochemical Cycles
 - (Carbon, nitrogen, phosphorus, sulfur, water, conservation of matter)

Population

- Population Biology Concepts
 - (Population ecology; carrying capacity; reproductive strategies; survivorship)
- Human Population
 - 1. Human population dynamics
 - (Historical population sizes; distribution; fertility rates; growth rates and doubling times; demographic transition; age-structure diagrams)
 - 2. Population size
 - (Strategies for sustainability; case studies; national policies)
 - 3. Impacts of population growth
 - (Hunger; disease; economic effects; resource use; habitat destruction)

Land and Water Use

- Agriculture
 - 1. Feeding a growing population
 - (Human nutritional requirements; types of agriculture; Green Revolution; genetic engineering and crop production; deforestation; irrigation; sustainable agriculture)
 - 2. Controlling pests
 - (Types of pesticides; costs and benefits of pesticide use; integrated pest management; relevant laws)
- Forestry
 - (Tree plantations; old growth forests; forest fires; forest management; national forests)
- Rangelands
 - (Overgrazing; deforestation; desertification; rangeland management; federal rangelands)
- Other Land Use
 - 1. Urban land development
 - (Planned development; suburban sprawl; urbanization)
 - 2. Transportation infrastructure
 - (Federal highway system; canals and channels; roadless areas; ecosystem impacts)
 - 3. Public and federal lands
 - (Management; wilderness areas; national parks; wildlife refuges; forests; wetlands)
 - 4. Land conservation options
 - (Preservation; remediation; mitigation; restoration)
 - 5. Sustainable land-use strategies
- Mining
 - (Mineral formation; extraction; global reserves; relevant laws and treaties)

- Fishing
 - (Fishing techniques; overfishing; aquaculture; relevant laws and treaties)
- Global Economics
 - (Globalization; World Bank; Tragedy of the Commons; relevant laws and treaties)

Energy Resources and Consumption

- Energy Concepts
 - (Energy forms; power; units; conversions; Laws of Thermodynamics)
- Energy Consumption
 - 1. History (Industrial Revolution; exponential growth; energy crisis)
 - 2. Present global energy use
 - 3. Future energy needs
- Fossil Fuel Resources and Use
 - (Formation of coal, oil, and natural gas; extraction/purification methods; world reserves and global demand; synfuels; environmental advantages/disadvantages of sources)
- Nuclear Energy
 - (Nuclear fission process; nuclear fuel; electricity production; nuclear reactor types; environmental advantages/disadvantages; safety issues; radiation and human health; radioactive wastes; nuclear fusion)
- Hydroelectric Power
 - (Dams; flood control; salmon; silting; other impacts)
- Energy Conservation
 - (Energy efficiency; CAFE standards; hybrid electric vehicles; mass transit)
- Renewable Energy
 - (Solar energy; solar electricity; hydrogen fuel cells; biomass; wind energy; small-scale hydroelectric; ocean waves and tidal energy; geothermal; environmental advantages/disadvantages)

Pollution

- Pollution Types
 - 1. Air pollution
 - (Sources — primary and secondary; major air pollutants; measurement units; smog; acid deposition — causes and effects; heat islands and temperature inversions; indoor air pollution; remediation and reduction strategies; Clean Air Act and other relevant laws)
 - 2. Noise pollution
 - (Sources; effects; control measures)
 - 3. Water pollution
 - (Types; sources, causes, and effects; cultural eutrophication; groundwater pollution; maintaining water quality; water purification; sewage treatment/septic systems; Clean Water Act and other relevant laws)
 - 4. Solid waste
 - (Types; disposal; reduction)
- Impacts on the Environment and Human Health
 - 1. Hazards to human health

- (Environmental risk analysis; acute and chronic effects; dose-response relationships; air pollutants; smoking and other risks)
- 2. Hazardous chemicals in the environment
 - (Types of hazardous waste; treatment/disposal of hazardous waste; cleanup of contaminated sites; biomagnification; relevant laws)
- Economic Impacts
 - (Cost-benefit analysis; externalities; marginal costs; sustainability)

Global Change

- Stratospheric Ozone
 - (Formation of stratospheric ozone; ultraviolet radiation; causes of ozone depletion; effects of ozone depletion; strategies for reducing ozone depletion; relevant laws and treaties)
- Global Warming
 - (Greenhouse gases and the greenhouse effect; impacts and consequences of global warming; reducing climate change; relevant laws and treaties)
- Loss of Biodiversity
 - 1. Habitat loss; overuse; pollution; introduced species; endangered and extinct species
 - 2. Maintenance through conservation
 - 3. Relevant laws and treaties

AP PHYSICS I

Course Length: 2 semesters

Credits: 1.0

Recommended Grade Levels: 11, 12

Prerequisites: Honors Biology or Biology and Chemistry

Course Description: Aligned with standards and objectives set by the AP CollegeBoard, AP Physics I is an algebra-based college level course in physics covering Newtonian mechanics (including rotational dynamics and angular momentum); work, energy, and power; and mechanical waves and sound. Electric currents will also be introduced. This class is centered around laboratory experience and how those experiences can be used to deepen and solidify the content that is covered on a daily basis. The class has an emphasis on scientific essay writing in order to prepare students to be proficient in writing essays. In preparation for college and career readiness, this course is also aligned to the Common Core Literacy Standards for Science & Technical Subjects. Students demonstrate their mastery of college level Physics knowledge and skills on the AP Physics I Exam, given in May. A passing score on the exam may earn students college Physics credit. Placement and credit are granted by institutions in accordance with their own policies, not by those of the College Board or the AP Program.

AP PHYSICS I UNIT PROGRESSION

Unit 1 - Kinematics

Topics

- Vectors/Scalars
- One Dimensional Motion (including graphing position, velocity, and acceleration)
- Two Dimensional Motion

Concept 3 Big Idea: The interactions of an object with other objects can be described by forces.

Concept 3 Learner Objectives:

- Express the motion of an object using narrative, mathematical, and graphical representations.
- Design an experimental investigation of the motion of an object.
- Analyze experimental data describing the motion of an object and is able to express the results of the analysis using narrative, mathematical, and graphical representations.
- Represent forces in diagrams or mathematically using appropriately labeled vectors with magnitude, direction, and units during the analysis of a situation.
- Analyze a scenario and make claims (develop arguments, justify assertions) about the forces exerted on an object by other objects for different types of forces or components of forces.
- Challenge a claim that an object can exert a force on itself.
- Describe a force as an interaction between two objects and identify both objects for any force.

Unit 2 - Dynamics

Topics

- Newton's Laws of Motion and Forces

Concept 1 Big Idea: Objects and systems have properties such as mass and charge. Systems may have internal structure.

Concept 1 Learner Objectives:

- Design an experiment for collecting data to determine the relationship between the net force exerted on an object, its inertial mass, and its acceleration.
- Choose and justify the selection of data needed to determine resistivity for a given material.

Concept 2 Big Idea: Fields existing in space can be used to explain interactions.

Concept 2 Learner Objectives:

- Apply $F = mg$ to calculate the gravitational force on an object with mass m in a gravitational field of strength g in the context of the effects of a net force on objects and systems.
- The student is able to apply $g = G \cdot M / r^2$ to calculate the gravitational field due to an object with mass M , where the field is a vector directed toward the center of the object of mass M .
- ***Concept 3 Big Idea: The interactions of an object with other objects can be described by forces.***

Concept 3 Learner Objectives:

- Use Newton's law of gravitation to calculate the gravitational force the two objects exert on each other and use that force in contexts other than orbital motion.
- Use Newton's law of gravitation to calculate the gravitational force between two objects and use that force in contexts involving orbital motion (for circular orbital motion only in Physics 1).

Concept 4 Big Idea: Interactions between systems can result in changes in those systems.

Concept 4 Learner Objectives:

- Use representations of the center of mass of an isolated two-object system to analyze the motion of the system qualitatively and semi quantitatively.
- Make predictions about the motion of a system based on the fact that acceleration is equal to the change in velocity per unit time, and velocity is equal to the change in position per unit time.
- Evaluate using given data whether all the forces on a system or whether all the parts of a system have been identified.
- Create mathematical models and analyze graphical relationships for acceleration, velocity, and position of the center of mass of a system and use them to calculate properties of the motion of the center of mass of a system.

- Apply Newton's second law to systems to calculate the change in the center-of-mass velocity when an external force is exerted on the system.
- Use visual or mathematical representations of the forces between objects in a system to predict whether or not there will be a change in the center-of-mass velocity of that system.

Unit 3 - Universal Law of Gravitation

Topics

- Circular Motion

Concept 1 Big Idea: Objects and systems have properties such as mass and charge. Systems may have internal structure.

Concept 1 Learner Objectives:

- Design a plan for collecting data to measure gravitational mass and to measure inertial mass, and to distinguish between the two experiments.

Concept 2 Big Idea: Fields existing in space can be used to explain interactions.

Concept 2 Learner Objectives:

- Apply $F = mg$ to calculate the gravitational force on an object with mass m in a gravitational field of strength g in the context of the effects of a net force on objects and systems.
- The student is able to apply $g = G*M/r^2$ to calculate the gravitational field due to an object with mass M , where the field is a vector directed toward the center of the object of mass M .
- The student is able to approximate a numerical value of the gravitational field (g) near the surface of an object from its radius and mass relative to those of the Earth or other reference objects.

Concept 2

Concept 2 Big Idea: Fields existing in space can be used to explain interactions.

Concept 2 Learner Objectives:

- Apply $F = mg$ to calculate the gravitational force on an object with mass m in a gravitational field of strength g in the context of the effects of a net force on objects and systems.
- The student is able to apply $g = G*M/r^2$ to calculate the gravitational field due to an object with mass M , where the field is a vector directed toward the center of the object of mass M .
- The student is able to approximate a numerical value of the gravitational field (g) near the surface of an object from its radius and mass relative to those of the Earth or other reference objects.

Concept 3 Big Idea: The interactions of an object with other objects can be described by forces.

Concept 3 Learner Objectives

- Use Newton's law of gravitation to calculate the gravitational force the two objects exert on each other and use that force in contexts other than orbital motion.
- Use Newton's law of gravitation to calculate the gravitational force between two objects and use that force in contexts involving orbital motion (for circular orbital motion only in Physics 1).

Concept 4 Big Idea: Interactions between systems can result in changes in those systems.

Concept 4 Learner Objectives:

- Use visual or mathematical representations of the forces between objects in a system to predict whether or not there will be a change in the center-of-mass velocity of that system.

Unit 4 - Simple Harmonic Motion

Topics

- Simple Pendulums
- Mass-Spring Oscillators
- **Concept 3 Big Idea:** The interactions of an object with other objects can be described by forces.

Concept 3 Learner Objectives:

- Predict which properties determine the motion of a simple harmonic oscillator and what the dependence of the motion is on those properties.
- Design a plan and collect data in order to ascertain the characteristics of the motion of a system undergoing oscillatory motion caused by a restoring force.
- Analyze data to identify qualitative or quantitative relationships between given values and variables (i.e., force, displacement, acceleration, velocity, period of motion, frequency, spring constant, string length, mass) associated with objects in oscillatory motion to use that data to determine the value of an unknown.
- Construct a qualitative and/or a quantitative explanation of oscillatory behavior given evidence of a restoring force.

Concept 5 Big Idea: Changes that occur as a result of interactions are constrained by conservation laws.

Concept 5 Learner Objectives:

- Calculate changes in kinetic energy and potential energy of a system, using information from representations of that system.
- Design an experiment and analyze data to examine how a force exerted on an object or system does work on the object or system as it moves through a distance.

- Design an experiment and analyze graphical data in which interpretations of the area under a force-distance curve are needed to determine the work done on or by the object or s

Unit 5 - Momentum

Topics

- Impulse and Momentum
- The Law of Conservation of Momentum

Concept 3 Big Idea: The interactions of an object with other objects can be described by forces.

Concept 3 Learner Objectives:

- Justify the selection of data needed to determine the relationship between the direction of the force acting on an object and the change in momentum caused by that force.
- Justify the selection of routines for the calculation of the relationships between changes in momentum of an object, average force, impulse, and time of interaction.
- Predict the change in momentum of an object from the average force exerted on the object and the interval of time during which the force is exerted.
- Analyze data to characterize the change in momentum of an object from the average force exerted on the object and the interval of time during which the force is exerted.
- Design a plan for collecting data to investigate the relationship between changes in momentum and the average force exerted on an object over time.

Concept 4 Big Idea: Interactions between systems can result in changes in those systems.

Concept 4 Learner Objectives:

- Calculate the change in linear momentum of a two-object system with constant mass in linear motion from a representation of the system (data, graphs, etc.).
- Analyze data to find the change in linear momentum for a constant-mass system using the product of the mass and the change in velocity of the center of mass.
- Apply mathematical routines to calculate the change in momentum of a system by analyzing the average force exerted over a certain time on the system.
- Perform analysis on data presented as a force-time graph and predict the change in momentum of a system.

Concept 5 Big Idea: Changes that occur as a result of interactions are constrained by conservation laws.

Concept 5 Learner Objectives:

- Make qualitative predictions about natural phenomena based on conservation of linear momentum and restoration of kinetic energy in elastic collisions.
- Apply the principles of conservation of momentum and restoration of kinetic energy to reconcile a situation that appears to be isolated and elastic, but in which data indicate that linear momentum and kinetic energy are not the same after the interaction, by refining a scientific question to identify interactions that have not been considered. Students will be expected to solve qualitatively and/or quantitatively for one-dimensional

situations and only qualitatively in two-dimensional situations.

- Apply mathematical routines appropriately to problems involving elastic collisions in one dimension and justify the selection of those mathematical routines based on conservation of momentum and restoration of kinetic energy.
- Design an experimental test of an application of the principle of the conservation of linear momentum, predict an outcome of the experiment using the principle, analyze data generated by that experiment whose uncertainties are expressed numerically, and evaluate the match between the prediction and the outcome.
- Classify a given collision situation as elastic or inelastic, justify the selection of conservation of linear momentum and restoration of kinetic energy as the appropriate principles for analyzing an elastic collision, solve for missing variables, and calculate their values.
- Qualitatively predict, in terms of linear momentum and kinetic energy, how the outcome of a collision between two objects changes depending on whether the collision is elastic or inelastic.
- Plan data collection strategies to test the law of conservation of momentum in a two-object collision that is elastic or inelastic and analyze the resulting data graphically.
- Apply the conservation of linear momentum to a closed system of objects involved in an inelastic collision to predict the change in kinetic energy.
- Analyze data that verify conservation of momentum in collisions with and without an external friction force.
- Classify a given collision situation as elastic or inelastic, justify the selection of conservation of linear momentum as the appropriate solution method for an inelastic collision, recognize that there is a common final velocity for the colliding objects in the totally inelastic case, solve for missing variables, and calculate their values.
- Predict the velocity of the center of mass of a system when there is no interaction outside of the system but there is an interaction within the system (i.e., the student simply recognizes that interactions within a system do not affect the center of mass motion of the system and is able to determine that there is no external force).
- Make qualitative predictions about the angular momentum of a system for a situation in which there is no net external torque.
- Make calculations of quantities related to the angular momentum of a system when the net external torque on the system is zero.
- Describe or calculate the angular momentum and rotational inertia of a system in terms of the locations and velocities of objects that make up the system. Students are expected to do qualitative reasoning with compound objects. Students are expected to do calculations with a fixed set of extended objects and point masses.

Unit 6 - Energy

Topics

- Work
- Energy
- Conservation of Energy
- Power

Concept 3 Big Idea: The interactions of an object with other objects can be described by

forces.

Concept 3 Learner Objectives:

- Make predictions about the changes in kinetic energy of an object based on considerations of the direction of the net force on the object as the object moves.
- Use net force and velocity vectors to determine qualitatively whether kinetic energy of an object would increase, decrease, or remain unchanged.
- Use force and velocity vectors to determine qualitatively or quantitatively the net force exerted on an object and qualitatively whether kinetic energy of that object would increase, decrease, or remain unchanged.
- Apply mathematical routines to determine the change in kinetic energy of an object given the forces on the object and the displacement of the object.

Concept 4 Big Idea: Interactions between systems can result in changes in those systems.

Concept 4 Learner Objectives:

- Calculate the total energy of a system and justify the mathematical routines used in the calculation of component types of energy within the system whose sum is the total energy.
- Predict changes in the total energy of a system due to changes in position and speed of objects or frictional interactions within the system.
- Make predictions about the changes in the mechanical energy of a system when a component of an external force acts parallel or antiparallel to the direction of the displacement of the center of mass.
- Apply the concepts of Conservation of Energy and the Work-Energy theorem to determine qualitatively and/or quantitatively that work done on a two-object system in linear motion will change the kinetic energy of the center of mass of the system, the potential energy of the systems, and/or the internal energy of the system.

Concept 5 Big Idea: Changes that occur as a result of interactions are constrained by conservation laws.

Concept 5 Learner Objectives:

- Define open and closed systems for everyday situations and apply conservation concepts for energy, charge, and linear momentum to those situations.
- Set up a representation or model showing that a single object can only have kinetic energy and use information about that object to calculate its kinetic energy.
- Translate between a representation of a single object, which can only have kinetic energy, and a system that includes the object, which may have both kinetic and potential energies.
- Calculate the expected behavior of a system using the object model (i.e., by ignoring changes in internal structure) to analyze a situation. Then, when the model fails, the student can justify the use of conservation of energy principles to calculate the change in internal energy due to changes in internal structure because the object is actually a system.
- Describe and make qualitative and/or quantitative predictions about everyday examples of systems with internal potential energy.

- Make quantitative calculations of the internal potential energy of a system from a description or diagram of that system.
- Apply mathematical reasoning to create a description of the internal potential energy of a system from a description or diagram of the objects and interactions in that system.
- Describe and make predictions about the internal energy of systems.
- Calculate changes in kinetic energy and potential energy of a system, using information from representations of that system.
- Design an experiment and analyze data to examine how a force exerted on an object or system does work on the object or system as it moves through a distance.
- Design an experiment and analyze graphical data in which interpretations of the area under a force-distance curve are needed to determine the work done on or by the object or system.
- Predict and calculate from graphical data the energy transfer to or work done on an object or system from information about a force exerted on the object or system through a distance.
- Make claims about the interaction between a system and its environment in which the environment exerts a force on the system, thus doing work on the system and changing the energy of the system (kinetic energy plus potential energy).
- Predict and calculate the energy transfer to (i.e., the work done on) an object or system from information about a force exerted on the object or system through a distance.

Unit 7 - Rotation

Topics

- Rotational Kinematics
- Rotational Energy
- Torque and Rotational Dynamics
- Angular Momentum
- Conservation of Angular Momentum

Concept 3 Big Idea: The interactions of an object with other objects can be described by forces.

Concept 3 Learner Objectives:

- Use representations of the relationship between force and torque.
- Compare the torques on an object caused by various forces.
- Estimate the torque on an object caused by various forces in comparison to other situations.
- Design an experiment and analyze data testing a question about torques in a balanced rigid system.
- Calculate torques on a two-dimensional system in static equilibrium, by examining a representation or model (such as a diagram or physical construction).
- Make predictions about the change in the angular velocity about an axis for an object when forces exerted on the object cause a torque about that axis.
- Plan data collection and analysis strategies designed to test the relationship between a torque exerted on an object and the change in angular velocity of that object about an axis.
- Predict the behavior of rotational collision situations by the same processes that are

used to analyze linear collision situations using an analogy between impulse and change of linear momentum and angular impulse and change of angular momentum.

- In an unfamiliar context or using representations beyond equations, the student is able to justify the selection of a mathematical routine to solve for the change in angular momentum of an object caused by torques exerted on the object.
- Plan data collection and analysis strategies designed to test the relationship between torques exerted on an object and the change in angular momentum of that object.
- Articulate situations when the gravitational force is the dominant force and when the electromagnetic, weak, and strong forces can be ignored.

- **Concept 4 Big Idea: Interactions between systems** can result in changes in those systems.

Concept 4 Learner Objectives:

- Describe a representation and use it to analyze a situation in which several forces exerted on a rotating system of rigidly connected objects change the angular velocity and angular momentum of the system.
- Plan data collection strategies designed to establish that torque, angular velocity, angular acceleration, and angular momentum can be predicted accurately when the variables are treated as being clockwise or counterclockwise with respect to a well-defined axis of rotation, and refine the research question based on the examination of data.
- Describe a model of a rotational system and use that model to analyze a situation in which angular momentum changes due to interaction with other objects or systems.
- Plan a data collection and analysis strategy to determine the change in angular momentum of a system and relate it to interactions with other objects and systems.
- Use appropriate mathematical routines to calculate values for initial or final angular momentum, or change in angular momentum of a system, or average torque or time during which the torque is exerted in analyzing a situation involving torque and angular momentum.
- Plan a data collection strategy designed to test the relationship between the change in angular momentum of a system and the product of the average torque applied to the system and the time interval during which the torque is exerted.

Concept 5 Big Idea: Changes that occur as a result of interactions are constrained by conservation laws.

Concept 5 Learner Objectives:

- Make qualitative predictions about **the** angular momentum **of a system** for a situation in which there **is** no net external torque.
- Make calculations of quantities **related to the** angular momentum of a system when the net external torque **on the system** is zero.
- Describe or calculate the angular momentum and rotational inertia of a system in terms of the locations and velocities of objects that make up the system. Students are expected to do qualitative reasoning with compound objects. Students are expected to do calculations with a fixed set of extended objects and point masses.

Unit 8 - Electrostatics

Topics

- Electric Charge
- The Law of Conservation of Electric Charge
- Electrostatic Forces
 - **Concept 3 Big Idea:** The interactions of an object with other objects can be described by **forces**.

Concept 3 Learner Objectives:

- Use Coulomb's law qualitatively and quantitatively to make predictions about the interaction between two electric point charges (interactions between collections of electric point charges are not covered in Physics 1 and instead are restricted to Physics 2).
- Connect the concepts of gravitational force and electric force to compare similarities and differences between the forces.
- Make claims about various contact forces between objects based on the microscopic cause of those forces.
- Explain contact forces (tension, friction, normal, buoyant, spring) as arising from interatomic electric forces and that they therefore have certain directions.

Concept 5 Big Idea: Changes that occur as a result of interactions are constrained by conservation laws.

Concept 5 Learner Objectives:

- Apply conservation of energy concepts to the design of an experiment that will
- Apply conservation of electric charge (Kirchhoff's junction rule) to the comparison of electric current in various segments of an electrical circuit with a single battery and resistors in series and in, at most, one parallel branch and predict how those values would change if configurations of the circuit are changed.
- Design an investigation of an electrical circuit with one or more resistors in which evidence of conservation of electric charge can be collected and analyzed.

Unit 9 - Circuits

Topics

- Ohm's Law
- Kirchhoff's Laws
- Simple DC Circuits

Concept 1 Big Idea: Objects and systems have properties such as mass and charge. Systems may have internal structure.

Concept 1 Learner Objectives:

- Make claims about natural phenomena based on conservation of electric charge.
- Make predictions, using the conservation of electric charge, about the sign and relative quantity of net charge of objects or systems after various charging processes, including conservation of charge in simple circuits.
- Construct an explanation of the two-charge model of electric charge based on evidence produced through scientific practices.
- Challenge the claim that an electric charge smaller than the elementary charge has been isolated.
 - Choose and justify the selection of data needed to determine resistivity for a given material.
 - **Concept 5 Big Idea: Changes that occur as a result of interactions are constrained by conservation laws.**

Concept 5 Learner Objectives:

- Construct or interpret a graph of the energy changes within an electrical circuit with only a single battery and resistors in series and/or in, at most, one parallel branch as an application of the conservation of energy (Kirchhoff's loop rule).
- Apply conservation of energy concepts to the design of an experiment that will

 and resistors either in series or in, at most, one pair of parallel branches.
- Apply conservation of energy (Kirchhoff's loop rule) in calculations involving the total electric potential difference for complete circuit loops with only a single battery and resistors in series and/or in, at most, one parallel branch.
- Apply conservation of electric charge (Kirchhoff's junction rule) to the comparison of electric current in various segments of an electrical circuit with a single battery and resistors in series and in, at most, one parallel branch and predict how those values would change if configurations of the circuit are changed.
- Design an investigation of an electrical circuit with one or more resistors in which evidence of conservation of electric charge can be collected and analyzed.
- Use a description or schematic diagram of an electrical circuit to calculate unknown values of current in various segments or branches of the circuit.

Unit 10 - Mechanical Waves and Sound

Concept 6 Big Idea: Waves can transfer energy and momentum from one location to another without the permanent transfer of mass and serve as a mathematical model for the description of other phenomena.

Concept 6 Learner Objectives:

- Use a visual representation to construct an explanation of the distinction between transverse and longitudinal waves by focusing on the vibration that generates the wave.
- Describe representations of transverse and longitudinal waves.
- Describe sound in terms of transfer of energy and momentum in a medium and relate the concepts to everyday examples.

- Use graphical representation of a periodic mechanical wave to determine the amplitude of the wave.
- Explain and/or predict qualitatively how the energy carried by a sound wave relates to the amplitude of the wave, and/or apply this concept to a real-world example.
- Use a graphical representation of a periodic mechanical wave (position versus time) to determine the period and frequency of the wave and describe how a change in the frequency would modify features of the representation.
- Use a visual representation of a periodic mechanical wave to determine wavelength of the wave.
- Design an experiment to determine the relationship between periodic wave speed, wavelength, and frequency and relate these concepts to everyday examples.
- Create or use a wave front diagram to demonstrate or interpret qualitatively the observed frequency of a wave, dependent upon relative motions of source and observer.
- Use representations of individual pulses and construct representations to model the interaction of two wave pulses to analyze the superposition of two pulses.
- Design a suitable experiment and analyze data illustrating the superposition of mechanical waves (only for wave pulses or standing waves).
- Design a plan for collecting data to quantify the amplitude variations when two or more traveling waves or wave pulses interact in a given medium.
- Analyze data or observations or evaluate evidence of the interaction of two or more traveling waves in one or two dimensions (i.e., circular wave fronts) to evaluate the variations in resultant amplitudes.
- Refine a scientific question related to standing waves and design a detailed plan for the experiment that can be conducted to examine the phenomenon qualitatively or quantitatively.
- Predict properties of standing waves that result from the addition of incident and reflected waves that are confined to a region and have nodes and antinodes.
- Plan data collection strategies, predict the outcome based on the relationship under test, perform data analysis, evaluate evidence compared to the prediction, explain any discrepancy and, if necessary, revise the relationship among variables responsible for establishing standing waves on a string or in a column of air.
- Describe representations and models of situations in which standing waves result from the addition of incident and reflected waves confined to a region.
- Challenge with evidence the claim that the wavelengths of standing waves are determined by the frequency of the source regardless of the size of the region.
- Calculate wavelengths and frequencies (if given wave speed) of standing waves based on boundary conditions and length of region within which the wave is confined, and calculate numerical values of wavelengths and frequencies. Examples should include musical instruments.
- Use a visual representation to explain how waves of slightly different frequency give rise to the phenomenon of beats.

AP PHYSICS II

Course Length: 2 semesters

Credits: 1.0

Recommended Grade Levels: 12

Prerequisites: Biology and Chemistry

Course Description: Aligned with standards and objectives set by the AP CollegeBoard, AP Physics 2 is an algebra-based college level course in physics covering fluid mechanics; thermodynamics; electricity and magnetism; optics; and atomic and nuclear physics. This course continues with the concepts of AP Physics 1 and adds Concept 7.

Concept 7 Big Idea: The mathematics of probability can be used to describe the behavior of complex systems and to interpret the behavior of quantum mechanical systems.

This course has not been developed yet, as it evolves, the Curriculum Document will be updated with Units and Unit Objectives.

SOCIAL STUDIES

At PrepNet schools, social studies courses include content standards that range from historical, geographical, civic, cultural and economic perspectives; inquiry; public discourse and decision-making; and citizen involvement. Instructors build literacy skills by introducing students to a wide variety of informational texts and constructing learning activities that require students to develop critical reading strategies, analyze primary source documents, and write expository and persuasive essays that argue positions by supporting sound reasoning with textual evidence.

Michigan Merit Curriculum Graduation Requirements – 3 credits Social Studies

PrepNet Social Studies Courses Available:

- 7th Grade History
- 8th Grade History
- World History
- AP World History
- Civics
- Economics
- Geography
- AP US Government and Politics
- United States History
- AP United States History
- AP European History
- AP Macro/MicroEconomics
- AP Psychology

7th Grade History

Course Length: 2 semesters

Credits: 1.0

Recommended Grade Levels: 7

Prerequisites: None

Course Description: In preparation for AP courses and in alignment with Common Core State Standards, Michigan High School Content Expectations and SAT Guidelines, 7th grade Social Studies examines Ancient World History. The course moves students beyond mere events, people, and dates. It encourages students to think like historians, geographers, economists, political scientists, anthropologists, and other social scientists. Such sophisticated thinking is, as some have argued, “unnatural” and often challenging for young students. They investigate how these social scientists select, analyze, and organize evidence, and then use that evidence to create accounts that answer questions or problems. These skills would be “useful every time they faced a take-home exam or research paper: how to get started when they lack necessary information, how to prepare their minds to deal with new topics, how to develop a hunch. The benefits would extend far beyond the intellectual. Through the development of the historical habits of mind, students build both social and content literacy. As such, the Common Core State Standards for Literacy are a deliberate focal point of the unit. The results of many of these actions will be observed and discussed concerning current events. Through readings, lectures, notes, videos, speakers, testing, discussions and projects, students are invited to gain a deeper knowledge of their world and explore how historically significant individuals may have defined “a life well lived.” In preparation for college and career readiness, this course is also aligned to the Common Core Literacy Standards for History/Social Studies.

7th GRADE SOCIAL STUDIES UNIT PROGRESSION

Unit 1: Introduction to World History

Unit 1 Priority Standards and Learner Objectives:

Priority Standard 1.0: Analyze a Source

Level 2

- 1.2.1: Identify relevant text features from a source (including the author, time period, and main idea).
- 1.2.2: Identify relevant information from a source (including the type of document) pertaining to a question.
- 1.2.3: Identify the main idea of a source.

Level 3

- 1.3.1: Identify and describe the author, time period, and the main ideas of a source.
- 1.3.2: Compare and contrast multiple sources. (source information, type of document)
- 1.3.3: Summarize the main ideas within a source.

Level 4

1.4.1: Analyze and draw conclusions using evidence from a source. (ie. speaker, occasion, audience, purpose, bias, subject, and tone of a document as evidence)

1.4.2: Using evidence, explain the differences and similarities between multiple sources over time and/or area. (same time/different places, same place/different times) (ex. Women's rights in the US 1800's-1900's)

Priority Standard 2.0: Construct Well-Developed Arguments

Level 2

2.2.1: Identify relevant claims connected to a source.

2.2.2: Identify key information from a source

2.2.3: Identify areas of potential bias in source.

Level 3

2.3.1: Develop a claim in response to a prompt.

2.3.2: List relevant evidence for the claim.

2.3.3: Identify a relevant counter-claim.

Level 4

2.4.1: Cite relevant and accurate evidence for each point of discussion.

2.4.2: Create an outline in response to a prompt.

2.4.3: Develop a coherent argument with a thesis using relevant reasoning.

Unit 2: Beginnings of Human Societies

Unit 2 Priority Standards and Learner Objectives:

- Same as Unit 1.

Unit 3: Early Civilizations and Pastoral Peoples

Unit 3 Priority Standards and Learner Objectives:

- Same as Unit 1.

Unit 4: Rise of Classical Empires and the Emergence of World Religions

Unit 4 Priority Standards and Learner Objectives:

- Same as Unit 1.

Unit 5: Interactions, the Fall of Empires & Other Stories

Unit 2 Priority Standards and Learner Objectives:

Priority Standard 3.0: Evaluating Historical Arguments

Level 2

- 3.2.1a: Identify a historical argument within a source.
- 3.2.1b: Identify relevant evidence in a source.
- 3.2.1c: Identify the best evidence to support a claim in a source
- 3.2.2: Identify a historical concept or circumstance in a source.

Level 3

- 3.3.1a: Identify the claim of a historical argument from a source.
- 3.3.1b: Identify the evidence used by the author to make a historical argument.
- 3.3.1c: Identify limitations of a source.
- 3.3.2: Identify a historical concept/circumstance that connects to the one described in the source.

Level 4

- 3.4.1: Make and justify a claim about the validity of a historical argument.
- 3.4.2: Justify a historical connection to the source using specific evidence.

Priority Standard 4.0: Construct Well-Developed Arguments

Level 2

- 4.2.1: Identify causes and their effects in a source.
- 4.2.2: Define popular historical themes and provide examples.

Level 3

- 4.3.1: Logically organize causes and effects.
- 4.3.2: Given a local or regional event, identify and define an appropriate historical theme (from a list) in which the event fits.

Level 4

- 4.4.1: Evaluate the reasons why causes led to effects.
- 4.4.2: Justify why a local or regional event fits into an appropriate historical theme.

Unit 6: Patterns of Adaptation: Reorganizing and Restoring Order After the Fall of Empires

Unit 6 Priority Standards and Learner Objectives:

- Same as Unit 5.

Unit 7: Converging Patterns 1000CE - 1450CE

Unit 7 Priority Standards and Learner Objectives:

- Same as Unit 5.

8th Grade History

Course Length: 2 semesters

Credits: 1.0

Recommended Grade Levels: 8

Prerequisites: None

Course Description: In preparation for AP courses and in alignment with Common Core State Standards, Michigan High School Content Expectations and SAT Guidelines, 7th grade Social Studies examines United States History. The course moves students beyond mere events, people, and dates. It encourages students to think like historians, geographers, economists, political scientists, anthropologists, and other social scientists. Such sophisticated thinking is, as some have argued, “unnatural” and often challenging for young students. They investigate how these social scientists select, analyze, and organize evidence, and then use that evidence to create accounts that answer questions or problems. These skills would be “useful every time they faced a take-home exam or research paper: how to get started when they lack necessary information, how to prepare their minds to deal with new topics, how to develop a hunch. The benefits would extend far beyond the intellectual. Through the development of the historical habits of mind, students build both social and content literacy. As such, the Common Core State Standards for Literacy are a deliberate focal point of the unit. The results of many of these actions will be observed and discussed concerning current events. Through readings, lectures, notes, videos, speakers, testing, discussions and projects, students are invited to gain a deeper knowledge of their world and explore how historically significant individuals may have defined “a life well lived.” In preparation for college and career readiness, this course is also aligned to the Common Core Literacy Standards for History/Social Studies.

8th GRADE SOCIAL STUDIES UNIT PROGRESSION

Unit 1: Foundations of a New Nation

Unit 1 Priority Standards and Learner Objectives:

Priority Standard 1.0: Analyze a Source

Level 2

- 1.2.1: Identify relevant text features from a source (including the author, time period, and main idea).
- 1.2.2: Identify relevant information from a source (including the type of document) pertaining to a question.
- 1.2.3: Identify the main idea of a source.

Level 3

- 1.3.1: Identify and describe the author, time period, and the main ideas of a source.
- 1.3.2: Compare and contrast multiple sources. (source information, type of document)
- 1.3.3: Summarize the main ideas within a source.

Level 4

1.4.1: Analyze and draw conclusions using evidence from a source. (ie. speaker, occasion, audience, purpose, bias, subject, and tone of a document as evidence)

1.4.2: Using evidence, explain the differences and similarities between multiple sources over time and/or area. (same time/different places, same place/different times) (ex. Women's rights in the US 1800's-1900's)

Priority Standard 2.0: Construct Well-Developed Arguments

Level 2

2.2.1: Identify relevant claims connected to a source.

2.2.2: Identify key information from a source

2.2.3: Identify areas of potential bias in source.

Level 3

2.3.1: Develop a claim in response to a prompt.

2.3.2: List relevant evidence for the claim.

2.3.3: Identify a relevant counter-claim.

Level 4

2.4.1: Cite relevant and accurate evidence for each point of discussion.

2.4.2: Create an outline in response to a prompt.

2.4.3: Develop a coherent argument with a thesis using relevant reasoning.

Unit 2: Creating a New Government

Unit 2 Priority Standards and Learner Objectives:

- Same as Unit 1.

Unit 3: Challenges to a New Nation

Unit 3 Priority Standards and Learner Objectives:

- Same as Unit 1.

Unit 4: Antebellum Reform Movements

Unit 4 Priority Standards and Learner Objectives:

- Same as Unit 1.

Unit 5: The Coming of the Civil War

Unit 2 Priority Standards and Learner Objectives:

Priority Standard 3.0: Evaluating Historical Arguments

Level 2

- 3.2.1a: Identify a historical argument within a source.
- 3.2.1b: Identify relevant evidence in a source.
- 3.2.1c: Identify the best evidence to support a claim in a source
- 3.2.2: Identify a historical concept or circumstance in a source.

Level 3

- 3.3.1a: Identify the claim of a historical argument from a source.
- 3.3.1b: Identify the evidence used by the author to make a historical argument.
- 3.3.1c: Identify limitations of a source.
- 3.3.2: Identify a historical concept/circumstance that connects to the one described in the source.

Level 4

- 3.4.1: Make and justify a claim about the validity of a historical argument.
- 3.4.2: Justify a historical connection to the source using specific evidence.

Priority Standard 4.0: Construct Well-Developed Arguments

Level 2

- 4.2.1: Identify causes and their effects in a source.
- 4.2.2: Define popular historical themes and provide examples.

Level 3

- 4.3.1: Logically organize causes and effects.
- 4.3.2: Given a local or regional event, identify and define an appropriate historical theme (from a list) in which the event fits.

Level 4

- 4.4.1: Evaluate the reasons why causes led to effects.
- 4.4.2: Justify why a local or regional event fits into an appropriate historical theme.

Unit 6: The Civil War

Unit 6 Priority Standards and Learner Objectives:

- Same as Unit 5.

Unit 7: Reconstruction

Unit 7 Priority Standards and Learner Objectives:

- Same as Unit 5.

Unit 8: America in the Last Half of the 19th Century

Unit 8 Priority Standards and Learner Objectives:

- Same as Unit 5.

WORLD HISTORY

Course Length: 2 semesters

Credits: 1.0

Recommended Grade Levels: 9

Prerequisites: None

Course Description: In preparation for AP courses and in alignment with Common Core State Standards, Michigan High School Content Expectations and ACT College Readiness Guidelines, World History examines the world chronologically and thematically, focusing on the historical development of phenomena, the rise and fall of civilizations and their unique contributions to humanity, and the universal elements these civilizations have in common throughout time. Typically taken in 9th grade, in this course European, Asian, Australian, African, North and South American events will be blended thematically and chronologically into lessons that show the impact on each area. The results of many of these actions will be observed and discussed concerning current events. Through readings, lectures, notes, videos, speakers, testing, discussions and projects, students are invited to gain a deeper knowledge of their world and explore how historically significant individuals may have defined “a life well lived.” In preparation for college and career readiness, this course is also aligned to the Common Core Literacy Standards for History/Social Studies.

WORLD HISTORY UNIT PROGRESSION

Unit 1: Organization

Unit 1 Priority Standards and Learner Objectives:

Priority Standard 1.0: Analyze a source (primary & secondary sources, map, chart, graph, text, artifacts, political cartoons, art, photograph, & film)

Level 2

1.2.1: Summarize the main idea within a source.

1.2.2: Identify the speaker, occasion, audience, purpose, bias, and/or subject of a document or a source.

1.2.3: Compare and contrast multiple sources.

Level 3

- 1.3.1: Analyze and draw conclusions using evidence from a source. (i.e. speaker, occasion, audience, purpose, bias, subject, and tone of a document)

1.3.2: Using evidence, explain the differences and similarities between multiple sources over time and/or area.

Level 4

2.4.1: Take a position on the effectiveness of a particular source by contextualizing it with evidence and other sources.

- 2.4.2: Locate and utilize primary sources in defense of a claim (sources not provided by teacher).
- 2.4.3: Generate and analyze specific groups for a given set of primary sources in a document-based style question.

Priority Standard 2.0: Construct an organized and cohesive writing sample

Level 2

- 2.2.1: Develop a topic sentence.
- 2.2.2: Create an outline for a writing sample.

Level 3

- 2.3.1: Support the topic sentence with evidence
- 2.3.2: Construct a writing sample in the proper format.
- 2.3.3: Develop a formal writing sample with readability (penmanship, flow, grammar, spelling)

Level 4

- 2.4.1: Proof of submission of a 3.0 writing sample to an approved outside source (scholarship, contest, newspaper, magazine, blog)

Unit 2: Disintegration

Unit 2 Priority Standards and Learner Objectives:

- Same as Unit 1.

Unit 3: Invention

Unit 3 Priority Standards and Learner Objectives:

- Same as Unit 1.

Unit 4: Freedom

Unit 4 Priority Standards and Learner Objectives:

Priority Standard 3.0: Research, Investigation, and Communication

Level 2

- 3.2.1: Categorize sources of information as credible or non-credible.
- 3.2.2: Describe the differences between two historical articles which give competing information or accounts. (orally and/or in writing)

Level 3

- 3.3.1: Research a question and generate a conclusion by evaluating credible historical literature (including both written text and visual displays).
- 3.3.2: Evaluate data, hypotheses, and/or conclusions in historical literature when there is competing information or accounts.

3.3.3: Communicate and defend historical data and/or claims both in oral and/or written form (e.g. short written work, presentation, and/or research paper, etc.) including appropriately formatted bibliography.

Level 4

3.4.1: Investigate a current historiographic topic and communicate arguments for and against.

3.4.2: Take a position on a current historiographic issue and communicate position both in oral and written form.

Priority Standard 4.0: Analyze cause and effect (impact of human decisions)

Level 2

4.2.1: Summarize and logically organize causes and effects.

Level 3

4.3.1: Evaluate the reasons why causes led to effects.

Level 4

4.4.1: Develop a solution to negative effects of past events and defend your solution with a test or research.

- 4.4.2: Find current problems that reflect a cause and effect relationship in the past and explain how the past can help us decide how to solve the current problems.
- 4.4.3: Investigate specific events within one region of world and connect them to circumstances in another region of the world (world historical context/contextualization).

Unit 5: Power

Unit 5 Priority Standards and Learner Objectives:

- Same as *Unit 4*.

Unit 6: Diffusion

Unit 6 Priority Standards and Learner Objectives:

- Same as *Unit 4*.

AP WORLD HISTORY

Course Length: 2 semesters

Credits: 1.0

Recommended Grade Levels: 9, 10, 11, 12

Prerequisites: None

Course Description: Aligned with standards and objectives set by the AP CollegeBoard, AP World History is a college level course in world history covering the period from the Neolithic Revolution to the present, typically taken in the 9th grade. Through the reading of primary-source documents and world literature, the course involves intensive study of the formulation of world cultures, paying special attention to change over time and comparing the effects of common historical phenomena on different cultures. In preparation for college level essay writing, an emphasis is placed on historical essay writing. This course provides regular and frequent practice in and out of class writing document-based questions, change and continuities over time essays, and comparative essays. In preparation for college and career readiness, this course is also aligned to the Common Core Literacy Standards for History/Social Studies. Students demonstrate their mastery of college level World History knowledge and skills on the AP World History Exam, given in May. A passing score on the exam may earn students college World History credit. Placement and credit are granted by institutions in accordance with their own policies, not by those of the College Board or the AP Program.

AP WORLD HISTORY UNIT PROGRESSION

Period 1: Technological and Environmental Transformations, to c. 600 BCE

Period 1 CollegeBoard Key Concepts:

- KC1.1.I Archeological evidence indicates that during the Paleolithic era, hunting-foraging bands of humans gradually migrated from their origin in East Africa to Eurasia, Australia, and the Americas, adapting their technology and cultures to new climate regions.
- KC1.2.I Beginning about 10,000 years ago, the Neolithic Revolution led to the development of new and more complex economic and social systems.
- KC1.2.II Agriculture and pastoralism began to transform human societies.
- KC1.3.I Core and foundational civilizations developed in a variety of geographical and environmental settings where agriculture flourished.
- KC1.3.II The first states emerged within core civilizations.
- KC1.3.III Culture played a significant role in unifying states through laws, language, literature, religion, myths, and monumental art.

Period 1 CollegeBoard Standards:

- The Four Historical Thinking Skills
 - 1: Crafting Historical Arguments from Historical Evidence
 - 2: Chronological Reasoning
 - 3: Comparison and Contextualization
 - 4: Historical Interpretation and Synthesis
- Course Themes
 - 1: Interaction Between Humans and the Environment

- 2: Development and Interaction of Cultures
- 3: State-Building, Expansion, and Conflict
- 4: Creation, Expansion, and Interaction of Economic Systems
- 5: Development and Transformation of Social Structures

Period 2: Organization and Reorganization of Human Societies, c. 600 BCE to 600 CE

Period 2 CollegeBoard Key Concepts:

- KC2.1.I Codifications and further developments of existing religious traditions provided a bond among the people and an ethical code to live by.
- KC2.1.II New belief systems and cultural traditions emerged and spread, often asserting universal truths.
- KC2.1.III Belief systems affected gender roles. Buddhism and Christianity encouraged monastic life and Confucianism emphasized filial piety.
- KC2.1.IV Other religious and cultural traditions continued parallel to the codified, written belief systems in core civilizations.
- KC2.1.V Artistic expressions, including literature and drama, architecture, and sculpture, show distinctive cultural developments.
- KC2.2.I The number and size of key states and empires grew dramatically by imposing political unity on areas where previously there had been competing states.
- KC2.2.II Empires and states developed new techniques of imperial administration based, in part, on the success of earlier political forms.
- KC2.2.III Unique social and economic dimensions developed in imperial societies in Afro-Eurasia and the Americas.
- KC2.2.IV The Roman, Han, Persian, Mauryan, and Gupta empires created political, cultural, and administrative difficulties that they could not manage, which eventually led to their decline, collapse, and transformation into successor empires or states.
- KC2.3.I Land and water routes became the basis for transregional trade, communication, and exchange networks in the Eastern Hemisphere.
- KC2.3.II New technologies facilitated long-distance communication and exchange.
- KC2.3.III Alongside the trade in goods, the exchange of people, technology, religious and cultural beliefs, food crops, domesticated animals, and disease pathogens developed across far-flung networks of communication and exchange.

Period 2 CollegeBoard Standards:

- The Four Historical Thinking Skills
 - 1: Crafting Historical Arguments from Historical Evidence
 - 2: Chronological Reasoning
 - 3: Comparison and Contextualization
 - 4: Historical Interpretation and Synthesis
- Course Themes
 - 1: Interaction Between Humans and the Environment
 - 2: Development and Interaction of Cultures
 - 3: State-Building, Expansion, and Conflict
 - 4: Creation, Expansion, and Interaction of Economic Systems
 - 5: Development and Transformation of Social Structures

Period 3: Regional and Transregional Interactions, c. 600 CE to c. 1450

Period 3 CollegeBoard Key Concepts:

- KC3.1.I Improved transportation technologies and commercial practices led to an increased volume of trade, and expanded the geographical range of existing and newly active trade networks.
- KC3.1.II The movement of peoples caused environmental and linguistic effects.
- KC3.1.III Cross-cultural exchanges were fostered by the intensification of existing, or the creation of new, networks of trade and communication.
- KC3.1.IV There was continued diffusion of crops and pathogens throughout the Eastern Hemisphere along the trade routes.
- KC3.2.I Empires collapsed and were reconstituted; in some regions new state forms emerged.
- KC3.2.II Interregional contacts and conflicts between states and empires encouraged significant technological and cultural transfers.
- KC3.3.I Innovations stimulated agricultural and industrial production in many regions.
- KC3.3.II The fate of cities varied greatly, with periods of significant decline, and with periods of increased urbanization buoyed by rising productivity and expanding trade networks.
- KC3.3.III Despite significant continuities in social structures and in methods of production, there were also some important changes in labor management and in the effect of religious conversion on gender relations and family life.

Period 3 CollegeBoard Standards:

- The Four Historical Thinking Skills
 - 1: Crafting Historical Arguments from Historical Evidence
 - 2: Chronological Reasoning
 - 3: Comparison and Contextualization
 - 4: Historical Interpretation and Synthesis
- Course Themes
 - 1: Interaction Between Humans and the Environment
 - 2: Development and Interaction of Cultures
 - 3: State-Building, Expansion, and Conflict
 - 4: Creation, Expansion, and Interaction of Economic Systems
 - 5: Development and Transformation of Social Structures

Period 4: Global Interactions, c. 1450 to c. 1750

Period 4 CollegeBoard Key Concepts:

- KC4.1.I In the context of the new global circulation of goods, there was an intensification of all existing regional trade networks that brought prosperity and economic disruption to the merchants and governments in the trading regions of the Indian Ocean, Mediterranean, Sahara, and overland Eurasia.
- KC4.1.II European technological developments in cartography and navigation built on previous knowledge developed in the classical, Islamic, and Asian worlds, and included the production of new tools, innovations in ship designs, and an improved understanding of global wind and currents patterns — all of which made transoceanic travel and trade possible.

- KC4.1.III Remarkable new transoceanic maritime reconnaissance occurred in this period.
- KC4.1.IV The new global circulation of goods was facilitated by royal chartered European monopoly companies that took silver from Spanish colonies in the Americas to purchase Asian goods for the Atlantic markets, but regional markets continued to flourish in Afro-Eurasia by using established commercial practices and new transoceanic shipping services developed by European merchants.
- KC4.1.V IV. The new global circulation of goods was facilitated by royal chartered European monopoly companies that took silver from Spanish colonies in the Americas to purchase Asian goods for the Atlantic markets, but regional markets continued to flourish in Afro-Eurasia by using established commercial practices and new transoceanic shipping services developed by European merchants.
- KC4.1.VI The increase in interactions between newly connected hemispheres and intensification of connections within hemispheres expanded the spread and reform of existing religions and created syncretic belief systems and practices.
- KC4.1.VII As merchants' profits increased and governments collected more taxes, funding for the visual and performing arts, even for popular audiences, increased.
- KC4.2.I Traditional peasant agriculture increased and changed, plantations expanded, and demand for labor increased. These changes both fed and responded to growing global demand for raw materials and finished products.
- KC4.2.II As new social and political elites changed, they also restructured new ethnic, racial, and gender hierarchies.
- KC4.3.I Rulers used a variety of methods to legitimize and consolidate their power.
- KC4.3.II Imperial expansion relied on the increased use of gunpowder, cannons, and armed trade to establish large empires in both hemispheres.
- KC4.3.III Competition over trade routes, state rivalries, and local resistance all provided significant challenges to state consolidation and expansion.

Period 4 CollegeBoard Standards:

- The Four Historical Thinking Skills
 - 1: Crafting Historical Arguments from Historical Evidence
 - 2: Chronological Reasoning
 - 3: Comparison and Contextualization
 - 4: Historical Interpretation and Synthesis
- Course Themes
 - 1: Interaction Between Humans and the Environment
 - 2: Development and Interaction of Cultures
 - 3: State-Building, Expansion, and Conflict
 - 4: Creation, Expansion, and Interaction of Economic Systems
 - 5: Development and Transformation of Social Structures

Period 5: Industrialization and Global Integration, c. 1750 to c. 1900

Period 5 CollegeBoard Key Concepts:

- KC5.1.I Industrialization fundamentally changed how goods were produced.
- KC5.1.II New patterns of global trade and production developed and further integrated the global economy as industrialists sought raw materials and new markets for the increasing amount and array of goods produced in their factories.

- KC5.1.III To facilitate investments at all levels of industrial production, financiers developed and expanded various financial institutions
- KC5.1.IV There were major developments in transportation and communication.
- KC5.1.V The development and spread of global capitalism led to a variety of responses.
- KC5.1.VI The ways in which people organized themselves into societies also underwent significant transformations in industrialized states due to the fundamental restructuring of the global economy.
- KC5.2.I Industrializing powers established transoceanic empires.
- KC5.2.II Imperialism influenced state formation and contraction around the world.
- KC5.2.III New racial ideologies, especially Social Darwinism, facilitated and justified imperialism.
- KC5.3.I The rise and diffusion of Enlightenment thought that questioned established traditions in all areas of life often preceded the revolutions and rebellions against existing governments.
- KC5.3.II Beginning in the eighteenth century, peoples around the world developed a new sense of commonality based on language, religion, social customs and territory. These newly imagined national communities linked this identity with the borders of the state, while governments used this idea to unite diverse populations.
- KC5.3.III Increasing discontent with imperial rule propelled reformist and revolutionary movements.
- KC5.3.IV The global spread of European political and social thought and the increasing number of rebellions stimulated new transnational ideologies and solidarities.
- KC5.4. I Migration in many cases was influenced by changes in demography in both industrialized and unindustrialized societies that presented challenges to existing patterns of living.
- KC5.4.II Migrants relocated for a variety of reasons.
- KC5.4.III The large-scale nature of migration, especially in the nineteenth century, produced a variety of consequences and reactions to the increasingly diverse societies on the part of migrants and the existing populations.

Period 5 CollegeBound Standards:

- The Four Historical Thinking Skills
 - 1: Crafting Historical Arguments from Historical Evidence
 - 2: Chronological Reasoning
 - 3: Comparison and Contextualization
 - 4: Historical Interpretation and Synthesis
- Course Themes
 - 1: Interaction Between Humans and the Environment
 - 2: Development and Interaction of Cultures
 - 3: State-Building, Expansion, and Conflict
 - 4: Creation, Expansion, and Interaction of Economic Systems
 - 5: Development and Transformation of Social Structures

Period 6: Accelerating Global Change and Realignments, c. 1900 to Present

Period 6 CollegeBoard Key Concepts:

- KC6.1.I Researchers made rapid advances in science that spread throughout the world, assisted by the development of new technology

- KC6.1.II As the global population expanded at an unprecedented rate, humans fundamentally changed their relationship with the environment.
- KC6.1.III Disease, scientific innovations, and conflict led to demographic shifts.
- KC6.2.I Europe dominated the global political order at the beginning of the twentieth century, but both land-based and transoceanic empires gave way to new forms of transregional political organization by the century's end.KC5.2.II Imperialism influenced state formation and contraction around the world.
- KC6.2.II Emerging ideologies of anti-imperialism contributed to the dissolution of empires and the restructuring of states.
- KC6.2.III Political changes were accompanied by major demographic and social consequences.
- KC6.2.IV Military conflicts occurred on an unprecedented global scale.
- KC6.2.V Although conflict dominated much of the twentieth century, many individuals and groups — including states — opposed this trend. Some individuals and groups, however, intensified the conflicts.
- KC6.3.I States responded in a variety of ways to the economic challenges of the twentieth century.
- KC6.3.II States, communities, and individuals became increasingly interdependent, a process facilitated by the growth of institutions of global governance.
- KC6.3.III People conceptualized society and culture in new ways; some challenged old assumptions about race, class, gender, and religion, often using new technologies to spread reconfigured traditions.
- KC6.3.IV Popular and consumer culture became global.

Period 6 CollegeBoard Standards:

- The Four Historical Thinking Skills
 - 1: Crafting Historical Arguments from Historical Evidence
 - 2: Chronological Reasoning
 - 3: Comparison and Contextualization
 - 4: Historical Interpretation and Synthesis
- Course Themes
 - 1: Interaction Between Humans and the Environment
 - 2: Development and Interaction of Cultures
 - 3: State-Building, Expansion, and Conflict
 - 4: Creation, Expansion, and Interaction of Economic Systems
 - 5: Development and Transformation of Social Structures

CIVICS

Course Length: 1 semester

Credits: .5

Recommended Grade Levels: 10

Prerequisites: None

Course Description: In preparation for AP courses and in alignment with Common Core State Standards, Michigan High School Content Expectations and ACT College Readiness Guidelines, Civics is a semester long course, typically taken after either World History or AP World History. This course is designed to expose students to the political philosophy, constitutional principles and practices, institutions, and participants of government in America. Students begin with the question “Why study Civics?” and proceed to investigate the foundations of the American Republic and the U.S. Constitution. The three branches of government, processes, participants, and policies, and foreign policy are also addressed. Through readings, lectures, notes, videos, speakers, testing, discussions and projects, students are invited to gain a deeper knowledge of their country’s government and their own civic responsibilities. In preparation for college and career readiness, this course is also aligned to the Common Core Literacy Standards for History/Social Studies.

CIVICS UNIT PROGRESSION

Unit 1: Foundations of the American Republic

Unit 1 Priority Standards and Learner Objectives:

Priority Standard 1.0: Analyze and evaluate sources (Primary, secondary, charts, graphs, maps, media)

Level 2

- 1.2.1: Differentiate between an appropriate, credible source and an inappropriate, non-credible source.
- 1.2.2: Identify bias in a source.
- 1.2.3: Identify a source’s speaker, occasion, audience, purpose, subject, and/or tone.

Level 3

- 1.3.1: Take a position and defend it using an appropriate, credible source.
- 1.3.2: Form conclusions about the bias in a source.
 - 1.3.3: Form conclusions about the speaker, occasion, audience, purpose, subject, and/or tone of a source. (i.e.: why was this audience targeted, why the vice president was the speaker instead of the president)

Level 4

- 1.4.1: Take a position on the effectiveness of a particular source by contextualizing (consider/review) it with evidence and other sources.

Priority Standard 2.0: Investigate and Interpret cause and effect

Level 2

- 2.2.1: Identify an item (event, source, statement) as a cause and/or an effect.
- 2.2.2: Logically organize causes and effects.

Level 3

- 2.3.1: Evaluate the reasons why causes led to effects. (assessment - effect of JFK's decision on the Cuban missile crisis; JFK choosing LBJ to be VP)
- 2.3.2: Evaluate and/or examine the relationship (the how and why of) between causes and effects. (Ex. Gore loses Florida, thus loses the election despite winning the popular vote, then Bush is put into the presidency and acts different than Gore would have)

Level 4

- 2.4.1: Research a past sequence of events and generate possible alternative effects, with evidence (Ex. Florida is won by Gore instead of Bush)
- 2.4.2: Research current problems that reflect a cause and effect relationship in the past and explain, with evidence, how the past can help us decide how to solve the current problems. (Ex. Foreign Policy mistakes)

Priority Standard 3.0: Conduct Research and Form Conclusions

Level 2

- 3.2.1 List appropriate sources, databases and search engines, with works cited
- 3.2.2 Create a thesis

Level 3

- 3.3.1 Form conclusions by utilizing appropriate sources, search engines, etc. with proper citations and works cited (correctly/appropriately used within paper)
- 3.3.2 Formulate a thesis based on research and conclusions
- 3.3.3 Logically group sources and explain the reasoning for the groupings.

Level 4

- 3.4.1 Take a position on a current political issue (U.S. or World) and communicate position both in oral and written form.

Unit 2: The U.S. Constitution

Unit 2 Priority Standards and Learner Objectives:

Priority Standard 3.0: Conduct Research and Form Conclusions

Level 2

- 3.2.1 List appropriate sources, databases and search engines, with works cited
- 3.2.2 Create a thesis

Level 3

- 3.3.1 Form conclusions by utilizing appropriate sources, search engines, etc. with proper citations and works cited (correctly/appropriately used within paper)
- 3.3.2 Formulate a thesis based on research and conclusions
- 3.3.3 Logically group sources and explain the reasoning for the groupings.

Level 4

- 3.4.1 Take a position on a current political issue (U.S. or World) and communicate position both in oral and written form.

Priority Standard 4.0: Construct an organized and cohesive writing sample

Level 2

- 4.2.1: Develop a topic sentence.
- 4.2.2: Create an outline for a writing sample.

Level 3

- 4.3.1: Support the topic sentence with evidence
- 4.3.2: Construct a writing sample in the proper format.
- 4.3.3: Develop a formal writing sample with readability (penmanship, flow, grammar, spelling)

Level 4

- 4.4.1: Proof of submission of a 3.0 writing sample to an approved outside source (scholarship, contest, newspaper, magazine, blog)

Unit 3: Three Branches

Unit 3 Priority Standards and Learner Objectives:

Priority Standard 1.0: Analyze and evaluate sources (Primary, secondary, charts, graphs, maps, media)

Level 2

- 1.2.1: Differentiate between an appropriate, credible source and an inappropriate, non-credible source.
- 1.2.2: Identify bias in a source.

1.2.3: Identify a source's speaker, occasion, audience, purpose, subject, and/or tone.

Level 3

1.3.1: Take a position and defend it using an appropriate, credible source.

1.3.2: Form conclusions about the bias in a source.

1.3.3: Form conclusions about the speaker, occasion, audience, purpose, subject, and/or tone of a source. (i.e.: why was this audience targeted, why the vice president was the speaker instead of the president)

Level 4

1.4.1: Take a position on the effectiveness of a particular source by contextualizing (consider/review) it with evidence and other sources.

Priority Standard 2.0: Investigate and Interpret cause and effect

Level 2

2.2.1: Identify an item (event, source, statement) as a cause and/or an effect.

2.2.2: Logically organize causes and effects.

Level 3

2.3.1: Evaluate the reasons why causes led to effects. (assessment - effect of JFK's decision on the Cuban missile crisis; JFK choosing LBJ to be VP)

2.3.2: Evaluate and/or examine the relationship (the how and why of) between causes and effects. (Ex. Gore loses Florida, thus loses the election despite winning the popular vote, then Bush is put into the presidency and acts different than Gore would have)

Level 4

2.4.1: Research a past sequence of events and generate possible alternative effects, with evidence (Ex. Florida is won by Gore instead of Bush)

2.4.2: Research current problems that reflect a cause and effect relationship in the past and explain, with evidence, how the past can help us decide how to solve the current problems. (Ex. Foreign Policy mistakes)

Priority Standard 3.0: Conduct Research and Form Conclusions

Level 2

3.2.1 List appropriate sources, databases and search engines, with works cited

3.2.2 Create a thesis

Level 3

3.3.1 Form conclusions by utilizing appropriate sources, search engines, etc. with proper citations and works cited (correctly/appropriately used within paper)

- 3.3.2 Formulate a thesis based on research and conclusions

3.3.3 Logically group sources and explain the reasoning for the groupings.

Level 4

3.4.1 Take a position on a current political issue (U.S. or World) and communicate position both in oral and written form.

Priority Standard 4.0: Construct an organized and cohesive writing sample

Level 2

4.2.1: Develop a topic sentence.

4.2.2: Create an outline for a writing sample.

Level 3

- 4.3.1: Support the topic sentence with evidence

4.3.2: Construct a writing sample in the proper format.

4.3.3: Develop a formal writing sample with readability (penmanship, flow, grammar, spelling)

Level 4

4.4.1: Proof of submission of a 3.0 writing sample to an approved outside source (scholarship, contest, newspaper, magazine, blog)

Unit 4: Processes, Participants, and Policies

Unit 3 Priority Standards and Learner Objectives:

Priority Standard 1.0: Analyze and evaluate sources (Primary, secondary, charts, graphs, maps, media)

Level 2

1.2.1: Differentiate between an appropriate, credible source and an inappropriate, non-credible source.

1.2.2: Identify bias in a source.

1.2.3: Identify a source's speaker, occasion, audience, purpose, subject, and/or tone.

Level 3

1.3.1: Take a position and defend it using an appropriate, credible source.

1.3.2: Form conclusions about the bias in a source.

1.3.3: Form conclusions about the speaker, occasion, audience, purpose, subject, and/or tone of a source. (i.e.: why was this audience targeted, why the vice president was the speaker instead of the president)

Level 4

1.4.1: Take a position on the effectiveness of a particular source by contextualizing (consider/review) it with evidence and other sources.

Priority Standard 2.0: Investigate and Interpret cause and effect

Level 2

2.2.1: Identify an item (event, source, statement) as a cause and/or an effect.

2.2.2: Logically organize causes and effects.

Level 3

2.3.1: Evaluate the reasons why causes led to effects. (assessment - effect of JFK's decision on the Cuban missile crisis; JFK choosing LBJ to be VP)

2.3.2: Evaluate and/or examine the relationship (the how and why of) between causes and effects. (Ex. Gore loses Florida, thus loses the election despite winning the popular vote, then Bush is put into the presidency and acts different than Gore would have)

Level 4

2.4.1: Research a past sequence of events and generate possible alternative effects, with evidence (Ex. Florida is won by Gore instead of Bush)

2.4.2: Research current problems that reflect a cause and effect relationship in the past and explain, with evidence, how the past can help us decide how to solve the current problems. (Ex. Foreign Policy mistakes)

Priority Standard 4.0: Construct an organized and cohesive writing sample

Level 2

4.2.1: Develop a topic sentence.

4.2.2: Create an outline for a writing sample.

Level 3

4.3.1: Support the topic sentence with evidence

4.3.2: Construct a writing sample in the proper format.

4.3.3: Develop a formal writing sample with readability (penmanship, flow, grammar, spelling)

Level 4

4.4.1: Proof of submission of a 3.0 writing sample to an approved outside source (scholarship, contest, newspaper, magazine, blog)

Unit 5: Foreign Policy

Unit 3 Priority Standards and Learner Objectives:

Priority Standard 3.0: Conduct Research and Form Conclusions

Level 2

- 3.2.1 List appropriate sources, databases and search engines, with works cited
- 3.2.2 Create a thesis

Level 3

- 3.3.1 Form conclusions by utilizing appropriate sources, search engines, etc. with proper citations and works cited (correctly/appropriately used within paper)
- 3.3.2 Formulate a thesis based on research and conclusions
- 3.3.3 Logically group sources and explain the reasoning for the groupings.

Level 4

- 3.4.1 Take a position on a current political issue (U.S. or World) and communicate position both in oral and written form.

Priority Standard 4.0: Construct an organized and cohesive writing sample

Level 2

- 4.2.1: Develop a topic sentence.
- 4.2.2: Create an outline for a writing sample.

Level 3

- 4.3.1: Support the topic sentence with evidence
- 4.3.2: Construct a writing sample in the proper format.
- 4.3.3: Develop a formal writing sample with readability (penmanship, flow, grammar, spelling)

Level 4

- 4.4.1: Proof of submission of a 3.0 writing sample to an approved outside source (scholarship, contest, newspaper, magazine, blog)

ECONOMICS

Course Length: 1 semester

Credits: .5

Recommended Grade Levels: 10

Prerequisites: None

Course Description: In preparation for AP courses and in alignment with Common Core State Standards, Michigan High School Content Expectations and ACT College Readiness Guidelines, Economics is a semester long course designed to follow Civics. This course is designed to expose students to the concepts of money, prices, trade, goods, and services from the most micro-level (personal finance) through microeconomics, macroeconomics, and finally to the international level. Economic systems, entrepreneurship, wise financial skills, and fiscal/monetary policy are all integrated into the course. Current economic events are continually woven into each unit of study. Through readings, lectures, notes, videos, speakers, testing, discussions and projects, students are invited to gain a deeper knowledge of the economic world and explore how Economics plays a central part of their lives. In preparation for college and career readiness, this course is also aligned to the Common Core Literacy Standards for History/Social Studies.

ECONOMICS UNIT PROGRESSION

Unit 1: Personal Finance and Comparing Economic Systems

Unit 1 Priority Standards and Learner Objectives:

- **Priority Standard 1.0: Develop** and/or **evaluate** personal **finance strategies**.

Level 2

- 1.2.1 Create and manage a personal budget (banking) with a 0-9% surplus.
- 1.2.2 Identify different types of loans (personal/business, college, home, and car).

Level 3

- 1.3.1 Create and manage a personal budget (banking) with a 10- 20% surplus.
- 1.3.2 Choose and justify different types of loans (personal/business, college, home, and car).

Level 4

- 1.4.1: Create and manage an authentic student funded college savings account. Verification required.

Priority Standard 3.0: Conduct Research and Form Conclusions

Level 2

- 3.2.1 List appropriate sources, databases and search engines, with works cited

3.2.2 Create a thesis

Level 3

3.3.1 Form conclusions by utilizing appropriate sources, search engines, etc. with proper citations and works cited (correctly/appropriately used within paper)

3.3.2 Formulate a thesis based on research and conclusions

- 3.3.3 Logically group sources and explain the reasoning for the groupings.

Level 4

3.4.1 Take a position on a current political issue (U.S. or World) and communicate position both in oral and written form.

Priority Standard 4.0: 10-12th Grade Presenting Information

Level 2

4.2.1: Deliver an appropriate introduction

4.2.2: Maintain composure throughout the presentation (posture, hand gestures, demeanor, verbal efficiency without verbatim notes)

4.2.3: Speak effectively throughout the presentation with formal grammar usage (inflection, volume, pace)

4.2.4: Present evidence clearly and logically (with use of visuals when appropriate)

Level 3

4.3.1: Deliver an effective hook (i.e. - exaggerated statement, facts, quotes, video, question)

4.3.2: Maintain composure throughout the presentation (eye contact, posture, hand gestures, demeanor)

4.3.3: Speak effectively and fluently throughout the presentation with formal grammar usage (inflection, volume, pace, verbal efficiency without verbatim notes)

4.3.4: Present evidence clearly, concisely and logically (with use of visuals when appropriate)

4.3.5: Dress appropriately for the type of presentation required

Level 4

4.4.1: Present same 3.0 presentation outside of classroom/ school with verification

Unit 2: Personal Finance and Supply and Demand

Unit 2 Priority Standards and Learner Objectives:

- Same as Unit 1

Unit 3: Personal Finance and Macroeconomics

- *Unit 3 Priority Standards and Learner Objectives:*

- Same as Unit 1

Unit 4: The Global Economy

- *Unit 4 Priority Standards and Learner Objectives:*

Same as Unit 1

GEOGRAPHY

Course Length: 2 semesters

Credits: 1.0

Recommended Grade Levels: 9, 10, 11, 12

Prerequisites: None

Course Description: In preparation for AP courses and in alignment with the National Geography Standards, Geography is designed to enable students to become geographically informed through knowledge and mastery of three things: (1) factual knowledge; (2) mental maps and tools; (3) and ways of thinking.” Major regions of the world are explored, as well as, the impact of geography on other things. Students begin their journey through the class with an introduction to Geography, physical geography and interactions between humans and the environment. Specific regions of the world, North, Central and South America, Sub Saharan Africa and the Middle East, Europe/Russia, South Asia/East Asia, Australia and the Pacific Islands, are then explored. Urban Geography and urban planning, global change, regional geography, economic geography, cultural geography and political geography are also addressed. In preparation for college and career readiness, this course is also aligned to the Common Core Literacy Standards for History/Social Studies.

GEOGRAPHY UNIT PROGRESSION

Mini Unit 1: Introduction to Geography

Mini Unit 1 Geographic Skills:

- **Analyzes an issue and constructs geographic questions that inform a geographic investigation, as exemplified by:**
 - Analyzing digital and paper maps of a place or thematic topic and constructing geographic questions to investigate the issue.
 - Analyzing current trends in population and constructing geographic questions to investigate the sources and future projections of the trends.
 - Analyzing a current news report and constructing geographic questions that would provide a geographic focus to the study or resolution of the topic or issue.
- **Evaluates sources of geographic information for reliability, as exemplified by:**
 - Evaluating the metadata for geospatial database files (e.g., data that might be used in a GIS, US census data on the Census Bureau's website).
 - Evaluating the reliability of Internet-based data sources to ensure validity and accuracy (e.g., information on a blogger site versus the United Nations website or political advertisement websites versus National Institute of Health Research Bulletins).
 - Evaluating the date, sources, authors, and designs of geographic visualizations or representations for accuracy (e.g., dates for data displayed, construction of x- and y-axis values on charts displaying information, misuse of map symbols on cartograms).
- **Evaluates the alternatives for organizing and displaying geographic information, as exemplified by:**
 - Constructing different types of graphs representing data that describes a place

- (e.g., population changes, levels of personal income per state, population pyramids).
 - Evaluating the use of a GIS to display and organize geographic information (e.g., Would additional data layers be helpful? Are there important relationships among data layers used? Is an appropriate scale selected to display the data?).
 - Evaluating the appropriateness of using a digital globe to display point data or area data (e.g., ZIP codes, counties, states).
- **Analyzes and explains geographic relationships, patterns, and trends using models and theories, as exemplified by:**
 - Constructing a GIS model to analyze data from multiple locations and comparing the model results to identify patterns or relationships in those locations.
 - Analyzing population data as represented in the demographic transition model to explain the changes through time in populations of countries.
 - Analyzing a US city using a concentric zone model to explain the historical evolution of the commercial downtown.
- **Analyzes data using statistics and other quantitative techniques, as exemplified by:**
 - Constructing a scatter plot of data to identify possible relationships or trends in the data.
 - Analyzing a histogram for data to determine the best method for displaying the values on a map.
 - Analyzing data using descriptive statistics such as average, median, mode, and range to determine the characteristics of the distribution in the data set.
- **Evaluates the data sources and processes used to answer geographic questions, as exemplified by:**
 - Constructing a narrative report that evaluates the validity and reliability of the data used and the processes used to formulate answers to geographic questions.
 - Explaining how and why the data used in an investigation supports the defense of the generalizations made in answering geographic questions.
 - Constructing a test of a geographic answer by applying it to a new study area or era to see if the same process yields a defensible answer.
- **Explains and evaluates the data and processes used to inform answers to geographic questions, as exemplified by:**
 - Explaining the limits of the generalizations that may be made as a result of the data used in a geographic inquiry.
 - Evaluating a news article that defends a possible answer to a geographic question and explaining how the data used does or does not support the proposed answer and what additional data might be considered.
 - Evaluating the feasibility of an answer presented by identifying additional geographic questions or concerns that may influence the proposed answer.

Mini Unit 1 National Geographic Standards:

- **Explain the advantages of using multiple geographic representations to answer geographic questions, as exemplified by being able to:**
 - Explain how multiple geographic representations and geospatial technologies (e.g., GIS, GPS, RS, and geographic visualization) could be used to solve geographic problems (e.g., help determine where to locate a new playground, or

- identify dangerous street intersections within a community).
 - Describe how an analysis of urbanization can be done using different geospatial technologies (e.g., RS for land use, GIS data layers to predict areas of high/low growth, GPS and GIS for identifying transportation issues regarding growth).
 - Explain how multiple geospatial technologies can be used to solve land-use problems (e.g., effects of new farming technologies on the sustainable production of food, preservation of wetlands in bird migration flyways).
- **Identify and explain the metadata properties (e.g., resolution, date of creation, and method of collection) of geospatial data, as exemplified by being able to:**
 - Explain how the metadata information is used to understand differences in the creation and design of datasets (e.g., land use/land cover, street/storefront property uses, terrain features, scale) and to determine the usefulness of the data for mapping.
 - Analyze the relationship between the quality of data and the source of the data (e.g., differences in reported population data by countries, boundaries as reported by different adjacent countries).
 - Describe how metadata assist in determining appropriateness of the data set in relation to use or layering with other data sets.
- **Evaluate the quality and quantity of geospatial data appropriate for a given purpose, as exemplified by being able to:**
 - Describe the many purposes for which a data set would be appropriate (e.g., 1:1,000,000 scale maps, 30-meter pixel satellite images, tables of state health data).
 - Explain how data that are appropriate for a task at one scale may be inappropriate for a similar task at a different scale (e.g., census blocks and tracks for local data, county/parish for state or national data).
 - Analyze a variety of data sets that present variations in space and time (e.g., Arctic ice in January and July, population counts for metro areas at different time periods, location and number of influenza infections by month).
- **Evaluate the appropriate and ethical uses of different geospatial technologies and methods for acquiring, producing, and displaying geospatial data, as exemplified by being able to:**
 - Evaluate the appropriateness of using geospatial data that may identify particular individuals (e.g., use of cellular phone geolocation data, license plates and faces in street-view data).
 - Describe and evaluate the conditions under which geospatial data should be restricted (e.g., availability of infrastructure data on web-sites, sensitive areas not displayed on satellite imagery, confidentiality of individuals when displaying health data).
 - Describe and explain the appropriate documentation needed to assess the credibility of a GIS-based project (e.g., quality of data files used, processes used, and steps to duplicate the project).
- **Analyze geographic representations and suggest solutions to geographic questions at local to global scales using geographic representations and geospatial technologies, as exemplified by being able to:**
 - Construct a presentation using multiple geographic representations and geospatial tools that illustrates alternative views of a current or potential local issue.

- Construct maps using Web-based mapping of national forest areas showing terrain, vegetation, roads, hiking trails, campsites, and picnic sites to identify possible new areas of public use, trails and roads, and areas to close for habitat recovery.
- Analyze the possible relationships between global human and physical changes using GIS (e.g., the relationship between global climate change, sea level rise, and population distribution).
- **Identify from memory and explain the locations, characteristics, patterns, and relationships among human and physical systems, as exemplified by being able to:**
 - Identify the pattern of human settlement in the world from memory and explain the common physical characteristics where the majority of settlements occur.
 - Identify the locations from memory and explain the connections between major transportation networks and population centers.
 - Identify the locations from memory of historical world civilizations and explain how cultural markers or examples still remain from the past (e.g., Roman place names in Europe, structures or architectural styles, spread of English language through the British Empire).
- **Explain the development of completeness and accuracy in the student's mental map of places and regions, as exemplified by being able to:**
 - Explain how a new experience or encounter in an unfamiliar location resulted in added details or accuracy of the student's mental map of that place.
 - Explain how the study of maps for game playing added details and accuracy to the student's mental map of a place or region.
 - Explain how using a GPS or Web-based mapping application can aid in the development of a more complete and accurate mental map of places and regions.
- **Identify from memory and explain the locations, characteristics, patterns, and relationships of places and regions to answer geographic questions, as exemplified by being able to:**
 - Identify from memory the locations and significant details that would inform a possible solution to a community-based environmental issue including an explanation of relationships or patterns in the details.
 - Identify from memory the pattern of world population and explain the relationship of population settlement to land features and available renewable resources.
 - Identify from memory the location of strategic choke points in shipping routes that are most likely to influence the route of trade goods in the future and explain the relationships between the United States and other countries controlling these strategic locations.
- **Compare an individual's mental map before and after a geographic event or experience, as exemplified by being able to:**
 - Compare students' mental maps created before and after a school or family trip to identify changes in the details and accuracy of the maps.
 - Compare students' mental maps created before and after the study of world regions that are most likely to experience political change or restructuring.
 - Compare students' mental maps before and after studying a current news event to identify how additional information translates into changes in understanding of the location.

- **Analyze and explain the spatial organization of people, places, and environments (where things are in relation to other things) using spatial concepts, as exemplified by being able to:**
 - Construct various forms of geographic representations (hardcopy or digital maps, graphs, tables, or charts) to explain the spatial patterns of physical and human phenomena (e.g., maps that define a major watershed, composed of smaller watersheds and the hierarchies of streams and rivers within; maps that show the transportation networks within and between population centers of varying sizes to show hierarchies of cities, towns, and villages within a region).
 - Construct data tables and digital maps using US Census data to analyze and explain the variability of population density in relation to the location of transportation nodes and networks.
 - Construct and use various forms of geographic representations to explain that certain coastal urban centers gained locational, connectivity, and economic prominence (e.g., New Orleans, Calcutta, and Rotterdam, Singapore).
- **Analyze and explain changes in spatial patterns as a result of the interactions among human and physical processes through time, as exemplified by being able to:**
 - Analyze and explain the human and physical characteristics of regions that have changed over time because of the interaction among processes (e.g., local economic patterns shift as international trade relationships evolve because of global social events, local populations of particular species rise or fall because changes in climate affect the viability of a region for other species).
 - Analyze vegetation maps for an area over different time periods and explain how changing patterns reflect changes in physical processes and human activities (e.g., desertification, deforestation, natural land cover, agricultural land use).
 - Explain how changes in the physical environment, political environment, and conflict influence changes in economic activity within a region. (e.g., interruption of economic activities and trade patterns in Africa, migration of people to economic trade zones in China).
- **Analyze and explain the spatial features, processes, and organization of people, places, and environments using models of human and/or physical systems (e.g., urban structure, sediment transport, and spatial interaction), as exemplified by being able to:**
 - Construct a model and explain the influence that spatial processes have on human and physical systems (e.g., urbanization and transportation; housing prices and environmental amenities such as water bodies, parks, or vistas; gardening associated with the growing season).
 - Construct physical or digital models of a river valley and evaluate locations that may be suitable for different purposes (e.g., recreational sites, residential housing, resort hotels, industrial sites).
 - Construct a model that shows how election strategists might determine which areas in the state should receive special attention and additional resources in advance of an election (e.g., political party membership, economic traits, past voter turnout).
- **Describe the distinguishing characteristics and meanings of several different places, as exemplified by being able to:**
 - Identify and describe categories of characteristics that define a location as a

- place (e.g., weather characteristics, population density, architectural styles, landforms, vegetation, cultures, and types of industry).
- Identify and describe the defining characteristics of the student's community as a place.
- Describe how certain places may have meanings that distinguish them from other places (e.g., cemetery, historical park or battlefield, religious shrines or temples, state or national parks).

Mini Unit 1 Common Core Literacy in History/Social Studies Standards:

- ELA-Literacy.RH.11-12.1 Cite specific textual evidence to support analysis of primary and secondary sources, connecting insights gained from specific details to an understanding of the text as a whole.
- ELA-Literacy.RH.11-12.2 Determine the central ideas or information of a primary or secondary source; provide an accurate summary that makes clear the relationships among the key details and ideas.
- ELA-Literacy.RH.11-12.3 Evaluate various explanations for actions or events and determine which explanation best accords with textual evidence, acknowledging where the text leaves matters uncertain.
- ELA-Literacy.RH.11-12.1 Cite specific textual evidence to support analysis of primary and secondary sources, connecting insights gained from specific details to an understanding of the text as a whole.
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- ELA-Literacy.RH.11-12.3 Evaluate various explanations for actions or events and determine which explanation best accords with textual evidence, acknowledging where the text leaves matters uncertain.
- ELA-Literacy.RH.11-12.10 By the end of grade 12, read and comprehend history/social studies texts in the grades 11–CCR text complexity band independently and proficiently.

Unit 2: Physical Geography

Unit 2 Geographic Skills:

- Same as Unit 1.

Unit 2 National Geographic Standards:

- **Standard 7: The physical processes that shape the patterns of Earth's surface**
 - **Explain how the effects of physical processes vary across regions of the world and over time, as exemplified by being able to**
 - Explain the changing relationships among climate, vegetation, and

- landforms (e.g., desertification and soil degradation, glacial advances and retreats).
 - Analyze and explain the differential effects on climate of the relationship between water and wind at different latitudes (e.g., cold currents influence the creation of deserts at 20 and 30 degrees north and south latitudes, the formation of hurricanes and tropical storms).
 - Analyze and explain the relationships between physical processes and the location of land features (e.g., river valleys, canyons, deltas, glaciated lakes and moraines, limestone deposits, caves, alluvial fans, canyons).
- **Explain the ways in which Earth's physical processes are dynamic and interactive, as exemplified by being able to**
 - Explain how volcanic eruptions and forest fires change atmospheric conditions and disrupt the nitrogen and carbon cycles.
 - Explain how increasing surface temperatures result in melting ice sheets and rising sea levels.
 - Construct a diagram illustrating how El Niño and La Niña form and how these influence weather in different locations on Earth.
- **Explain how variability in Earth-Sun relationships affect Earth's physical processes over time, as exemplified by being able to**
 - Explain how cyclic changes (e.g., precession or Milankovich cycle) in Earth's orbit are responsible for changes in heating that result in climatic changes such as an ice age and glaciation of Earth's surface.
 - Describe the variability in climate over historic periods of time (e.g., over the last 1,500 years or during epochs such as the Pleistocene).
 - Explain how changes in sea coral (including current observations and fossil records) are due to sea level rise or fall as a result of climate variability.
- **Analyze and explain the results of interactions of physical processes over time, as exemplified by being able to**
 - Identify the landforms that comprise much of Bangladesh and explain the physical processes that make the country susceptible to river flooding, monsoon flooding, and cyclonic storms.
 - Analyze and explain the landscape of Iceland in terms of physical processes (e.g., volcanism, glaciation, plate tectonics of the mid-Atlantic ridge).
 - Compare and contrast the Great Lakes of East Africa and the Great Lakes of North America and describe physical processes that created each of these lake systems.
- **Standard 8: The characteristics and spatial distribution of ecosystems and biomes on Earth's surface**
 - **Explain how there are short-term and long-term changes in ecosystems, as exemplified by being able to**
 - Identify the sources of invasive species and explain the consequences for ecosystems (e.g., the impact of introduced species such as zebra mussels in the Great Lakes, Asian carp, Asian swamp eel, the impact of kudzu in the southeastern United States).
 - Explain the response of ecosystems to stress caused by physical events in terms of their characteristics and capacity to respond (e.g., changes in

- mangroves by tsunamis, changes in forest flora and fauna after a fire).
- Explain how ecosystems respond to long-term changes in the physical environment (e.g., glacial retreat, volcanic eruptions, sea-level rise, increases in sea temperatures).
- **Explain how local and global changes influence ecosystems, as exemplified by being able to**
 - Explain how global climate change could influence the location and extent of existing ecosystems and the formation of new ones.
 - Analyze and predict how disruptions in local ecosystems force changes in cycles and sometimes result in new replacement ecosystems (e.g., beetles in pine forests, ecological succession after wildfires, drought, gypsy moth infestations in the eastern United States).
 - Explain how extreme localized weather events (e.g., hurricanes, tornadoes, wind storms) cause changes in ecosystems.
- **Explain the geographic distribution of ecosystems, as exemplified by being able to**
 - Describe and explain the factors that result in the geographic distribution of ecosystems (e.g., movement of tectonic plates creating the Galapagos Islands, Hawaiian Islands, Madagascar).
 - Analyze the impact of rising sea temperatures on the distribution and survival of coral reef ecosystems.
 - Analyze the impact of a river meandering or flooding on the distribution of wetlands over time.
- **Evaluate ecosystems in terms of their biodiversity and productivity, as exemplified by being able to**
 - Evaluate ecosystems for their level of biodiversity and productivity (e.g., the low productivity of deserts and the high productivity of estuaries and tropical forests).
 - Compare the biodiversity and productivity in an ecosystem that is experiencing some form of stress with a similar healthy ecosystem.
 - Evaluate changes in the biodiversity and productivity of an ecosystem following the loss or introduction of a plant or animal species.
- **Explain how climate can influence and change the characteristics and geographic distribution of biomes, as exemplified by being able to**
 - Explain how rising global temperatures can cause changes in various biomes (e.g., melting permafrost in tundra, changes in the location of deserts, increases in the length of growing seasons).
 - Analyze the changes in the biomes of a particular region over time (e.g., the change of the Sahara from a grassland to a desert) and describe the climatic changes that caused these changes to occur.
 - Construct maps showing the post-Pleistocene changes in biomes in the Northern Hemisphere and explain the reasons for the changes.

Unit 2 Common Core Literacy in History/Social Studies Standards:

- ELA-Literacy.RH.11-12.1 Cite specific textual evidence to support analysis of primary and secondary sources, connecting insights gained from specific details to an understanding of the text as a whole.
- ELA-Literacy.RH.11-12.2 Determine the central ideas or information of a primary or

secondary source; provide an accurate summary that makes clear the relationships among the key details and ideas.

- ELA-Literacy.RH.11-12.3 Evaluate various explanations for actions or events and determine which explanation best accords with textual evidence, acknowledging where the text leaves matters uncertain.
- ELA-Literacy.RH.11-12.1 Cite specific textual evidence to support analysis of primary and secondary sources, connecting insights gained from specific details to an understanding of the text as a whole.
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- ELA-Literacy.RH.11-12.10 By the end of grade 12, read and comprehend history/social studies texts in the grades 11–CCR text complexity band independently and proficiently.

Mini Unit 3: Interaction Between Humans and the Environment

Mini Unit 3 Geographic Skills:

- Same as Unit 1.

Mini Unit 3 National Geographic Standards:

- **Standard 15: How physical systems affect human systems**
 - **Explain how people may view the physical environment as both an opportunity or a constraint depending on their choice of activities, as exemplified by being able to**
 - Explain how mountainous terrain may constrain some farming techniques due to a lack of flat areas and yet offer opportunities in growing crops that are only suited to high-elevation growing conditions.
 - Explain how the ski industry and state roads departments may view the same mountainous region and its weather patterns as presenting both opportunities and constraints.
 - Explain how the physical environment of the arid West of the United States presents both opportunities and constraints for human activities (e.g., the construction, use, and maintenance of golf courses, cultivation of cotton and citrus fruits, numerous outdoor swimming pools, water intensive lawns and landscaping).
 - **Explain and compare how people in different environments think about and**

respond to environmental hazards, as exemplified by being able to

- Construct a list of environmental hazards and compare and contrast how people in developed and developing world regions prepare for and cope with the aftermath of these disasters.
- Construct and compare maps of recent wildfires and population distribution in Southern California and explain the reasons for and consequences of people building structures in the most vulnerable areas in this region (e.g., fire protection, insurance, financing, land values, quality of life, fuel suppression of vegetation).
- Explain how people from different parts of the country might have differing views on federal government insurance programs for areas susceptible to environmental hazards (e.g., hail insurance programs in Kansas, national flood insurance in Louisiana).
- **Explain how environmental hazards affect human systems and why people may have different ways of reacting to them, as exemplified by being able to**
 - Explain how volcanoes have sometimes been incorporated into local cultural traditions and lore by people who live with the unpredictability of eruptions rather than to relocate farther away from the hazard.
 - Describe and explain the short- and long-term effects of hurricanes in the Gulf of Mexico and Atlantic coast on beaches, buildings, and human activities (e.g., insurance rates, zoning, building codes, beach replenishment, displaced populations).
 - Compare the human responses to the potential predicted effects of climate change on different regions of Earth (e.g., people living in coastal versus landlocked areas, high- versus low-latitude areas, Northern versus Southern Hemisphere areas).
- **Explain how societies adapt to reduced capacity in the physical environment, as exemplified by being able to**
 - Explain how societies historically adapted to reduced capacity in the physical environment (e.g., migration, limiting population growth, building aqueducts and cisterns) and predict locations where adaptation strategies might be required in the future.
 - Explain how societies use technology in dealing with resource shortages amidst growing human populations (e.g., recycling used water, recycling paper products, converting to drip irrigation systems, development of new alternative energy sources).
 - Describe and explain how societies may change their use of building materials in response to changes in the physical environment.
- **Analyze the concept of “limits to growth” to explain adaptation strategies in response to the restrictions imposed on human systems by physical systems, as exemplified by being able to**
 - Analyze how people have adapted to physical environments that vary in carrying capacity (e.g., slash-and-burn agriculture practices, nomadic herding or hunting, importation of needed products).
 - Analyze the lifestyles of humans in extreme or island environments and explain strategies inhabitants use to survive and not overwhelm the limits of their environments (e.g., water collection and rationing in arid climates,

- Inuit seasonal seal hunting and fishing practices, Antarctic researchers using sustainable living practices).
 - Identify world locations that have vulnerable environmental conditions (e.g., extreme temperatures, limited access to water, steep topography) and high population density and explain adaptation strategies used in these locations that address the limits to growth.
- **Standard 16: *The changes that occur in the meaning, use, distribution, and importance of resources***
 - **Explain the relationship between the quest for resources and the exploration, colonization, and settlement of different regions of the world, as exemplified by being able to**
 - Describe the Columbian exchange of plant and animal resources and explain how this exchange changed patterns of food consumption around the world (e.g., the introduction of cattle and beef consumption throughout the Americas, the introduction of potatoes as a staple food across northern Europe and parts of Asia, the introduction of corn as a staple food across southern Africa).
 - Identify different types of resources (e.g., precious metals, spices, animal products) that drove the 15th- to 20th-century European process of exploration and colonization in North America, Africa, and Asia, and explain how this process influenced the spatial distribution of European colonies on those continents.
 - Describe and explain how the prospect of gaining access to resources in the Arctic and Antarctic regions creates competition among countries with territorial claims.
 - **Explain how globalization and higher standards of living affect the meaning and use of resources, as exemplified by being able to**
 - Explain why mass consumption associated with globalization requires enormous amounts of resources worldwide (e.g., energy to ship raw materials and finished goods worldwide, emerging consumer markets increase in demand for energy due to increased ownership and use of electrical devices).
 - Explain fluctuations in world petroleum prices as a function of global changes in supply and demand (e.g., disruptions in supply due to political tensions, new suppliers such as Angola, environmental disasters such as oil leaks and spills).
 - Explain how and why per-capita consumption of resources (e.g., petroleum, coal, electricity, steel, water, food) differs between developed and developing countries now and in the past.
 - **Analyze and explain the relationships between the spatial patterns of settlement and resources, as exemplified by being able to**
 - Describe and analyze various thematic maps to understand the relationship between the distribution of resources (e.g., water, agricultural, mineral, and energy resources) and patterns of human settlement.
 - Analyze and explain the growth and/or decline of US towns that have relied on nonrenewable fossil fuel extraction (e.g., petroleum, coal, natural gas) or flow resource energy production (e.g., hydroelectric,

- geothermal, solar, wind).
- Construct a map and explain how the spatial distribution of resources influences human migration patterns (e.g., guest workers in southwestern Asian petroleum-exporting countries, historic gold rushes and land grabs, hunters following animal migrations).
- **Analyze and evaluate patterns of trade in resources, as exemplified by being able to**
 - Analyze the positive and negative economic, social, and environmental consequences of extracting and/or using specific resources to trade in foreign markets (e.g., timber, coal, petroleum, uranium).
 - Compare the per-capita incomes of countries that lead the world in the export of luxury crops (e.g., coffee, tea, tobacco, cacao) with countries that lead the world in the consumption of these crops and evaluate the positive and negative consequences of these trade relationships.
 - Identify countries that lead the world in petroleum production and explain how petroleum wealth influences international economic and political relationships.
- **Explain and compare the costs and benefits of using various types of renewable, nonrenewable, and flow resources, as exemplified by being able to**
 - Compare the advantages and disadvantages of using alternative energy resources (e.g., electricity generated from coal fire, diesel turbines, hydroelectric dams, nuclear power, wind turbines, solar panels, geothermal heat, methane gas from landfills or animal waste) and then rank them based on criteria such as availability, sustainability, pollution, and expense.
 - Describe and explain the costs and benefits of Organization of Petroleum Exporting Countries (OPEC) policies on oil for both the producing and consuming countries.
 - Analyze the efforts of countries with emerging global economies (e.g., China, India, Brazil) to develop and use renewable and flow energy resources and evaluate the economic and environmental costs and benefits of these efforts.
- **Evaluate policy decisions regarding the sustainable use of resources in different regions and at different spatial scales in the world, as exemplified by being able to**
 - Evaluate the effect of efforts by the United Nations or other supra-national organizations (e.g., World Bank, International Monetary Fund [IMF], Organization of American States [OAS], European Union [EU]) to promote sustainable development.
 - Compare government policies and programs to promote sustainability (e.g., reducing fossil-fuel dependency, recycling, conserving water) in developed and developing countries.
 - Compare the recycling programs of several local municipalities and evaluate the costs and benefits of each program.

Mini Unit 3 Common Core Literacy in History/Social Studies Standards:

- ELA-Literacy.RH.11-12.1 Cite specific textual evidence to support analysis of primary

and secondary sources, connecting insights gained from specific details to an understanding of the text as a whole.

- ELA-Literacy.RH.11-12.2 Determine the central ideas or information of a primary or secondary source; provide an accurate summary that makes clear the relationships among the key details and ideas.
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- ELA-Literacy.RH.11-12.3 Evaluate various explanations for actions or events and determine which explanation best accords with textual evidence, acknowledging where the text leaves matters uncertain.
- ELA-Literacy.RH.11-12.10 By the end of grade 12, read and comprehend history/social studies texts in the grades 11–CCR text complexity band independently and proficiently.

Unit 4: North, Central, and South America

Unit 4 Geographic Skills:

- Same as Unit 1

Unit 4 National Geographic Standards:

- **Standard 4: The physical and human characteristics of places**
 - **Explain how and why place-based identities can shape events at various scales, as exemplified by being able to**
 - Explain how place-based identities contribute to patterns of fan support for sporting events (e.g., the World Cup, Olympic competitions, the US National Football League).
 - Explain how neighborhood place-based identities can shape politics in urban areas (e.g., ethnicity, age, socioeconomic status, university communities).
 - Explain how regional identities can be the basis for nationalistic movements within a country (e.g., Catalonians or the Basques in Spain, Native Hawaiians in Hawaii, the end of Indonesian occupation in East Timor).

- **Explain how physical or human characteristics interact to create a place by giving it meaning and significance, as exemplified by being able to**
 - Describe and explain how community identities are formed by the characteristics of a place (e.g., New Orleans as a port city and as an enclave for French cultural heritage; New York as the centers for US finance, fashion, and art; Hong Kong as a port and financial center in China).
 - Describe and explain the reasons why the Himalayas are home to many Buddhist monasteries (e.g., Tashichhodzong or Tiger's Nest Monastery in Bhutan).
 - Explain how human mythology can create special meaning and significance to a place (e.g., Uluru [Ayers Rock] in Australia as part of the Aboriginal creation story, Delphi as the navel of the Earth in Ancient Greece, the construction of Stonehenge in England).
- **Explain how physical or human characteristics interact to change the meaning and significance of places, as exemplified by being able to:**
 - Explain how the reforms of India's education system provided a foundation for the expansion of high-tech industries in Bangalore and Hyderabad.
 - Explain how the post-World War II treaties created Berlin as a divided city that represented the Cold War conflict between the United States and the former Soviet Union.
 - Explain how the physical features in Panama made it a favorable location to build a canal to reduce the travel time around South America.
- **Standard 5: *That people create regions to interpret Earth's complexity***
 - **Identify and explain how a place can exist within multiple regional classifications, as exemplified by being able to:**
 - Construct a map showing the boundaries of the multiple regions within which the school is located (e.g., school district, city limits, county, state, physiographic region, US Federal Court Districts, Environmental Protection Agency (EPA) regions, Internal Revenue Service (IRS) regions, country, continent) and explain the basis for each of the regional boundaries.
 - Construct a perceptual region's boundary on a map, compare with the maps of other students, and explain why individuals can have different perceptions of a region's character and spatial extent (e.g., Pacific Northwest, New England, Midwest, South).
 - Identify a location in the world and explain a number of possible different regions that may include the location (e.g., Tunisia in the North African region, the Arabic speaking language region, and the Mediterranean region; Texas in the Great Plains region, the Southern US region, the Gulf Coast region).
 - **Describe and explain the processes that have resulted in regional change, as exemplified by being able to:**
 - Describe and explain how the breakup of the Soviet Union led to changes in formal, functional, and perceptual regions in the areas that originally comprised that country.
 - Analyze how the boundaries and names of regions have changed over

- time and explain the reasons for those changes (e.g., political boundaries, economic or military alliances, land use, historic districts).
 - Explain some of the results expected from climate change models on the physical characteristics of selected world regions (e.g., effect of glacial melting in the Arctic on shipping lanes, deteriorating coral habitats in the tropics, changing vegetation patterns in midlatitude grasslands).
- **Standard 6: How culture and experience influence people's perceptions of places and regions**
 - **Explain how and why people view places and regions differently as a function of their ideology, race, ethnicity, language, gender, age, religion, politics, social class, and economic status, as exemplified by being able to:**
 - Explain how and why gated communities in wealthy suburban areas may be viewed differently by people from different socioeconomic groups.
 - Explain how and why senior citizens and college students may view recreational destinations in Florida differently.
 - Explain how and why groups of people may view a place differently (e.g., Harney Peak, South Dakota, viewed by the Lakota Sioux or the US Forest Service; Mount Fuji viewed by Japanese citizens or foreign tourists).
 - **Explain the possible consequences of people's changing perceptions of places and regions in a globalized and fractured world, as exemplified by being able to:**
 - Explain how international alliance networks are responses to changing views about places and regions (e.g., North Atlantic Treaty Organization [NATO], European Union [EU], Organization of American States [OAS]).
 - Analyze the changes in the US perceptions of increasing consumer demand and consumption in emerging national economies, especially in such Asian nations as China, India, Singapore, and South Korea.
 - Explain the consequences of people's changing perceptions of places due to natural and human disasters (e.g., reevaluating the use of artificial levees in New Orleans after Hurricane Katrina in 2005, decreased tourism after the eruption of Indonesia's Mount Merapi in 2010, responses to terrorist attacks on the World Trade Center in 1993 and 2001).

Unit 4 Common Core Literacy in History/Social Studies Standards:

- ELA-Literacy.RH.11-12.1 Cite specific textual evidence to support analysis of primary and secondary sources, connecting insights gained from specific details to an understanding of the text as a whole.
- ELA-Literacy.RH.11-12.2 Determine the central ideas or information of a primary or secondary source; provide an accurate summary that makes clear the relationships among the key details and ideas.
- ELA-Literacy.RH.11-12.3 Evaluate various explanations for actions or events and determine which explanation best accords with textual evidence, acknowledging where the text leaves matters uncertain.
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- ELA-Literacy.RH.11-12.3 Evaluate various explanations for actions or events and determine which explanation best accords with textual evidence, acknowledging where the text leaves matters uncertain.
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- ELA-Literacy.RH.11-12.3 Evaluate various explanations for actions or events and determine which explanation best accords with textual evidence, acknowledging where the text leaves matters uncertain.
- ELA-Literacy.RH.11-12.10 By the end of grade 12, read and comprehend history/social studies texts in the grades 11–CCR text complexity band independently and proficiently.

Unit 5: Sub-Saharan Africa and the Middle East

Unit 5 Geographic Skills:

- Same as Unit 1.

Unit 5 National Geographic Standards:

- Same as Unit 4.

Unit 5 Common Core Literacy in History/Social Studies Standards:

- Same as Unit 4.

Unit 6: Europe/Russia

Unit 6 Geographic Skills:

- Same as Unit 1.

Unit 6 National Geographic Standards:

- Same as Unit 4.

Unit 6 Common Core Literacy in History/Social Studies Standards:

- Same as Unit 4.

Unit 7: South Asia/East Asia

Unit 7 Geographic Skills:

- Same as Unit 1.

Unit 7 National Geographic Standards:

- Same as Unit 4.

Unit 7 Common Core Literacy in History/Social Studies Standards:

- Same as Unit 4.

Unit 8: Australia and the Pacific Island

Unit 8 Geographic Skills:

- Same as Unit 1.

Unit 8 National Geographic Standards:

- Same as Unit 4.

Unit 8 Common Core Literacy in History/Social Studies Standards:

- Same as Unit 4.

Unit 9: Urban Geography/Urban Planning

Unit 9 Geographic Skills:

- Same as Unit 1.

Unit 9 National Geographic Standards:

- **Standard 12: The processes, patterns, and functions of human settlement**
 - **Explain how and why the number and range of functions of settlements have changed and may change in the future, as exemplified by being able to**
 - Analyze the reasons for and results of policies of municipal governments on the internal structure of cities (e.g., zoning ordinances to determine the location and characteristics of residential, commercial, and industrial sectors, incentives to encourage development, legislation of flood-plain regions restricting development).
 - Analyze the effects that a nearby resource discovery has on the internal structure and functions of an urban place (e.g., petroleum and Houston, Texas, gold and Anchorage, Alaska, lithium and Salar de Uyuni, Bolivia).
 - Explain the changes in the size and spatial organization of cities as a result of gains or losses of particular industries (e.g., gain of automobile manufacturing in Spartanburg, South Carolina, loss of steel manufacturing in Birmingham, England, gain of a high-tech corridor in Boston, loss of textile manufacturing in the Carolinas as a result of offshore production).
 - **Explain and compare the factors that contribute to the growth or decline of settlements over time, as exemplified by being able to**
 - Analyze and explain the factors that led to the decline and/or disappearance of towns and cities (e.g., rail lines did not connect with the town, relocation of the county seat, decline in resource extraction or production, single-industry towns in periods of recession, bypassed by road development, out-migration of people, especially young people).
 - Analyze and explain how historic changes in transportation may have contributed to the growth or decline of settlements (e.g., shift from

- overland to water routes with improved navigation, growth of river port cities following the invention of the steamboat, effect of access to railroads, interstate highway system, establishment of regional airports).
 - Analyze the fastest growing cities in different world regions and explain the reasons for growth (e.g., access to education, natural resources, presence or absence of conflict, reliable food supplies, employment opportunities, health care, human rights).
- **Compare and explain the changing functions, sizes, and spatial patterns of settlements, as exemplified by being able to**
 - Analyze late 20th-century changes in urban patterns and functions (e.g., edge cities, gentrified districts, more specialized services in suburban areas, urban sprawl).
 - Compare satellite images of cities to identify the growth or decline of different sectors in the settlement (e.g., squatter settlements, central business district [CBD], green spaces, government buildings).
 - Analyze and explain the differences in the patterns of cities in light of automobile transportation (e.g., London versus Los Angeles, Rome versus Dallas).
- **Analyze and explain the structure and development of megacities and megalopoli, as exemplified by being able to**
 - Analyze and explain the factors contributing to the development of urban corridors in megalopoli such as the Boston–Washington, DC, corridor and the Taiheiyō Belt (Tokyo–Osaka corridor) in Japan.
 - Analyze the spatial pattern of cities with populations larger than 10 million (megacities) to determine if the pattern is associated with specific features (e.g. coastal locations, major rivers, inland waterways, political centers) or with particular regions (e.g., South America versus South Asia).
 - Analyze the technological developments that have contributed to the growth and changing spatial distribution of megacities and megalopoli (e.g., changes in agricultural production; infrastructure developments such as sanitation, railroads, interstate highways, airports; construction technologies).
- **Explain and compare the growth and structure of cities using different urban models, as exemplified by being able to**
 - Identify and analyze the structure of urban places in comparison to general models of urbanization (e.g., concentric rings, sectors, specialized functions, walled cities).
 - Construct a map of a hypothetical city and explain the internal spatial structures (e.g., central business district, industrial zones, residential, service activities, suburban retail, and information-based activities).
 - Identify and explain contemporary urban conditions that may not be addressed in urban models (e.g., homelessness, squatter settlements, transitions in ethnic neighborhoods, low-income public housing, gentrification).
- **Standard 13: *How the forces of cooperation and conflict among people influence the division and control of Earth's surface***
 - Explain different types of territorial divisions (e.g., township, city, county,

state, and country) and how they are used to manage and control Earth's surface, as exemplified by being able to

- Construct maps based on interviews with local school officials, firefighters, and police officers to show the spatial boundaries of their responsibilities (e.g., school district boundaries, local fire districts, police precinct districts, county jurisdiction for sheriff).
- Describe the responsibilities of the set of governmental units within which the student lives (e.g., town or city, county, state, and country).
- Describe how all continents, with the exception of Antarctica, are divided into nation states.
- **Explain how people cooperate in managing and using Earth's surface, as exemplified by being able to**
 - Explain how international water boundaries are examples of people cooperating in dividing and using Earth's surface (e.g., 200-mile territorial limit, Great Lakes are divided between Canada and the United States, for river boundaries it is sometimes the center of the water in the river).
 - Analyze activities in the local community to describe ways in which people solve problems by cooperating (e.g., working in groups to pick up trash along a road, participating in a neighborhood crime-watch group, participating in community house-building projects).
 - Describe how communities and states cooperate in providing relief efforts during and after natural disasters (e.g., donations of money and food aid, sending medical teams and supplies, construction workers and equipment).
- **Analyze examples of disagreements over land uses in their community, as exemplified by being able to**
 - Identify and describe the reasons for disputes over play space on the playground or lunchroom, analyzing the situation from the perspectives of the key stakeholders.
 - Identify local land-use issues in which there are disagreements and analyze the perspectives of the key stakeholders (e.g., protection of environmentally sensitive areas, land use for commercial purposes, locating waste disposal sites).
 - Describe the means by which communities resolve disputes over land-use issues (e.g., decisions by planning commissions, by elected officials, by judges, by community voting).

Unit 9 Common Core Literacy in History/Social Studies Standards:

- ELA-Literacy.RH.11-12.1 Cite specific textual evidence to support analysis of primary and secondary sources, connecting insights gained from specific details to an understanding of the text as a whole.
- ELA-Literacy.RH.11-12.2 Determine the central ideas or information of a primary or secondary source; provide an accurate summary that makes clear the relationships among the key details and ideas.
- ELA-Literacy.RH.11-12.3 Evaluate various explanations for actions or events and determine which explanation best accords with textual evidence, acknowledging where the text leaves matters uncertain.
- ELA-Literacy.RH.11-12.1 Cite specific textual evidence to support analysis of primary

and secondary sources, connecting insights gained from specific details to an understanding of the text as a whole.

- ELA-Literacy.RH.11-12.2 Determine the central ideas or information of a primary or secondary source; provide an accurate summary that makes clear the relationships among the key details and ideas.
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- ELA-Literacy.RH.11-12.3 Evaluate various explanations for actions or events and determine which explanation best accords with textual evidence, acknowledging where the text leaves matters uncertain.
- ELA-Literacy.RH.11-12.10 By the end of grade 12, read and comprehend history/social studies texts in the grades 11–CCR text complexity band independently and proficiently.

Unit 10: Global Change

Unit 10 Geographic Skills:

- Same as Unit 1.

Unit 10 National Geographic Standards:

- **Standard 14: How human actions modify the physical environment**
 - **Explain the global impacts of human changes in the physical environment, as exemplified by being able to**
 - Explain the spatial consequences, deliberate and inadvertent, of human activities that have global implications (e.g., dispersal of plant and animal species, fungi, and disease worldwide; global petroleum production, transport, and consumption; global climate change).
 - Explain how changes in human behavior can result in the introduction of aerosols into the atmosphere that have effects on a global scale (e.g., dust from Chinese agriculture and industry affecting Hawaii's weather, dust from the Saharan Africa affecting weather in Florida).
 - Explain the implications of modifying the physical environment in Brazil to grow soybeans for global export (e.g., siltation, desertification, deforestation, global climate change).
 - **Evaluate the intended and unintended impacts of using technology to modify the physical environment, as exemplified by being able to**
 - Evaluate how the technologies used in petroleum production and transportation have expanded the scale of the industry from local or regional to global over the last century (e.g., offshore oil drilling, oil sands, supertankers, pipelines).
 - Evaluate various types of contemporary agricultural techniques (e.g., no-till farming, herbicides, pesticides, center-pivot application of chemicals,

- crop rotation, irrigation, increased acreage in production), and compare the positive and negative implications of using these techniques.
 - Evaluate the environmental impact of road building into remote locations (e.g., rain forests in Brazil, old growth forests in Oregon, agricultural land in China, Alaskan pipeline in the Arctic).
- **Describe and evaluate scenarios for mitigating and/or adapting to environmental changes caused by human modifications, as exemplified by being able to**
 - Compare the costs and benefits of alternative solutions for a human-caused environmental problem, such as acid rain (e.g., coal with lower sulfur content, scrubbers on smokestacks, nuclear waste disposal, use of alternative energies) or urban heat islands (e.g., green roof construction, increased public transportation, energy efficient buildings).
 - Explain and evaluate the policy implications of managing upstream development in relation to downstream impacts (e.g., flooding, dam construction or removal, zoning).
 - Evaluate the feasibility, costs, and benefits of green construction techniques (e.g., Leadership in Energy and Environmental Design [LEED] certification) and describe how these efforts may increase sustainability and mitigate human impact on the physical environment.
 - Construct a plan for a public-awareness campaign about a hazardous issue including suggestions for mitigation and adaptation (e.g., radon gas, potential flooding, lead paint, water quality, industrial pollutants).

Unit 10 Common Core Literacy in History/Social Studies Standards:

- ELA-Literacy.RH.11-12.1 Cite specific textual evidence to support analysis of primary and secondary sources, connecting insights gained from specific details to an understanding of the text as a whole.
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among the key details and ideas.

- ELA-Literacy.RH.11-12.3 Evaluate various explanations for actions or events and determine which explanation best accords with textual evidence, acknowledging where the text leaves matters uncertain.
- ELA-Literacy.RH.11-12.10 By the end of grade 12, read and comprehend history/social studies texts in the grades 11–CCR text complexity band independently and proficiently.

Unit 11: Regional Geography

Unit 11 Geographic Skills:

- Same as Unit 1.

Unit 11 National Geographic Standards:

- **Standard 18: Evaluate how perceptions vary and affect people's views of contemporary issues and strategies for addressing them, as exemplified by being able to**
 - **Explain and evaluate the influences of the geographic context on current events and issues to make informed decisions and predictions about the future, as exemplified by being able to**
 - Identify different views regarding contemporary social and environmental challenges and analyze the geographic factors influencing the stakeholders and their preferred policies (e.g., visions from local citizens about the relative importance of privacy versus security, opinions from residents of multiple states about a shared resource and about mechanisms for seeking resolution, viewpoints from around the world about relationships between economic development, resource consumption, population, and environmental alteration).
 - Evaluate the current zoning policies for high-crime areas in a metropolitan area and predict changes in zoning and land use that may positively affect the community.
 - Analyze the geographic consequences on different continents of strategies for responding to a global health pandemic (e.g., effects of closing international airports, quarantine of ships or cargoes, implementation of immunization plans for susceptible populations).
 - **Analyze and evaluate the connections between the geographic contexts of current events and possible future issues, as exemplified by being able to**
 - Evaluate the feasibility and long-range impacts in a series of scenarios for dealing with social and environmental issues (e.g., absorbing and dispersing refugees, responding to threats from global warming, managing the future of Antarctica).
 - Analyze the geographic implications of storing low-level nuclear material in a given state or region (e.g., suitability of sites, distribution of population, transportation network and routes).
 - Analyze the effects of current rates of population growth on long-term sustainability in different regions of the world.
 - **Identify and explain the causes and processes of current and possible future changes in the geographic characteristics and spatial organization of places, regions, and environments, as exemplified by being able to**

- Identify areas where people are engaged in nationalistic movements and analyze the potential of these groups to change the current political geographies of their nation states.
- Describe and explain the possible effects of new electronic communication technologies on everyday life (e.g., location-based services on purchasing, telecommuting on the demand for commercial real estate and traffic volume and patterns, outsourcing of technological services).
- Describe and explain the possible effects of new routes and technologies on world trade patterns (e.g., the effects of increasing the size of the Panama Canal, opening the route through the Arctic Ocean, the development of increasingly larger supertankers and cargo ships).
- **Evaluate how perceptions vary and affect people's views of contemporary issues and strategies for addressing them, as exemplified by being able to**
 - Explain how and why residents of different regions of the country might evaluate energy policy proposals differently (e.g., Alaska and Arctic National Wildlife Refuge [ANWR] oil drilling, California and off-shore oil production, mid-Atlantic states and the Marcellus Oil Shale Field).
 - Explain how perceptions of immigration differ among people depending on their location, socioeconomic status, or occupation.
 - Identify and compare different perspectives about international climate change agreements regarding carbon emissions from the points of view of the developed countries and the less-developed countries.

Unit 11 Common Core Literacy in History/Social Studies Standards:

- ELA-Literacy.RH.11-12.1 Cite specific textual evidence to support analysis of primary and secondary sources, connecting insights gained from specific details to an understanding of the text as a whole.
- ELA-Literacy.RH.11-12.2 Determine the central ideas or information of a primary or secondary source; provide an accurate summary that makes clear the relationships among the key details and ideas.
- ELA-Literacy.RH.11-12.3 Evaluate various explanations for actions or events and determine which explanation best accords with textual evidence, acknowledging where the text leaves matters uncertain.
- ELA-Literacy.RH.11-12.1 Cite specific textual evidence to support analysis of primary and secondary sources, connecting insights gained from specific details to an understanding of the text as a whole.
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- ELA-Literacy.RH.11-12.3 Evaluate various explanations for actions or events and determine which explanation best accords with textual evidence, acknowledging where the text leaves matters uncertain.
- ELA-Literacy.RH.11-12.10 By the end of grade 12, read and comprehend history/social studies texts in the grades 11–CCR text complexity band independently and proficiently.

Unit 12: Economic Geography

Unit 12 Geographic Skills:

- Same as Unit 1.

Unit 12 National Geographic Standards:

- **Standard 11: The patterns and networks of economic interdependence on Earth's surface**
 - **Explain how economic activities change over time, as exemplified by being able to**
 - Explain how ways of organizing work processes change the structure of economic activities (e.g., the effects of assembly lines, just-in-time parts deliveries, and robots on automobile production, the effects of bulk purchasing, centralized warehouses, and just-in-time delivery in the success of Wal-Mart).
 - Explain how, where, and why companies expand (e.g., Starbucks, Wal-Mart, and McDonalds start as local stores, spread regionally, nationally, and then internationally).
 - Explain how air-freight companies have changed patterns of economic activity (e.g., fruit, flowers, and vegetables are shipped worldwide from East Africa, the Middle East, and South Africa; the role of the FedEx hub in Memphis as a center for repairing computers and electronic equipment).
 - **Identify and analyze the origins and development of and changes in patterns of economic activities, as exemplified by being able to**
 - Analyze cases that stretch or change interpretations of traditional theories of location, such as Weber's Least Cost (e.g., Japanese cars made in the United States, airline ticket and insurance claim processing in Ireland, US medical procedure results being read and interpreted by physicians in India).
 - Compare the changing patterns of production for major industries in the United States (e.g., the movement of the furniture industry from New England and the Upper Midwest to the Carolinas, the movement of the forestry industry from New England to the Carolinas and Georgia to the Northwest, textile production from New England to the Carolinas to overseas).
 - Analyze how the evolution and development of capitalism influenced human migrations (e.g., movement of people from rural areas to developing urban centers, European migration to the United States, colonialism and the African slave trade).
 - **Explain how the economic systems of countries and regions consist of**

multiple coordinated economic activities, as exemplified by being able to

- Analyze the importance of location and geographic distribution in relation to the advantage for countries that belong to the European Union (EU), North American Free Trade Agreement (NAFTA), and Central American Free Trade Agreement (CAFTA) (e.g., common boundaries to expedite movement of goods and products, reduction of transport time and distance, complementary production so that products made in one country are in demand in several others, cooperative arrangements for piecework on parts that are eventually assembled in one or more of the membership countries).
- Construct flow maps showing the movement of resources to production centers and the flow of finished products to consumption points and analyze the impact of the production process on regional and national economies (e.g., flows of petroleum, clothing products, electronics).
- Explain why places become major hubs of economic activity (e.g., research universities provide ideas and skilled labor to Silicon Valley's computer manufacturing companies, low-cost labor in Chinese cities provide the incentive to move manufacturing jobs from the United States and Europe).
- **Explain why and how economic systems change, as exemplified by being able to**
 - Explain how technological developments in transportation systems have changed production and consumption patterns and increased the flow of commerce around the world (e.g., the roles of wagons, railroads, canals, container shipping, air travel, and satellites in moving goods, people, and information).
 - Explain how the development of communication systems changed the way in which economic systems operate (e.g., the effects on speed and volume of communications from mail to telegraph to telephone to cell phone to Internet).
 - Analyze the impact of globalization on less-developed and developed regions and nations in terms of costs and benefits. (e.g., manufactured products at a lower price and economies of scale have both negative and positive consequences).
- **Explain the effects of technological changes in communications and transportation systems on the speed and distances over which people, products, and ideas move, as exemplified by being able to**
 - Explain how time-space compression has changed modern locational decision-making (e.g., distributed remote office locations, international staffing to optimize time zones, telecommuting options in the workplace).
 - Identify and explain technological developments over the past 75 years having the most impact on overcoming time and distance (e.g., container shipping, air freight, Internet connections, satellite communications).
 - Explain the technologies that allow migrants to maintain their linguistic culture and identities longer than prior immigrant groups (e.g., mobile phones, Internet connectivity, Web-based translation services).

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- ELA-Literacy.RH.11-12.10 By the end of grade 12, read and comprehend history/social studies texts in the grades 11–CCR text complexity band independently and proficiently.

Unit 13: Cultural Geography

Unit 13 Geographic Skills:

- Same as Unit 1.

Unit 13 National Geographic Standards:

- **Standard 10: The characteristics, distribution, and complexity of Earth's cultural mosaics**
 - **Describe and explain the characteristics that constitute any particular cultural system (e.g., Amish, Japanese, Maori), as exemplified by being able to**
 - Describe and explain how the extended family networks and limited use of technology influence the Amish culture in the United States.
 - Describe and explain the historical role of the caste system and arranged marriages in the Indian cultural system.
 - Explain how local customs can contribute to a group's culture (e.g., lion hunting by Masai cattle herders in East Africa, outrigger canoe navigation by Pacific Island cultures).

- **Explain how different cultures provide contexts from which people may view the world differently, as exemplified by being able to**
 - Describe and explain how a current event might be viewed differently from the context of different cultures (e.g., the results of a US presidential election, the impact of a natural disaster such as Hurricane Katrina or a tsunami in the Indian Ocean, the global spread of US companies such as Wal-Mart, Starbucks, or McDonalds).
 - Explain how cultures may view the roles of women in society differently.
 - Explain how cultures may have differing views of business practices (e.g., markets where prices are negotiated rather than fixed, bartering for goods versus purchasing them).
- **Identify and analyze the spatial patterns of cultural landscapes at multiple scales, as exemplified by being able to**
 - Describe the cultural landscapes of two large cities in the United States and analyze the commonalities and differences of their built environments (e.g., Boston versus Los Angeles, Seattle versus Phoenix).
 - Describe and analyze the characteristics of the cultural landscapes of different neighborhoods in a city (e.g., architectural styles, signage for businesses, density of the residents, amount of green space, type of economic activities conducted there).
 - Analyze and explain the varying impacts of tourism on local cultural landscapes (e.g., cruise ship ports of call such as Prince Edward Island, Cozumel, and Venice; crowds at Angkor Wat with the needs of the local residents; ecotourism impacts versus highly commercialized resorts).
- **Explain differences in the human imprints on the physical environment of different cultures, as exemplified by being able to**
 - Explain how predominant agricultural practices in different cultures result in different imprints on the physical environment (e.g., forest removal for cattle ranches in the Amazon, terrace construction for rice farming in China, changes in land use patterns as a result of center pivot irrigation in the western United States).
 - Explain examples of the imprints on the physical environment of past cultures (e.g., the landscape of Egypt with pyramids and irrigation, Mayan temples and agricultural fields, Ancestral Puebloan cliff dwellings and field systems).
 - Explain the differences in selected North American cultural hearths and how they influenced settlements (e.g., the French in the lower St. Lawrence Valley, the English and Africans in the southern Tidewater region, the Spanish in Mexico).
- **Identify and explain examples of cultural convergence, as exemplified by being able to**
 - Explain examples of the spread of culture traits that contribute to cultural convergence due to globalization (e.g., US-based fast-food franchises in China and India, the dominance of the English language for use in business, replication of television programs or print media in other countries).
 - Analyze the ways technology contributes to cultural convergence on a global scale (e.g., role of television, the Internet, more affordable air

- travel, cellular or mobile phone technology).
 - Explain how multinational corporations and international business operations contribute to cultural convergence.
- **Identify and explain examples of cultural divergence, as exemplified by being able to**
 - Identify and explain examples of immigrant cultural groups maintaining language or other cultural markers in a new location to distinguish themselves from other groups.
 - Explain how subculture groups in the United States adopt dress or other characteristics to distinguish themselves from other groups (e.g., Harley-Davidson motorcycle riders, Goths, the Amish).
 - Identify and explain how different types of housing styles and developments may contribute to cultural divergence (e.g., gated communities retirement communities, suburban developments with home owner association covenants).
- **Explain how and why globalization has increased the rate of change in cultures, as exemplified by being able to**
 - Explain how media, such as television, music, and films, can influence the rate of change in cultures around the world (e.g., youth preferences for types of music, knowledge of India diffused through the Indian film industry).
 - Explain how the increased mobility of people, ideas, and information can result in increasing the rate of change in a culture (e.g., the spread of Internet social networking, development of smart phones and short-message-service [SMS] texting).
 - Explain how the increasing economic interdependence in the world may result in an increased rate of change in cultures (e.g., expanding use of the Internet as an international marketing tool, increased frequency of business and trade shows involving people from across the world, changes in peoples' diets due to the spread of US fast-food franchises).

Unit 13 Common Core Literacy in History/Social Studies Standards:

- ELA-Literacy.RH.11-12.1 Cite specific textual evidence to support analysis of primary and secondary sources, connecting insights gained from specific details to an understanding of the text as a whole.
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- ELA-Literacy.RH.11-12.10 By the end of grade 12, read and comprehend history/social studies texts in the grades 11–CCR text complexity band independently and proficiently.

Unit 14: Political Geography

Unit 14 Geographic Skills:

- Same as Unit 1.

Unit 14 National Geographic Standards:

- **Standard 9: The characteristics, distribution, and migration of human populations on Earth's surface**
 - **Explain the demographic history of countries using the demographic transition model, as exemplified by being able to:**
 - Compare the experiences of European countries that underwent the demographic transition in the 18th and 19th centuries and Asian countries experiencing the demographic transition in the 20th and 21st centuries.
 - Explain how the demographic transition model may be used to predict population trends in different countries (e.g., when moving from a subsistence agricultural economy to a more diverse market economy).
 - Describe and explain the effects of changing dependency ratios in a country during the demographic transition (e.g., slowing population growth requires proportionately fewer people to support more people in the upper ages of a population, faster growing populations have more workers to support aging populations).
 - **Evaluate the effects of governmental policies on population characteristics, as exemplified by being able to:**
 - Describe and evaluate the possible effects of a nation's policies in terms of population growth (e.g., immigration limits, tax incentives or penalties influencing the number of births, foreign policy agreements affecting migration for documented workers).
 - Describe and explain possible obstacles a country or government might encounter in establishing limited population growth policies (e.g., cultural and religious beliefs, traditional beliefs about family size, gender roles in the society).
 - Explain and evaluate the effects of public health programs on population growth in different countries (e.g., Sweden, China, Saudi Arabia, Germany, Kenya).

- **Identify and explain how historical, environmental, economic, political, and technological factors have influenced the current population distribution, as exemplified by being able to:**
 - Identify and explain the role technology plays in increasing the population density in cities (e.g., high-rise structures, sanitation, public transportation systems, concentration of business activities).
 - Identify and explain the factors contributing to the changing distribution of population in developing countries (e.g., growth of cities in eastern Africa as a result of drought in agricultural areas, growth in cities in India due to high-tech industries).
 - Explain how transportation routes create corridors of higher population-density clusters in rural areas and in between major cities (e.g., railroad access and routes, interstate highway systems, river and canal access).
- **Analyze demographic data and identify trends in the spatial distribution of population, as exemplified by being able to:**
 - Analyze US Census data and immigration tables to predict demographic changes that might influence future electoral politics in a state or region (e.g., Hispanic population growth in some regions, redistricting changing the number of congressional districts, shifts in retirement destinations).
 - Analyze the population growth rate for several countries and describe the pattern of population distribution that would most likely occur in each country as it grows over time.
 - Analyze the possible effects of climate change on the growth and distribution of people in areas such as the Sahel, Pakistan, China, etc.
- **Compare and explain different examples of migrations in terms of the “laws of migration,” as exemplified by being able to**
 - Explain situations where the migration flow also produces a “counter-flow” in the opposite direction (e.g., stream of workers who return to their original locations, money sent back to original locations by migrant workers).
 - Compare examples of recent migrations that are rural to urban (e.g., rural residents into fast-growing cities in developing countries, workers in the suburbs moving into the cities to reduce commute times and expenses).
 - Explain reasons why most migrants traveling long distances usually settle initially in urban areas.
- **Evaluate and explain the impact of international migration on physical and human systems, as exemplified by being able to**
 - Identify areas where transborder forced migrations have occurred and explain the effects on both areas (e.g., movements from Afghanistan into Pakistan, movements from central African nations, movements of Kurds among Turkey, Iran, and Iraq).
 - Explain the potential effects of cross-border migration to an area that is not able to easily absorb an influx of people (e.g., increased demand for food production, shortages of fresh water, shortages of sanitation services, pressure on medical facilities).
 - Analyze and evaluate the impacts of post-Soviet migrants on places such as Europe, the Middle East, and North America.
- **Compare and explain the ways in which different groups and governments**

adjust to the departure and arrival of migrants, as exemplified by being able to

- Describe the benefits and challenges migrants face in bridging cultures and adjusting to a new place (e.g., resolving conflicts between old and new traditions, resolving differences between rates of adjustment when children may learn the language and adjust faster than parents, resolving differences in access to food items and traditional cooking methods in a new place).
- Compare the immigration policies of different countries and explain the reasons contributing to the development of these policies (e.g., shortage of workers, high unemployment rates, concerns about cultural differences).
- Explain the reasons for and effects of policies designed to deal with the results of diaspora (e.g., Israel's Law of Return, the origins of Liberia and Sierra Leone as colonies for freed enslaved persons).

Unit 14 Common Core Literacy in History/Social Studies Standards:

- ELA-Literacy.RH.11-12.1 Cite specific textual evidence to support analysis of primary and secondary sources, connecting insights gained from specific details to an understanding of the text as a whole.
- ELA-Literacy.RH.11-12.2 Determine the central ideas or information of a primary or secondary source; provide an accurate summary that makes clear the relationships among the key details and ideas.
- ELA-Literacy.RH.11-12.3 Evaluate various explanations for actions or events and determine which explanation best accords with textual evidence, acknowledging where the text leaves matters uncertain.
- ELA-Literacy.RH.11-12.1 Cite specific textual evidence to support analysis of primary and secondary sources, connecting insights gained from specific details to an understanding of the text as a whole.
- ELA-Literacy.RH.11-12.2 Determine the central ideas or information of a primary or secondary source; provide an accurate summary that makes clear the relationships among the key details and ideas.
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- ELA-Literacy.RH.11-12.2 Determine the central ideas or information of a primary or secondary source; provide an accurate summary that makes clear the relationships among the key details and ideas.
- ELA-Literacy.RH.11-12.3 Evaluate various explanations for actions or events and determine which explanation best accords with textual evidence, acknowledging where the text leaves matters uncertain.
- ELA-Literacy.RH.11-12.10 By the end of grade 12, read and comprehend history/social studies texts in the grades 11–CCR text complexity band independently and proficiently.

AP US GOVERNMENT AND POLITICS

Course Length: 2 semesters

Credits: 1.0

Recommended Grade Levels: 10, 11, 12

Prerequisites: None

Course Description: Aligned with standards and objectives set by the AP CollegeBoard, AP United States Government and Politics is a college level course, typically taken after either World History or AP World History. Developed from textbook readings, primary source readings, and past AP exams, this course focuses on the dynamics of politics in America, the founding principles, the Constitution, the governmental institutions and public policy. Thus, the most important skills in AP Government are reading, dissecting, studying, and mastering college level texts and preparing for college level tests. In preparation for college and career readiness, this course is also aligned to the Common Core Literacy Standards for History/Social Studies. Students demonstrate their mastery of college level U.S. Government & Politics knowledge and skills on the AP U.S. Government & Politics Exam, given in May. A passing score on the exam may earn students college U.S. Government & Politics credit. Placement and credit are granted by institutions in accordance with their own policies, not by those of the College Board or the AP Program.

AP US GOVERNMENT AND POLITICS UNIT PROGRESSION

Unit 1: Introduction to Politics and Other Policies: Foreign and Environmental (Summer Work)

Unit 1 Topics Covered:

- Define Political Power
- Define Democracy
- Debate the idea “Representative Democracy is best”
- Explain how power is distributed in a democracy
- Explain how political power is distributed
- Discuss the question “Is Democracy Driven by Self-Interest?”
- Explain political change
- Describe the nature of politics

Unit 1 CollegeBoard Unit Objectives:

- Examine the kind of government established by the Constitution, paying particular attention to federalism, the separation of powers, and checks and balances (SI.1).
- Identify and describe a variety of theoretical perspectives relating to the Constitution, such as democratic theory (who governs and to what end?), theories of republican government (strict vs. loose interpretation), pluralism, and elitism (SI.4)
- Define public policy and policy agenda, describe the dynamics among actors, interests, institutions, and processes that create public policy, and how policy is enacted by Congress and the president, and implemented and interpreted by the bureaucracy and the courts (SV.1)
- Identify policy networks and issue networks in the domestic and foreign policy areas and

explain the impact of federalism, interest groups, political parties, and elections on policy processes and policymaking in the federal context (SV.2)

- Be familiar with major public policies and views held by each of the major parties, interpretation of major policies by the Supreme Court, and the impact of implementation of major public policies (SV.3)

Unit 1 CollegeBoard Standards:

- I. Theory of Modern Government
 - Meaning and basic functions of government
 - Meaning of politics
 - Philosophical theories of government (Locke, Montesquieu, etc.)
- II. Policymaking
 - Policymaking process
 - Agenda building and implementation
 - Politics and policymaking (iron triangles and issue networks)
 - Regulation and deregulation

Unit 2: Constitution, Civil Liberties, and Civil Rights

Unit 2 Topics Covered:

- The Problem of Liberty
- The Constitutional Convention
- The Constitution and Democracy
- The Constitution and Liberty
- The Motives of the Framers
- Constitutional Reform: Modern View
- Culture and Civil Liberties
- Interpreting and Applying the First Amendment
- What Is Speech?

Unit 2 CollegeBoard Unit Objectives:

- Examine the kind of government established by the Constitution, paying particular attention to federalism, the separation of powers, and checks and balances (SI.1).
- Explain the developments of federalism, the separation of powers, and checks and balances using knowledge of the historical situation at the time of the Constitutional Convention, while also being aware of the ideological and philosophical traditions on which the framers drew (SI.2).
- Explain the founding father's views on major aspects of the Constitution, explain the need for, and the eventual swift adoption of, the Bill of Rights, and identify key Supreme Court cases where the Constitution has been interpreted in regards to the concepts of federalism, separation of powers and checks and balances (SI.3).
- Define and explain the difference between Civil Rights and Civil Liberties and can describe the Supreme Court's interpretations of various civil rights and liberties such as freedom of speech, assembly, and expression; the rights of the accused; and the rights of minority groups and women (SVI.1).
- Identify the provisions of the Fourteenth Amendment and explain the doctrine of selective incorporation and how it has been used to extend protection of rights and liberties (SVI.2).

- Assess the strengths and weaknesses of Supreme Court decisions as tools of social change focusing on legal, social, and political evolution following the Supreme Court's decisions (SVI.3).

Unit 2 CollegeBoard Standards:

- III. Constitutional Foundations and Principle
 - Declaration of Independence
 - Articles of Confederation
 - Writing the Constitution of 1787 (Plans & Compromises)- Theme of Conflict and Compromise
 - Birth of political parties (Feds & Anti-Feds)
 - Powers of Gov't (Leg, Exec, and Judicial)
 - Federalism vs. Confederacy vs. Unitary
 - Provision for Formal Change (Amendment process)
 - Informal provisions for change (Supreme court, elastic clause)

Unit 3: Federalism and Political Culture

Unit 3 Topics Covered:

- Why "Federalism" Matters
- Governmental Structure
- The Founding
- The Debate on the Meaning of Federalism
- Federal-State Relations
- Federal Aid and Federal Control
- A Devolution Revolution?
- Congress and Federalism
- Political Culture
- Comparing America with Other Nations
- The Sources of Political Culture
- Mistrust of Government
- Political Tolerance

Unit 3 CollegeBoard Unit Objectives:

- Examine the kind of government established by the Constitution, paying particular attention to federalism, the separation of powers, and checks and balances (SI.1).
- Explain the developments of federalism, the separation of powers, and checks and balances using knowledge of the historical situation at the time of the Constitutional Convention, while also being aware of the ideological and philosophical traditions on which the framers drew (SI.2).
- Explain how political culture affects and informs political participation by identifying different forms of political participation including voting, protest, and mass movements and how participation in these activities may affect the political system (SII.3)

Unit 3 CollegeBoard Standards:

- IV. Federalism
 - Federal- State Relationship (Conflict and Compromise)
 - Federalism and Courts

- Dual, layer and Marble, Fiscal Federalism
- Funding Policies (Categorical grants, project grants, block grants, funded vs. unfunded mandates, conditions of aid)

Unit 4: Public Opinion and Participation

Unit 4 Topics Covered:

- Public Opinion and Democracy
- What Is Public Opinion?
- Political Socialization: The Family
- Cleavages in Public Opinion
- Political Ideology
- Political Elites, Public Opinion, and Public Policy
- A Closer Look at Nonvoting
- The Rise of the American Electorate
- Who Participates in Politics?

Unit 4 CollegeBoard Unit Objectives:

- Explain that individual citizens hold a variety of beliefs about their government (liberalism vs. conservatism), its leaders, and the U.S. political system in general, and how these beliefs are formed and evolve (political socialization, i.e. families, schools and the media), and the processes by which they are transmitted (political participation) (SII.1).
- Explain and list examples of what exemplifies a traditional liberal view and a traditional conservative view, noting what demographics traditionally hold each view (SII.2).
- Explain how political culture affects and informs political participation by identifying different forms of political participation including voting, protest, and mass movements and how participation in these activities may affect the political system (SII.3).
- Explain how and why certain demographics have different political views and how group differences affect how participation happens, especially looking at what groups of people vote what ways (SII.4).

Unit 4 CollegeBoard Standards:

- V. Public Opinion and Socialization
 - Using polls to measure Public opinion (polling history and using polls)
 - How the public forms its opinions (political socialization- family, school, peer groups, mass media, race and ethnicity, religion, region, income and education)

Unit 5: Political Parties and Campaigns/Elections

Unit 5 Topics Covered:

- Parties—Here and Abroad
- The Rise and Decline of the Political Party
- The National Party Structure Today
- State and Local Parties
- The Two-Party System
- Minor Parties
- Nominating a President

- Parties Versus Voters
- Campaigns, Then and Now
- Presidential Versus Congressional Campaigns
- Primary Versus General Campaigns
- Money
- What Decides the Election?
- The Effects of Elections on Policy

Unit 5 CollegeBoard Unit Objectives:

- Explain how citizens organize and communicate their interests and concerns through political parties, elections, political action committees (PACs), interest groups, and the mass media (SIII.1).
- Explain the significance of the historical evolution of the U.S. party system, the functions and structures of political parties, and the effects parties have on the political process and the role and impact of third parties on American politics (SIII.2).
- Explain the election process by identifying the role of primaries, the roles of PACs and Super-PACS and the financial aspect of elections and related reform measures (campaign finance reform), the Electoral College, and how political parties and the demographics of individuals affect voting in elections (SIII.3).
- Identify significant interest groups who actively lobby politicians and explain their impact on the election process, the political process and public policy, specifically noting that not all interests are equally represented because of this structure, and be able to explain why (SIII.4).
- Explain the role of the media in the political system by describing their impact on public opinion, voter perceptions, campaign strategies, electoral outcomes, agenda development, and the images of officials and candidates (SIII.5).
- Describe the symbiotic and frequently conflictual relationship among candidates, elected officials, and the media by identifying the goals and incentives of the media as an industry, how those goals influence the nature of news coverage, and how the media outlets have grown in size, coverage and forms, and the impact this has on the politics (SIII.6).

Unit 5 CollegeBoard Standards:

- VI. Political Parties
 - History of Political Parties (Feds, Anti-feds, Dem, Rep, Third parties, minor parties)
 - Political Party Organization (local, state, national)
- VII. Voting and Elections
 - History of voting expansion vs historical obstacles to voting
 - Voter turnout- who votes and who doesn't? Why?
 - Voting behavior- Psychological and sociological factors
 - Getting nominated and campaigning for office
 - Primary elections, Prez campaigns, Congressional campaigns
 - Election reforms
 - Campaign finance reform

Unit 6: The Judicial Branch

Unit 6 Topics Covered:

- The Development of the Federal Courts
- The Structure of the Federal Courts
- The Jurisdiction of the Federal Courts
- Getting to Court
- The Supreme Court in Action
- The Power of the Federal Courts
- Checks on Judicial Power

Unit 6 CollegeBoard Unit Objectives:

- Identify and explain both formal and informal powers, as well as the functions performed and not performed by, the major political institutions in the United States (the Congress, the presidency, the bureaucracy, and the federal courts) and explain the basic functions and individuals involved in each of the institutions (SIV.1).
- Describe the power balances and relationships between each of the major institutions and how it may evolve gradually or change dramatically as a result of crises, most notably looking at the power struggle between the presidency and the Congress in both foreign and domestic politics (i.e. War Powers Act, budget, etc.) (SIV.2).
- Explain how each of the institutions are connected to the other institutions, interest groups, the media, and state and local governments (SIV.3).

Unit 6 CollegeBoard Standards:

- VI. The Judicial Branch
 - Organization of the Federal Court system
 - Selection of Federal Judges
 - Supreme Court- term, selection of justices, how docket is determined, how decisions are reached, implementation of decisions
 - Historic evolution of the US Supreme Court and Decisions
 - Checks on judicial power
 - Judicial activism vs. Judicial Restraint

Unit 7: Media and the Presidency

Unit 7 Topics Covered:

- Journalism in American Political History
- The Structure of the Media
- Rules Governing the Media
- Are the National Media Biased?
- Government and the News
- Presidents and Prime Ministers
- Divided Government
- The Evolution of the Presidency
- The Powers of the President
- The Office of the President
- Who Gets Appointed
- Presidential Character
- The Power to Persuade
- The Power to Say No

- The President's Program
- Presidential Transition
- How Powerful Is the President?

Unit 7 CollegeBoard Unit Objectives:

- Explain the role of the media in the political system by describing their impact on public opinion, voter perceptions, campaign strategies, electoral outcomes, agenda development, and the images of officials and candidates (SIII.5).
- Describe the symbiotic and frequently conflictual relationship among candidates, elected officials, and the media by identifying the goals and incentives of the media as an industry, how those goals influence the nature of news coverage, and how the media outlets have grown in size, coverage and forms, and the impact this has on the politics (SIII.6).
- Identify and explain both formal and informal powers, as well as the functions performed and not performed by, the major political institutions in the United States (the Congress, the presidency, the bureaucracy, and the federal courts) and explain the basic functions and individuals involved in each of the institutions (SIV.1).
- Describe the power balances and relationships between each of the major institutions and how it may evolve gradually or change dramatically as a result of crises, most notably looking at the power struggle between the presidency and the Congress in both foreign and domestic politics (i.e. War Powers Act, budget, etc.) (SIV.2).
- Explain how each of the institutions are connected to the other institutions, interest groups, the media, and state and local governments (SIV.3).

Unit 7 CollegeBoard Standards:

- VI. Mass Media and Politics
 - Evolution of Media Print and Broadcast
 - Rise of radio and TV
 - Media's political role (alerting public to breaking stories, shaping political agenda, molding public opinion, link btw leaders and public, watchdog, scorekeeper, gatekeeper)
 - Modern Presidency based on media
 - Media coverage of elections and governmental institutions
 - Benefits and negatives of Media
- VII. Presidency
 - Election process
 - Powers of the President
 - Functions of the President (CIC, chief of state, diplomat, executive, legislator, head of party, moral leader)
 - Organization of the executive department (E.O.C., Cabinet)
 - Presidential and domestic policy, foreign policy
 - Presidential succession

Unit 8: Congress, Bureaucracy, and Special Interest Groups

Unit 8 Topics Covered:

- Congress Versus Parliament
- The Evolution of Congress

- Who Is in Congress?
- Do Members Represent Their Voters?
- A Polarized Congress
- The Organization of Congress: Parties and Caucuses
- The Organization of Congress: Committees
- The Organization of Congress: Staff and Specialized Offices
- How a Bill Becomes Law
- Reducing Power and Perks
- The Post-9/11 Congress
- Distinctiveness of the American Bureaucracy
- Proxy Government
- The Growth of the Bureaucracy
- The Federal Bureaucracy Today
- Congressional Oversight
- Bureaucratic “Pathologies”
- Reforming the Bureaucracy
- Explaining Proliferation
- The Birth of Interest Groups
- Kinds of Organizations
- Interest Groups and Social Movements
- Funds for Interest Groups
- The Problem of Bias
- The Activities of Interest Groups
- Regulating Interest Groups

Unit 8 CollegeBoard Unit Objectives:

- Identify significant interest groups who actively lobby politicians and explain their impact on the election process, the political process and public policy, specifically noting that not all interests are equally represented because of this structure, and be able to explain why (SIII.4).
- Identify and explain both formal and informal powers, as well as the functions performed and not performed by, the major political institutions in the United States (the Congress, the presidency, the bureaucracy, and the federal courts) and explain the basic functions and individuals involved in each of the institutions (SIV.1).
- Describe the power balances and relationships between each of the major institutions and how it may evolve gradually or change dramatically as a result of crises, most notably looking at the power struggle between the presidency and the Congress in both foreign and domestic politics (i.e. War Powers Act, budget, etc.) (SIV.2).
- Explain how each of the institutions are connected to the other institutions, interest groups, the media, and state and local governments (SIV.3).

Unit 8 CollegeBoard Standards:

- VI. Interest Groups
 - Types of groups (economic, civil rights, public, ideological, government, single issue)
 - Function of interest groups
 - Tactics of interest groups (lobbying, litigation, grass roots campaigns, PACs)
 - Regulation of interest groups- ethics reform

- VII. Congress
 - Powers of Congress (formal versus informal)
 - Organization of Congress
 - Characteristics of Members of Congress
 - House and Senate Leadership
 - The Committee System
 - A Bills Passage into Law
 - Voting Influences
 - Congressional spending, reforms, ethics legislation
 - Congress versus President (relationship and struggle)
 - Congress and the Federal Budget
- VIII. The Bureaucracy
 - Nature and size of Federal Bureaucracy
 - Organization of Executive Bureaucracy (cabinet, independent executive agencies, independent regulatory commissions, government corporations)
 - Bureaucratic interactions with President, Congress, judicial branch and public
 - A policymaking institution
 - Bureaucratic problems and reforms

Unit 9: Politics and Public Policy

Unit 9 Topics Covered:

- Setting the Agenda
- Making a Decision
- Majoritarian Politics: Distributed Benefits, Distributed Costs
- Interest Group Politics: Concentrated Benefits, Concentrated Costs
- Client Politics: Concentrated Benefits, Distributed Costs
- Entrepreneurial Politics: Distributed Benefits, Concentrated Costs
- The Case of Business Regulation
- Perceptions, Beliefs, Interests, and Values
- How Reliable Are Projections About The Future?
- The Politics of Economic Prosperity
- The Politics of Taxing and Spending
- Economic Theories and Political Needs
- The Machinery of Economic Policy Making
- Spending Money
- The Budget
- Reducing Spending
- Levying Taxes
- Two Kinds of Welfare Programs
- Social Welfare in the United States
- Majoritarian Politics Versus Client Politics

Unit 9 CollegeBoard Unit Standards:

- Define public policy and policy agenda, describe the dynamics among actors, interests, institutions, and processes that create public policy, and how policy is enacted by Congress and the president, and implemented and interpreted by the bureaucracy and the courts (SV.1).

- Identify policy networks and issue networks in the domestic and foreign policy areas and explain the impact of federalism, interest groups, political parties, and elections on policy processes and policymaking in the federal context (SV.2).
- Be familiar with major public policies and views held by each of the major parties, interpretation of major policies by the Supreme Court, and the impact of implementation of major public policies (SV.3).

Unit 9 CollegeBoard Standards:

- VI. Policymaking
 - Policymaking process
 - Agenda building and implementation
 - Politics and policymaking (iron triangles and issue networks)
 - Regulation and deregulation
 - Social Welfare policy (AFDC and TANF – Block grant)
 - Social security
 - Medicare and Medicaid
 - Economic Policy **The Federal Budget, Taxes and Tax reform

UNITED STATES HISTORY

Course Length: 2 semesters

Credits: 1.0

Recommended Grade Levels: 11

Prerequisites: None

Course Description: In preparation for AP courses and in alignment with the ACT Quality Core Standards, U.S. History is designed to provide a detailed overview of United States history from the country's beginnings to the post–World War II era. Typically taken after either World History or AP World History, either AP Government & Politics or Civics and Economics., this course covers the forging of the new nation, the sectional conflicts that nearly tore it apart, and the Civil War and Reconstruction. Students will learn about nineteenth-century industrialization and urbanization, the growth of the West and the “New South,” and political efforts to reform capitalism. They will also analyze the effects of the Great Depression and the New Deal, the Cold War and the United States’ role as a world power, and more recent challenges such as movements for equality, environmental issues, and global terrorism. Through readings, lectures, notes, videos, speakers, testing, discussions, and projects, students are invited to gain a deeper knowledge of their history and the individuals that helped to define it. In preparation for college and career readiness, this course is also aligned to the Common Core Literacy Standards for History/Social Studies.

UNITED STATES HISTORY UNIT PROGRESSION

Unit 1: Exploration and Colonization

Unit 1 ACT Quality Core Standards:

- B.1.a Identify the reasons for colonization, evaluate its impacts, and analyze the success or failure of settlements in North America.
- B.1.b Analyze religious development and its significance in colonial America (e.g., religious settlements, the Great Awakening).
- B.1.c Describe significant aspects of the variety of social structures of colonial America.
- B.1.d Compare the economies of the various colonies, and analyze the development and impact of indentured servitude and African slavery in North America (e.g., social, political, and economic).
- A.1.e Explain the origins and development of colonial governments.

Unit 1 ACT Quality Core Unit Skills:

- A.1.a Apply terms relevant to the content appropriately and accurately.
- A.1.b Identify and interpret different types of primary and secondary sources of fundamental importance and relevance to topical inquiry and understanding.
- A.1.d Analyze the importance of context and point of view in historical interpretation (e.g., interpret past events and issues in historical context rather than in terms of present norms and values); recognize that historians interpret the same events differently due to personal values and societal norms.
- A.1.g Compose arguments/position papers, and participate in debates on different interpretations of the same historical events; synthesize primary and secondary sources

to justify position.

- A.1.i Identify, analyze, and understand elements of historical cause and effect; recognize and understand patterns of change and continuity in history.

Unit 1 Common Core Literacy in History/Social Studies Standards:

- ELA-Literacy.RH.11-12.1 Cite specific textual evidence to support analysis of primary and secondary sources, connecting insights gained from specific details to an understanding of the text as a whole.
- ELA-Literacy.RH.11-12.2 Determine the central ideas or information of a primary or secondary source; provide an accurate summary that makes clear the relationships among the key details and ideas.
- ELA-Literacy.RH.11-12.3 Evaluate various explanations for actions or events and determine which explanation best accords with textual evidence, acknowledging where the text leaves matters uncertain.
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- ELA-Literacy.RH.11-12.3 Evaluate various explanations for actions or events and determine which explanation best accords with textual evidence, acknowledging where the text leaves matters uncertain.
- ELA-Literacy.RH.11-12.10 By the end of grade 12, read and comprehend history/social studies texts in the grades 11–CCR text complexity band independently and proficiently.

Unit 2: Creating a Nation

Unit 2 ACT Quality Core Standards:

- B.1.f Evaluate the influence of Enlightenment ideas on the development of American government as embodied in the Declaration of Independence
- B.1.g Identify and evaluate the ideas and events that contributed to the outbreak of the American Revolution, and determine the key turning points of the war
- B.1.h Identify the impetus for the Constitutional Convention (limitations of government under the Articles of Confederation), and analyze the events and outcomes of the Convention (i.e., the “bundle of compromises”)
- B.1.i Interpret the ideas and principles expressed in the U.S. Constitution
- B.1.j Explain the development of the Bill of Rights, and assess various debates of the day

- B.1.m Evaluate, take, and defend positions on the development of U.S. foreign policy during the early nineteenth century (e.g., Embargo Act, Monroe Doctrine)

Unit 2 Quality Core Unit Skills:

- A.1.a Apply terms relevant to the content appropriately and accurately.
- A.1.b Identify and interpret different types of primary and secondary sources of fundamental importance and relevance to topical inquiry and understanding.
- A.1.d Analyze the importance of context and point of view in historical interpretation (e.g., interpret past events and issues in historical context rather than in terms of present norms and values); recognize that historians interpret the same events differently due to personal values and societal norms.
- A.1.g Compose arguments/position papers, and participate in debates on different interpretations of the same historical events; synthesize primary and secondary sources to justify position.
- A.1.h Compose an analytical, historical essay containing a thesis, supporting evidence, and a conclusion
- A.1.k Analyze how the past influences the lives of individuals and the development of societies

Unit 2 Common Core Literacy in History/Social Studies Standards:

- ELA-Literacy.RH.11-12.1 Cite specific textual evidence to support analysis of primary and secondary sources, connecting insights gained from specific details to an understanding of the text as a whole.
- ELA-Literacy.RH.11-12.2 Determine the central ideas or information of a primary or secondary source; provide an accurate summary that makes clear the relationships among the key details and ideas.
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- ELA-Literacy.RH.11-12.3 Evaluate various explanations for actions or events and determine which explanation best accords with textual evidence, acknowledging where the text leaves matters uncertain.
- ELA-Literacy.RH.11-12.10 By the end of grade 12, read and comprehend history/social

studies texts in the grades 11–CCR text complexity band independently and proficiently.

Unit 3: Antebellum America

Unit 3 ACT Quality Core Standards:

- B.1.k Identify and evaluate the political and territorial changes resulting from westward expansion of the United States in the early nineteenth century
- B.1.l Analyze and evaluate federal and state policies toward American Indians in the first half of the nineteenth century
- B.2.a Describe and evaluate the impacts of the First Industrial Revolution during the nineteenth century (e.g., the Lowell system, immigration, changing technologies, transportation innovations)
- B.2.b Identify and evaluate the major events and issues that promoted sectional conflicts and strained national cohesiveness in the antebellum period
- B.2.c Identify significant religious, philosophical, and social reform movements of the nineteenth century and their impact on American society
- B.2.d Identify the major characteristics of the abolition movement in the antebellum period, its achievements, failures, and Southern opposition to it
- B.2.e Analyze the women's rights and the suffrage movements and the impact of women on other reform movements in the antebellum period
- B.2.f Compare and contrast the economic, social, and cultural differences of the North and South during the antebellum period

Unit 3 Quality Core Unit Skills:

- A.1.a Apply terms relevant to the content appropriately and accurately.
- A.1.c Interpret timelines of key historical events, people, and periods; locate significant historical places and events on maps
- A.1.e Analyze and evaluate historical sources and interpretations (e.g., credibility, perspective, bias, and authenticity; verifiable or unverifiable; fact or interpretation)
- A.1.f Utilize research strategies, methods, and sources to obtain, organize, and interpret historical data
- A.1.g Compose arguments/position papers, and participate in debates on different interpretations of the same historical events; synthesize primary and secondary sources to justify position.
- A.1.i Identify, analyze, and understand elements of historical cause and effect; recognize and understand patterns of change and continuity in history
- A.1.j Develop open-ended historical questions that can be addressed through historical research and interpretation
- A.1.k Analyze how the past influences the lives of individuals and the development of societies

Unit 3 Common Core Literacy in History/Social Studies Standards:

- ELA-Literacy.RH.11-12.1 Cite specific textual evidence to support analysis of primary and secondary sources, connecting insights gained from specific details to an understanding of the text as a whole.
- ELA-Literacy.RH.11-12.2 Determine the central ideas or information of a primary or secondary source; provide an accurate summary that makes clear the relationships among the key details and ideas.

- ELA-Literacy.RH.11-12.3 Evaluate various explanations for actions or events and determine which explanation best accords with textual evidence, acknowledging where the text leaves matters uncertain.
- ELA-Literacy.RH.11-12.1 Cite specific textual evidence to support analysis of primary and secondary sources, connecting insights gained from specific details to an understanding of the text as a whole.
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- ELA-Literacy.RH.11-12.3 Evaluate various explanations for actions or events and determine which explanation best accords with textual evidence, acknowledging where the text leaves matters uncertain.
- ELA-Literacy.RH.11-12.10 By the end of grade 12, read and comprehend history/social studies texts in the grades 11–CCR text complexity band independently and proficiently.

Unit 4: Civil War and Reconstruction

Unit 4 ACT Quality Core Standards:

- B.3.a Identify and analyze the technological, social, and strategic aspects of the Civil War
- B.3.b Explain the influences of Abraham Lincoln's philosophy of the Union and his executive actions and leadership on the course of the Civil War
- B.3.c Describe the basic provisions and immediate impact of the Thirteenth, Fourteenth, and Fifteenth Amendments to the Constitution
- B.3.d Evaluate different Reconstruction plans and their social, economic, and political impact on the South and the rest of the United States

Unit 4 Quality Core Unit Skills:

- A.1.a Apply terms relevant to the content appropriately and accurately
- A.1.b Identify and interpret different types of primary and secondary sources of fundamental importance and relevance to topical inquiry and understanding
- A.1.c Interpret timelines of key historical events, people, and periods; locate significant historical places and events on maps
- A.1.d Analyze the importance of context and point of view in historical interpretation (e.g., interpret past events and issues in historical context rather than in terms of present norms and values); recognize that historians interpret the same events differently due to personal values and societal norms
- A.1.e Analyze and evaluate historical sources and interpretations (e.g., credibility, perspective, bias, and authenticity; verifiable or unverifiable; fact or interpretation)

- A.1.i Identify, analyze, and understand elements of historical cause and effect; recognize and understand patterns of change and continuity in history
- A.1.k Analyze how the past influences the lives of individuals and the development of societies

Unit 4 Common Core Literacy in History/Social Studies Standards:

- ELA-Literacy.RH.11-12.1 Cite specific textual evidence to support analysis of primary and secondary sources, connecting insights gained from specific details to an understanding of the text as a whole.
- ELA-Literacy.RH.11-12.2 Determine the central ideas or information of a primary or secondary source; provide an accurate summary that makes clear the relationships among the key details and ideas.
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- ELA-Literacy.RH.11-12.3 Evaluate various explanations for actions or events and determine which explanation best accords with textual evidence, acknowledging where the text leaves matters uncertain.
- ELA-Literacy.RH.11-12.10 By the end of grade 12, read and comprehend history/social studies texts in the grades 11–CCR text complexity band independently and proficiently.

Unit 5: Industrialization and Urbanization in the North and East

Unit 5 ACT Quality Core Standards:

- C.1.a Evaluate the impact of new inventions and technologies of the late nineteenth century.
- C.1.b Identify and evaluate the influences on business and industry in the late nineteenth and early twentieth centuries.
- C.1.c Identify labor and workforce issues of the late nineteenth century, including perspectives of owners/managers and Social Darwinists
- C.1.c Explain the challenges and contributions of immigrants of the late nineteenth century.

- C.1.e Explain the causes and impact of urbanization in the late nineteenth century.

Unit 5 Quality Core Unit Skills:

- A.1.a Apply terms relevant to the content appropriately and accurately
- A.1.b Identify and interpret different types of primary and secondary sources of fundamental importance and relevance to topical inquiry and understanding
- A.1.c Interpret timelines of key historical events, people, and periods; locate significant historical places and events on maps
- A.1.d Analyze the importance of context and point of view in historical interpretation (e.g., interpret past events and issues in historical context rather than in terms of present norms and values); recognize that historians interpret the same events differently due to personal values and societal norms
- A.1.e Analyze and evaluate historical sources and interpretations (e.g., credibility, perspective, bias, and authenticity; verifiable or unverifiable; fact or interpretation)
- A.1.i Identify, analyze, and understand elements of historical cause and effect; recognize and understand patterns of change and continuity in history
- A.1.k Analyze how the past influences the lives of individuals and the development of societies

Unit 5 Common Core Literacy in History/Social Studies Standards:

- ELA-Literacy.RH.11-12.1 Cite specific textual evidence to support analysis of primary and secondary sources, connecting insights gained from specific details to an understanding of the text as a whole.
- ELA-Literacy.RH.11-12.2 Determine the central ideas or information of a primary or secondary source; provide an accurate summary that makes clear the relationships among the key details and ideas.
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- ELA-Literacy.RH.11-12.10 By the end of grade 12, read and comprehend history/social

studies texts in the grades 11–CCR text complexity band independently and proficiently.

Unit 6: Reintegration of the South and the Incorporation of the West

Unit 6 ACT Quality Core Standards:

- B.3.e Analyze the immediate and long-term influences of Reconstruction on the lives of African Americans and U.S. society as a whole
- C.1.f Compare and contrast the experiences of African Americans in various U.S. regions in the late nineteenth century
- C.1.g Identify and evaluate the influences on the development of the American West
- C.1.h Analyze significant events for Native American Indian tribes, and their responses to those events, in the late nineteenth century
- C.2.a Identify and explain significant issues and components of the Populist movement and their impacts

Unit 6 Quality Core Unit Skills:

- A.1.a Apply terms relevant to the content appropriately and accurately
- A.1.b Identify and interpret different types of primary and secondary sources of fundamental importance and relevance to topical inquiry and understanding
- A.1.c Interpret timelines of key historical events, people, and periods; locate significant historical places and events on maps
- A.1.d Analyze the importance of context and point of view in historical interpretation (e.g., interpret past events and issues in historical context rather than in terms of present norms and values); recognize that historians interpret the same events differently due to personal values and societal norms
- A.1.e Analyze and evaluate historical sources and interpretations (e.g., credibility, perspective, bias, and authenticity; verifiable or unverifiable; fact or interpretation)
- A.1.i Identify, analyze, and understand elements of historical cause and effect; recognize and understand patterns of change and continuity in history
- A.1.k Analyze how the past influences the lives of individuals and the development of societies

Unit 6 Common Core Literacy in History/Social Studies Standards:

- ELA-Literacy.RH.11-12.1 Cite specific textual evidence to support analysis of primary and secondary sources, connecting insights gained from specific details to an understanding of the text as a whole.
- ELA-Literacy.RH.11-12.2 Determine the central ideas or information of a primary or secondary source; provide an accurate summary that makes clear the relationships among the key details and ideas.
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- ELA-Literacy.RH.11-12.10 By the end of grade 12, read and comprehend history/social studies texts in the grades 11–CCR text complexity band independently and proficiently.

Unit 7: Increasing Influences and Challenges

Unit 7 Learner Objectives:

- C.2.b Explain the origins and accomplishments of the Progressive movement.
- C.2.c Analyze the efforts to achieve women’s suffrage in the early twentieth century.
- C.2.d Evaluate, take, and defend positions on the various U.S. foreign policies in the late nineteenth and early twentieth centuries.
- C.2.e Analyze the causes and consequences of the Spanish-American War.
- C.2.f Identify and evaluate the factors that influenced U.S. imperialism in the late nineteenth and early twentieth centuries and the ensuing debate over imperialism.

Unit 7 Quality Core Unit Skills:

- A.1.a Apply terms relevant to the content appropriately and accurately
- A.1.b Identify and interpret different types of primary and secondary sources of fundamental importance and relevance to topical inquiry and understanding
- A.1.d Analyze the importance of context and point of view in historical interpretation (e.g., interpret past events and issues in historical context rather than in terms of present norms and values); recognize that historians interpret the same events differently due to personal values and societal norms
- A.1.g Compose arguments/position papers, and participate in debates on different interpretations of the same historical events; synthesize primary and secondary sources to justify position.
- A.1.i Identify, analyze, and understand elements of historical cause and effect; recognize and understand patterns of change and continuity in history
- A.1.k Analyze how the past influences the lives of individuals and the development of societies

Unit 7 Common Core Literacy in History/Social Studies Standards:

- ELA-Literacy.RH.11-12.1 Cite specific textual evidence to support analysis of primary and secondary sources, connecting insights gained from specific details to an understanding of the text as a whole.
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- ELA-Literacy.RH.11-12.10 By the end of grade 12, read and comprehend history/social studies texts in the grades 11–CCR text complexity band independently and proficiently.

Unit 8: The U.S. in a Changing World

Unit 8 Learner Objectives:

- D.1.a Identify and analyze the causes and significant events of World War I and their impact; evaluate the impact of the Treaty of Versailles
- D.1.b Describe and evaluate the impact of scientific and technological innovations of the 1920s
- D.1.c Identify and evaluate the impact of new cultural movements on American society in the 1920s
- D.1.d Identify the characteristics of social conflict and social change that took place in the early 1920s
- D.1.e Identify and explain the economic factors that contributed to the stock market crash of 1929 and the Great Depression
- D.1.f Explain the economic, environmental, and social impact of the Great Depression on American society
- D.1.g Evaluate the impact of the New Deal on various elements of American society (e.g., social, political, environmental, economic)

Unit 8 Quality Core Unit Skills:

- A.1.a Apply terms relevant to the content appropriately and accurately
- A.1.b Identify and interpret different types of primary and secondary sources of fundamental importance and relevance to topical inquiry and understanding
- A.1.d Analyze the importance of context and point of view in historical interpretation

(e.g., interpret past events and issues in historical context rather than in terms of present norms and values); recognize that historians interpret the same events differently due to personal values and societal norms

- A.1.e Analyze and evaluate historical sources and interpretations (e.g., credibility, perspective, bias, and authenticity; verifiable or unverifiable; fact or interpretation)
- A.1.f Utilize research strategies, methods, and sources to obtain, organize, and interpret historical data
- A.1.i Identify, analyze, and understand elements of historical cause and effect; recognize and understand patterns of change and continuity in history
- A.1.j Develop open-ended historical questions that can be addressed through historical research and interpretation

Unit 8 Common Core Literacy in History/Social Studies Standards:

- ELA-Literacy.RH.11-12.1 Cite specific textual evidence to support analysis of primary and secondary sources, connecting insights gained from specific details to an understanding of the text as a whole.
- ELA-Literacy.RH.11-12.2 Determine the central ideas or information of a primary or secondary source; provide an accurate summary that makes clear the relationships among the key details and ideas.
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- ELA-Literacy.RH.11-12.10 By the end of grade 12, read and comprehend history/social studies texts in the grades 11–CCR text complexity band independently and proficiently.

Unit 9: America at War

Unit 9 Learner Objectives:

- E.1.a Describe circumstances at home and abroad prior to U.S. involvement in WWII
- E.1.b Identify the significant military and political aspects of WWII

- E.1.c Analyze dimensions of the Holocaust and the Allies' response to the Holocaust and war crimes
- E.1.d Evaluate the social, political, and economic impacts of WWII on the home front
- E.1.e Identify and evaluate the scientific and technological developments in America during and after WWII

Unit 9 Quality Core Unit Skills:

- A.1.b Identify and interpret different types of primary and secondary sources of fundamental importance and relevance to topical inquiry and understanding
- A.1.c Interpret timelines of key historical events, people, and periods; locate significant historical places and events on maps
- A.1.d Analyze the importance of context and point of view in historical interpretation (e.g., interpret past events and issues in historical context rather than in terms of present norms and values); recognize that historians interpret the same events differently due to personal values and societal norms
- A.1.g Compose arguments/position papers, and participate in debates on different interpretations of the same historical events; synthesize primary and secondary sources to justify position
- A.1.e Analyze and evaluate historical sources and interpretations (e.g., credibility, perspective, bias, and authenticity; verifiable or unverifiable; fact or interpretation)
- A.1.i Identify, analyze, and understand elements of historical cause and effect; recognize and understand patterns of change and continuity in history
- A.1.k Analyze how the past influences the lives of individuals and the development of societies

Unit 9 Common Core Literacy in History/Social Studies Standards:

- ELA-Literacy.RH.11-12.1 Cite specific textual evidence to support analysis of primary and secondary sources, connecting insights gained from specific details to an understanding of the text as a whole.
- ELA-Literacy.RH.11-12.2 Determine the central ideas or information of a primary or secondary source; provide an accurate summary that makes clear the relationships among the key details and ideas.
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- ELA-Literacy.RH.11-12.3 Evaluate various explanations for actions or events and determine which explanation best accords with textual evidence, acknowledging where the text leaves matters uncertain.
- ELA-Literacy.RH.11-12.10 By the end of grade 12, read and comprehend history/social studies texts in the grades 11–CCR text complexity band independently and proficiently.

Unit 10: Changes at Home in Post-War America

Unit 10 Learner Objectives:

- E.2.a Analyze major domestic issues and responses of the administrations for Truman to the present
- E.2.b Evaluate the impact of innovations in technology and communication on American society
- E.2.c Identify the events and influential individuals of the civil rights, human rights, and counterculture movements and assess their impact
- E.2.d Evaluate the impact of changes in the national economy and politics on contemporary American society

Unit 10 Quality Core Unit Skills:

- A.1.c Interpret timelines of key historical events, people, and periods; locate significant historical places and events on maps
- A.1.d Analyze the importance of context and point of view in historical interpretation (e.g., interpret past events and issues in historical context rather than in terms of present norms and values); recognize that historians interpret the same events differently due to personal values and societal norms
- A.1.f Utilize research strategies, methods, and sources to obtain, organize, and interpret historical data
- A.1.i Identify, analyze, and understand elements of historical cause and effect; recognize and understand patterns of change and continuity in history
- A.1.j Develop open-ended historical questions that can be addressed through historical research and interpretation
- A.1.k Analyze how the past influences the lives of individuals and the development of societies

Unit 10 Common Core Literacy in History/Social Studies Standards:

- ELA-Literacy.RH.11-12.1 Cite specific textual evidence to support analysis of primary and secondary sources, connecting insights gained from specific details to an understanding of the text as a whole.
- ELA-Literacy.RH.11-12.2 Determine the central ideas or information of a primary or secondary source; provide an accurate summary that makes clear the relationships among the key details and ideas.
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- ELA-Literacy.RH.11-12.3 Evaluate various explanations for actions or events and determine which explanation best accords with textual evidence, acknowledging where the text leaves matters uncertain.
- ELA-Literacy.RH.11-12.10 By the end of grade 12, read and comprehend history/social studies texts in the grades 11–CCR text complexity band independently and proficiently.

Unit 11: Exploration and Colonization

Unit 11 Learner Objective:

- E.1.f Analyze the social, cultural, and economic changes at the onset of the Cold War era
- E.1.g Analyze the origins of the Cold War, foreign policy developments, and major events of the administrations from Truman to Carter.
- E.1.h Describe and evaluate the political and social impact of the Vietnam War
- E.2.e Identify the major contemporary social, environmental, and political issues (e.g., immigration, global warming, terrorism), the groups involved, and the controversial engendered by those issues

Unit 11 Quality Core Unit Skills:

- A.1.a Apply terms relevant to the content appropriately and accurately
- A.1.b Identify and interpret different types of primary and secondary sources of fundamental importance and relevance to topical inquiry and understanding
- A.1.c Interpret timelines of key historical events, people, and periods; locate significant historical places and events on maps
- A.1.d Analyze the importance of context and point of view in historical interpretation (e.g., interpret past events and issues in historical context rather than in terms of present norms and values); recognize that historians interpret the same events differently due to personal values and societal norms
- A.1.e Analyze and evaluate historical sources and interpretations (e.g., credibility, perspective, bias, and authenticity; verifiable or unverifiable; fact or interpretation)
- A.1.g Compose arguments/position papers, and participate in debates on different interpretations of the same historical events; synthesize primary and secondary sources to justify position
- A.1.h Compose an analytical, historical essay containing a thesis, supporting evidence, and a conclusion

- A.1.i Identify, analyze, and understand elements of historical cause and effect; recognize and understand patterns of change and continuity in history
- A.1.k Analyze how the past influences the lives of individuals and the development of societies

Unit 11 Common Core Literacy in History/Social Studies Standards:

- ELA-Literacy.RH.11-12.1 Cite specific textual evidence to support analysis of primary and secondary sources, connecting insights gained from specific details to an understanding of the text as a whole.
- ELA-Literacy.RH.11-12.2 Determine the central ideas or information of a primary or secondary source; provide an accurate summary that makes clear the relationships among the key details and ideas.
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- ELA-Literacy.RH.11-12.10 By the end of grade 12, read and comprehend history/social studies texts in the grades 11–CCR text complexity band independently and proficiently.

AP UNITED STATES HISTORY

Course Length: 2 semesters

Credits: 1.0

Recommended Grade Levels: 11

Prerequisites: None

Course Description: Aligned with standards and objectives set by the AP CollegeBoard, AP U.S. History is a college level course, typically taken after the completion of either World History or AP World History, either AP Government & Politics or Civics and Economics. This course provides a detailed overview of United States history from the country's beginnings to the post–World War II era. Key time periods include, the forging of the new nation, Civil War and Reconstruction, nineteenth-century industrialization and urbanization, the growth of the West and the “New South,” the Great Depression and the New Deal, the Cold War and the United States’ role as a world power. More recent challenges such as movements for equality, environmental issues, and global terrorism are also addressed. Through readings, lectures, notes, videos, speakers, testing, discussions, and projects, students are invited to gain a deeper knowledge of their history and the individuals that helped to define it. In preparation for college and career readiness, this course is also aligned to the Common Core Literacy Standards for History/Social Studies. Students demonstrate their mastery of college level U.S. History knowledge and skills on the AP U.S. History Exam, given in May. A passing score on the exam may earn students college U.S. History credit. Placement and credit are granted by institutions in accordance with their own policies, not by those of the College Board or the AP Program.

AP UNITED STATES HISTORY UNIT PROGRESSION

Unit 1: Exploration and the Colonies (Summer Work)

Unit 1 Content Topics:

- Pre-Columbian Societies
 - Early inhabitants of the Americas
 - American Indian empires in Mesoamerica, the Southwest, and the Mississippi Valley
 - American Indian cultures of North America at the time of European contact
- Transatlantic Encounters and Colonial Beginnings, 1492–1690
 - First European contacts with American Indians
 - Spain’s empire in North America
 - French colonization of Canada
 - English settlement of New England, the Mid-Atlantic region, and the South
 - From servitude to slavery in the Chesapeake region
 - Religious diversity in the American colonies
 - Resistance to colonial authority: Bacon’s Rebellion, the Glorious Revolution, and the Pueblo Revolt
- Colonial North America, 1690–1754
 - Population growth and immigration
 - Transatlantic trade and the growth of seaports

- The eighteenth-century back country
- Growth of plantation economies and slave societies
- The Enlightenment and the Great Awakening
- Colonial governments and imperial policy in British North America

Unit 1 CollegeBoard Themes:

- American Diversity: The diversity of the American people and the relationships among different groups. The roles of race, class, ethnicity, and gender in the history of the United States.
- Demographic Changes: Changes in birth, marriage, and death rates; life expectancy and family patterns; population size and density. The economic, social, and political effects of immigration, internal migration, and migration networks.
- Globalization: Engagement with the rest of the world from the fifteenth century to the present: colonialism, mercantilism, global hegemony, development of markets, imperialism, and cultural exchange.
- Politics and Citizenship: Colonial and revolutionary legacies, American political traditions, growth of democracy, and the development of the modern state. Defining citizenship; struggles for civil rights.
- Reform: Diverse movements focusing on a broad range of issues, including anti-slavery, education, labor, temperance, women's rights, civil rights, gay rights, war, public health, and government.
- Religion: The variety of religious beliefs and practices in America from prehistory to the twenty-first century; influence of religion on politics, economics, and society.
- Slavery and Its Legacies in North America: Systems of slave labor and other forms of unfree labor (e.g., indentured servitude, contract labor) in American Indian societies, the Atlantic World, and the American South and West. The economics of slavery and its racial dimensions. Patterns of resistance and the long-term economic, political, and social effects of slavery.

Unit 2: American Independence

Unit 2 Content Topics:

- The American Revolutionary Era, 1754–1789
 - The French and Indian War
 - The Imperial Crisis and resistance to Britain
 - The War for Independence
 - State constitutions and the Articles of Confederation
 - The federal Constitution

Unit 2 CollegeBoard Themes:

- Globalization: Engagement with the rest of the world from the fifteenth century to the present: colonialism, mercantilism, global hegemony, development of markets, imperialism, and cultural exchange.
- Politics and Citizenship: Colonial and revolutionary legacies, American political traditions, growth of democracy, and the development of the modern state. Defining citizenship; struggles for civil rights.
- Reform: Diverse movements focusing on a broad range of issues, including anti-slavery, education, labor, temperance, women's rights, civil rights, gay rights, war, public health,

and government.

- Religion: The variety of religious beliefs and practices in America from prehistory to the twenty-first century; influence of religion on politics, economics, and society.
- War and Diplomacy: Armed conflict from the precolonial period to the twenty-first century; impact of war on American foreign policy and on politics, economy, and society.

Unit 2: The Republican Experiment

Unit 3 Learner Objectives:

- The Early Republic, 1789–1815
 - Washington, Hamilton, and shaping of the national government
 - Emergence of political parties: Federalists and Republicans
 - Republican Motherhood and education for women
 - Beginnings of the Second Great Awakening

Unit 3 CollegeBoard Themes:

- Politics and Citizenship: Colonial and revolutionary legacies, American political traditions, growth of democracy, and the development of the modern state. Defining citizenship; struggles for civil rights.
- Reform: Diverse movements focusing on a broad range of issues, including anti-slavery, education, labor, temperance, women's rights, civil rights, gay rights, war, public health, and government.
- Religion: The variety of religious beliefs and practices in America from prehistory to the twenty-first century; influence of religion on politics, economics, and society.

Unit 4: Jeffersonian Republic and Era of Good Feelings

Unit 4 Learner Objectives:

- The Early Republic, 1789–1815
 - Significance of Jefferson's presidency
 - Expansion into the trans-Appalachian West; American Indian resistance
 - Growth of slavery and free Black communities
 - The War of 1812 and its consequences

Unit 4 CollegeBoard Themes:

- American Diversity: The diversity of the American people and the relationships among different groups. The roles of race, class, ethnicity, and gender in the history of the United States.
- Demographic Changes: Changes in birth, marriage, and death rates; life expectancy and family patterns; population size and density. The economic, social, and political effects of immigration, internal migration, and migration networks.
- Environment: Ideas about the consumption and conservation of natural resources. The impact of population growth, industrialization, pollution, and urban and suburban expansion.
- Globalization: Engagement with the rest of the world from the fifteenth century to the present: colonialism, mercantilism, global hegemony, development of markets, imperialism, and cultural exchange.

- Politics and Citizenship: Colonial and revolutionary legacies, American political traditions, growth of democracy, and the development of the modern state. Defining citizenship; struggles for civil rights.
- Slavery and Its Legacies in North America: Systems of slave labor and other forms of unfree labor (e.g., indentured servitude, contract labor) in American Indian societies, the Atlantic World, and the American South and West. The economics of slavery and its racial dimensions. Patterns of resistance and the long-term economic, political, and social effects of slavery.
- War and Diplomacy: Armed conflict from the precolonial period to the twenty-first century; impact of war on American foreign policy and on politics, economy, and society.

Unit 5: Jacksonian America

Unit 5 Learner Objectives:

- Transformation of the Economy and Society in Antebellum America
 - The transportation revolution and creation of a national market economy
 - Beginnings of industrialization and changes in social and class structures
 - Immigration and nativist reaction
 - Planters, yeoman farmers, and slaves in the cotton South
- The Transformation of Politics in Antebellum America
 - Emergence of the second party system
 - Federal authority and its opponents: judicial federalism, the Bank War, tariff
 - Controversy, and states' rights debates
 - Jacksonian democracy and its successes and limitations
- Religion, Reform, and Renaissance in Antebellum America
 - Evangelical Protestant revivalism
 - Social reforms
 - Ideals of domesticity
 - Transcendentalism and utopian communities
 - American Renaissance: literary and artistic expressions

Unit 5 CollegeBoard Themes:

- American Diversity: The diversity of the American people and the relationships among different groups. The roles of race, class, ethnicity, and gender in the history of the United States.
- Demographic Changes: Changes in birth, marriage, and death rates; life expectancy and family patterns; population size and density. The economic, social, and political effects of immigration, internal migration, and migration networks.
- Economic Transformations: Changes in trade, commerce, and technology across time. The effects of capitalist development, labor and unions, and consumerism.
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and government.

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- Slavery and Its Legacies in North America: Systems of slave labor and other forms of unfree labor (e.g., indentured servitude, contract labor) in American Indian societies, the Atlantic World, and the American South and West. The economics of slavery and its racial dimensions. Patterns of resistance and the long-term economic, political, and social effects of slavery.

Unit 6: Manifest Destiny and Sectionalism

Unit 6 Learner Objectives:

- Territorial Expansion and Manifest Destiny
 - Forced removal of American Indians to the trans-Mississippi West
 - Western migration and cultural interactions
 - Territorial acquisitions
 - Early U.S. imperialism: the Mexican War

Unit 6 CollegeBoard Themes:

- American Diversity: The diversity of the American people and the relationships among different groups. The roles of race, class, ethnicity, and gender in the history of the United States.
- Demographic Changes: Changes in birth, marriage, and death rates; life expectancy and family patterns; population size and density. The economic, social, and political effects of immigration, internal migration, and migration networks.
- Environment: Ideas about the consumption and conservation of natural resources. The impact of population growth, industrialization, pollution, and urban and suburban expansion.
- Globalization: Engagement with the rest of the world from the fifteenth century to the present: colonialism, mercantilism, global hegemony, development of markets, imperialism, and cultural exchange.
- War and Diplomacy: Armed conflict from the precolonial period to the twenty-first century; impact of war on American foreign policy and on politics, economy, and society.

Unit 7: Civil War

Unit 7 Learner Objectives:

- The Crisis of the Union
 - Pro- and antislavery arguments and conflicts
 - Compromise of 1850 and popular sovereignty
 - The Kansas–Nebraska Act and the emergence of the Republican Party
 - Abraham Lincoln, the election of 1860, and secession
- Civil War
 - Two societies at war: mobilization, resources, and internal dissent
 - Military strategies and foreign diplomacy
 - Emancipation and the role of African Americans in the war
 - Social, political, and economic effects of war in the North, South, and West

Unit 7 CollegeBoard Themes:

- American Diversity: The diversity of the American people and the relationships among different groups. The roles of race, class, ethnicity, and gender in the history of the United States.
- Economic Transformations: Changes in trade, commerce, and technology across time. The effects of capitalist development, labor and unions, and consumerism.
- Politics and Citizenship: Colonial and revolutionary legacies, American political traditions, growth of democracy, and the development of the modern state. Defining citizenship; struggles for civil rights.
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- War and Diplomacy: Armed conflict from the precolonial period to the twenty-first century; impact of war on American foreign policy and on politics, economy, and society.

Unit 8: Reconstruction and the Gilded Age

Unit 8 Learner Objectives:

- Reconstruction
 - Presidential and Radical Reconstruction
 - Southern state governments: aspirations, achievements, failures
 - Role of African Americans in politics, education, and the economy
 - Compromise of 1877
 - Impact of Reconstruction
- The Origins of the New South
 - Reconfiguration of southern agriculture: sharecropping and crop-lien system
 - Expansion of manufacturing and industrialization
 - The politics of segregation: Jim Crow and disfranchisement

Unit 8 CollegeBoard Themes:

- American Diversity: The diversity of the American people and the relationships among different groups. The roles of race, class, ethnicity, and gender in the history of the United States.
- Demographic Changes: Changes in birth, marriage, and death rates; life expectancy and family patterns; population size and density. The economic, social, and political effects of immigration, internal migration, and migration networks.
- Economic Transformations: Changes in trade, commerce, and technology across time. The effects of capitalist development, labor and unions, and consumerism.
- Environment: Ideas about the consumption and conservation of natural resources. The impact of population growth, industrialization, pollution, and urban and suburban

expansion.

- Politics and Citizenship: Colonial and revolutionary legacies, American political traditions, growth of democracy, and the development of the modern state. Defining citizenship; struggles for civil rights.
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- Slavery and Its Legacies in North America: Systems of slave labor and other forms of unfree labor (e.g., indentured servitude, contract labor) in American Indian societies, the Atlantic World, and the American South and West. The economics of slavery and its racial dimensions. Patterns of resistance and the long-term economic, political, and social effects of slavery.

Unit 9: American Industrialism and Urban and Rural America

Unit 9 Learner Objectives:

- Development of the West in the Late Nineteenth Century
 - Expansion and development of western railroads
 - Competitors for the West: miners, ranchers, homesteaders, and American Indians
 - Government policy toward American Indians
 - Gender, race, and ethnicity in the far West
 - Environmental impacts of western settlement
- Industrial America in the Late Nineteenth Century
 - Corporate consolidation of industry
 - Effects of technological development on the worker and workplace
 - Labor and unions
 - National politics and influence of corporate power
 - Migration and immigration: the changing face of the nation
 - Proponents and opponents of the new order, e.g., Social Darwinism and Social Gospel
- Urban Society in the Late Nineteenth Century
 - Urbanization and the lure of the city
 - City problems and machine politics
 - Intellectual and cultural movements and popular entertainment

Unit 9 CollegeBoard Themes:

- American Diversity: The diversity of the American people and the relationships among different groups. The roles of race, class, ethnicity, and gender in the history of the United States.
- Demographic Changes: Changes in birth, marriage, and death rates; life expectancy and family patterns; population size and density. The economic, social, and political effects of immigration, internal migration, and migration networks.
- Economic Transformations: Changes in trade, commerce, and technology across time. The effects of capitalist development, labor and unions, and consumerism.
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- Politics and Citizenship: Colonial and revolutionary legacies, American political traditions, growth of democracy, and the development of the modern state. Defining citizenship; struggles for civil rights.
- Reform: Diverse movements focusing on a broad range of issues, including anti-slavery, education, labor, temperance, women's rights, civil rights, gay rights, war, public health, and government.

Unit 10: Empire and Expansion

Unit 10 Learner Objectives:

- The Emergence of America as a World Power
 - American imperialism: political and economic expansion

Unit 10 CollegeBoard Themes:

- American Identity: Views of the American national character and ideas about American exceptionalism. Recognizing regional differences within the context of what it means to be an American.
- Economic Transformations: Changes in trade, commerce, and technology across time. The effects of capitalist development, labor and unions, and consumerism.
- Globalization: Engagement with the rest of the world from the fifteenth century to the present: colonialism, mercantilism, global hegemony, development of markets, imperialism, and cultural exchange.
- Politics and Citizenship: Colonial and revolutionary legacies, American political traditions, growth of democracy, and the development of the modern state. Defining citizenship; struggles for civil rights.

Unit 11: American Progressives and American Foreign Policy

Unit 11 Learner Objectives:

- Populism and Progressivism
 - Agrarian discontent and political issues of the late nineteenth century
 - Origins of Progressive reform: municipal, state, and national
 - Roosevelt, Taft, and Wilson as Progressive presidents
 - Women's roles: family, workplace, education, politics, and reform
 - Black America: urban migration and civil rights initiatives
- The Emergence of America as a World Power
 - American imperialism: political and economic expansion
 - War in Europe and American neutrality
 - The First World War at home and abroad
 - Treaty of Versailles
 - Society and economy in the postwar years

Unit 11 CollegeBoard Themes:

- American Diversity: The diversity of the American people and the relationships among different groups. The roles of race, class, ethnicity, and gender in the history of the United States.
- American Identity: Views of the American national character and ideas about American

exceptionalism. Recognizing regional differences within the context of what it means to be an American.

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- Reform: Diverse movements focusing on a broad range of issues, including anti-slavery, education, labor, temperance, women's rights, civil rights, gay rights, war, public health, and government.
- War and Diplomacy: Armed conflict from the precolonial period to the twenty-first century; impact of war on American foreign policy and on politics, economy, and society.

Unit 12: Roaring 20s and the Great Depression

Unit 12 Learner Objectives:

- The New Era: 1920s
 - The business of America and the consumer economy
 - Republican politics: Harding, Coolidge, and Hoover
 - The culture of Modernism: science, the arts, and entertainment
 - Responses to Modernism: religious fundamentalism, nativism, and Prohibition
 - The ongoing struggle for equality: African Americans and women
- The Great Depression and the New Deal
 - Causes of the Great Depression
 - The Hoover administration's response
 - Franklin Delano Roosevelt and the New Deal
 - Labor and union recognition
 - The New Deal coalition and its critics from the Right and the Left
 - Surviving hard times: American society during the Great Depression

Unit 12 CollegeBoard Themes:

- American Diversity: The diversity of the American people and the relationships among different groups. The roles of race, class, ethnicity, and gender in the history of the United States.
- American Identity: Views of the American national character and ideas about American exceptionalism. Recognizing regional differences within the context of what it means to be an American.
- Culture: Diverse individual and collective expressions through literature, art, philosophy, music, theater, and film throughout U.S. history. Popular culture and the dimensions of cultural conflict within American society.
- Economic Transformations: Changes in trade, commerce, and technology across time. The effects of capitalist development, labor and unions, and consumerism.

- Environment: Ideas about the consumption and conservation of natural resources. The impact of population growth, industrialization, pollution, and urban and suburban expansion.
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- Reform: Diverse movements focusing on a broad range of issues, including anti-slavery, education, labor, temperance, women's rights, civil rights, gay rights, war, public health, and government.
- Religion: The variety of religious beliefs and practices in America from prehistory to the twenty-first century; influence of religion on politics, economics, and society.

Unit 13: FDR and World War II

Unit 13 Learner Objectives:

- The Second World War
 - The rise of fascism and militarism in Japan, Italy, and Germany
 - Prelude to war: policy of neutrality
 - The attack on Pearl Harbor and United States declaration of war
 - Fighting a multifront war
 - Diplomacy, war aims, and wartime conferences
 - The United States as a global power in the Atomic Age
- The Home Front During the War
 - Wartime mobilization of the economy
 - Urban migration and demographic changes
 - Women, work, and family during the war
 - Civil liberties and civil rights during wartime
 - War and regional development
 - Expansion of government power

Unit 13 CollegeBoard Themes:

- American Diversity: The diversity of the American people and the relationships among different groups. The roles of race, class, ethnicity, and gender in the history of the United States.
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- imperialism, and cultural exchange.
- **Politics and Citizenship:** Colonial and revolutionary legacies, American political traditions, growth of democracy, and the development of the modern state. Defining citizenship; struggles for civil rights.
- **Reform:** Diverse movements focusing on a broad range of issues, including anti-slavery, education, labor, temperance, women's rights, civil rights, gay rights, war, public health, and government.
- **War and Diplomacy:** Armed conflict from the precolonial period to the twenty-first century; impact of war on American foreign policy and on politics, economy, and society.

Unit 14: Cold War and 50s Prosperity

Unit 14 Learner Objectives:

- **The United States and the Early Cold War**
 - Origins of the Cold War
 - Truman and containment
 - The Cold War in Asia: China, Korea, Vietnam, and Japan
 - Diplomatic strategies and policies of the Eisenhower and Kennedy administrations
 - The Red Scare and McCarthyism
 - Impact of the Cold War on American society
- **The 1950s**
 - Emergence of the modern civil rights movement
 - The affluent society and "the other America"
 - Consensus and conformity: suburbia and middle-class America
 - Social critics, nonconformists, and cultural rebels
 - Impact of changes in science, technology, and medicine

Unit 14 CollegeBoard Themes:

- **American Diversity:** The diversity of the American people and the relationships among different groups. The roles of race, class, ethnicity, and gender in the history of the United States.
- **American Identity:** Views of the American national character and ideas about American exceptionalism. Recognizing regional differences within the context of what it means to be an American.
- **Culture:** Diverse individual and collective expressions through literature, art, philosophy, music, theater, and film throughout U.S. history. Popular culture and the dimensions of cultural conflict within American society.
- **Demographic Changes:** Changes in birth, marriage, and death rates; life expectancy and family patterns; population size and density. The economic, social, and political effects of immigration, internal migration, and migration networks.
- **Economic Transformations:** Changes in trade, commerce, and technology across time. The effects of capitalist development, labor and unions, and consumerism.
- **Environment:** Ideas about the consumption and conservation of natural resources. The impact of population growth, industrialization, pollution, and urban and suburban expansion.
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- imperialism, and cultural exchange.
- **Politics and Citizenship:** Colonial and revolutionary legacies, American political traditions, growth of democracy, and the development of the modern state. Defining citizenship; struggles for civil rights.
- **Reform:** Diverse movements focusing on a broad range of issues, including anti-slavery, education, labor, temperance, women's rights, civil rights, gay rights, war, public health, and government.
- **Religion:** The variety of religious beliefs and practices in America from prehistory to the twenty-first century; influence of religion on politics, economics, and society.
- **War and Diplomacy:** Armed conflict from the precolonial period to the twenty-first century; impact of war on American foreign policy and on politics, economy, and society.

Unit 15: The 1960s and 1970s

Unit 15 Learner Objectives:

- **The Turbulent 1960s**
 - From the New Frontier to the Great Society
 - Expanding movements for civil rights
 - Cold War confrontations: Asia, Latin America, and Europe
 - Beginning of Détente
 - The antiwar movement and the counterculture
- **Politics and Economics at the End of the Twentieth Century**
 - The election of 1968 and the "Silent Majority"
 - Nixon's challenges: Vietnam, China, and Watergate
 - Changes in the American economy: the energy crisis, deindustrialization, and the service economy
 - The New Right and the Reagan revolution
 - End of the Cold War
- **Society and Culture at the End of the Twentieth Century**
 - Demographic changes: surge of immigration after 1965, Sunbelt migration, and the graying of America
 - Revolutions in biotechnology, mass communication, and computers
 - Politics in a multicultural society

Unit 15 CollegeBoard Themes:

- **American Diversity:** The diversity of the American people and the relationships among different groups. The roles of race, class, ethnicity, and gender in the history of the United States.
- **American Identity:** Views of the American national character and ideas about American exceptionalism. Recognizing regional differences within the context of what it means to be an American.
- **Culture:** Diverse individual and collective expressions through literature, art, philosophy, music, theater, and film throughout U.S. history. Popular culture and the dimensions of cultural conflict within American society.
- **Demographic Changes:** Changes in birth, marriage, and death rates; life expectancy and family patterns; population size and density. The economic, social, and political effects of

immigration, internal migration, and migration networks.

- Economic Transformations
- Changes in trade, commerce, and technology across time. The effects of capitalist development, labor and unions, and consumerism.
- Environment: Ideas about the consumption and conservation of natural resources. The impact of population growth, industrialization, pollution, and urban and suburban expansion.
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- War and Diplomacy: Armed conflict from the precolonial period to the twenty-first century; impact of war on American foreign policy and on politics, economy, and society.

AP EUROPEAN HISTORY

Course Length: 2 semesters

Credits: 1.0

Recommended Grade Levels: 11, 12

Prerequisites: None

Course Description: Aligned with standards and objectives set by the AP CollegeBoard, AP European History is a college level course typically taken as an upper level social studies elective. This course is designed to cover the period from the Neolithic Revolution to the present. Through the reading of primary-source documents and world literature, the course involves intensive study of the formulation of world cultures, paying special attention to change over time and comparing the effects of common historical phenomena on different cultures. The class has an emphasis on historical essay writing in order to prepare students to be proficient in writing essays. Students receive regular and frequent practice in and out of class writing document-based questions, change and continuities over time essays, and comparative essays. In preparation for college and career readiness, this course is also aligned to the Common Core Literacy Standards for History/Social Studies. Students demonstrate their mastery of college level European History knowledge and skills on the AP European History Exam, given in May. A passing score on the exam may earn students college European History credit. Placement and credit are granted by institutions in accordance with their own policies, not by those of the College Board or the AP Program.

AP EUROPEAN HISTORY UNIT PROGRESSION

Unit 1: The Rise of the Modern State, 1300 AD to 1550 AD

Unit 1 Learner Objectives:

- Describe the characteristics of a “modern” nation.
- Explain how a modern man and woman behave.
- Describe the role of the individual in a modern nation.
- Identify the factors that led to the rise of Florence and Venice as modern economic powerhouses.
- Identify ways art reflected the values of the Renaissance.
- Analyze the influence of humanism on the visual arts in the Italian Renaissance.
- Analyze responses to the outbreaks of plague from the fifteenth to eighteenth centuries.
- Analyze the values and purposes of Renaissance education and how they changed over time.

Unit 1 CollegeBoard Course Themes:

- The evolution of the modern nation-state
- Disagreements over the role of the government in society and the economy
- The changing role of women in European society
- Nationalism vs. Internationalism
- Disagreements over the role of reason and passion
- Changing understandings of human rights and responsibilities
- Tensions between individualism and communal spirit

- The role of art and literature in shaping and reflecting European society
- Changes in work, exchange and technology
- Attempts to “modernize” political, social and economic institutions to bring about the good life

Unit 2: The Modern Man and Modern Faith, 1500 to 1618

Unit 2 Learner Objectives:

- Describe the relationship between church and state in a modern nation.
- Identify and debate the limits of religious rights of individuals.
- Identify ways monarchs strengthen their position and gain more power.
- Explain how advances in learning and technology influenced fifteenth and sixteenth century European exploration and trade.
- Identify how art and literature reflected political and religious changes in Europe.
- Analyze the purposes that rituals and festivals served in traditional European life.
- Analyze the causes of and the responses to the peasant’s revolts in the German states, 1524-1526.
- Analyze the influence of ideas about gender on the reign of Elizabeth I and explain how Elizabeth responded to these ideas.
- Analyze the key features of the “new monarchies” and the factors responsible for their rise in the period from 1450 to 1550.

Unit 2 CollegeBoard Course Themes:

- Same as Unit 1.

Unit 3: The Search for Control: Modern Science and “Scientific Thinking”, 1500s AD to 1715 AD

Unit 3 Learner Objectives:

- Explain how the arts reflected who did (and did not) have power during the 17th and 18th Centuries.
- Analyze challenges to the security, unity and prosperity of the Dutch Republic, 1650-1713.
- Analyze how political, religious and social factors affected the work of scientists in the sixteenth and seventeenth centuries.
- Describe and analyze how overseas expansion by European states affected global trade and international relations from 1600 to 1715.
- Analyze the methods Louis XIV used to achieve his objective of “one king, one law, one faith” and discuss the extent to which he was successful.
- Describe the ways and to what extent absolutism affected the power and status of the European nobility in the period 1650 to 1750.
- Explain the development of the scientific method in the seventeenth century and the impact of scientific thinking on traditional sources of authority.

Unit 3 CollegeBoard Course Themes:

- Same as Unit 1.

Unit 4: The Modern Woman and Modern Thought, 1700s to 1815

Unit 4 Learner Objectives:

- Compare the French Revolution to a modern revolution.
- Explain how art and literature reflected the conflict between reason and passion.
- Analyze variations in literacy levels in Old Regime France.
- Analyze attitudes toward and reactions to the participation of women in the sciences during the seventeenth and eighteenth centuries.
- Analyze various ways in which government policies during the Revolutionary and Napoleonic Eras contributed to a greater sense of French national identity in the period 1789 to 1815.
- Identify the grievances of the groups that made up the Third Estate in France on the eve of the French Revolution and analyze the extent to which one of these groups was able to address its grievances in the period 1789 to 1799.
- Analyze how the political and economic problems of the English and French monarchies led to the English Civil War and the French Revolution.

Unit 4 CollegeBoard Course Themes:

- Same as Unit 1.

Unit 5: Modern Work, 1750 to 1850

Unit 5 Learner Objectives:

- Debate whether industrialization be celebrated or feared.
- Describe how industrialization influences a nation's standing in the world.
- Identify the issues raised by the growth of Manchester and analyze the various reactions to those issues over the course of the nineteenth century.
- Analyze various arguments that emerged over the course of the nineteenth century about how to improve the lives of European workers.
- Discuss three developments that enabled Great Britain to achieve a dominant economic position between 1700 and 1830.

Unit 5 CollegeBoard Course Themes:

- Same as Unit 1.

Unit 6: Modern Government, 1850 to 1871

Unit 6 Learner Objectives:

- Describe what happens to groups who don't conform to prescribed national identities.
- Debate who provides a better vision for the future: socialists, nationalists or liberals.
- Describe the process by which new nations and nation-states created.
- Explain how art represented the clash between liberals and nationalists in the 19th Century.
- Analyze the controversies over the relationship between the English and the Irish, 1800-1916.
- Analyze the ways in which various people viewed the character and condition of Greeks in the Ottoman Empire during the Greek move for independence in the 18th and early

19th centuries.

- Analyze the views of those concerned about the problems of political, economic and social order in the German states before the revolutions of 1848.
- How did various Russians feel about the conditions of the Russian peasantry, 1861-1914; analyze proposals to change that situation.
- Compare and contrast the foreign policy goals and achievements of Metternich (1815-1848) and Bismarck (1862-1890).

Unit 6 CollegeBoard Course Themes:

- Same as Unit 1.

Unit 7: Modern Anxiety and the Modern Consumer, 1870 to 1914

Unit 7 Learner Objectives:

- Describe how art reflected the dramatic changes of the Fin de Siècle and subsequent anxiety.
- Analyze attitudes toward and evaluate motivations behind the European acquisition of African colonies in the period 1880-1914.
- Describe how Europeans perceive the role of organized sports in Europe during the period from 1860 to 1940.
- Analyze how industrialization and imperialism contributed to the development of consumer culture in the period 1850-1914.
- Analyze the ways in which the rise of the middle class affected family structure and gender roles in Europe in the 1800s.
- Explain how new theories in physics and psychology in the period from 1900 to 1939 challenged existing ideas about the individual and society.

Unit 7 CollegeBoard Course Themes:

- Same as Unit 1.

Unit 8: Modern Warfare and the Modern Strongman, 1914 to 1939

Unit 8 Learner Objectives:

- Identify the causes of World War I.
- Compare and contrast modern warfare different from previous conflicts.
- Describe the impact of World War I on noncombatants.
- Describe how the end of World War I set the stage for the rise of more powerful governments.
- Describe how art reflected the confusion of European society after the brutality of World War I.
- Describe and analyze changing views toward the concept of a “civil peace” in Germany from 1914 to 1918.
- Analyze the role of the army in the German aircraft industry, 1908-1918.
- Compare and contrast the French Jacobin’s use of state power to achieve revolutionary goals during the Reign of Terror (1793-1794) with Stalin’s use of state power to achieve revolutionary goals in the Soviet Union during the period 1928 to 1939.
- Analyze the impact of the First World War on European culture and society in the

interwar period (1919-1939).

- Analyze the ways in which the policies of Joseph Stalin transformed the policies of Vladimir Lenin.

Unit 8 CollegeBoard Course Themes:

- Same as Unit 1.

Unit 9: Modern Alliances and Human Rights, 1939 to 1968

Unit 9 Learner Objectives:

- Debate which provides a better vision for the economy: conservatism, socialism or Christian democracy.
- Analyze various ways in which ideology shaped the foreign policy of Nazi Germany in the period 1933 to 1945.
- Compare and contrast the political and economic effects of the Cold War (1945-1992) on Western Europe with the effects on Eastern Europe.
- Analyze various factors that contributed to the process of decolonization in the period 1914 to 1975.
- Analyze the impact of the rise of militarism and the Second World War on the lives of European women.
- Assess the extent to which the economic and political goals of Karl Marx were realized in post-revolutionary Russia in the period from 1917 to 1939.
- Compare and contrast the goals and achievements of the feminist movement in the period circa 1850-1920 with those of the feminist movement in the period 1945 to the present.

Unit 9 CollegeBoard Course Themes:

- Same as Unit 1.

Unit 10: Modern Markets: Europe in an Age of Globalization, 1945 to 2012

Unit 10 Learner Objectives:

- Analyze various views regarding Western European unity from 1946 to 1989.
- Using both political and economic examples from the period 1945 to 2000, evaluate the validity of the idea that since 1945, nationalism has been on the decline in Europe.
- Compare and contrast the political and economic policies of Joseph Stalin in the period before the Second World War and those of Mikhail Gorbachev, 1985-1991.
- Analyze the long-term and short-term factors responsible for the collapse of communist rule in European nations.
- Considering the period 1953 to 1991, analyze the problems within the Soviet Union that contributed to the eventual collapse of the Soviet system.

Unit 10 CollegeBoard Course Themes:

- Same as Unit 1.

AP PSYCHOLOGY

Course Length: 2 semesters

Credits: 1.0

Recommended Grade Levels: 10-12

Prerequisites: None

Course Description: Aligned with standards and objectives set by the AP CollegeBoard, AP Psychology is a college level course typically taken as a social studies elective in any grades 10-12. The AP Psychology course is designed to introduce students to the systematic and scientific study of the behavior and mental processes of human beings and other animals. Course work will expose students to the psychological facts, principles, and phenomena associated with the major subfields within Psychology, starting with the history and science of psychology and proceeding through the treatment of psychological disorders. The methods psychologists use in their science and practice are also explored. In preparation for college and career readiness, this course is also aligned to the Common Core Literacy Standards for History/Social Studies. Students demonstrate their mastery of college level Psychology knowledge and skills on the AP Psychology Exam, given in May. A passing score on the exam may earn students college Psychology credit. Placement and credit are granted by institutions in accordance with their own policies, not by those of the College Board or the AP Program.

AP PSYCHOLOGY UNIT PROGRESSION

Unit 1: Introduction to the History and Science of Psychology

Unit 1 Learner Objectives:

- Define psychology and trace psychology's prescientific roots, from early understandings of mind and body to the beginnings of modern science.
- Describe the evolution of psychology from the 1920s through today; identify some of the major contributors to this psychological evolution.
- Identify the major approaches to psychology and explain why psychology's varied perspectives are complementary.
- Identify some of psychology's subfields.

Unit 1 CollegeBoard Standards:

- I. History and Approaches
 - A. History of Psychology
 - B. Approaches
 - Biological
 - Behavioral
 - Cognitive
 - Humanistic
 - Psychodynamic
 - Sociocultural
 - Evolutionary
 - Biopsychosocial
 - C. Subfields in Psychology

Unit 2: Research Methods and Statistics

Unit 2 Learner Objectives:

- Explain how the scientific attitude encourages critical thinking and describe some potential obstacles to scientific thinking.
- Identify the advantages and disadvantages of various research methods to study behavior and mental processes.
- Describe the basic elements of an experiment; discuss how experiments can help researchers isolate cause and effect relationships.
- Identify procedures that strengthen experimental design, as well as potential flaws in design.
- Explain the importance of statistical principles and the common ways in which statistics can misrepresent data.
- Identify and describe measures of central tendency, variation, generalizations from samples, and how psychologists decide whether differences are meaningful.
- Explain why ethics in psychological research of both animals and humans is not only necessary, but mandatory.

Unit 2 CollegeBoard Standards:

- II. Research Methods
 - A. Experimental, Correlational, and Clinical Research
 - B. Statistics
 - Descriptive
 - Inferential
 - C. Ethics in Research

Unit 3: Social Psychology

Unit 3 Learner Objectives:

- Explain the attribution of behavior to persons or to situations; the effects of attribution; and how fundamental attribution error can affect our analysis of behavior.
- Define attitude and illustrate the conditions under which attitudes and actions can interact to affect each other.
- Explain the potential power of social influence on conformity, compliance, and group behavior.
- Discuss prejudice and the social, emotional, and cognitive roots; contrast its overt and subtle forms; and identify how it is created and maintained.
- Define aggression and identify how psychology's definition differs from its everyday usage; discuss biological, psychological, and environmental triggers of aggression.
- Explain the psychology of attraction as it relates to interpersonal attraction, passionate love, and enduring love.
- Define altruism and its role in bystander intervention and social responsibility.
- Discuss how cooperation, communication, and conciliation can work to effectively reduce social conflict.

Unit 3 CollegeBoard Standards:

- XIV. Social Psychology
 - Group Dynamics
 - Attribution Processes
 - Interpersonal Perception
 - Conformity, Compliance, Obedience
 - Attitudes and Attitude Change
 - Organizational Behavior
 - Aggression/Antisocial Behavior
 - Cultural Influences

Unit 4: Biological Bases of Behavior

Unit 4 Learner Objectives:

- Explain the anatomy of neurons and describe the process of neural communication.
- Explain how neurotransmitters, psychotropic, agonists, and antagonists facilitate and/or alter neurotransmission to influence our behavior.
- Describe the nervous system's divisions and subdivisions and the functions of each.
- Describe the nature and functions of the endocrine system and its interaction with the nervous system.
- Identify the parts of the brain and the associated structures and functions of each component.
- Describe several techniques for studying the brain and discuss the brain's amazing ability to modify itself after some types of damage.

Unit 4 CollegeBoard Standards:

- III. Biological Bases of Behavior
 - Physiological Techniques (e.g., imaging, surgical)
 - Neuroanatomy
 - Functional Organization of Nervous System
 - Neural Transmission
 - Neuroplasticity
 - Endocrine System
 - Genetics
 - H. Evolutionary Psychology

Unit 5: Personality

Unit 5 Learner Objectives:

- Explain how the psychodynamic, humanistic, biological, behavioral, socio-cultural, and trait perspectives each approach the definition and study of personality.
- Evaluate the different personality perspectives and identify the major contributions and criticisms of each approach.
- Discuss the various ways in which psychologists assess personality.

Unit 5 CollegeBoard Standards:

- X. Personality
 - Personality Theories and Approaches

- Assessment Techniques
- Growth and Adjustment

Unit 6: Learning

Unit 6 Learner Objectives:

- Discuss classical conditioning and operant conditioning procedures and explain the basic components associated with each.
- Identify the major similarities and major differences between classical and operant conditioning.
- Describe the shaping procedure and recognize the difference between the various forms of reinforcement and punishment.
- Identify four schedules of partial reinforcement and discuss their strengths and weaknesses.
- Discuss the ways negative punishment, positive punishment, and negative reinforcement differ, and list some drawbacks of punishment as a behavior-control technique.
- Describe the processes involved in latent learning and observational learning.
- Identify biological, social, and cognitive influences on behavior.

Unit 6 CollegeBoard Standards:

- VI. Learning
 - Classical Conditioning
 - Operant Conditioning
 - Cognitive Processes
 - Biological Factors
 - Social Learning

Unit 7: Nature, Nurture, and Human Diversity

Unit 7 Learner Objectives:

- Discuss behavior genetics and explain how it is used to predict individual differences across the lifespan.
- Explain how identical and fraternal twins differ, and cite ways that behavior geneticists use twin and adoption studies to understand the effects of environment and heredity on individual differences.
- Describe how early experiences can influence our developmental differences.
- Explain why we should be careful about attributing children's successes and failures to their parents' influence, and evaluate the importance of peer influence on development.
- Define culture and describe some ways in which cultures vary; identify some ways primarily individualist culture differ from primarily collectivists culture, and compare their effects on personal identity.
- Identify some biological and psychological differences between males and females; discuss the nature and nurture of gender.

Unit 7 CollegeBoard Standards:

- IX. Developmental Psychology

- Life-Span Approach
- Research Methods (e.g., longitudinal, cross-sectional)
- Heredity–Environment Issues
- Developmental Theories
- Dimensions of Development
 - Physical
 - Cognitive
 - Social
 - Moral
- Sex and Gender Development

Unit 8: Developmental Psychology

Unit 8 Learner Objectives:

- Summarize the three major issues in developmental psychology (nature v. nurture, continuity v. stages, and stability v. change).
- Discuss conception and prenatal development; explain how teratogens can affect development.
- Trace physical, cognitive, and social development across the lifespan; evaluate the varying processes that affect each of these sequences.
- Outline Piaget’s four main stages of cognitive development.
- Discuss moral development from the perspectives of moral thinking, moral feeling, and moral action; identify Kohlberg’s levels of moral thinking.
- Identify Erikson’s eight stages of psychosocial development and their accompanying issues.

Unit 8 CollegeBoard Standards:

- IX. Developmental Psychology
 - Life-Span Approach
 - Research Methods (e.g., longitudinal, cross-sectional)
 - Heredity–Environment Issues
 - Developmental Theories
 - Dimensions of Development
 - Physical
 - Cognitive
 - Social
 - Moral
 - Sex and Gender Development

Unit 9: Sensation

Unit 9 Learner Objectives:

- Describe the basic principles of sensing the world around us (thresholds, sensory adaptation, etc.)
- Describe the major structures of the eye; explain the process of vision from the time light energy enters the eye through the different levels of visual information processing.
- Explain how the Young-Helmholz and opponent-process theories help us understand

- color vision, and explain the importance of color constancy.
- Describe the three regions of the ear; outline the series of events that triggers the electrical impulses sent to the brain and how those events result in hearing sound.
- Contrast place and frequency theories and explain how they help us to understand pitch perception; describe how we locate sounds.
- Discuss hearing loss and deaf culture.
- Describe the other senses: touch, taste, smell, and body position/movement; explain the roles they play in our interaction with the world around us.

Unit 9 CollegeBoard Standards:

- IV. Sensation and Perception
 - Thresholds and Signal Detection Theory
 - Sensory Mechanisms
 - Attention
 - Perceptual Processes

Unit 10: Perception

Unit 10 Learner Objectives:

- Discuss how meaning is created by the transformation of sensation into perception; describe the interplay between attention and perception.
- Explain how perceptual organization of form, depth, motion, and constancy allow us to make sense of the world around us.
- Describe the processes involved in the interpretation of what we perceive.
- Identify the three most testable forms of extrasensory perception; explain why most research psychologists remain skeptical of ESP claims.

Unit 10 CollegeBoard Standards:

- IV. Sensation and Perception
 - A. Thresholds and Signal Detection Theory
 - B. Sensory Mechanisms
 - C. Attention
 - D. Perceptual Processes

Unit 11: States of Consciousness

Unit 11 Learner Objectives:

- Discuss biological rhythms and how they influence fluctuations of our body and mind over time.
- Discuss the overall sleep rhythm and the main theories associated with sleep; list the stages of the sleep cycle and how they differ; explain why sleep patterns vary from person to person.
- Discuss several risks associated with sleep deprivation; identify the major sleep disorders.
- Describe the most common content of dreams and compare the major perspectives of why we dream.
- Identify the facts and falsehoods of hypnosis; give arguments for and against hypnosis

as an altered state of consciousness.

- Name the main categories of psychoactive drugs and give examples; summarize the biological and psychological effects of their use and abuse; discuss the biological, psychological, and social-cultural factors that contribute to drug use.
- Describe the near-death experience and the controversy over whether it provides evidence for a mind-body dualism.

Unit 11 CollegeBoard Standards:

- V. States of Consciousness
 - A. Sleep and Dreaming
 - B. Hypnosis
 - C. Psychoactive Drug Effects

Unit 12: Testing and Individual Differences

Unit 12 Learner Objectives:

- Discuss the difficulty of defining intelligence.
- Present arguments for and against considering intelligence as one general mental ability versus several specific abilities; compare the strengths and weaknesses of the major intelligence theories.
- Identify the factors associated with creativity, and describe the relationship between creativity and intelligence.
- Discuss intelligence assessment within the context of IQ, aptitude, and achievement.
- Identify the principles of reliable and valid test construction.
- Discuss the dynamics of intelligence; identify social, biological, and environmental influences on individual and group differences in intelligence test scores.

Unit 12 CollegeBoard Standards:

- XI. Testing and Individual Differences
 - A. Standardization and Norms
 - B. Reliability and Validity
 - C. Types of Tests
 - D. Ethics and Standards in Testing
 - E. Intelligence

Unit 13: Memory

Unit 13 Learner Objectives:

- Describe the processes that organize, encode, and transfer various types of information into the memory system.
- Identify the different types of memory and describe the duration and storage capacity of each
- Discuss the role of the brain in memory.
- Summarize the process of retrieving information stored in memory.
- Identify various strategies to aid in the storage, encoding, and retrieval of information; describe some obstacles to memory formation and storage.
- Explain several ways our memory can fail us and the role of encoding failure, storage

- decay, and retrieval failure in “forgetting.”
- Discuss how memory construction can be distorted, altered, and/or falsely reconstructed.
- Explain how an understanding of memory can contribute to effective study techniques.

Unit 13 CollegeBoard Standards:

- VII. Cognition
 - A. Memory

Unit 14: Thinking and Language

Unit 14 Learner Objectives:

- Explain how we form concepts, solve problems, make decisions, and form judgments; identify obstacles to the effectiveness of these processes.
- Explain how our preexisting beliefs can distort our intuition and logic and how we can avoid irrational thinking.
- Define language and describe the basic structural units of a language.
- Trace the course of language development and explain various psychological theories of language acquisition.
- Explain the intricate interconnection between thinking and language.
- Argue for or against the evidence of identifiable thinking and language in animals.

Unit 14 CollegeBoard Standards:

- VII. Cognition
 - B. Language
 - C. Thinking
 - D. Problem Solving and Creativity

Unit 15: Motivation and Work

Unit 15 Learner Objectives:

- Summarize the primary perspectives useful for studying motivation.
- Describe the physiological, psychological, and cultural influences on hunger.
- Describe the physiological, psychological, and cultural influences on sexual motivation.
- Discuss teen sexuality, adolescents’ use of contraceptives, and teens’ risk of contracting sexually transmitted diseases.
- Summarize current sexual orientation statistics, and discuss the research on environmental and biological influences on sexual orientation.
- Describe the adaptive value of social attachments, and identify both healthy and unhealthy consequences of our need to belong.
- Discuss the application of psychology in management and the workplace.

Unit 15 CollegeBoard Standards:

- VIII. Motivation and Emotion
 - A. Biological Bases
 - B. Theories of Motivation
 - C. Hunger, Thirst, Sex, and Pain

- D. Social Motives

Unit 16: Emotion

Unit 16 Learner Objectives:

- Contrast the major psychological theories of emotions.
- Summarize the relationship between physiological responses and emotion; compare and contrast physiological responses among specific emotions.
- Discuss the link between cognition and emotion; identify situations where cognition may not necessarily precede emotion.
- Describe some of the factors that affect our ability to decipher nonverbal cues, and identify some cultural and gender-based differences in perceiving and communicating emotions.
- Argue the advantages and disadvantages of relying on facial and behavioral indicators of emotion.
- Name several basic emotions and discuss the various elements of experiencing and influencing emotion.

Unit 16 CollegeBoard Standards:

- VIII. Motivation and Emotion
 - E. Theories of Emotion
 - F. Stress

Unit 17: Stress and Health

Unit 17 Learner Objectives:

- Describe the body's stress response system and the potential consequences of both transitory and chronic exposure to stress.
- Discuss the various roles of stress as it relates to physical and psychological well-being.
- Identify several strategies for coping with and managing stress that can be implemented to promote health and prevent illness.
- Explain how modifying illness-related behaviors can improve overall health and longevity.

Unit 17 CollegeBoard Standards:

- VIII. Motivation and Emotion
 - F. Stress

Unit 18: Abnormal Psychology

Unit 18 Learner Objectives:

- Identify the criteria for judging whether behavior is psychologically disordered; compare and contrast various approaches to understanding psychological disorders.
- Discuss the classification of psychological disorders; present arguments for and against the use of diagnostic labels.
- Identify the anxiety disorders and their symptoms; summarize the contributions of

various perspectives to our understanding of the development of anxiety disorders.

- Identify mood disorders and their symptoms; summarize the contributions of various perspectives to our understanding of the development of mood disorders.
- Define schizophrenia, its subtypes, and the related symptoms; summarize the contributions of various perspectives to our understanding of the development of schizophrenia.
- Identify the personality disorders and their symptoms; summarize the contributions of various perspectives to our understanding of the development of personality disorders.
- Discuss the prevalence of psychological disorders; identify risk and protective factors for mental disorders.

Unit 18 CollegeBoard Standards:

- XII. Abnormal Behavior
 - A. Definitions of Abnormality
 - B. Theories of Psychopathology
 - C. Diagnosis of Psychopathology
 - D. Types of Disorders
 - 1. Anxiety
 - 2. Somatoform
 - 3. Mood
 - 4. Schizophrenic
 - 5. Organic
 - 6. Personality
 - 7. Dissociative

Unit 19: Treatment of Psychological Disorders

Unit 19 Learner Objectives:

- Define psychotherapy and discuss the aims of this form of therapy; describe some of the methods used and list some major criticisms of this form of therapy.
- Identify the basic characteristics of the humanistic therapies and discuss some of its specific goals; list some of the major criticisms of this form of therapy.
- Explain the basic premise of behavioral therapies and identify some of the techniques used; list some of the major criticisms of this approach to therapeutic intervention.
- Identify how cognitive therapies approach the treatment of psychological disorders; list some examples of how it is used in the treatment of depression.
- Discuss biomedical therapies involving psychotropic, brain stimulation, and psychosurgery.
- Discuss some of the perceptions of psychological therapy; identify how the relative effectiveness of traditional and alternative therapies is determined.

Unit 19 CollegeBoard Standards:

- XIII. Treatment of Abnormal Behavior
 - A. Treatment Approaches
 - 1. Psychodynamic
 - 2. Humanistic
 - 3. Behavioral
 - 4. Cognitive

- 5. Biological
- B. Modes of Therapy (i.e., individual, group)
- C. Community and Preventive Approaches

MACRO/MICRO ECONOMICS

Course Length: 2 semesters

Credits: 1.0

Recommended Grade Levels: 11, 12

Prerequisites: None

Course Description: The purpose of this course is to provide you with a basic understanding of the principles of microeconomics. At its core, the study of economics deals with the choices and decisions that have to be made in order to manage scarce resources available to us.

Microeconomics is the branch of economics that pertains to decisions made at the individual level, i.e., by individual consumers or individual firms after evaluating resources, costs, and tradeoffs. When we talk about the economy, we are referring to the marketplace or system in which these choices interact with one another. In this course, you will learn how and why these decisions are made and how they affect one another in the economy. By the end of this course, you will have a strong grasp on the major issues that face microeconomists, including consumer and producer behavior, the nature of supply and demand, the different kinds of markets and how they function, and the welfare outcomes of consumers and producers.

Macroeconomics is the study of how a country's economy works while trying to discern among good, better, and best choices for improving and/or maintaining a nation's standard of living and level of economic and societal well-being. Historical and contemporary perspectives on the roles and policies of government are part of the mix of interpretations and alternatives that surround questions of who or what gains and loses the most or least within a relatively small set of key interdependent players. In the broadest view, that set consists of households, consumers, savers, firm owners, investors, agency and elected officials, and global trading partners in which some wear many hats and face price considerations at two levels.

MACRO UNIT PROGRESSION

Unit 1 - Basic Economic Concepts

- Scarcity, choice, and opportunity cost
- Production possibilities curve
- Comparative advantage, absolute advantage, specialization, and exchange
- Demand, supply, and market equilibrium

Macroeconomic issues: business cycle, unemployment, inflation, growth

Unit 2 - Measurement of Economic Performance

- National income accounts
- Circular flow
- Gross domestic product
- Components of gross domestic product
- Real versus nominal gross domestic product
- Inflation measurement and adjustment
- Price Indices

- Nominal and real values
- Costs of inflation
- Unemployment
- Definition and measurement
- Types of unemployment
- Natural rate of unemployment

Unit 3 - National Income and Price Determination

- Aggregate demand
- Determinants of aggregate demand
- Multiplier and crowding out effects
- Aggregate supply
- Short-run and long-run analyses
- Sticky versus flexible wages and prices
- Determinants of aggregate supply
- Macroeconomic equilibrium
- Real output and price level
- Short and long run

Unit 4 - Financial Sector

- Money, banking, and financial markets
- Definition of financial assets: money, stocks, bonds
- Time value of money (present and future value)
- Measures of money supply
- Banks and the creation of money
- Money demand
- Money market
- Loanable funds market
- Central bank and control of the money supply
- Tools of central bank policy
- Quantity theory of money

Real versus nominal interest rates

Unit 5 - Inflation, unemployment, and stabilization policies

- Fiscal and monetary policies
- Demand-side effects
- Supply-side effects
- Policy mix
- Government deficits and debts
- Inflation and unemployment
- Types of inflation
- Demand-pull inflation
- Cost-push inflation
- The Phillips Curve: short-run versus long run
- Role of expectations

Unit 6 - Growth and Productivity

- Investment in human capital
- Investment in physical capital
- Research and development, and technological development

Growth policy

- *Unit 7 - International Trade and Finance*
- Balance of payments accounts
- Balance of trade
- Current account
- Capital account
- Foreign exchange
- Demand for and supply of foreign exchange
- Exchange rate determination
- Currency appreciation and depreciation
- Net exports and capital flows
- Links to financial and goods markets

MICRO UNIT PROGRESSION

Unit 1 - Basic Economic Concepts

- Scarcity, choice, and opportunity cost
- Production possibilities curve
- Comparative advantage, absolute advantage, specialization, and trade
- Economic systems
- Property rights and the role of incentives
- Marginal analysis

Unit 2 - The Nature and Functions of Product Markets

- Supply and Demand [15-20%]
- Market equilibrium
- Determinants of supply and demand
- Price and quantity controls
- Elasticity a. Price, income, and cross-price elasticity's of demand b.
- Price elasticity of supply
- Consumer surplus, producer surplus, and market efficiency
- Tax incidence and deadweight loss
- Theory of consumer choice
- Total utility and marginal utility
- Utility maximization: equalizing marginal utility per dollar
- Individual and market demand curves
- Income and substitution effects
- Production and costs
- Production functions: short and long run

- Marginal product and diminishing returns
- Short-run costs
- Long-run costs and economies of scale
- Cost minimizing input combination
- Firm Behavior and Market Structure
- Profit:
 - Accounting vs. economic profits
 - Normal profit
 - Profit maximization: $MR=MC$ rule
- Perfect competition
- Profit maximization
- Short-run supply and shutdown decision
- Behavior of firms and markets in the short run and in the long run
- Efficiency and perfect competition
- Monopoly
- Sources of market power
- Profit maximization
- Inefficiency of monopoly
- Price discrimination
- Natural monopoly
- Oligopoly
- Interdependence, collusion, and cartels
- Game theory and strategic behavior
- Monopolistic competition
- Product differentiation and role of advertising
- Profit maximization
- Short-run and long-run equilibrium

Excess capacity and inefficiency

Unit 3 - Factor Markets

- Derived factor demand
- Marginal revenue product
- Labor market and firms' hiring of labor
- Market distribution of income

Unit 4 - Market Failure and the Role of Government

- Externalities
- Marginal social benefit and marginal social cost
- Positive externalities
- Negative externalities
- Remedies
- Public goods
- Public versus private goods
- Provision of public goods
- Public policy to promote competition
- Antitrust policy

- Regulation
- Income distribution
- Equity

Sources of income inequality

WORLD LANGUAGES

At PrepNet schools, students studying a world language develop the ability to communicate in another language and gain insight into themselves and others. They acquire knowledge of the structure and function of the world language and respective speaking societies. Student studies will provide them with access to additional knowledge and skills necessary to function in a global community and workplace.

Michigan Merit Curriculum Graduation Requirements – 2 credits World Languages
(begins with Class of 2016)

PrepNet World Languages Courses Available:

- Spanish I
- Spanish II
- Spanish III
- AP Spanish
- Latin I
- Latin II
- Latin III
- AP Latin
- French I
- French II
- Mandarin I
- Mandarin II

SPANISH I

Course Length: 2 semesters

Credits: 1.0

Recommended Grade Levels: 9, 10, 11

Prerequisites: None

Course Description: In preparation for AP courses and in alignment with the National Standards for Foreign Language Education, Spanish I is an introductory level course typically taken in the first three years of high school. Since PrepNet requires the completion of at least two years of a foreign language, Spanish I is followed by Spanish II and sometimes Spanish III, then AP Spanish. The course is designed around the skills needed to learn basic vocabulary and grammar and engage in rudimentary conversation. Geography and culture of the Spanish-speaking world with an emphasis on Mexico and Spain is also addressed. Students are expected to write short passages and read simple stories with comprehension and make written and oral presentations on a variety of topics.

SPANISH I UNIT PROGRESSION

Unit 1: Bienvenidos

Unit 1 Priority Standards and Learner Objectives:

Priority Standard 1: engage in person to person communication in the target language.

Level 2

1.2.1: Ask and answer simple questions related to familiar and personal topics.

1.2.2: State personal preferences and feelings.

Level 3

1.3.1: Provide answers to teacher prompted questions, ask follow-up questions, and provide explanations.

1.3.2: Exchange personal needs, preferences, emotions, and opinions

Level 4

1.4.1: Thoroughly and correctly answer an impromptu question as it relates to the exchange.

Unit 2: La escuela

Unit 2 Priority Standards and Learner Objectives:

- Same as Unit 1

Unit 3: La familia

Unit 3 Priority Standards and Learner Objectives:

Priority Standard 1: engage in person to person communication in the target language.

Level 2

1.2.1: Ask and answer simple questions related to familiar and personal topics.

1.2.2: State personal preferences and feelings.

Level 3

1.3.1: Provide answers to teacher prompted questions, ask follow-up questions, and provide explanations.

1.3.2: Exchange personal needs, preferences, emotions, and opinions

Level 4

1.4.1: Thoroughly and correctly answer an impromptu question as it relates to the exchange.

Priority Standard 2a: Interpret the target language in spoken and/or written form(s), in the target language.

Level 2

2.2.1a: Identify basic meaning from spoken and written texts in English.

Level 3

2.3.1a: Summarize a source using the target language.

2.3.2a: Explain the main idea with some supporting details in the target language.

Level 4

2.4.1a: Explain the meaning of an authentic material (ads, newspaper, blog, song, film, TV show) from varying perspectives in the target language.

Unit 4: La ropa

Unit 4 Priority Standards and Learner Objectives:

Priority Standard 2.0a: Interpret the target language in spoken and/or written form(s), in the target language.

- Same as Unit 3

Unit 5: La Comida

Unit 5 Priority Standards and Learner Objectives:

- Same as Unit 3

Unit 6: Los deportes

Unit 6 Priority Standards and Learner Objectives:

Priority Standard 2b: Interpret the target language in spoken and/or written form(s), in the target language.

Level 2

2.2.1b: Summarize a source using the target language.

2.2.2b: Explain the main idea with some supporting details in the target language.

2.2.3b: Identify the intended audience of authentic materials, using the target language the majority of the time.

Level 3

2.3.1b: Support a claim using previous knowledge and/or evidence from an authentic material.

2.3.2b: Justify the intended audience of an authentic material (ads, newspaper, blog, song, film, tv show) using the target language the majority of the time.

Level 4

2.4.1b: Generate a claim using previous knowledge and/or evidence from an authentic material.

2.4.2b: Compare and contrast authentic materials from varying perspectives on the same topic using the target language the majority of the time.

Priority Standard 3.0: Present verbal output of the target language.

Level 2

3.2.1: Present accurate information

3.2.2: Speak with accuracy and clarity.

3.2.3: Maintain composure throughout the presentation (verbal efficiency, posture and demeanor)

Level 3

3.3.1: Present logical and accurate information

3.3.2: Speak with fluency (cadence), accuracy, and clarity (volume).

3.3.3: Maintain composure throughout the presentation (ex. eye contact, confidence, posture, hand gestures, demeanor, verbal efficiency without verbatim notes)

Level 4

3.4.1: Incorporate a logical cultural reference or connection to the topic.

3.4.2: Incorporate relevant vocabulary above and beyond what has been taught.

3.4.3: Deliver a relevant hook (i.e. - exaggerated statement, facts, quotes, video, question)

Unit 7: La ciudad

Unit 7 Priority Standards and Learner Objectives:

- Same as Unit 6

Unit 8: De viaje y de compras

Unit 8 Priority Standards and Learner Objectives:

- Same as Unit 6

Unit 9: La casa

Unit 9 Priority Standards and Learner Objectives:

Same as Unit 6

SPANISH II

Course Length: 2 semesters

Credits: 1.0

Recommended Grade Levels: 9, 10, 11, 12

Prerequisites: None

Course Description: In preparation for AP courses and in alignment with the National Standards for Foreign Language Education, Spanish II is taken, preferably directly, after Spanish I. It can be followed by a sequence of Spanish III and potentially AP Spanish. This course is designed as a continuation of Spanish I, and as such, students will continue to study critical concepts in grammar and vocabulary. Course content is planned around lessons that engage students in speaking, listening, writing and reading in Spanish. Listening and reading materials include short stories and poems by Spanish language authors. Students will also engage in group work, including, but not limited to performing short skits and dialogues in class. Students will execute a variety of projects that may require an oral presentation in Spanish.

SPANISH II UNIT PROGRESSION

Unit 1: Bienvenidos

Unit 1 Topics Covered:

- Vocabulary: Para empezar/additional school vocabulary
- Descriptions – physical and personality traits
- Calendar, alphabet
- Ar/Er/Ir verbs
- Ir + a + infinitive
- Ir + a + location
- Stem changers
- Irregulars in the YO form
- Hay que/Se prohíbe
- Interrogatives
- Culture Focus: Differences in schools in Spanish speaking countries

Unit 1 National Standards for Foreign Language Education:

- COMMUNICATE IN LANGUAGES OTHER THAN ENGLISH
 - Standard 1.1: Students engage in conversations, provide and obtain information, express feelings and emotions, and exchange opinions
 - Standard 1.2: Students understand and interpret written and spoken language on a variety of topics
 - Standard 1.3: Students present information, concepts, and ideas to an audience of listeners or readers on a variety of topics.
- GAIN KNOWLEDGE AND UNDERSTANDING OF OTHER CULTURES
 - Standard 2.1: Students demonstrate an understanding of the relationship between the practices and perspectives of the culture studied
 - Standard 2.2: Students demonstrate an understanding of the relationship between the products and perspectives of the culture studied

- CONNECT WITH OTHER DISCIPLINES AND ACQUIRE INFORMATION
 - Standard 3.1: Students reinforce and further their knowledge of other disciplines through the foreign language
 - Standard 3.2: Students acquire information and recognize the distinctive viewpoints that are only available through the foreign language and its cultures
- DEVELOP INSIGHT INTO THE NATURE OF LANGUAGE AND CULTURE
 - Standard 4.1: Students demonstrate understanding of the nature of language through comparisons of the language studied and their own
 - Standard 4.2: Students demonstrate understanding of the concept of culture through comparisons of the cultures studied and their own.

Unit 2: Más Repaso

Unit 2 Topics Covered:

- Vocabulary: affirmative/negative words, reflexive verbs/additional products for daily routines
- Affirmative/Negative words
- Review of comparisons
- Review of reflexives and daily routines
- Review of possessive adjectives (mi/tu/su...)

Unit 2 National Standards for Foreign Language Education:

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Unit 3: La Ciudad

Unit 3 Topics Covered:

- Vocabulary: Review of city locations, additional locations, driving instructions, los pasatiempos, locations around the city, prepositions, chores in the city
- Review of Prepositions
- Review of affirmative Tú commands
- Negative Tú commands

Unit 3 National Standards for Foreign Language Education:

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Unit 4: El Pretérito

Unit 4 Topics Covered:

- Vocabulary: shopping vocabulary, review of clothing as well as additions, bargaining vocabulary, mall/store descriptions, clothing descriptions
- Hacer time expressions
- Regular –AR preterite conjugations
- Regular –ER/-IR preterite conjugations
- Car/garzar verbs
- Review of demonstrative adjectives
- Review of direct object pronouns

Unit 4 National Standards for Foreign Language Education:

- COMMUNICATE IN LANGUAGES OTHER THAN ENGLISH
 - Standard 1.1: Students engage in conversations, provide and obtain information, express feelings and emotions, and exchange opinions
 - Standard 1.2: Students understand and interpret written and spoken language on

- o a variety of topics
 - o Standard 1.3: Students present information, concepts, and ideas to an audience of listeners or readers on a variety of topics.
- GAIN KNOWLEDGE AND UNDERSTANDING OF OTHER CULTURES
 - o Standard 2.1: Students demonstrate an understanding of the relationship between the practices and perspectives of the culture studied
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Unit 5: Los Irregulares del Pretérito

Unit 5 Topics Covered:

- Vocabulary: disasters, irregular verbs, health vocabulary, review of body vocabulary
- Irregular conjugations of: decir, hacer, tener, ir, querer, poner, saber, estar, traer, poder, venir
- Stem changers in the preterite

Unit 5 National Standards for Foreign Language Education:

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Unit 6: La Television

Unit 6 Topics Covered:

- Vocabulary: sports vocabulary (review), emotions review, sports fanatics, more reflexives, words to describe sports on television
- Review of reflexives
- Review of all preterite tense
- Culture focus: Sports in other countries (focus on baseball through the Dominican Republic)

Unit 6 National Standards for Foreign Language Education:

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Unit 7: El Imperfecto

Unit 7 Topics Covered:

- Vocabulary: toys, childhood adjectives, family/birthday vocabulary, animals, celebration verbs
- Ar/Er/Ir conjugations of the imperfect
- Conjugations of irregular verbs in the imperfect tense
- Indirect object pronouns
- Culture focus: Celebrations in Spanish Speaking countries (Cinco de Mayo)

Unit 7 National Standards for Foreign Language Education:

- **COMMUNICATE IN LANGUAGES OTHER THAN ENGLISH**
 - Standard 1.1: Students engage in conversations, provide and obtain information, express feelings and emotions, and exchange opinions
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Unit 8: El Imperfecto / El Pretérito

Unit 8 Topics Covered:

- Vocabulary: trigger words
- Differences between the preterite and the imperfect tenses
- Folder creations

Unit 8 National Standards for Foreign Language Education:

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Unit 9: Present Perfect

Unit 9 Topics Covered:

- Vocabulary: review of verbs from the whole year, words to talk about movies, haber, words for making movies
- Review of indirect object pronouns
- Present perfect: Past participles, irregular past participles

Unit 9 National Standards for Foreign Language Education:

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SPANISH III

Course Length: 2 semesters

Credits: 1.0

Recommended Grade Levels: 9, 10, 11, 12

Prerequisites: Completion with passing grade of Spanish I and II or passing of placement exam.

Course Description: In preparation for AP courses and in alignment with the National Standards for Foreign Language Education, Spanish III is designed as a continuation of Spanish II. Preferably taken directly after Spanish II, it can be followed by AP Spanish. Students will continue to study the critical concepts in grammar. Lessons will include practice speaking, listening, writing and reading in Spanish. The listening and reading material will include short stories, articles, and short movies in Spanish. Students will also engage in group work, including, but not limited to performing short skits and dialogues in class. Students will execute a variety of projects that may require an oral presentation in Spanish. Spanish III includes an escalation of writing practice where students are required to write extensive stories and opinion-based essays in Spanish.

SPANISH III UNIT PROGRESSION

Unit 1: Los Cuentas de Hadas

Unit 1 Learner Objectives:

- Compare myths, legends, and fairy tales from the Spanish-speaking world with those of the United States
- Use Language Arts Strategies: using illustrations, context clues, word families, and prediction to comprehend texts written in Spanish
- Talk, read, and write about the purposes of myths, legends, and fairy tales
- Talk, read, and write about favorite fairy tales, myths, or legends
- Write a new fairy tale, legend, or myth in Spanish
- Compare and contrast the use of the preterite and imperfect in Spanish with the past tense in English

Unit 1 National Standards for Foreign Language Education:

- COMMUNICATE IN LANGUAGES OTHER THAN ENGLISH
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Unit 2: Las Aventuras

Unit 2 Learner Objectives:

- Talk, read, and listen about national parks, camping, and outdoor vacations
- Talk, read, and listen about geographic locations
- Talk, read, and listen about weather events
- Write and present information orally about national parks, camping, and outdoor vacations
- Write about geographic locations
- Discuss purpose of outdoor markets and Eco camps
- Discuss how food and clothing customs relate to a country's geography and climate
- Compare preterite and imperfect to the past tense in English
- Compare and contrast national parks in Latin America to those in the U.S.
- Visit Spanish-speaking websites that promote vacations abroad

Unit 2 National Standards for Foreign Language Education:

- **COMMUNICATE IN LANGUAGES OTHER THAN ENGLISH**
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Unit 3: El Arte

Unit 3 Learner Objectives:

- Talk, read, and listen about the style, features, and media used in the creation of visual, literary, and performing arts
- Talk, read, and listen to information about important artists
- Talk, read, and listen to information about art museums
- Write information about artists and their work
- Discuss and explain the practices and perspectives of important Latin American and Spanish figures in the visual, literary, and performing arts
- Discuss Language Arts strategies: using illustrations, using context clues, using visuals, organizing information, categorizing, monitoring your reading
- Talk about key facts about the history of Spain and Mexico
- Compare the uses of English and Spanish past tenses
- Recognize sources of artistic inspiration

Unit 3 National Standards for Foreign Language Education:

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Unit 4: Como te Quedas en Forma?

Unit 4 Learner Objectives:

- Talk, read, and write about nutrition, exercise, and physical and mental health

- Talk, read, and write PSAs about healthy lifestyles
- Analyze how health messages are expressed to the Hispanic community
- Discuss Language Arts Strategies: using prior knowledge, speech projection, persuasive writing, cause and effect
- Compare English and Spanish positive and negative commands
- Discuss important facts about healthy lifestyles

Unit 4 National Standards for Foreign Language Education:

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Unit 5: Los Sistemas de Salud

Unit 5 Learner Objectives:

- Talk, read, and write about illnesses, remedies, and various perspectives on health
- Explain the use of natural remedies and perspective on health in Latin America and compare them to the students' experiences
- Compare and contrast the subjunctive in English and Spanish

Unit 5 National Standards for Foreign Language Education:

- **COMMUNICATE IN LANGUAGES OTHER THAN ENGLISH**
 - Standard 1.1: Students engage in conversations, provide and obtain information, express feelings and emotions, and exchange opinions
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 - Standard 1.3: Students present information, concepts, and ideas to an audience

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Unit 6: Las Relaciones y sus Complicaciones

Unit 6 Learner Objectives:

- Talk, read, and write about friendship, interpersonal relationships, personality traits, emotions, customary behavior, and conflict resolution
- Talk, read, and write about soap operas in Spanish
- Interpret Hispanic personality demographics and dynamics (el machismo, la estructura de la familia, el papel de la mujer)
- Compare *por* and *para* to their English counterparts
- Discuss techniques for conflict resolution

Unit 6 National Standards for Foreign Language Education:

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Unit 7: Quiero Trabajar!

Unit 7 Learner Objectives:

- Talk, read, and listen about work, job searches, and employment types, sites, and skills
- Talk about the contributions of the Spanish-speaking community in the U.S.
- Explain employment programs and customs in Spanish-speaking countries
- Discuss Language Arts Strategies: scanning, reading for comprehension, using visual aids, writing to persuade, using context clues
- Compare the English pluperfect tense to the Spanish pluscuamperfecto
- Compare the Spanish present perfect subjunctive to its expression in English
- Discuss job solicitation skills

Unit 7 National Standards for Foreign Language Education:

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Unit 8: Temas de la Comunidad

Unit 8 Learner Objectives:

- Compare myths, legends, and fairy tales from the Spanish-speaking world with those of the United States
- Use Language Arts Strategies: using illustrations, context clues, word families, and prediction to comprehend texts written in Spanish

- Talk, read, and write about the purposes of myths, legends, and fairy tales
- Talk, read, and write about favorite fairy tales, myths, or legends
- Write a new fairy tale, legend, or myth in Spanish
- Compare and contrast the use of the preterite and imperfect in Spanish with the past tense in English

Unit 8 National Standards for Foreign Language Education:

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Unit 9: Que Pasara en el Future?

Unit 9 Learner Objectives:

- Compare myths, legends, and fairy tales from the Spanish-speaking world with those of the United States
- Use Language Arts Strategies: using illustrations, context clues, word families, and prediction to comprehend texts written in Spanish
- Talk, read, and write about the purposes of myths, legends, and fairy tales
- Talk, read, and write about favorite fairy tales, myths, or legends
- Write a new fairy tale, legend, or myth in Spanish
- Compare and contrast the use of the preterite and imperfect in Spanish with the past tense in English

Unit 9 National Standards for Foreign Language Education:

- **COMMUNICATE IN LANGUAGES OTHER THAN ENGLISH**
 - Standard 1.1: Students engage in conversations, provide and obtain information, express feelings and emotions, and exchange opinions
 - Standard 1.2: Students understand and interpret written and spoken language on a variety of topics

- Standard 1.3: Students present information, concepts, and ideas to an audience of listeners or readers on a variety of topics.
- GAIN KNOWLEDGE AND UNDERSTANDING OF OTHER CULTURES
 - Standard 2.1: Students demonstrate an understanding of the relationship between the practices and perspectives of the culture studied
 - Standard 2.2: Students demonstrate an understanding of the relationship between the products and perspectives of the culture studied
- CONNECT WITH OTHER DISCIPLINES AND ACQUIRE INFORMATION
 - Standard 3.1: Students reinforce and further their knowledge of other disciplines through the foreign language
 - Standard 3.2: Students acquire information and recognize the distinctive viewpoints that are only available through the foreign language and its cultures
- DEVELOP INSIGHT INTO THE NATURE OF LANGUAGE AND CULTURE
 - Standard 4.1: Students demonstrate understanding of the nature of language through comparisons of the language studied and their own
 - Standard 4.2: Students demonstrate understanding of the concept of culture through comparisons of the cultures studied and their own

AP SPANISH

Course Length: 2 semesters

Credits: 1.0

Recommended Grade Levels: 11, 12

Prerequisites: Completion with passing grade of Spanish I, II, III or by teacher approval

Course Description: Aligned with standards and objectives set by the AP CollegeBoard, AP Spanish is a college level course typically taken as a world language elective after the completion of Spanish I, II, and III. This course is designed to provide students with a learning experience equivalent to that of a third-year college course in Spanish language. The course is conducted entirely in Spanish, with the exception of English being used to describe important administration. All instructional materials, activities, assignments, and assessments are constructed to expand and sharpen student written, oral and comprehension skills. Students demonstrate their mastery of college level Spanish knowledge and skills on the AP Spanish Exam, given in May. A passing score on the exam may earn students college Spanish credit. Placement and credit are granted by institutions in accordance with their own policies, not by those of the College Board or the AP Program.

SPANISH III UNIT PROGRESSION

Unit 1: La Identidad

Unit 1 Learner Objectives:

- Answer the following questions:
 - How is identity created?
 - How do we identify ourselves?
 - How is our identity a result of world events?
 - How do we show who we are?
 - How would you define identity?

Unit 1 CollegeBoard Objectives:

- **The student engages in spoken interpersonal communications.**
 - The student engages in the oral exchange of information, opinions, and ideas in a variety of time frames in formal situations.
 - The student engages in the oral exchange of information, opinions, and ideas in a variety of time frames in informal situations.
 - The student elicits information and clarifies meaning by using a variety of strategies.
 - The student states and supports opinions in oral interactions.
 - The student initiates and sustains interaction through the use of various verbal and nonverbal strategies.
 - The student understands a variety of vocabulary, including idiomatic and culturally appropriate expressions.
 - The student uses a variety of vocabulary, including idiomatic and culturally appropriate expressions on a variety of topics.
 - The student self-monitors and adjusts language production.

- The student demonstrates an understanding of the features of target culture communities (e.g., geographic, historical, artistic, social, or political).
- The student demonstrates knowledge and understanding of content across disciplines.
- **The student engages in written interpersonal communications.**
 - The student engages in the written exchange of information, opinions, and ideas in a variety of time frames in formal situations.
 - The student engages in the written exchange of information, opinions, and ideas in a variety of time frames in informal situations.
 - The student writes formal correspondence in a variety of media using appropriate formats and conventions.
 - The student writes informal correspondence in a variety of media using appropriate formats and conventions.
 - The student elicits information and clarifies meaning by using a variety of strategies.
 - The student states and supports opinions in written interactions.
 - The student initiates and sustains interaction during written interpersonal communication in a variety of media.
 - The student understands a variety of vocabulary, including idiomatic and culturally appropriate expressions.
 - The student uses a variety of vocabulary, including idiomatic and culturally appropriate expressions on a variety of topics.
 - The student self-monitors and adjusts language production.
 - The student demonstrates an understanding of the features of target culture communities (e.g., geographic, historical, artistic, social, or political).
 - The student demonstrates knowledge and understanding of content across disciplines.
- **The student synthesize information from a variety of authentic audio, visual, and audiovisual resources.**
 - The student demonstrates comprehension of content from authentic audio resources.
 - The student demonstrates comprehension of content from authentic visual resources.
 - The student demonstrates comprehension of content from authentic audiovisual resources.
 - The student demonstrates understanding of a variety of vocabulary, including idiomatic and culturally authentic expressions.
 - The student understands the purpose of a message and the point of view of its author.
 - The student identifies the distinguishing features (e.g., type of resource, intended audience, purpose) of authentic audio, visual, and audiovisual resources.
 - The student demonstrates critical viewing or listening of audio, visual, and audiovisual resources in the target cultural context.
 - The student monitors comprehension and uses other sources to enhance understanding.
 - The student examines, compares, and reflects on products, practices, and perspectives of the target culture(s).
 - The student evaluates similarities and differences in the perspectives of the

target culture(s) and his or her own culture(s) as found in audio, visual, and audiovisual resources.

- The student demonstrates an understanding of the features of target culture communities (e.g., geographic, historical, artistic, social, or political).
- The student demonstrates knowledge and understanding of content across disciplines.

Unit 2: Los Viajes

Unit 2 Learner Objectives:

- Answer the following questions:
 - How can we be smart, conscious travelers in Latin America?
 - Why is it important to travel?
 - How do we get there?
 - Where do we stay?
 - What are our options for traveling within a country?

Unit 2 CollegeBoard Standards:

- **The student engages in spoken interpersonal communications.**
 - The student engages in the oral exchange of information, opinions, and ideas in a variety of time frames in formal situations.
 - The student engages in the oral exchange of information, opinions, and ideas in a variety of time frames in informal situations.
 - The student elicits information and clarifies meaning by using a variety of strategies.
 - The student states and supports opinions in oral interactions.
 - The student initiates and sustains interaction through the use of various verbal and nonverbal strategies.
 - The student understands a variety of vocabulary, including idiomatic and culturally appropriate expressions.
 - The student uses a variety of vocabulary, including idiomatic and culturally appropriate expressions on a variety of topics.
 - The student self-monitors and adjusts language production.
 - The student demonstrates an understanding of the features of target culture communities (e.g., geographic, historical, artistic, social, or political).
 - The student demonstrates knowledge and understanding of content across disciplines.
- **The student engages in written interpersonal communications.**
 - The student engages in the written exchange of information, opinions, and ideas in a variety of time frames in formal situations.
 - The student engages in the written exchange of information, opinions, and ideas in a variety of time frames in informal situations.
 - The student writes formal correspondence in a variety of media using appropriate formats and conventions.
 - The student writes informal correspondence in a variety of media using appropriate formats and conventions.
 - The student elicits information and clarifies meaning by using a variety of strategies.

- The student states and supports opinions in written interactions.
- The student initiates and sustains interaction during written interpersonal communication in a variety of media.
- The student understands a variety of vocabulary, including idiomatic and culturally appropriate expressions.
- The student uses a variety of vocabulary, including idiomatic and culturally appropriate expressions on a variety of topics.
- The student self-monitors and adjusts language production.
- The student demonstrates an understanding of the features of target culture communities (e.g., geographic, historical, artistic, social, or political).
- The student demonstrates knowledge and understanding of content across disciplines.
- **The student synthesize information from a variety of authentic audio, visual, and audiovisual resources.**
 - The student demonstrates comprehension of content from authentic audio resources.
 - The student demonstrates comprehension of content from authentic visual resources.
 - The student demonstrates comprehension of content from authentic audiovisual resources.
 - The student demonstrates understanding of a variety of vocabulary, including idiomatic and culturally authentic expressions.
 - The student understands the purpose of a message and the point of view of its author.
 - The student identifies the distinguishing features (e.g., type of resource, intended audience, purpose) of authentic audio, visual, and audiovisual resources.
 - The student demonstrates critical viewing or listening of audio, visual, and audiovisual resources in the target cultural context.
 - The student monitors comprehension and uses other sources to enhance understanding.
 - The student examines, compares, and reflects on products, practices, and perspectives of the target culture(s).
 - The student evaluates similarities and differences in the perspectives of the target culture(s) and his or her own culture(s) as found in audio, visual, and audiovisual resources.
 - The student demonstrates an understanding of the features of target culture communities (e.g., geographic, historical, artistic, social, or political).
 - The student demonstrates knowledge and understanding of content across disciplines.

Unit 3: El Multiculturalismo / Desafíos Mundiales

Unit 3 Learner Objectives:

- Answer the following questions:
 - ¿Cuáles son los efectos de una cultura multicultural?
 - What is culture?
 - What is multiculturalism?
 - What does it mean to you?

- Can the students think of other holidays/places that are examples of the combination of cultures?

Unit 3 CollegeBoard Standards:

- **The student engages in spoken interpersonal communications.**
 - The student engages in the oral exchange of information, opinions, and ideas in a variety of time frames in formal situations.
 - The student engages in the oral exchange of information, opinions, and ideas in a variety of time frames in informal situations.
 - The student elicits information and clarifies meaning by using a variety of strategies.
 - The student states and supports opinions in oral interactions.
 - The student initiates and sustains interaction through the use of various verbal and nonverbal strategies.
 - The student understands a variety of vocabulary, including idiomatic and culturally appropriate expressions.
 - The student uses a variety of vocabulary, including idiomatic and culturally appropriate expressions on a variety of topics.
 - The student self-monitors and adjusts language production.
 - The student demonstrates an understanding of the features of target culture communities (e.g., geographic, historical, artistic, social, or political).
 - The student demonstrates knowledge and understanding of content across disciplines.
- **The student engages in written interpersonal communications.**
 - The student engages in the written exchange of information, opinions, and ideas in a variety of time frames in formal situations.
 - The student engages in the written exchange of information, opinions, and ideas in a variety of time frames in informal situations.
 - The student writes formal correspondence in a variety of media using appropriate formats and conventions.
 - The student writes informal correspondence in a variety of media using appropriate formats and conventions.
 - The student elicits information and clarifies meaning by using a variety of strategies.
 - The student states and supports opinions in written interactions.
 - The student initiates and sustains interaction during written interpersonal communication in a variety of media.
 - The student understands a variety of vocabulary, including idiomatic and culturally appropriate expressions.
 - The student uses a variety of vocabulary, including idiomatic and culturally appropriate expressions on a variety of topics.
 - The student self-monitors and adjusts language production.
 - The student demonstrates an understanding of the features of target culture communities (e.g., geographic, historical, artistic, social, or political).
 - The student demonstrates knowledge and understanding of content across disciplines.
- **The student synthesize information from a variety of authentic audio, visual, and audiovisual resources.**

- The student demonstrates comprehension of content from authentic audio resources.
- The student demonstrates comprehension of content from authentic visual resources.
- The student demonstrates comprehension of content from authentic audiovisual resources.
- The student demonstrates understanding of a variety of vocabulary, including idiomatic and culturally authentic expressions.
- The student understands the purpose of a message and the point of view of its author.
- The student identifies the distinguishing features (e.g., type of resource, intended audience, purpose) of authentic audio, visual, and audiovisual resources.
- The student demonstrates critical viewing or listening of audio, visual, and audiovisual resources in the target cultural context.
- The student monitors comprehension and uses other sources to enhance understanding.
- The student examines, compares, and reflects on products, practices, and perspectives of the target culture(s).
- The student evaluates similarities and differences in the perspectives of the target culture(s) and his or her own culture(s) as found in audio, visual, and audiovisual resources.
- The student demonstrates an understanding of the features of target culture communities (e.g., geographic, historical, artistic, social, or political).
- The student demonstrates knowledge and understanding of content across disciplines.

Unit 4: La Tecnología

Unit 4 Learner Objectives:

- Answer the following questions:
 - ¿Cómo nos afecta la tecnología?
 - If you could invent something, what would it be?
 - What would it solve?
 - How would you sell it?
 - How does technology affect you personally?

Unit 4 CollegeBoard Standards:

- **The student engages in spoken interpersonal communications.**
 - The student engages in the oral exchange of information, opinions, and ideas in a variety of time frames in formal situations.
 - The student engages in the oral exchange of information, opinions, and ideas in a variety of time frames in informal situations.
 - The student elicits information and clarifies meaning by using a variety of strategies.
 - The student states and supports opinions in oral interactions.
 - The student initiates and sustains interaction through the use of various verbal and nonverbal strategies.
 - The student understands a variety of vocabulary, including idiomatic and culturally appropriate expressions.

- The student uses a variety of vocabulary, including idiomatic and culturally appropriate expressions on a variety of topics.
- The student self-monitors and adjusts language production.
- The student demonstrates an understanding of the features of target culture communities (e.g., geographic, historical, artistic, social, or political).
- The student demonstrates knowledge and understanding of content across disciplines.
- **The student engages in written interpersonal communications.**
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 - The student initiates and sustains interaction during written interpersonal communication in a variety of media.
 - The student understands a variety of vocabulary, including idiomatic and culturally appropriate expressions.
 - The student uses a variety of vocabulary, including idiomatic and culturally appropriate expressions on a variety of topics.
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 - The student demonstrates knowledge and understanding of content across disciplines.
- **The student synthesize information from a variety of authentic audio, visual, and audiovisual resources.**
 - The student demonstrates comprehension of content from authentic audio resources.
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 - The student demonstrates understanding of a variety of vocabulary, including idiomatic and culturally authentic expressions.
 - The student understands the purpose of a message and the point of view of its author.
 - The student identifies the distinguishing features (e.g., type of resource, intended audience, purpose) of authentic audio, visual, and audiovisual resources.
 - The student demonstrates critical viewing or listening of audio, visual, and audiovisual resources in the target cultural context.
 - The student monitors comprehension and uses other sources to enhance understanding.

- The student examines, compares, and reflects on products, practices, and perspectives of the target culture(s).
- The student evaluates similarities and differences in the perspectives of the target culture(s) and his or her own culture(s) as found in audio, visual, and audiovisual resources.
- The student demonstrates an understanding of the features of target culture communities (e.g., geographic, historical, artistic, social, or political).
- The student demonstrates knowledge and understanding of content across disciplines.

Unit 5: La Comida

Unit 5 Learner Objectives:

- Answer the following questions:
 - How is food a style of life?
 - Would you participate in the practice of mate? Would this tradition be able to occur in the culture of the United States? Why or why not?
 - What does the culture of tapas say about Spanish lifestyle and values?
 - What does chocolate abuelita suggest about life styles in Mexico?
 - How does the food and lifestyles of Spanish-speaking countries that we learned in class compare to the food and lifestyle that I have here in the United States?

Unit 5 CollegeBoard Standards:

- **The student engages in spoken interpersonal communications.**
 - The student engages in the oral exchange of information, opinions, and ideas in a variety of time frames in formal situations.
 - The student engages in the oral exchange of information, opinions, and ideas in a variety of time frames in informal situations.
 - The student elicits information and clarifies meaning by using a variety of strategies.
 - The student states and supports opinions in oral interactions.
 - The student initiates and sustains interaction through the use of various verbal and nonverbal strategies.
 - The student understands a variety of vocabulary, including idiomatic and culturally appropriate expressions.
 - The student uses a variety of vocabulary, including idiomatic and culturally appropriate expressions on a variety of topics.
 - The student self-monitors and adjusts language production.
 - The student demonstrates an understanding of the features of target culture communities (e.g., geographic, historical, artistic, social, or political).
 - The student demonstrates knowledge and understanding of content across disciplines.
- **The student engages in written interpersonal communications.**
 - The student engages in the written exchange of information, opinions, and ideas in a variety of time frames in formal situations.
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- The student states and supports opinions in written interactions.
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- The student understands a variety of vocabulary, including idiomatic and culturally appropriate expressions.
- The student uses a variety of vocabulary, including idiomatic and culturally appropriate expressions on a variety of topics.
- The student self-monitors and adjusts language production.
- The student demonstrates an understanding of the features of target culture communities (e.g., geographic, historical, artistic, social, or political).
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- **The student synthesize information from a variety of authentic audio, visual, and audiovisual resources.**
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 - The student understands the purpose of a message and the point of view of its author.
 - The student identifies the distinguishing features (e.g., type of resource, intended audience, purpose) of authentic audio, visual, and audiovisual resources.
 - The student demonstrates critical viewing or listening of audio, visual, and audiovisual resources in the target cultural context.
 - The student monitors comprehension and uses other sources to enhance understanding.
 - The student examines, compares, and reflects on products, practices, and perspectives of the target culture(s).
 - The student evaluates similarities and differences in the perspectives of the target culture(s) and his or her own culture(s) as found in audio, visual, and audiovisual resources.
 - The student demonstrates an understanding of the features of target culture communities (e.g., geographic, historical, artistic, social, or political).
 - The student demonstrates knowledge and understanding of content across disciplines.

Unit 6: Los Jóvenes y la Sociedad

Unit 6 Learner Objectives:

- Answer the following questions:

- How does society affect today's youth and vice versa?
- What was the teenage experience like for our parents?

Unit 6 CollegeBoard Standards:

- **The student engages in spoken interpersonal communications.**
 - The student engages in the oral exchange of information, opinions, and ideas in a variety of time frames in formal situations.
 - The student engages in the oral exchange of information, opinions, and ideas in a variety of time frames in informal situations.
 - The student elicits information and clarifies meaning by using a variety of strategies.
 - The student states and supports opinions in oral interactions.
 - The student initiates and sustains interaction through the use of various verbal and nonverbal strategies.
 - The student understands a variety of vocabulary, including idiomatic and culturally appropriate expressions.
 - The student uses a variety of vocabulary, including idiomatic and culturally appropriate expressions on a variety of topics.
 - The student self-monitors and adjusts language production.
 - The student demonstrates an understanding of the features of target culture communities (e.g., geographic, historical, artistic, social, or political).
 - The student demonstrates knowledge and understanding of content across disciplines.
- **The student engages in written interpersonal communications.**
 - The student engages in the written exchange of information, opinions, and ideas in a variety of time frames in formal situations.
 - The student engages in the written exchange of information, opinions, and ideas in a variety of time frames in informal situations.
 - The student writes formal correspondence in a variety of media using appropriate formats and conventions.
 - The student writes informal correspondence in a variety of media using appropriate formats and conventions.
 - The student elicits information and clarifies meaning by using a variety of strategies.
 - The student states and supports opinions in written interactions.
 - The student initiates and sustains interaction during written interpersonal communication in a variety of media.
 - The student understands a variety of vocabulary, including idiomatic and culturally appropriate expressions.
 - The student uses a variety of vocabulary, including idiomatic and culturally appropriate expressions on a variety of topics.
 - The student self-monitors and adjusts language production.
 - The student demonstrates an understanding of the features of target culture communities (e.g., geographic, historical, artistic, social, or political).
 - The student demonstrates knowledge and understanding of content across disciplines.
- **The student synthesize information from a variety of authentic audio, visual, and audiovisual resources.**

- The student demonstrates comprehension of content from authentic audio resources.
- The student demonstrates comprehension of content from authentic visual resources.
- The student demonstrates comprehension of content from authentic audiovisual resources.
- The student demonstrates understanding of a variety of vocabulary, including idiomatic and culturally authentic expressions.
- The student understands the purpose of a message and the point of view of its author.
- The student identifies the distinguishing features (e.g., type of resource, intended audience, purpose) of authentic audio, visual, and audiovisual resources.
- The student demonstrates critical viewing or listening of audio, visual, and audiovisual resources in the target cultural context.
- The student monitors comprehension and uses other sources to enhance understanding.
- The student examines, compares, and reflects on products, practices, and perspectives of the target culture(s).
- The student evaluates similarities and differences in the perspectives of the target culture(s) and his or her own culture(s) as found in audio, visual, and audiovisual resources.
- The student demonstrates an understanding of the features of target culture communities (e.g., geographic, historical, artistic, social, or political).
- The student demonstrates knowledge and understanding of content across disciplines.

LATIN I

Course Length: 2 semesters

Credits: 1.0

Recommended Grade Levels: 9, 10, 11, 12

Prerequisites: None

Course Description: In preparation for AP courses and in alignment with the Standards for Classical Language Learning (A Collaborative Project of The American Classical League and The American Philological Association and Regional Classical Associations), Latin I is an introductory level course typically taken in the first three years of high school. This course is designed to introduce students to the basics of the Latin language and Roman culture. Essentials of grammar, including declensions and conjugations are taught with emphasis on English vocabulary enrichment and contemporary relevancy. Latin reading selections will generally come from the Ecce Romani text series and will include passages on Roman history and literature. Cultural materials of Greece and Rome will also be introduced. Along with translation activities, students will also compose their own original Latin works.

LATIN I UNIT PROGRESSION

Unit 1: Simple Sentences; Chapter I. *Two Roman Girls*

Unit 1 Learning Objectives:

- Describe the primary role of Nominative and Accusative cases and be able to give their singular and plural endings for the first three declensions.
- Deduce a noun's gender based on its corresponding declension or TLW be able to explain why such deduction is not possible.

Unit 1 National Standards for Classical Language:

- COMMUNICATE IN A CLASSICAL LANGUAGE
 - Standard 1.1: Students read, understand, and interpret Latin or Greek
 - Standard 1.2: Students use orally, listen to, and write Latin or Greek as part of the language learning process
- GAIN KNOWLEDGE AND UNDERSTANDING OF GRECO-ROMAN CULTURE
 - Standard 2.1: Students demonstrate an understanding of the perspectives of Greek or Roman culture as revealed in the practices of the Greeks or Romans
 - Standard 2.2: Students demonstrate an understanding of the perspectives of Greek or Roman culture as revealed in the products of the Greeks or Romans
- CONNECT WITH OTHER DISCIPLINES AND EXPAND KNOWLEDGE
 - Standard 3.1: Students reinforce and further their knowledge of other disciplines through their study of classical languages
 - Standard 3.2: Students expand their knowledge through the reading of Latin or Greek and the study of ancient culture
- DEVELOP INSIGHT INTO OWN LANGUAGE AND CULTURE
 - Standard 4.1: Students recognize and use elements of the Latin or Greek language to increase knowledge of their own language
 - Standard 4.2: Students compare and contrast their own culture with that of the Greco-Roman world

- PARTICIPATE IN WIDER COMMUNITIES OF LANGUAGE AND CULTURE
 - Standard 5.1: Students use their knowledge of Latin or Greek in a multilingual world
 - Standard 5.2: Students use their knowledge of Greco-Roman culture in a world of diverse cultures

Unit 2: Chapter II. A Summer Afternoon

Unit 2 Learner Objectives:

- Recognize and define the following: subject, linking verb, complement.
- Know the 3rd person singular and plural present tense verb endings.
- Write a story in Latin of at least 50 words.

Unit 2 National Standards for Classical Language:

- COMMUNICATE IN A CLASSICAL LANGUAGE
 - Standard 1.1: Students read, understand, and interpret Latin or Greek
 - Standard 1.2: Students use orally, listen to, and write Latin or Greek as part of the language learning process
- GAIN KNOWLEDGE AND UNDERSTANDING OF GRECO-ROMAN CULTURE
 - Standard 2.1: Students demonstrate an understanding of the perspectives of Greek or Roman culture as revealed in the practices of the Greeks or Romans
 - Standard 2.2: Students demonstrate an understanding of the perspectives of Greek or Roman culture as revealed in the products of the Greeks or Romans
- CONNECT WITH OTHER DISCIPLINES AND EXPAND KNOWLEDGE
 - Standard 3.1: Students reinforce and further their knowledge of other disciplines through their study of classical languages
 - Standard 3.2: Students expand their knowledge through the reading of Latin or Greek and the study of ancient culture
- DEVELOP INSIGHT INTO OWN LANGUAGE AND CULTURE
 - Standard 4.1: Students recognize and use elements of the Latin or Greek language to increase knowledge of their own language
 - Standard 4.2: Students compare and contrast their own culture with that of the Greco-Roman world
- PARTICIPATE IN WIDER COMMUNITIES OF LANGUAGE AND CULTURE
 - Standard 5.1: Students use their knowledge of Latin or Greek in a multilingual world
 - Standard 5.2: Students use their knowledge of Greco-Roman culture in a world of diverse cultures

Unit 3: Chapter III. In the Garden

Unit 3 Learner Objectives:

- Recognize and define singular and plural endings for subjects and complements.
- Sort out Latin words and their corresponding derivatives in various Romance languages.

Unit 3 National Standards for Classical Language:

- COMMUNICATE IN A CLASSICAL LANGUAGE

- Standard 1.1: Students read, understand, and interpret Latin or Greek
- Standard 1.2: Students use orally, listen to, and write Latin or Greek as part of the language learning process
- GAIN KNOWLEDGE AND UNDERSTANDING OF GRECO-ROMAN CULTURE
 - Standard 2.1: Students demonstrate an understanding of the perspectives of Greek or Roman culture as revealed in the practices of the Greeks or Romans
 - Standard 2.2: Students demonstrate an understanding of the perspectives of Greek or Roman culture as revealed in the products of the Greeks or Romans
- CONNECT WITH OTHER DISCIPLINES AND EXPAND KNOWLEDGE
 - Standard 3.1: Students reinforce and further their knowledge of other disciplines through their study of classical languages
 - Standard 3.2: Students expand their knowledge through the reading of Latin or Greek and the study of ancient culture
- DEVELOP INSIGHT INTO OWN LANGUAGE AND CULTURE
 - Standard 4.1: Students recognize and use elements of the Latin or Greek language to increase knowledge of their own language
 - Standard 4.2: Students compare and contrast their own culture with that of the Greco-Roman world
- PARTICIPATE IN WIDER COMMUNITIES OF LANGUAGE AND CULTURE
 - Standard 5.1: Students use their knowledge of Latin or Greek in a multilingual world
 - Standard 5.2: Students use their knowledge of Greco-Roman culture in a world of diverse cultures

Unit 4: Chapter IV. A Mischief-Maker

Unit 4 Learner Objectives:

- Define transitive and intransitive verbs.
- Understand the primary difference between inflected and uninflected languages.
- Understand the function of a direct object.

Unit 4 National Standards for Classical Language:

- COMMUNICATE IN A CLASSICAL LANGUAGE
 - Standard 1.1: Students read, understand, and interpret Latin or Greek
 - Standard 1.2: Students use orally, listen to, and write Latin or Greek as part of the language learning process
- GAIN KNOWLEDGE AND UNDERSTANDING OF GRECO-ROMAN CULTURE
 - Standard 2.1: Students demonstrate an understanding of the perspectives of Greek or Roman culture as revealed in the practices of the Greeks or Romans
 - Standard 2.2: Students demonstrate an understanding of the perspectives of Greek or Roman culture as revealed in the products of the Greeks or Romans
- CONNECT WITH OTHER DISCIPLINES AND EXPAND KNOWLEDGE
 - Standard 3.1: Students reinforce and further their knowledge of other disciplines through their study of classical languages
 - Standard 3.2: Students expand their knowledge through the reading of Latin or Greek and the study of ancient culture
- DEVELOP INSIGHT INTO OWN LANGUAGE AND CULTURE
 - Standard 4.1: Students recognize and use elements of the Latin or Greek

- language to increase knowledge of their own language
 - Standard 4.2: Students compare and contrast their own culture with that of the Greco-Roman world
- PARTICIPATE IN WIDER COMMUNITIES OF LANGUAGE AND CULTURE
 - Standard 5.1: Students use their knowledge of Latin or Greek in a multilingual world
 - Standard 5.2: Students use their knowledge of Greco-Roman culture in a world of diverse cultures

Unit 5: Chapter V. Marcus to the Rescue

Unit 5 Learner Objectives:

- Recognize Latin infinitives and their English counterparts.
- Recognize and understand the role of the complementary infinitive.

Unit 5 National Standards for Classical Language:

- COMMUNICATE IN A CLASSICAL LANGUAGE
 - Standard 1.1: Students read, understand, and interpret Latin or Greek
 - Standard 1.2: Students use orally, listen to, and write Latin or Greek as part of the language learning process
- GAIN KNOWLEDGE AND UNDERSTANDING OF GRECO-ROMAN CULTURE
 - Standard 2.1: Students demonstrate an understanding of the perspectives of Greek or Roman culture as revealed in the practices of the Greeks or Romans
 - Standard 2.2: Students demonstrate an understanding of the perspectives of Greek or Roman culture as revealed in the products of the Greeks or Romans
- CONNECT WITH OTHER DISCIPLINES AND EXPAND KNOWLEDGE
 - Standard 3.1: Students reinforce and further their knowledge of other disciplines through their study of classical languages
 - Standard 3.2: Students expand their knowledge through the reading of Latin or Greek and the study of ancient culture
- DEVELOP INSIGHT INTO OWN LANGUAGE AND CULTURE
 - Standard 4.1: Students recognize and use elements of the Latin or Greek language to increase knowledge of their own language
 - Standard 4.2: Students compare and contrast their own culture with that of the Greco-Roman world
- PARTICIPATE IN WIDER COMMUNITIES OF LANGUAGE AND CULTURE
 - Standard 5.1: Students use their knowledge of Latin or Greek in a multilingual world
 - Standard 5.2: Students use their knowledge of Greco-Roman culture in a world of diverse cultures

Unit 6: Chapter VI. Early in the Day

Unit 6 Learner Objectives:

- Understand the role gender plays in differentiating Latin noun and adjective endings.
- Recognize and understand the role played by an infinitive and the impersonal verb phrase: *necesse est*.

Unit 6 National Standards for Classical Language:

- **COMMUNICATE IN A CLASSICAL LANGUAGE**
 - Standard 1.1: Students read, understand, and interpret Latin or Greek
 - Standard 1.2: Students use orally, listen to, and write Latin or Greek as part of the language learning process
- **GAIN KNOWLEDGE AND UNDERSTANDING OF GRECO-ROMAN CULTURE**
 - Standard 2.1: Students demonstrate an understanding of the perspectives of Greek or Roman culture as revealed in the practices of the Greeks or Romans
 - Standard 2.2: Students demonstrate an understanding of the perspectives of Greek or Roman culture as revealed in the products of the Greeks or Romans
- **CONNECT WITH OTHER DISCIPLINES AND EXPAND KNOWLEDGE**
 - Standard 3.1: Students reinforce and further their knowledge of other disciplines through their study of classical languages
 - Standard 3.2: Students expand their knowledge through the reading of Latin or Greek and the study of ancient culture
- **DEVELOP INSIGHT INTO OWN LANGUAGE AND CULTURE**
 - Standard 4.1: Students recognize and use elements of the Latin or Greek language to increase knowledge of their own language
 - Standard 4.2: Students compare and contrast their own culture with that of the Greco-Roman world
- **PARTICIPATE IN WIDER COMMUNITIES OF LANGUAGE AND CULTURE**
 - Standard 5.1: Students use their knowledge of Latin or Greek in a multilingual world
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Unit 7: Chapter VII. New from Rome

Unit 7 Learner Objectives:

- Know and recognize the direct object singular and plural endings.
- Know what is meant by declension and case in reference to Latin grammar.
- Know meaning of the terms Nominative and Accusative and the primary function of nouns in those two cases
- Use deductive reasoning to determine whether a 3rd declension noun is either Nominative plural or Accusative plural.

Unit 7 National Standards for Classical Language:

- **COMMUNICATE IN A CLASSICAL LANGUAGE**
 - Standard 1.1: Students read, understand, and interpret Latin or Greek
 - Standard 1.2: Students use orally, listen to, and write Latin or Greek as part of the language learning process
- **GAIN KNOWLEDGE AND UNDERSTANDING OF GRECO-ROMAN CULTURE**
 - Standard 2.1: Students demonstrate an understanding of the perspectives of Greek or Roman culture as revealed in the practices of the Greeks or Romans
 - Standard 2.2: Students demonstrate an understanding of the perspectives of Greek or Roman culture as revealed in the products of the Greeks or Romans
- **CONNECT WITH OTHER DISCIPLINES AND EXPAND KNOWLEDGE**

- Standard 3.1: Students reinforce and further their knowledge of other disciplines through their study of classical languages
- Standard 3.2: Students expand their knowledge through the reading of Latin or Greek and the study of ancient culture
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 - Standard 4.1: Students recognize and use elements of the Latin or Greek language to increase knowledge of their own language
 - Standard 4.2: Students compare and contrast their own culture with that of the Greco-Roman world
- PARTICIPATE IN WIDER COMMUNITIES OF LANGUAGE AND CULTURE
 - Standard 5.1: Students use their knowledge of Latin or Greek in a multilingual world
 - Standard 5.2: Students use their knowledge of Greco-Roman culture in a world of diverse cultures

Unit 8: Personal Verb Endings and Prepositions; Chapter VIII. Getting Up Early

Unit 8 Learner Objectives:

- Know the personal verb endings for 1st, 2nd and 3rd person singular and plural as well as be able to define what is meant by the three persons.
- Know the primary uses of the Genitive and Ablative cases.

Unit 8 National Standards for Classical Language:

- COMMUNICATE IN A CLASSICAL LANGUAGE
 - Standard 1.1: Students read, understand, and interpret Latin or Greek
 - Standard 1.2: Students use orally, listen to, and write Latin or Greek as part of the language learning process
- GAIN KNOWLEDGE AND UNDERSTANDING OF GRECO-ROMAN CULTURE
 - Standard 2.1: Students demonstrate an understanding of the perspectives of Greek or Roman culture as revealed in the practices of the Greeks or Romans
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- PARTICIPATE IN WIDER COMMUNITIES OF LANGUAGE AND CULTURE
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Unit 9: Chapter IX. Goodbye

Unit 9 Learner Objectives:

- Know the primary uses of the ablative case and know which prepositions take an ablative noun and which take an accusative noun.
- Know how the meaning of "in" is dependent on either an accusative or ablative noun.
- Master the ablative case endings for the first three declensions.

Unit 9 National Standards for Classical Language:

- COMMUNICATE IN A CLASSICAL LANGUAGE
 - Standard 1.1: Students read, understand, and interpret Latin or Greek
 - Standard 1.2: Students use orally, listen to, and write Latin or Greek as part of the language learning process
- GAIN KNOWLEDGE AND UNDERSTANDING OF GRECO-ROMAN CULTURE
 - Standard 2.1: Students demonstrate an understanding of the perspectives of Greek or Roman culture as revealed in the practices of the Greeks or Romans
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Unit 10: Chapter X. Departure

Unit 10 Learner Objectives:

- Recognize and create all four conjugations of Latin verbs in the present tense.
- Create and recognize singular and plural imperative forms of verbs.

Unit 10 National Standards for Classical Language:

- COMMUNICATE IN A CLASSICAL LANGUAGE
 - Standard 1.1: Students read, understand, and interpret Latin or Greek
 - Standard 1.2: Students use orally, listen to, and write Latin or Greek as part of the language learning process
- GAIN KNOWLEDGE AND UNDERSTANDING OF GRECO-ROMAN CULTURE
 - Standard 2.1: Students demonstrate an understanding of the perspectives of Greek or Roman culture as revealed in the practices of the Greeks or Romans

- Standard 2.2: Students demonstrate an understanding of the perspectives of Greek or Roman culture as revealed in the products of the Greeks or Romans
- **CONNECT WITH OTHER DISCIPLINES AND EXPAND KNOWLEDGE**
 - Standard 3.1: Students reinforce and further their knowledge of other disciplines through their study of classical languages
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 - Standard 4.1: Students recognize and use elements of the Latin or Greek language to increase knowledge of their own language
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- **PARTICIPATE IN WIDER COMMUNITIES OF LANGUAGE AND CULTURE**
 - Standard 5.1: Students use their knowledge of Latin or Greek in a multilingual world
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Unit 11: Chapter XI. A Slave Runs Away

Unit 11 Learner Objectives:

- Recognize and know the endings for the genitive case as well as know its primary use.
- Deduce whether a noun is nominative plural or genitive singular based on sentence content.

Unit 11 National Standards for Classical Language:

- **COMMUNICATE IN A CLASSICAL LANGUAGE**
 - Standard 1.1: Students read, understand, and interpret Latin or Greek
 - Standard 1.2: Students use orally, listen to, and write Latin or Greek as part of the language learning process
- **GAIN KNOWLEDGE AND UNDERSTANDING OF GRECO-ROMAN CULTURE**
 - Standard 2.1: Students demonstrate an understanding of the perspectives of Greek or Roman culture as revealed in the practices of the Greeks or Romans
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- **PARTICIPATE IN WIDER COMMUNITIES OF LANGUAGE AND CULTURE**
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Unit 12: Chapter XII. Capture

Unit 12 Learner Objectives:

- Use nouns in the ablative case to show where, from where and with whom an action is taking place.
- Deduce and to supply the correct preposition for ablative case nouns when no preposition is given.

Unit 12 National Standards for Classical Language:

- **COMMUNICATE IN A CLASSICAL LANGUAGE**
 - Standard 1.1: Students read, understand, and interpret Latin or Greek
 - Standard 1.2: Students use orally, listen to, and write Latin or Greek as part of the language learning process
- **GAIN KNOWLEDGE AND UNDERSTANDING OF GRECO-ROMAN CULTURE**
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Unit 13: Imperfect Tense and Adjectives; Chapter XIII. Disaster

Unit 13 Learner Objectives:

- Describe the three main uses (time, place, manner) of adverbs in Latin and English.
- Describe an imperfect tense verb in terms of its distinction of time.
- Recognize imperfect tense verbs by the tense indicator "ba".

Unit 13 National Standards for Classical Language:

- **COMMUNICATE IN A CLASSICAL LANGUAGE**
 - Standard 1.1: Students read, understand, and interpret Latin or Greek

- Standard 1.2: Students use orally, listen to, and write Latin or Greek as part of the language learning process
- GAIN KNOWLEDGE AND UNDERSTANDING OF GRECO-ROMAN CULTURE
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- PARTICIPATE IN WIDER COMMUNITIES OF LANGUAGE AND CULTURE
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Unit 14: Chapter XIV. Who is to Blame?

Unit 14 Learner Objectives:

- Conjugate and discern the imperfect tense in all four conjugations.
- Conjugate and discern the irregular verbs: sum, esse; possum, posse in both the present and imperfect tenses.

Unit 14 National Standards for Classical Language:

- COMMUNICATE IN A CLASSICAL LANGUAGE
 - Standard 1.1: Students read, understand, and interpret Latin or Greek
 - Standard 1.2: Students use orally, listen to, and write Latin or Greek as part of the language learning process
- GAIN KNOWLEDGE AND UNDERSTANDING OF GRECO-ROMAN CULTURE
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 - Standard 4.1: Students recognize and use elements of the Latin or Greek language to increase knowledge of their own language
 - Standard 4.2: Students compare and contrast their own culture with that of the

Greco-Roman world

- PARTICIPATE IN WIDER COMMUNITIES OF LANGUAGE AND CULTURE
 - Standard 5.1: Students use their knowledge of Latin or Greek in a multilingual world
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Unit 15: Chapter XV. Vehicle Spotting

Unit 15 Learner Objectives:

- Define the Double Neuter Rule and decline neuter nouns in both the 2nd and 3rd declensions.
- Give the written Latin forms for numbers 1-100 and will be able to create and recognize Roman Numerals 1-1000.

Unit 15 National Standards for Classical Language:

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 - Standard 1.1: Students read, understand, and interpret Latin or Greek
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- PARTICIPATE IN WIDER COMMUNITIES OF LANGUAGE AND CULTURE
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Unit 16: Chapter XVI. Why is Sextus a Pest?

Unit 16 Learner Objectives:

- Describe the ways in which an adjective must agree with the nouns it modifies (Gender, Number, Case).
- Create the proper form of a 1st/2nd declension adjective so that it correctly matches with

a noun from any of the first three declensions.

Unit 16 National Standards for Classical Language:

- **COMMUNICATE IN A CLASSICAL LANGUAGE**
 - Standard 1.1: Students read, understand, and interpret Latin or Greek
 - Standard 1.2: Students use orally, listen to, and write Latin or Greek as part of the language learning process
- **GAIN KNOWLEDGE AND UNDERSTANDING OF GRECO-ROMAN CULTURE**
 - Standard 2.1: Students demonstrate an understanding of the perspectives of Greek or Roman culture as revealed in the practices of the Greeks or Romans
 - Standard 2.2: Students demonstrate an understanding of the perspectives of Greek or Roman culture as revealed in the products of the Greeks or Romans
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 - Standard 3.1: Students reinforce and further their knowledge of other disciplines through their study of classical languages
 - Standard 3.2: Students expand their knowledge through the reading of Latin or Greek and the study of ancient culture
- **DEVELOP INSIGHT INTO OWN LANGUAGE AND CULTURE**
 - Standard 4.1: Students recognize and use elements of the Latin or Greek language to increase knowledge of their own language
 - Standard 4.2: Students compare and contrast their own culture with that of the Greco-Roman world
- **PARTICIPATE IN WIDER COMMUNITIES OF LANGUAGE AND CULTURE**
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Unit 17: Chapter XVII. Do We Stay at an Inn?

Unit 17 Learner Objectives:

- Conjugate and discern the irregular verbs: fero, ferre; volo, velle; nolo, nolle; eo, ire in both the present and imperfect tenses.

Unit 17 National Standards for Classical Language:

- **COMMUNICATE IN A CLASSICAL LANGUAGE**
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 - Standard 1.2: Students use orally, listen to, and write Latin or Greek as part of the language learning process
- **GAIN KNOWLEDGE AND UNDERSTANDING OF GRECO-ROMAN CULTURE**
 - Standard 2.1: Students demonstrate an understanding of the perspectives of Greek or Roman culture as revealed in the practices of the Greeks or Romans
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Unit 18: The Perfect Tense and Noun/Adjective Agreement; Chapter XVIII. Arrival at the Inn

Unit 18 Learner Objectives:

- Recognize and give multiple translations of verbs in the present, imperfect and perfect active indicative.
- Correctly modify a Latin noun from the first three declensions with any Latin adjective.

Unit 18 National Standards for Classical Language:

- COMMUNICATE IN A CLASSICAL LANGUAGE
 - Standard 1.1: Students read, understand, and interpret Latin or Greek
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- GAIN KNOWLEDGE AND UNDERSTANDING OF GRECO-ROMAN CULTURE
 - Standard 2.1: Students demonstrate an understanding of the perspectives of Greek or Roman culture as revealed in the practices of the Greeks or Romans
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Unit 19: Chapter XIX. Settling In

Unit 19 Learner Objectives:

- Describe a perfect tense verb in terms of its distinction of time.

Unit 19 National Standards for Classical Language:

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 - Standard 1.1: Students read, understand, and interpret Latin or Greek
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- **GAIN KNOWLEDGE AND UNDERSTANDING OF GRECO-ROMAN CULTURE**
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Unit 20: Chapter XX. Chance Encounter

Unit 20 Learner Objectives:

- Identify and describe the typical pattern followed by the 1st, 2nd and 4th conjugations for the verbs' principal parts.
- Conjugate the perfect active indicative tense for any regular verb for all conjugations.
- Create a table explaining the relationships between verb tenses in dum clauses.

Unit 20 National Standards for Classical Language:

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- **GAIN KNOWLEDGE AND UNDERSTANDING OF GRECO-ROMAN CULTURE**
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Unit 21: Chapter XXI: Murder

Unit 21 Learner Objectives:

- Review previous lessons.

Unit 21 National Standards for Classical Language:

- COMMUNICATE IN A CLASSICAL LANGUAGE
 - Standard 1.1: Students read, understand, and interpret Latin or Greek
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- GAIN KNOWLEDGE AND UNDERSTANDING OF GRECO-ROMAN CULTURE
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LATIN II

Course Length: 2 semesters

Credits: 1.0

Recommended Grade Levels: 10, 11, 12

Prerequisites: Successful completion of Latin I

Course Description: In preparation for AP courses and in alignment with the Standards for Classical Language Learning (A Collaborative Project of The American Classical League and The American Philological Association and Regional Classical Associations), Latin II is taken, preferably directly, after Latin I. It can be followed by a sequence of Latin III and potentially AP Latin. This course is a continuation of Latin I, with Latin reading selections generally originating from the Ecce Romani text series. Other reading selections include passages on Roman history and literature. Cultural materials of Greece and Rome will also be continued. Along with translation activities, students will also compose their own original Latin works.

LATIN II UNIT PROGRESSION

Unit 1: Latin I Review

- This is a review of concepts learned in Latin I.

Unit 2: Chapter XXII

Unit 2 Learner Objectives:

- Recognize and create singular and plural forms of the dative case.
- Properly translate and give the function of the dative case.

Unit 2 National Standards for Classical Language:

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 - Standard 1.1: Students read, understand, and interpret Latin or Greek
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- GAIN KNOWLEDGE AND UNDERSTANDING OF GRECO-ROMAN CULTURE
 - Standard 2.1: Students demonstrate an understanding of the perspectives of Greek or Roman culture as revealed in the practices of the Greeks or Romans
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 - Standard 4.2: Students compare and contrast their own culture with that of the Greco-Roman world

- PARTICIPATE IN WIDER COMMUNITIES OF LANGUAGE AND CULTURE
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Unit 3: Chapter XXIII

Unit 3 Learner Objectives:

- Identify and translate adjectives as substantives.
- Create and identify the future tense for all 4 conjugations.
- Successfully design an aqueduct that moves water over various types of terrain.

Unit 3 National Standards for Classical Language:

- COMMUNICATE IN A CLASSICAL LANGUAGE
 - Standard 1.1: Students read, understand, and interpret Latin or Greek
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- GAIN KNOWLEDGE AND UNDERSTANDING OF GRECO-ROMAN CULTURE
 - Standard 2.1: Students demonstrate an understanding of the perspectives of Greek or Roman culture as revealed in the practices of the Greeks or Romans
 - Standard 2.2: Students demonstrate an understanding of the perspectives of Greek or Roman culture as revealed in the products of the Greeks or Romans
- CONNECT WITH OTHER DISCIPLINES AND EXPAND KNOWLEDGE
 - Standard 3.1: Students reinforce and further their knowledge of other disciplines through their study of classical languages
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Unit 4: Chapter XXIV

Unit 4 Learner Objectives:

- Create and identify the pluperfect tense in all four conjugations.
- Create and identify the future perfect tense in all four conjugations.

Unit 4 National Standards for Classical Language:

- COMMUNICATE IN A CLASSICAL LANGUAGE
 - Standard 1.1: Students read, understand, and interpret Latin or Greek
 - Standard 1.2: Students use orally, listen to, and write Latin or Greek as part of

- the language learning process
- **GAIN KNOWLEDGE AND UNDERSTANDING OF GRECO-ROMAN CULTURE**
 - Standard 2.1: Students demonstrate an understanding of the perspectives of Greek or Roman culture as revealed in the practices of the Greeks or Romans
 - Standard 2.2: Students demonstrate an understanding of the perspectives of Greek or Roman culture as revealed in the products of the Greeks or Romans
- **CONNECT WITH OTHER DISCIPLINES AND EXPAND KNOWLEDGE**
 - Standard 3.1: Students reinforce and further their knowledge of other disciplines through their study of classical languages
 - Standard 3.2: Students expand their knowledge through the reading of Latin or Greek and the study of ancient culture
- **DEVELOP INSIGHT INTO OWN LANGUAGE AND CULTURE**
 - Standard 4.1: Students recognize and use elements of the Latin or Greek language to increase knowledge of their own language
 - Standard 4.2: Students compare and contrast their own culture with that of the Greco-Roman world
- **PARTICIPATE IN WIDER COMMUNITIES OF LANGUAGE AND CULTURE**
 - Standard 5.1: Students use their knowledge of Latin or Greek in a multilingual world
 - Standard 5.2: Students use their knowledge of Greco-Roman culture in a world of diverse cultures

Unit 5: Chapter XXV

Unit 5 Learner Objectives:

- Recognize and produce the case endings for the 4th and 5th declensions.
- Explain a partitive genitive (genitive of the whole) and how it differs from the genitive of possession.

Unit 5 National Standards for Classical Language:

- **COMMUNICATE IN A CLASSICAL LANGUAGE**
 - Standard 1.1: Students read, understand, and interpret Latin or Greek
 - Standard 1.2: Students use orally, listen to, and write Latin or Greek as part of the language learning process
- **GAIN KNOWLEDGE AND UNDERSTANDING OF GRECO-ROMAN CULTURE**
 - Standard 2.1: Students demonstrate an understanding of the perspectives of Greek or Roman culture as revealed in the practices of the Greeks or Romans
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 - Standard 4.2: Students compare and contrast their own culture with that of the

Greco-Roman world

- PARTICIPATE IN WIDER COMMUNITIES OF LANGUAGE AND CULTURE
 - Standard 5.1: Students use their knowledge of Latin or Greek in a multilingual world
 - Standard 5.2: Students use their knowledge of Greco-Roman culture in a world of diverse cultures

Unit 6: Chapter XXVI

Unit 6 Learner Objectives:

- Recognize, be able to translate and reproduce in the five main cases the demonstrative adjectives hic and ille

Unit 6 National Standards for Classical Language:

- COMMUNICATE IN A CLASSICAL LANGUAGE
 - Standard 1.1: Students read, understand, and interpret Latin or Greek
 - Standard 1.2: Students use orally, listen to, and write Latin or Greek as part of the language learning process
- GAIN KNOWLEDGE AND UNDERSTANDING OF GRECO-ROMAN CULTURE
 - Standard 2.1: Students demonstrate an understanding of the perspectives of Greek or Roman culture as revealed in the practices of the Greeks or Romans
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Unit 7: Chapter XXVII

Unit 7 Learner Objectives:

- Recognize, be able to translate and produce personal pronouns (1st, 2nd and 3rd person).
- Recognize, be able to translate, produce and explain the function of reflexive pronouns and possessive adjectives.

Unit 7 National Standards for Classical Language:

- **COMMUNICATE IN A CLASSICAL LANGUAGE**
 - Standard 1.1: Students read, understand, and interpret Latin or Greek
 - Standard 1.2: Students use orally, listen to, and write Latin or Greek as part of the language learning process
- **GAIN KNOWLEDGE AND UNDERSTANDING OF GRECO-ROMAN CULTURE**
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Unit 8: Chapter XXVIII

Unit 8 Learner Objectives:

- Recognize and properly translate/read/write Latin relative pronouns.
- Accurately translate and write relative clauses in Latin.

Unit 8 National Standards for Classical Language:

- **COMMUNICATE IN A CLASSICAL LANGUAGE**
 - Standard 1.1: Students read, understand, and interpret Latin or Greek
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- **GAIN KNOWLEDGE AND UNDERSTANDING OF GRECO-ROMAN CULTURE**
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Unit 9: Chapter XXIX

Unit 9 Learner Objectives:

- Accurately identify, translate and appropriately use the Qu- words: relative pronouns (qui, quae, quod), indefinite adjective (quidam, quaedam, quoddam), interrogative pronoun (quis, quid), causal conjunction (quod), exclamatory adverb (Quam...!).
- Continue to gain mastery over Latin prefixes by exploring: ad-, con-, dis-, ex-, in-, sub-.

Unit 9 National Standards for Classical Language:

- COMMUNICATE IN A CLASSICAL LANGUAGE
 - Standard 1.1: Students read, understand, and interpret Latin or Greek
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Unit 10: Chapter XXX

Unit 10 Learner Objectives:

- Recognize and create verbs in the passive voice for the present, imperfect and future tenses.
- Recognize and produce the passive personal endings: -r, -ris, -tur, -mur, -mini, -ntur

Unit 10 National Standards for Classical Language:

- **COMMUNICATE IN A CLASSICAL LANGUAGE**
 - Standard 1.1: Students read, understand, and interpret Latin or Greek
 - Standard 1.2: Students use orally, listen to, and write Latin or Greek as part of the language learning process
- **GAIN KNOWLEDGE AND UNDERSTANDING OF GRECO-ROMAN CULTURE**
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Unit 11: Chapter XXXI

Unit 11 Learner Objectives:

- Recognize and create present passive infinitives.
- Translate and recognize the intensive pronoun ipse, ipsa, ipsum and the suffix -dem (the same).

Unit 11 National Standards for Classical Language:

- **COMMUNICATE IN A CLASSICAL LANGUAGE**
 - Standard 1.1: Students read, understand, and interpret Latin or Greek
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Unit 12: Chapter XXXII

Unit 12 Learner Objectives:

- Translate and create passive verbs in the Perfect, pluperfect and future perfect tenses

Unit 12 National Standards for Classical Language:

- COMMUNICATE IN A CLASSICAL LANGUAGE
 - Standard 1.1: Students read, understand, and interpret Latin or Greek
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Unit 13: Chapter XXXIII

Unit 13 Learner Objectives:

- Form the Latin perfect passive participle and the various ways of translating it.

Unit 13 National Standards for Classical Language:

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Unit 14: Chapter XXXIV

Unit 14 Learner Objectives:

- Explain the difference between the three degrees of adjectives: Positive, Comparative, and Superlative
- Identify and create comparatives and superlatives based on a certain positive.
- Recognize and name the irregular adjective sequences based on the positives: bonus, -a, -um; malus, -a, -um; magnus, -a, -um; parvus, -a, -um; multus, -a, -um; multī, -ae, a.

Unit 14 National Standards for Classical Language:

- COMMUNICATE IN A CLASSICAL LANGUAGE
 - Standard 1.1: Students read, understand, and interpret Latin or Greek
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Unit 15: Chapter XXXV

Unit 15 Learner Objectives:

- Describe the process of forming an adverb from an adjective, both a 1st-2nd and a 3rd declension.
- Recognize and create the comparative and superlative forms of adverbs.
- Recognize and produce the suffixes -osus, -idus and -bilis; the learner will also be able to give the suffixes' meanings.

Unit 15 National Standards for Classical Language:

- **COMMUNICATE IN A CLASSICAL LANGUAGE**
 - Standard 1.1: Students read, understand, and interpret Latin or Greek
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- **PARTICIPATE IN WIDER COMMUNITIES OF LANGUAGE AND CULTURE**

- Standard 5.1: Students use their knowledge of Latin or Greek in a multilingual world
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Unit 16: Chapter XXXVI

Unit 16 Learner Objectives:

- Know the three main ways the Romans used to tell the date.
- Be able to read a Roman date and give the corresponding contemporary date.

Unit 16 National Standards for Classical Language:

- **COMMUNICATE IN A CLASSICAL LANGUAGE**
 - Standard 1.1: Students read, understand, and interpret Latin or Greek
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- **GAIN KNOWLEDGE AND UNDERSTANDING OF GRECO-ROMAN CULTURE**
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Unit 17: Chapter XXXVII

Unit 17 Learner Objectives:

- Know how to form and translate deponent verbs.
- Explain how deponent verbs differ from non-deponent verbs.

Unit 17 National Standards for Classical Language:

- **COMMUNICATE IN A CLASSICAL LANGUAGE**
 - Standard 1.1: Students read, understand, and interpret Latin or Greek
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- GAIN KNOWLEDGE AND UNDERSTANDING OF GRECO-ROMAN CULTURE
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Unit 18: Chapter XXXVIII

Unit 18 Learner Objectives:

- Write and identify numbers in Latin 1-1000.
- Write and identify Roman numerals 1-1,000.

Unit 18 National Standards for Classical Language:

- COMMUNICATE IN A CLASSICAL LANGUAGE
 - Standard 1.1: Students read, understand, and interpret Latin or Greek
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Unit 19: Chapter XXXIX

Unit 19 Learner Objectives:

- Identify place constructions in Latin with and without prepositions.
- Identify time constructions in Latin with and without prepositions.

Unit 19 National Standards for Classical Language:

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Unit 20: Chapter XL

Unit 20 Learner Objectives:

- Explain how a semi-deponent verb works.
- Create, identify and translate present participles. Create a table explaining the relationships between verb tenses in dum clauses.

Unit 20 National Standards for Classical Language:

- COMMUNICATE IN A CLASSICAL LANGUAGE

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Unit 21: Chapter XLI

Unit 21 Learner Objectives:

- Create, identify and translate Perfect active infinitives.

Unit 21 National Standards for Classical Language:

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Unit 22: Chapter XLII

Unit 22 Learner Objectives:

- Create, identify and translate imperfect and pluperfect subjunctive active verbs.
- Identify and translate subordinate subjunctive clauses: Cum causal clauses, Cum circumstantial clauses, Indirect questions.

Unit 22 National Standards for Classical Language:

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LATIN III

Course Length: 2 semesters

Credits: 1.0

Recommended Grade Levels: 11, 12

Prerequisites: Successful completion of Latin I and II

Course Description: In preparation for AP courses and in alignment with the Standards for Classical Language Learning (A Collaborative Project of The American Classical League and The American Philological Association and Regional Classical Associations), Latin III is taken preferably directly after Latin II. It can be followed by AP Latin. This course is a continuation of Latin II, with reading selections generally originating the Ecce Romani text series. Other reading selections include passages on Roman history and literature. Cultural materials of Greece and Rome will also be continued. Along with translation activities, students will also compose their own original Latin works.

LATIN III UNIT PROGRESSION

Unit 1: Chapter XLI

Unit 1 Learner Objectives:

- Create, identify and translate Perfect active infinitives.

Unit 2 National Standards for Classical Language:

- COMMUNICATE IN A CLASSICAL LANGUAGE
 - Standard 1.1: Students read, understand, and interpret Latin or Greek
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 - Standard 4.1: Students recognize and use elements of the Latin or Greek language to increase knowledge of their own language
 - Standard 4.2: Students compare and contrast their own culture with that of the Greco-Roman world
- PARTICIPATE IN WIDER COMMUNITIES OF LANGUAGE AND CULTURE
 - Standard 5.1: Students use their knowledge of Latin or Greek in a multilingual world
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Unit 2: Chapter XLII

Unit 2 Learner Objectives:

- Create, identify and translate imperfect and pluperfect subjunctive active verbs.
- Identify and translate subordinate subjunctive clauses: Cum causal clauses, Cum circumstantial clauses, Indirect questions.

Unit 2 National Standards for Classical Language:

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Unit 3: Chapter XLIII

Unit 3 Learner Objectives:

- Create, identify and translate imperfect and pluperfect subjunctive passive verbs.

Unit 3 National Standards for Classical Language:

- COMMUNICATE IN A CLASSICAL LANGUAGE
 - Standard 1.1: Students read, understand, and interpret Latin or Greek
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Unit 4: Chapter XLIV

Unit 4 Learner Objectives:

- Identify and translate Ablative Absolutes.
- Identify and translate a "linking quī" and its antecedent.

Unit 4 National Standards for Classical Language:

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Unit 5: Chapter XLV

Unit 5 Learner Objectives:

- Create, identify and translate Future Active Participles.

Unit 5 National Standards for Classical Language:

- COMMUNICATE IN A CLASSICAL LANGUAGE
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Unit 6: Chapter XLVI

Unit 6 Learner Objectives:

- Identify and translate Indirect Statements (accusative and infinitive).
- Identify and translate the irregular forms of *fiō*, *fieri*, *factus sum*.

Unit 6 National Standards for Classical Language:

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Unit 7: Chapter XLVII

Unit 7 Learner Objectives:

- Identify and translate indirect statements (accusative and infinitive) involving future and perfect infinitives.
- Create, identify and translate the various forms of the irregular verb *mālō, mälle, māluī*.

Unit 7 National Standards for Classical Language:

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Unit 8: Chapter XLVIII

Unit 8 Learner Objectives:

- Identify and explain the different temporal uses of present, perfect, and future infinitives in Indirect statements.
- Identify and translate indirect statements (accusative and infinitive) using deponent verbs and passive infinitives.

Unit 8 National Standards for Classical Language:

- COMMUNICATE IN A CLASSICAL LANGUAGE
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Unit 9: Chapter XLIX

Unit 9 Learner Objectives:

- Identify and describe the expectations for the verb audio, -īre, -īvī, ītum

Unit 9 National Standards for Classical Language:

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Unit 10: Chapter L

Unit 10 Learner Objectives:

- Create, identify and translate present and perfect subjunctive.
- Identify and translate result clauses.
- Explain sequence of tenses.

Unit 10 National Standards for Classical Language:

- COMMUNICATE IN A CLASSICAL LANGUAGE
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Unit 11: Chapter LI

Unit 11 Learner Objectives:

- Identify and translate indirect commands (telling to, asking to).

Unit 11 National Standards for Classical Language:

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Unit 12: Chapter LII

Unit 12 Learner Objectives:

- Identify and translate Impersonal verb phrases.

Unit 12 National Standards for Classical Language:

- COMMUNICATE IN A CLASSICAL LANGUAGE
 - Standard 1.1: Students read, understand, and interpret Latin or Greek

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Unit 13: Chapter LIII

Unit 13 Learner Objectives:

- Identify and translate purpose clauses (ut and nē).

Unit 13 National Standards for Classical Language:

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Unit 14: Chapter LIV

Unit 14 Learner Objectives:

- Identify and list the various uses of "ut".

Unit 14 National Standards for Classical Language:

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Unit 15: Beyond Ecce...

Unit 15 Learner Objectives:

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Unit 15 National Standards for Classical Language:

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Unit 16: Gerunds and Gerundives

Unit 16 Learner Objectives:

- Properly identify gerunds and gerundives in Latin text.
- Explain in English the differences between and uses of gerunds and gerundives.

Unit 16 National Standards for Classical Language:

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Unit 17: Fabulae Graecae

Unit 17 Learner Objectives:

- List and correctly identify the noun case endings for each declension.
- Identify and properly translate all forms of demonstrative pronouns.
- Identify and properly translate all active and passive forms of all six tenses.

Unit 17 National Standards for Classical Language:

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Unit 18: Verbs

Unit 18 Learner Objectives:

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Unit 18 National Standards for Classical Language:

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Unit 19: Reading Myth: Atlanta

Unit 19 Learner Objectives:

- Correctly scan Latin poetry in dactylic hexameter
- List four ways to know if a syllable is long or short
- Define and identify elision in poetry

Unit 19 National Standards for Classical Language:

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Unit 20: Reading Myth: Daedalus and Icarus

Unit 20 Learner Objectives:

- Correctly scan Latin poetry in dactylic hexameter
- List four ways to know if a syllable is long or short
- Define and identify elision in poetry

Unit 20 National Standards for Classical Language:

- COMMUNICATE IN A CLASSICAL LANGUAGE
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AP LATIN

Course Length: 2 semesters

Credits: 1.0

Recommended Grade Levels: 12

Prerequisites: Successful completion of Latin I, II, III

Course Description: Aligned with standards and objectives set by the AP CollegeBoard, AP Latin is a college level course typically taken as a world language elective after the completion of Latin I, II, and III. AP Latin is designed as a continuation of Latin III. Latin reading selections will generally come from various teacher selected texts. Cultural materials of Greece and Rome will also be continued. Along with translation activities, students will also compose their own original Latin works. Students demonstrate their mastery of college level Latin knowledge and skills on the AP Latin Exam, given in May. A passing score on the exam may earn students college Latin credit. Placement and credit are granted by institutions in accordance with their own policies, not by those of the College Board or the AP Program.

AP LATIN UNIT PROGRESSION

Unit 1: Vergil: The Aeneid

Unit 1 Learner Objectives:

- Read and comprehend Latin poetry and prose from selected authors with appropriate assistance.
- Translate previously prepared Latin texts into English as literally as possible.
- Relate the Latin texts to Roman historical, cultural, and literary contexts.
- Analyze linguistic and literary features of one or more Latin texts.

Unit 1 CollegeBoard Objectives:

- **The student engages in spoken interpersonal communications.**
 - The student engages in the oral exchange of information, opinions, and ideas in a variety of time frames in formal situations.
 - The student engages in the oral exchange of information, opinions, and ideas in a variety of time frames in informal situations.
 - The student elicits information and clarifies meaning by using a variety of strategies.
 - The student states and supports opinions in oral interactions.
 - The student initiates and sustains interaction through the use of various verbal and nonverbal strategies.
 - The student understands a variety of vocabulary, including idiomatic and culturally appropriate expressions.
 - The student uses a variety of vocabulary, including idiomatic and culturally appropriate expressions on a variety of topics.
 - The student self-monitors and adjusts language production.
 - The student demonstrates an understanding of the features of target culture communities (e.g., geographic, historical, artistic, social, or political).
 - The student demonstrates knowledge and understanding of content across disciplines.

- **The student engages in written interpersonal communications.**
 - The student engages in the written exchange of information, opinions, and ideas in a variety of time frames in formal situations.
 - The student engages in the written exchange of information, opinions, and ideas in a variety of time frames in informal situations.
 - The student writes formal correspondence in a variety of media using appropriate formats and conventions.
 - The student writes informal correspondence in a variety of media using appropriate formats and conventions.
 - The student elicits information and clarifies meaning by using a variety of strategies.
 - The student states and supports opinions in written interactions.
 - The student initiates and sustains interaction during written interpersonal communication in a variety of media.
 - The student understands a variety of vocabulary, including idiomatic and culturally appropriate expressions.
 - The student uses a variety of vocabulary, including idiomatic and culturally appropriate expressions on a variety of topics.
 - The student self-monitors and adjusts language production.
 - The student demonstrates an understanding of the features of target culture communities (e.g., geographic, historical, artistic, social, or political).
 - The student demonstrates knowledge and understanding of content across disciplines.
- **The student synthesizes information from a variety of authentic audio, visual, and audiovisual resources.**
 - The student demonstrates comprehension of content from authentic audio resources.
 - The student demonstrates comprehension of content from authentic visual resources.
 - The student demonstrates comprehension of content from authentic audiovisual resources.
 - The student demonstrates understanding of a variety of vocabulary, including idiomatic and culturally authentic expressions.
 - The student understands the purpose of a message and the point of view of its author.
 - The student identifies the distinguishing features (e.g., type of resource, intended audience, purpose) of authentic audio, visual, and audiovisual resources.
 - The student demonstrates critical viewing or listening of audio, visual, and audiovisual resources in the target cultural context.
 - The student monitors comprehension and uses other sources to enhance understanding.
 - The student examines, compares, and reflects on products, practices, and perspectives of the target culture(s).
 - The student evaluates similarities and differences in the perspectives of the target culture(s) and his or her own culture(s) as found in audio, visual, and audiovisual resources.
 - The student demonstrates an understanding of the features of target culture communities (e.g., geographic, historical, artistic, social, or political).

- The student demonstrates knowledge and understanding of content across disciplines.

Unit 2: Caesar: Gallic War

Unit 2 Learner Objectives:

- Read and comprehend Latin poetry and prose from selected authors with appropriate assistance.
- Translate previously prepared Latin texts into English as literally as possible.
- Relate the Latin texts to Roman historical, cultural, and literary contexts.
- Analyze linguistic and literary features of one or more Latin texts.

Unit 2 CollegeBoard Objectives:

- **The student engages in spoken interpersonal communications.**
 - The student engages in the oral exchange of information, opinions, and ideas in a variety of time frames in formal situations.
 - The student engages in the oral exchange of information, opinions, and ideas in a variety of time frames in informal situations.
 - The student elicits information and clarifies meaning by using a variety of strategies.
 - The student states and supports opinions in oral interactions.
 - The student initiates and sustains interaction through the use of various verbal and nonverbal strategies.
 - The student understands a variety of vocabulary, including idiomatic and culturally appropriate expressions.
 - The student uses a variety of vocabulary, including idiomatic and culturally appropriate expressions on a variety of topics.
 - The student self-monitors and adjusts language production.
 - The student demonstrates an understanding of the features of target culture communities (e.g., geographic, historical, artistic, social, or political).
 - The student demonstrates knowledge and understanding of content across disciplines.
- **The student engages in written interpersonal communications.**
 - The student engages in the written exchange of information, opinions, and ideas in a variety of time frames in formal situations.
 - The student engages in the written exchange of information, opinions, and ideas in a variety of time frames in informal situations.
 - The student writes formal correspondence in a variety of media using appropriate formats and conventions.
 - The student writes informal correspondence in a variety of media using appropriate formats and conventions.
 - The student elicits information and clarifies meaning by using a variety of strategies.
 - The student states and supports opinions in written interactions.
 - The student initiates and sustains interaction during written interpersonal communication in a variety of media.
 - The student understands a variety of vocabulary, including idiomatic and culturally appropriate expressions.

- The student uses a variety of vocabulary, including idiomatic and culturally appropriate expressions on a variety of topics.
- The student self-monitors and adjusts language production.
- The student demonstrates an understanding of the features of target culture communities (e.g., geographic, historical, artistic, social, or political).
- The student demonstrates knowledge and understanding of content across disciplines.
- **The student synthesize information from a variety of authentic audio, visual, and audiovisual resources.**
 - The student demonstrates comprehension of content from authentic audio resources.
 - The student demonstrates comprehension of content from authentic visual resources.
 - The student demonstrates comprehension of content from authentic audiovisual resources.
 - The student demonstrates understanding of a variety of vocabulary, including idiomatic and culturally authentic expressions.
 - The student understands the purpose of a message and the point of view of its author.
 - The student identifies the distinguishing features (e.g., type of resource, intended audience, purpose) of authentic audio, visual, and audiovisual resources.
 - The student demonstrates critical viewing or listening of audio, visual, and audiovisual resources in the target cultural context.
 - The student monitors comprehension and uses other sources to enhance understanding.
 - The student examines, compares, and reflects on products, practices, and perspectives of the target culture(s).
 - The student evaluates similarities and differences in the perspectives of the target culture(s) and his or her own culture(s) as found in audio, visual, and audiovisual resources.
 - The student demonstrates an understanding of the features of target culture communities (e.g., geographic, historical, artistic, social, or political).
 - The student demonstrates knowledge and understanding of content across disciplines.

Unit 3: Res Vocabularii

Unit 3 Learner Objectives:

- Read and comprehend Latin poetry and prose from selected authors with appropriate assistance.
- Translate previously prepared Latin texts into English as literally as possible.
- Relate the Latin texts to Roman historical, cultural, and literary contexts.
- Analyze linguistic and literary features of one or more Latin texts.

Unit 3 CollegeBoard Objectives:

- **The student engages in spoken interpersonal communications.**
 - The student engages in the oral exchange of information, opinions, and ideas in a variety of time frames in formal situations.

- The student engages in the oral exchange of information, opinions, and ideas in a variety of time frames in informal situations.
- The student elicits information and clarifies meaning by using a variety of strategies.
- The student states and supports opinions in oral interactions.
- The student initiates and sustains interaction through the use of various verbal and nonverbal strategies.
- The student understands a variety of vocabulary, including idiomatic and culturally appropriate expressions.
- The student uses a variety of vocabulary, including idiomatic and culturally appropriate expressions on a variety of topics.
- The student self-monitors and adjusts language production.
- The student demonstrates an understanding of the features of target culture communities (e.g., geographic, historical, artistic, social, or political).
- The student demonstrates knowledge and understanding of content across disciplines.
- **The student engages in written interpersonal communications.**
 - The student engages in the written exchange of information, opinions, and ideas in a variety of time frames in formal situations.
 - The student engages in the written exchange of information, opinions, and ideas in a variety of time frames in informal situations.
 - The student writes formal correspondence in a variety of media using appropriate formats and conventions.
 - The student writes informal correspondence in a variety of media using appropriate formats and conventions.
 - The student elicits information and clarifies meaning by using a variety of strategies.
 - The student states and supports opinions in written interactions.
 - The student initiates and sustains interaction during written interpersonal communication in a variety of media.
 - The student understands a variety of vocabulary, including idiomatic and culturally appropriate expressions.
 - The student uses a variety of vocabulary, including idiomatic and culturally appropriate expressions on a variety of topics.
 - The student self-monitors and adjusts language production.
 - The student demonstrates an understanding of the features of target culture communities (e.g., geographic, historical, artistic, social, or political).
 - The student demonstrates knowledge and understanding of content across disciplines.
- **The student synthesize information from a variety of authentic audio, visual, and audiovisual resources.**
 - The student demonstrates comprehension of content from authentic audio resources.
 - The student demonstrates comprehension of content from authentic visual resources.
 - The student demonstrates comprehension of content from authentic audiovisual resources.
 - The student demonstrates understanding of a variety of vocabulary, including

- idiomatic and culturally authentic expressions.
- The student understands the purpose of a message and the point of view of its author.
- The student identifies the distinguishing features (e.g., type of resource, intended audience, purpose) of authentic audio, visual, and audiovisual resources.
- The student demonstrates critical viewing or listening of audio, visual, and audiovisual resources in the target cultural context.
- The student monitors comprehension and uses other sources to enhance understanding.
- The student examines, compares, and reflects on products, practices, and perspectives of the target culture(s).
- The student evaluates similarities and differences in the perspectives of the target culture(s) and his or her own culture(s) as found in audio, visual, and audiovisual resources.
- The student demonstrates an understanding of the features of target culture communities (e.g., geographic, historical, artistic, social, or political).
- The student demonstrates knowledge and understanding of content across disciplines.

Unit 4: De Bello Gallico

Unit 4 Learner Objectives:

- Read and comprehend Latin poetry and prose from selected authors with appropriate assistance.
- Translate previously prepared Latin texts into English as literally as possible.
- Relate the Latin texts to Roman historical, cultural, and literary contexts.
- Analyze linguistic and literary features of one or more Latin texts.

Unit 4 CollegeBoard Objectives:

- **The student engages in spoken interpersonal communications.**
 - The student engages in the oral exchange of information, opinions, and ideas in a variety of time frames in formal situations.
 - The student engages in the oral exchange of information, opinions, and ideas in a variety of time frames in informal situations.
 - The student elicits information and clarifies meaning by using a variety of strategies.
 - The student states and supports opinions in oral interactions.
 - The student initiates and sustains interaction through the use of various verbal and nonverbal strategies.
 - The student understands a variety of vocabulary, including idiomatic and culturally appropriate expressions.
 - The student uses a variety of vocabulary, including idiomatic and culturally appropriate expressions on a variety of topics.
 - The student self-monitors and adjusts language production.
 - The student demonstrates an understanding of the features of target culture communities (e.g., geographic, historical, artistic, social, or political).
 - The student demonstrates knowledge and understanding of content across disciplines.

- **The student engages in written interpersonal communications.**
 - The student engages in the written exchange of information, opinions, and ideas in a variety of time frames in formal situations.
 - The student engages in the written exchange of information, opinions, and ideas in a variety of time frames in informal situations.
 - The student writes formal correspondence in a variety of media using appropriate formats and conventions.
 - The student writes informal correspondence in a variety of media using appropriate formats and conventions.
 - The student elicits information and clarifies meaning by using a variety of strategies.
 - The student states and supports opinions in written interactions.
 - The student initiates and sustains interaction during written interpersonal communication in a variety of media.
 - The student understands a variety of vocabulary, including idiomatic and culturally appropriate expressions.
 - The student uses a variety of vocabulary, including idiomatic and culturally appropriate expressions on a variety of topics.
 - The student self-monitors and adjusts language production.
 - The student demonstrates an understanding of the features of target culture communities (e.g., geographic, historical, artistic, social, or political).
 - The student demonstrates knowledge and understanding of content across disciplines.
- **The student synthesizes information from a variety of authentic audio, visual, and audiovisual resources.**
 - The student demonstrates comprehension of content from authentic audio resources.
 - The student demonstrates comprehension of content from authentic visual resources.
 - The student demonstrates comprehension of content from authentic audiovisual resources.
 - The student demonstrates understanding of a variety of vocabulary, including idiomatic and culturally authentic expressions.
 - The student understands the purpose of a message and the point of view of its author.
 - The student identifies the distinguishing features (e.g., type of resource, intended audience, purpose) of authentic audio, visual, and audiovisual resources.
 - The student demonstrates critical viewing or listening of audio, visual, and audiovisual resources in the target cultural context.
 - The student monitors comprehension and uses other sources to enhance understanding.
 - The student examines, compares, and reflects on products, practices, and perspectives of the target culture(s).
 - The student evaluates similarities and differences in the perspectives of the target culture(s) and his or her own culture(s) as found in audio, visual, and audiovisual resources.
 - The student demonstrates an understanding of the features of target culture communities (e.g., geographic, historical, artistic, social, or political).

- The student demonstrates knowledge and understanding of content across disciplines.

FRENCH I

Course Length: 2 semesters

Credits: 1.0

Recommended Grade Levels: 9, 10, 11, 12

Prerequisites: None

Course Description: In preparation for AP courses and in alignment with the World-Readiness Standards for Learning Language Learnings set forth by the American Council on the Teaching of Foreign Languages, French I is an introductory level course typically taken in the first three years of high school. Students begin their introduction to French with fundamental building blocks in four key areas of foreign language study: listening comprehension, speaking, reading, and writing. The course represents an ideal blend of language learning pedagogy and online learning. Each week consists of an ongoing adventure story, a new vocabulary theme and grammar concept, numerous interactive games reinforcing vocabulary and grammar, reading and listening comprehension activities, speaking and writing activities, and multimedia cultural presentations covering major French-speaking areas in Europe and across the globe. With the aid and facilitation of a certified French instructor, course content is delivered primarily online through Middlebury Interactive Languages.

FRENCH I UNIT PROGRESSION

Unit 1: Greetings

Unit 1 Learner Objectives:

- Engage in language learning
- Master common vocabulary terms and phrases
- Comprehend a wide range of grammar patterns
- Instigate and continue simple conversations, and respond appropriately to basic conversational prompts
- Generate language incorporating basic vocabulary and a limited range of grammar patterns
- Read, write, speak, and listen for meaning in basic French
- Analyze and compare cultural practices, products, and perspectives of various French-speaking countries
- Regularly assess progress in proficiency through quizzes, tests, and speaking/writing submissions

Unit 1 Topics Covered:

- Grammar Pattern:
 - Parts of Speech
 - Nouns, definite articles & gender
 - Definite articles
 - Tu vs. Vous
- Culture:
 - France

Unit 1 World-Readiness Standards for Learning Languages:

- **COMMUNICATE EFFECTIVELY IN MORE THAN ONE LANGUAGE IN ORDER TO FUNCTION IN A VARIETY OF SITUATIONS AND FOR MULTIPLE PURPOSES**
 - Interpersonal Communication: Learners interact and negotiate meaning in spoken, signed, or written conversations to share information, reactions, feelings, and opinions.
 - Interpretive Communication: Learners understand, interpret, and analyze what is heard, read, or viewed on a variety of topics.
 - Presentational Communication: Learners present information, concepts, and ideas to inform, explain, persuade, and narrate on a variety of topics using appropriate media and adapting to various audiences of listeners, readers, or viewers.
- **INTERACT WITH CULTURAL COMPETENCE AND UNDERSTANDING**
 - Relating Cultural Practices to Perspectives: Learners use the language to investigate, explain, and reflect on the relationship between the practices and perspectives of the cultures studied
 - Relating Cultural Products to Perspectives: Learners use the language to investigate, explain, and reflect on the relationship between the products and perspectives of the cultures studied
- **CONNECT WITH OTHER DISCIPLINES AND ACQUIRE INFORMATION AND DIVERSE PERSPECTIVES IN ORDER TO USE THE LANGUAGE TO FUNCTION IN ACADEMIC AND CAREER-RELATED SITUATIONS**
 - Making Connections: Learners build, reinforce, and expand their knowledge of other disciplines while using the language to develop critical thinking and to solve problems creatively
 - Acquiring Information and Diverse Perspectives: Learners access and evaluate information and diverse perspectives that are available through the language and its cultures
- **DEVELOP INSIGHT INTO THE NATURE OF LANGUAGE AND CULTURE IN ORDER TO INTERACT WITH CULTURAL COMPETENCE**
 - Language Comparisons: Learners use the language to investigate, explain, and reflect on the nature of language through comparisons of the language studied and their own.
 - Cultural Comparisons: Learners use the language to investigate, explain, and reflect on the concept of culture through comparisons of the cultures studied and their own.
- **COMMUNICATE AND INTERACT WITH CULTURAL COMPETENCE IN ORDER TO PARTICIPATE IN MULTILINGUAL COMMUNITIES AT HOME AND AROUND THE WORLD**
 - School and Global Communities: Learners use the language both within and beyond the classroom to interact and collaborate in their community and the globalized world
 - Lifelong Learning: Learners set goals and reflect on their progress in using languages for enjoyment, enrichment, and advancement

Unit 2: School, Alphabet, French Rhythm, and Accents

Unit 2 Learner Objectives:

- Same as Unit 1

Unit 2 Topics Covered:

- Grammar Pattern:
 - Indefinite Articles
- Culture:
 - France

Unit 2 World-Readiness Standards for Learning Languages:

- Same as Unit 1

Unit 3: Descriptions and Colors

Unit 3 Learner Objectives:

- Same as Unit 1

Unit 3 Topics Covered:

- Grammar Pattern:
 - French subject pronouns
- Culture:
 - France

Unit 3 World-Readiness Standards for Learning Languages:

- Same as Unit 1

Unit 4: Countries, Nationalities, and Numbers

Unit 4 Learner Objectives:

- Same as Unit 1

Unit 4 Topics Covered:

- Grammar Pattern:
 - Present tense of the 3 major verb groups
- Culture:
 - Monaco

Unit 4 World-Readiness Standards for Learning Languages:

- Same as Unit 1

Unit 5: Common Verbs #1

Unit 5 Learner Objectives:

- Same as Unit 1

Unit 4 Topics Covered:

- Grammar Pattern:
 - Making compound sentences
- Culture:
 - Monaco

Unit 4 World-Readiness Standards for Learning Languages:

- Same as Unit 1

Unit 6: Common Verbs #2 and Telling Time

Unit 6 Learner Objectives:

- Same as Unit 1

Unit 6 Topics Covered:

- Grammar Pattern:
 - The Imperative
- Culture:
 - Switzerland

Unit 6 World-Readiness Standards for Learning Languages:

- Same as Unit 1

Unit 7: Common Verbs #3 and Conjunctions

Unit 7 Learner Objectives:

- Same as Unit 1

Unit 7 Topics Covered:

- Grammar Pattern:
 - Simple negative ne...pas
- Culture:
 - Switzerland

Unit 7 World-Readiness Standards for Learning Languages:

- Same as Unit 1

Unit 8: Days, Months, and Seasons

Unit 8 Learner Objectives:

- Same as Unit 1

Unit 8 Topics Covered:

- Grammar Pattern:
 - Expressions with Avoir
- Culture:
 - Rwanda

Unit 8 World-Readiness Standards for Learning Languages:

- Same as Unit 1

Unit 9: Review

- Midterm review and test – no topics

Unit 10: Hobbies

Unit 10 Learner Objectives:

- Same as Unit 1

Unit 10 Topics Covered:

- Grammar Pattern:
 - Asking questions
- Culture:
 - Rwanda

Unit 10 World-Readiness Standards for Learning Languages:

- Same as Unit 1

Unit 11: Food (part 1)

Unit 11 Learner Objectives:

- Same as Unit 1

Unit 11 Topics Covered:

- Grammar Pattern:
 - “de” and “à” and their contractions
- Culture:
 - French Polynesia

Unit 11 World-Readiness Standards for Learning Languages:

- Same as Unit 1

Unit 12: Food (part 2)

Unit 12 Learner Objectives:

- Same as Unit 1

Unit 12 Topics Covered:

- Grammar Pattern:
 - Faire versus jouer
- Culture:
 - French Polynesia

Unit 12 World-Readiness Standards for Learning Languages:

- Same as Unit 1

Unit 13: Family

Unit 13 Learner Objectives:

- Same as Unit 1

Unit 13 Topics Covered:

- Grammar Pattern:
 - Selected adverbs
- Culture:
 - Canada

Unit 13 World-Readiness Standards for Learning Languages:

- Same as Unit 1

Unit 14: Places

Unit 14 Learner Objectives:

- Same as Unit 1

Unit 14 Topics Covered:

- Grammar Pattern:
 - C'est versus Il est...
- Culture:
 - Canada

Unit 14 World-Readiness Standards for Learning Languages:

- Same as Unit 1

Unit 15: Animals

Unit 15 Learner Objectives:

- Same as Unit 1

Unit 15 Topics Covered:

- Grammar Pattern:
 - Comparatives/Superlatives
- Culture:
 - Mali

Unit 15 World-Readiness Standards for Learning Languages:

- Same as Unit 1

Unit 16: Shopping

Unit 16 Learner Objectives:

- Same as Unit 1

Unit 16 Topics Covered:

- Grammar Pattern:
 - Expressions with faire
- Culture:
 - Mali

Unit 16 World-Readiness Standards for Learning Languages:

- Same as Unit 1

Unit 17: Weather Expressions

Unit 17 Learner Objectives:

- Same as Unit 1

Unit 17 Topics Covered:

- Grammar Pattern:
 - Forms of quel and lequel
- Culture:
 - Chad

Unit 17 World-Readiness Standards for Learning Languages:

- Same as Unit 1

Unit 18: Review

- Final review and test – no topics

Unit 19: Professions

Unit 18 Learner Objectives:

- Same as Unit 1

Unit 18 Topics Covered:

- Grammar Pattern:
 - Ordinal Numbers
 - The verb Etre
- Culture:
 - Burundi

Unit 18 World-Readiness Standards for Learning Languages:

- Same as Unit 1

Unit 20: Clothing

Unit 20 Learner Objectives:

- Same as Unit 1

Unit 20 Topics Covered:

- Grammar Pattern:
 - Adjectives: agreement & placement (#1)
- Culture:
 - Burundi

Unit 20 World-Readiness Standards for Learning Languages:

- Same as Unit 1

Unit 21: At Home

Unit 21 Learner Objectives:

- Same as Unit 1

Unit 21 Topics Covered:

- Grammar Pattern:
 - Possessive adjectives
- Culture:
 - Guinea

Unit 21 World-Readiness Standards for Learning Languages:

- Same as Unit 1

Unit 22: The Body

Unit 22 Learner Objectives:

- Same as Unit 1

Unit 22 Topics Covered:

- Grammar Pattern:
 - The near future tense
- Culture:
 - Guinea

Unit 22 World-Readiness Standards for Learning Languages:

- Same as Unit 1

Unit 23: Reflexive Verbs

Unit 23 Learner Objectives:

- Same as Unit 1

Unit 23 Topics Covered:

- Grammar Pattern:
 - Il y a ...
- Culture:
 - Haiti

Unit 23 World-Readiness Standards for Learning Languages:

- Same as Unit 1

Unit 24: Cognates

Unit 24 Learner Objectives:

- Same as Unit 1

Unit 24 Topics Covered:

- Grammar Pattern:
 - Etre + nationality
- Culture:
 - Haiti

Unit 24 World-Readiness Standards for Learning Languages:

- Same as Unit 1

Unit 25: On Vacation

Unit 25 Learner Objectives:

- Same as Unit 1

Unit 25 Topics Covered:

- Grammar Pattern:
 - Partitive articles
- Culture:
 - Belgium

Unit 25 World-Readiness Standards for Learning Languages:

- Same as Unit 1

Unit 26: Telephone

Unit 26 Learner Objectives:

- Same as Unit 1

Unit 26 Topics Covered:

- Grammar Pattern:

- Expressions with Avoir
- Culture:
 - Belgium

Unit 26 World-Readiness Standards for Learning Languages:

- Same as Unit 1

Unit 27: Review

- Midterm review and test – no topics

Unit 28: Directions

Unit 28 Learner Objectives:

- Same as Unit 1

Unit 28 Topics Covered:

- Grammar Pattern:
 - Adjectives: agreement & placement (#2)
- Culture:
 - Madagascar

Unit 28 World-Readiness Standards for Learning Languages:

- Same as Unit 1

Unit 29: Transportation

Unit 29 Learner Objectives:

- Same as Unit 1

Unit 29 Topics Covered:

- Grammar Pattern:
 - Demonstrative articles
- Culture:
 - Madagascar

Unit 29 World-Readiness Standards for Learning Languages:

- Same as Unit 1

Unit 30: Medical Terms

Unit 30 Learner Objectives:

- Same as Unit 1

Unit 30 Topics Covered:

- Grammar Pattern:
 - Sickness & avoir expressions
- Culture:
 - Martinique

Unit 30 World-Readiness Standards for Learning Languages:

- Same as Unit 1

Unit 31: Sports

Unit 31 Learner Objectives:

- Same as Unit 1

Unit 31 Topics Covered:

- Grammar Pattern:
 - Demonstrative particles
- Culture:
 - Martinique

Unit 31 World-Readiness Standards for Learning Languages:

- Same as Unit 1

Unit 32: Outdoor Activities

Unit 32 Learner Objectives:

- Same as Unit 1

Unit 32 Topics Covered:

- Grammar Pattern:
 - Direct object pronouns
- Culture:
 - New Caledonia

Unit 32 World-Readiness Standards for Learning Languages:

- Same as Unit 1

Unit 33: Travel

Unit 33 Learner Objectives:

- Same as Unit 1

Unit 33 Topics Covered:

- Grammar Pattern:
 - Y and En
- Culture:
 - New Caledonia

Unit 33 World-Readiness Standards for Learning Languages:

- Same as Unit 1

Unit 34: Computer (part 1)

Unit 34 Learner Objectives:

- Same as Unit 1

Unit 34 Topics Covered:

- Grammar Pattern:
 - Past tense with Avoir (passé composé)
- Culture:
 - Luxembourg

Unit 34 World-Readiness Standards for Learning Languages:

- Same as Unit 1

Unit 35: Computer (part 2)

Unit 35 Learner Objectives:

- Same as Unit 1

Unit 35 Topics Covered:

- Grammar Pattern:
 - Past tense with Etre (passé composé)
- Culture:
 - Luxembourg

Unit 35 World-Readiness Standards for Learning Languages:

- Same as Unit 1

FRENCH II

Course Length: 2 semesters

Credits: 1.0

Recommended Grade Levels: 10, 11, 12

Prerequisites: Successful completion of French I

Course Description: In preparation for AP courses and in alignment with the World-Readiness Standards for Learning Language Learnings set forth by the American Council on the Teaching of Foreign Languages, French II is a continuation of French I. This course is designed to further expand knowledge of key vocabulary topics and grammar concepts. Students not only begin to comprehend listening and reading passages more fully, but they also start to express themselves more meaningfully in both speaking and writing and by semester 2, the course is conducted almost entirely in French. Course content is organized around a vocabulary theme and grammar concept in each unit with practice presented in the form of reading and listening comprehension activities, speaking and writing activities, multimedia cultural presentations, and interactive activities and practices which reinforce vocabulary and grammar.

FRENCH II UNIT PROGRESSION

Unit 1: Verb Review

Unit 1 Learner Objectives:

- Review and expand the study of common vocabulary topics, including professional contexts such as technology, work, shopping and transportation.
- Gain a deeper understanding of a wide range of grammar patterns, including distinguishing between past, present, future and conditional verb tenses making hypotheses, and incorporating pronouns into speech.
- Analyze and compare cultural practices, products, and perspectives of Switzerland, Morocco, French Polynesia and Senegal.
- Participate in expanded conversations and respond appropriately to a variety of conversational prompts.
- Communicate more meaningfully using correct vocabulary and grammatical structures.
- Read, write, speak and listen for meaning in French.
- Analyze and compare cultural practices, products, and perspectives of various French-speaking countries
- Regularly assess progress in proficiency through quizzes, tests, and speaking/writing submissions

Unit 1 Topics Covered:

- Grammar Pattern:
 - Regular Verbs review
 - Present Tense
 - The Imperative
- Culture:
 - French Polynesia: Introduction
- Pronunciation:

- Word-final consonants: When to pronounce “-ent”

Unit 1 World-Readiness Standards for Learning Languages:

- **COMMUNICATE EFFECTIVELY IN MORE THAN ONE LANGUAGE IN ORDER TO FUNCTION IN A VARIETY OF SITUATIONS AND FOR MULTIPLE PURPOSES**
 - Interpersonal Communication: Learners interact and negotiate meaning in spoken, signed, or written conversations to share information, reactions, feelings, and opinions.
 - Interpretive Communication: Learners understand, interpret, and analyze what is heard, read, or viewed on a variety of topics.
 - Presentational Communication: Learners present information, concepts, and ideas to inform, explain, persuade, and narrate on a variety of topics using appropriate media and adapting to various audiences of listeners, readers, or viewers.
- **INTERACT WITH CULTURAL COMPETENCE AND UNDERSTANDING**
 - Relating Cultural Practices to Perspectives: Learners use the language to investigate, explain, and reflect on the relationship between the practices and perspectives of the cultures studied
 - Relating Cultural Products to Perspectives: Learners use the language to investigate, explain, and reflect on the relationship between the products and perspectives of the cultures studied
- **CONNECT WITH OTHER DISCIPLINES AND ACQUIRE INFORMATION AND DIVERSE PERSPECTIVES IN ORDER TO USE THE LANGUAGE TO FUNCTION IN ACADEMIC AND CAREER-RELATED SITUATIONS**
 - Making Connections: Learners build, reinforce, and expand their knowledge of other disciplines while using the language to develop critical thinking and to solve problems creatively
 - Acquiring Information and Diverse Perspectives: Learners access and evaluate information and diverse perspectives that are available through the language and its cultures
- **DEVELOP INSIGHT INTO THE NATURE OF LANGUAGE AND CULTURE IN ORDER TO INTERACT WITH CULTURAL COMPETENCE**
 - Language Comparisons: Learners use the language to investigate, explain, and reflect on the nature of language through comparisons of the language studied and their own.
 - Cultural Comparisons: Learners use the language to investigate, explain, and reflect on the concept of culture through comparisons of the cultures studied and their own.
- **COMMUNICATE AND INTERACT WITH CULTURAL COMPETENCE IN ORDER TO PARTICIPATE IN MULTILINGUAL COMMUNITIES AT HOME AND AROUND THE WORLD**
 - School and Global Communities: Learners use the language both within and beyond the classroom to interact and collaborate in their community and the globalized world
 - Lifelong Learning: Learners set goals and reflect on their progress in using languages for enjoyment, enrichment, and advancement.

Unit 2: Descriptions

Unit 2 Learner Objectives:

- Same as Unit 1

Unit 2 Topics Covered:

- Grammar Pattern:
 - Irregular Adjectives
 - Adjective Placement
 - Possessive Adjectives
- Culture:
 - The Cultural Festival of Heiva

Unit 2 World-Readiness Standards for Learning Languages:

- Same as Unit 1

Unit 3: Food

Unit 3 Learner Objectives:

- Same as Unit 1

Unit 3 Topics Covered:

- Grammar Pattern:
 - The Past Tense (passé composé)
- Culture:
 - Polynesian Cuisine
- Pronunciation:
 - Masculine and Feminine Adjective Endings

Unit 3 World-Readiness Standards for Learning Languages:

- Same as Unit 1

Unit 4: Professions

Unit 4 Learner Objectives:

- Same as Unit 1

Unit 4 Topics Covered:

- Grammar Pattern:
 - The Near Future (future proche)
 - Double Verb sentences
- Culture:
 - The Tahitian Language

Unit 4 World-Readiness Standards for Learning Languages:

- Same as Unit 1

Unit 5: At a Restaurant

Unit 5 Learner Objectives:

- Same as Unit 1

Unit 5 Topics Covered:

- Grammar Pattern:
 - Negative Expressions
 - The Partitive Article
- Culture:
 - Tahitian History
- Pronunciation:
 - La liaison

Unit 5 World-Readiness Standards for Learning Languages:

- Same as Unit 1

Unit 6: Extended Family

Unit 6 Learner Objectives:

- Same as Unit 1

Unit 6 Topics Covered:

- Grammar Pattern:
 - Direct Object Pronouns
 - Stress (Tonic) Pronouns
- Culture:
 - Mono'i, an Ambassador of Beauty and Health

Unit 6 World-Readiness Standards for Learning Languages:

- Same as Unit 1

Unit 7: Health (Talking with Doctors)

Unit 7 Learner Objectives:

- Same as Unit 1

Unit 7 Topics Covered:

- Grammar Pattern:
 - Indirect Object Pronouns
- Culture:
 - The Painter Paul Gauguin
- Pronunciation:
 - The Open and Closed “u” Sounds

Unit 7 World-Readiness Standards for Learning Languages:

- Same as Unit 1

Unit 8: In the City

Unit 8 Learner Objectives:

- Same as Unit 1

Unit 8 Topics Covered:

- Grammar Pattern:
 - Prepositions
- Culture:
 - Tikis

Unit 8 World-Readiness Standards for Learning Languages:

- Same as Unit 1

Unit 9: Review

- Midterm review and test – no topics

Unit 10: Music

Unit 10 Learner Objectives:

- Same as Unit 1

Unit 10 Topics Covered:

- Grammar Pattern:
 - Forms of quel and lequel
- Culture:
 - Morocco: Introduction

Unit 10 World-Readiness Standards for Learning Languages:

- Same as Unit 1

Unit 11: Past-times

Unit 11 Learner Objectives:

- Same as Unit 1

Unit 11 Topics Covered:

- Grammar Pattern:
 - The Imperfect
- Culture:
 - The Souk, a Traditional Marketplace
- Pronunciation:
 - The Open and Closed “e” Sounds

Unit 11 World-Readiness Standards for Learning Languages:

- Same as Unit 1

Unit 12: Holidays and Celebrations

Unit 12 Learner Objectives:

- Same as Unit 1

Unit 12 Topics Covered:

- Grammar Pattern:
 - The Imperfect vs. the Past Tense
- Culture:
 - Moroccan Cuisine

Unit 12 World-Readiness Standards for Learning Languages:

- Same as Unit 1

Unit 13: Countries and Nationalities

Unit 13 Learner Objectives:

- Same as Unit 1

Unit 13 Topics Covered:

- Grammar Pattern:
 - Prepositions with Proper Place Names
- Culture:
 - Multilingual Morocco
- Pronunciation:
 - The e caduc (schwa) part 1: Identification

Unit 13 World-Readiness Standards for Learning Languages:

- Same as Unit 1

Unit 14: Vacation

Unit 14 Learner Objectives:

- Same as Unit 1

Unit 14 Topics Covered:

- Grammar Pattern:
 - The Expressions depuis, il y a, and pendant
- Culture:
 - Moroccan Weddings

Unit 14 World-Readiness Standards for Learning Languages:

- Same as Unit 1

Unit 15: The Body

Unit 15 Learner Objectives:

- Same as Unit 1

Unit 15 Topics Covered:

- Grammar Pattern:
 - Reflexive Verbs
- Culture:
 - Moroccan History
- Pronunciation:
 - The e caduc (schwa) part 2: When they drop.

Unit 15 World-Readiness Standards for Learning Languages:

- Same as Unit 1

Unit 16: Clothing

Unit 16 Learner Objectives:

- Reflexive Verbs in the *passé composé*

Unit 16 Topics Covered:

- Grammar Pattern:
 - *La fantasia*, an Equestrian Tradition
- Culture:
 - Mali

Unit 16 World-Readiness Standards for Learning Languages:

- Same as Unit 1

Unit 17: School

Unit 17 Learner Objectives:

- Same as Unit 1

Unit 17 Topics Covered:

- Grammar Pattern:
 - The Pronoun *y*
- Culture:
 - The Tagine
- Pronunciation:
 - Pronouncing numbers

Unit 17 World-Readiness Standards for Learning Languages:

- Same as Unit 1

Unit 18: Review

- Final review and test – no topics

Unit 19: Technology

Unit 19 Learner Objectives:

- Same as Unit 1

Unit 19 Topics Covered:

- Grammar Pattern:
 - The Future (future simple)
- Culture:
 - Switzerland: Introduction
- Pronunciation:
 - Stress and Intonation

Unit 19 World-Readiness Standards for Learning Languages:

- Same as Unit 1

Unit 20: Expressions with the Verbs *avoir* and *être*

Unit 20 Learner Objectives:

- Same as Unit 1

Unit 20 Topics Covered:

- Grammar Pattern:
 - The Expressions *dès*, *que* and *quand*
- Culture:
 - Skiing

Unit 20 World-Readiness Standards for Learning Languages:

- Same as Unit 1

Unit 21: Computers

Unit 21 Learner Objectives:

- Same as Unit 1

Unit 21 Topics Covered:

- Grammar Pattern:
 - Demonstrative adjectives
- Culture:
 - Swiss Chocolate
- Pronunciation:

- The Letter “s”

Unit 21 World-Readiness Standards for Learning Languages:

- Same as Unit 1

Unit 22: Love and Dating (part 1)

Unit 22 Learner Objectives:

- Same as Unit 1

Unit 22 Topics Covered:

- Grammar Pattern:
 - Relative Pronouns (qui, que, and don’t)
- Culture:
 - Switzerland: an Independent Nation

Unit 22 World-Readiness Standards for Learning Languages:

- Same as Unit 1

Unit 23: Work

Unit 23 Learner Objectives:

- Same as Unit 1

Unit 23 Topics Covered:

- Grammar Pattern:
 - Adverbs
- Culture:
 - Yodeling
- Pronunciation:
 - The Open and Closed “o” Sounds

Unit 23 World-Readiness Standards for Learning Languages:

- Same as Unit 1

Unit 24: Measurements and Quantities

Unit 24 Learner Objectives:

- Same as Unit 1

Unit 24 Topics Covered:

- Grammar Pattern:
 - The Pronoun *en*
- Culture:
 - Huitante: counting in Switzerland

Unit 24 World-Readiness Standards for Learning Languages:

- Same as Unit 1

Unit 25: Love and Dating (part 2)

Unit 25 Learner Objectives:

- Same as Unit 1

Unit 25 Topics Covered:

- Grammar Pattern:
 - Pronoun review and Pronoun Order Review
- Culture:
 - The Author Jean-Jacques Rousseau
- Pronunciation:
 - Nasal Vowels

Unit 25 World-Readiness Standards for Learning Languages:

- Same as Unit 1

Unit 26: Transportation

Unit 26 Learner Objectives:

- Same as Unit 1

Unit 26 Topics Covered:

- Grammar Pattern:
 - The Comparative and the Superlative
- Culture:
 - The Visual Arts in Switzerland

Unit 26 World-Readiness Standards for Learning Languages:

- Same as Unit 1

Unit 27: Review

- Midterm review and test – no topics

Unit 28: Social Issues

Unit 28 Learner Objectives:

- Same as Unit 1

Unit 28 Topics Covered:

- Grammar Pattern:
 - Conjunctions
- Culture:

- Senegal: Introduction

Unit 28 World-Readiness Standards for Learning Languages:

- Same as Unit 1

Unit 29: At Home

Unit 29 Learner Objectives:

- Same as Unit 1

Unit 29 Topics Covered:

- Grammar Pattern:
 - The Conditional Tense
- Culture:
 - Les griots: Storytellers, Musicians, Teachers.
- Pronunciation:
 - The Open and Closed “w” Sounds

Unit 29 World-Readiness Standards for Learning Languages:

- Same as Unit 1

Unit 30: Shopping and Money

Unit 30 Learner Objectives:

- Same as Unit 1

Unit 30 Topics Covered:

- Grammar Pattern:
 - Si clauses in the Future and Conditional
- Culture:
 - Senegalese Cuisine

Unit 30 World-Readiness Standards for Learning Languages:

- Same as Unit 1

Unit 31: Nature

Unit 31 Learner Objectives:

- Same as Unit 1

Unit 31 Topics Covered:

- Grammar Pattern:
 - Demonstrative Pronouns
- Culture:
 - The Dakar
- Pronunciation:

- The Open and Closed “eu” Sounds

Unit 31 World-Readiness Standards for Learning Languages:

- Same as Unit 1

Unit 32: False Cognates

Unit 32 Learner Objectives:

- Same as Unit 1

Unit 32 Topics Covered:

- Grammar Pattern:
 - The Subjunctive – An Introduction
- Culture:
 - The French Language in Senegal

Unit 32 World-Readiness Standards for Learning Languages:

- Same as Unit 1

Unit 33: Giving Advice

Unit 33 Learner Objectives:

- Same as Unit 1

Unit 33 Topics Covered:

- Grammar Pattern:
 - The Subjunctive vs. the Infinitive (il faut vs. il faut que)
- Culture:
 - History of Senegal
- Pronunciation:
 - Review the Open and Closed “e” Sounds

Unit 33 World-Readiness Standards for Learning Languages:

- Same as Unit 1

Unit 34: Les Mots-Liens

Unit 34 Learner Objectives:

- Same as Unit 1

Unit 34 Topics Covered:

- Grammar Pattern:
 - *Mots-liens* and Paragraph-level Speech
- Culture:
 - Léopold Sédar Senghor

Unit 34 World-Readiness Standards for Learning Languages:

- Same as Unit 1

Unit 35: Verb Review

Unit 35 Learner Objectives:

- Same as Unit 1

Unit 35 Topics Covered:

- Grammar Pattern:
 - Overview of Verb Tenses
- Culture:
 - The Djembe
- Pronunciation:
 - Review Open and Closed Sounds

Unit 35 World-Readiness Standards for Learning Languages:

- Same as Unit 1

Unit 36: Review

- Final review and test – no topics

FRENCH III

Course Length: 2 semesters

Credits: 1.0

Recommended Grade Levels: 11, 12

Prerequisites: Successful completion of French II

Course Description: In preparation for AP courses and in alignment with the World-Readiness Standards for Learning Language Learnings set forth by the American Council on the Teaching of Foreign Languages, French III is a continuation of French II. Students further deepen their understanding of French by focusing on the three modes of communication: interpretive, interpersonal and presentational. Each unit consists of a variety of activities which teach the students how to understand more difficult written and spoken passages, to communicate with others through informal speaking and writing interactions, and to express their thoughts and opinions in more formal spoken and written contexts.

Students should expect to be actively engaged in their own language learning, use correct vocabulary terms and phrases naturally, incorporate a wide range of grammar concepts consistently and correctly while speaking and writing, participate in conversations covering a wide range of topics and respond appropriately to conversational prompts, analyze and compare cultural practices, products and perspectives of various French-speaking countries, read and analyze important pieces of literature and take frequent assessments where their language progression can be monitored. The course is conducted almost entirely in French.

FRENCH III UNIT PROGRESSION

Unit 1: Love and Friendship; The modern family

Unit 1 Learner Objectives:

- Begin to prepare for the AP French test •
- Review and expand upon a wide range of grammar patterns, including the use of the passive voice, indirect speech, and subjunctive clauses
- Analyze and compare the cultural practices, products, and perspectives of various French--- speaking countries, including marriage traditions, the culinary and fashion industries, and the distinction between public and private space
- Generate language incorporating advanced grammar and vocabulary patterns, including global contexts such as social challenges, legal rights, and environmental concerns
- Participate in detailed conversations and respond appropriately to a variety of conversational prompts
- Read, write, speak, and listen for meaning using advanced French
- Regularly assess progress in proficiency through quizzes, tests, and speaking/writing submissions

Unit 1 Topics Covered:

- Grammar Pattern:
 - Present regular and irregular

- Possessive adjectives and pronouns
- Culture:
 - Marriage in France
- Pronunciation:
 - *Liaison*, stress and intonation

Unit 1 World-Readiness Standards for Learning Languages:

- COMMUNICATION: Communicate in languages other than English
 - Standard 1.1: Students engage in conversations, provide and obtain information, express feelings and emotions, and exchange opinions.
 - Standard 1.2: Students understand and interpret written and spoken language on a variety of topics.
 - Standard 1.3: Students present information, concepts, and ideas to an audience of listeners or readers on a variety of topics.
- CULTURE: Gain Knowledge and Understanding of Other Cultures
 - Standard 2.1: Students demonstrate an understanding of the relationship between the practices and perspectives of the culture studied.
 - Standard 2.2: Students demonstrate an understanding of the relationship between the products and perspectives of the culture studied.
- CONNECTIONS: Connect with Other Disciplines and Acquire Information
 - Standard 3.1: Students reinforce and further their knowledge of other disciplines through the foreign language.
 - Standard 3.2: Students acquire information and recognize the distinctive viewpoints that are only available through the foreign language and its cultures.
- COMPARISONS: Develop Insight into the Nature of Language and Culture
 - Standard 4.1: Students demonstrate understanding of the nature of language through comparisons of the language studied and their own.
 - Standard 4.2: Students demonstrate understanding of the concept of culture through comparisons of the language studied and their own.
- COMMUNITIES: Participate in Multilingual Communities at Home and Around the World
 - Standard 5.1: Students use the language both within and beyond the school setting.
 - Standard 5.2: Students show evidence of becoming life-long learners by using the language for personal enjoyment and enrichment.

Unit 2: Physical appearance and Personality

Unit 2 Learner Objectives:

- Same as Unit 1

Unit 2 Topics Covered:

- Grammar Pattern:
 - Adjectives
 - Asking questions
- Culture:

- The Importance of fashion in France
- Pronunciation
 - Final consonants + H *aspiré* (when to pronounce them)

Unit 2 World-Readiness Standards for Learning Languages:

- Same as Unit 1

Unit 3: Life in High School & In Class

Unit 3 Learner Objectives:

- Same as Unit 1

Unit 3 Topics Covered:

- Grammar Pattern:
 - Imperfect
 - *Passé composé*
- Culture:
 - High School System (comparison)
 - La Révolution française
- Pronunciation:
 - ə/identification ə/ when to drop them and /e/ vs /ɛ/

Unit 3 World-Readiness Standards for Learning Languages:

- Same as Unit 1

Unit 4: After school activities & Vacations

Unit 4 Learner Objectives:

- Same as Unit 1

Unit 4 Topics Covered:

- Grammar Pattern:
 - *Passé composé* negation
 - Expressions of time
- Culture:
 - Summer& language camps
- Pronunciation:
 - S vs. ss

Unit 4 World-Readiness Standards for Learning Languages:

- Same as Unit 1

Unit 5: Public and Private space & House chores

Unit 5 Learner Objectives:

- Same as Unit 1

Unit 5 Topics Covered:

- Grammar Pattern:
 - *Passé composé* vs. imperfect
 - Plural of composite nouns + prepositions
- Culture:
 - Public & private space in homes (comparison between U.S & France)
- Pronunciation:
 - /u/ vs /y/ and /w/ and /ʏ/

Unit 5 World-Readiness Standards for Learning Languages:

- Same as Unit 1

Unit 6: Relationship with food & Regional cuisine

Unit 6 Learner Objectives:

- Same as Unit 1

Unit 6 Topics Covered:

- Grammar Pattern:
 - Articles Adverbs
 - Plus---que---parfait /indirect discourse
- Culture:
 - Meal rituals in French- --speaking countries
- Pronunciation:
 - open and closed vowel : /o/ vs /ɔ/
 - Open and closed "eu"

Unit 6 World-Readiness Standards for Learning Languages:

- Same as Unit 1

Unit 7: Public space & Transportation

Unit 7 Learner Objectives:

- Same as Unit 1

Unit 7 Topics Covered:

- Grammar Pattern:
 - Direct and indirect object pronouns
 - y/en disjunctive pronouns + order of pronouns
- Culture:
 - The Paris subway
- Pronunciation:
 - Nasal vowels:/ã/ vs. /ɔ̃/ vs. /œ̃/ + denasalisation

Unit 7 World-Readiness Standards for Learning Languages:

- Same as Unit 1

Unit 8: Travels & Study abroad

Unit 8 Learner Objectives:

- Same as Unit 1

Unit 8 Topics Covered:

- Grammar Pattern:
 - Geographical Prepositions
 - Imperative

Unit 8 World-Readiness Standards for Learning Languages:

- Same as Unit 1

Unit 9: The Arts – different styles and movements

Unit 9 Learner Objectives:

- Same as Unit 1

Unit 9 Topics Covered:

- Grammar Pattern:
 - *Savoir* vs. *connaître*
 - Comparatives/ superlatives
- Culture:
 - Architecture styles of French houses
- Pronunciation
 - *Plus* and *plus* (when to pronounce the final s)

Unit 9 World-Readiness Standards for Learning Languages:

- Same as Unit 1

Unit 10: Modern technology and the internet

Unit 10 Learner Objectives:

- Same as Unit 1

Unit 10 Topics Covered:

- Grammar Pattern:
 - Relative pronouns
 - *Tout* and its various forms
- Culture:
 - Media and social networks
- Pronunciation:
 - Difficult letters x, y, & z

Unit 10 World-Readiness Standards for Learning Languages:

- Same as Unit 1

Unit 11: The written press & Audio/visual

Unit 11 Learner Objectives:

- Same as Unit 1

Unit 11 Topics Covered:

- Grammar Pattern:
 - The passive voice
 - Present and past conditional + hypotheses
- Culture:
 - History: WW2
 - *La chanson de Roland* (Epic poem)
- Pronunciation:
 - Spelling and pronunciation differences

Unit 11 World-Readiness Standards for Learning Languages:

- Same as Unit 1

Unit 12: The medical system in France & the doctor's office

Unit 12 Learner Objectives:

- Same as Unit 1

Unit 12 Topics Covered:

- Grammar Pattern:
 - Present participles and Gerund
 - Cardinal and ordinal numbers
- Culture:
 - Health in France
- Pronunciation:
 - Numbers 5, 6, 8, and 10 pronunciation rule

Unit 12 World-Readiness Standards for Learning Languages:

- Same as Unit 1

Unit 13: The protection of our environment & Pollution

Unit 13 Learner Objectives:

- Same as Unit 1

Unit 13 Topics Covered:

- Grammar Pattern:
 - Subjunctive: what is it + how to form it
 - Subjunctive with irregular verbs

- Culture:
 - Trash separation and disposal
- Pronunciation:
 - S sounds in ---tion, ---sion, ---ssion, ---xion, and sc words

Unit 13 World-Readiness Standards for Learning Languages:

- Same as Unit 1

Unit 14: Social challenges & Immigration and Racism

Unit 14 Learner Objectives:

- Same as Unit 1

Unit 14 Topics Covered:

- Grammar Pattern:
 - When to use the subjunctive +
 - Past subjunctive
 - Impersonal expressions
- Culture:
 - Colonialism and its consequences in modern life
- Pronunciation:
 - K, ck, ch words

Unit 14 World-Readiness Standards for Learning Languages:

- Same as Unit 1

Unit 15: College preparation & the importance of learning a foreign language

Unit 15 Learner Objectives:

- Same as Unit 1

Unit 15 Topics Covered:

- Grammar Pattern:
 - Expressions that indicate the future tense + near future
 - Infinitives preceded by à, de or nothing + the past infinitive
- Culture:
 - History : May 1968
 - *Les Grandes Écoles* (Ivy league and specialized schools)
- Pronunciation:
 - French & Francophone accents

Unit 15 World-Readiness Standards for Learning Languages:

- Same as Unit 1

Unit 16: Looking for a job

Unit 16 Learner Objectives:

- Reflexive Verbs in the *passé composé*

Unit 16 Topics Covered:

- Grammar Pattern:
 - Nouns that change in masc. & fem.
 - Simple future + anterior future

Unit 16 World-Readiness Standards for Learning Languages:

- Same as Unit 1

MANDARIN I

Course Length: 2 semesters

Credits: 1.0

Recommended Grade Levels: 9, 10, 11

Prerequisites: None

Course Description: In preparation for AP courses and in alignment with the National Standards for Foreign Language Education, Mandarin I is an introductory level course typically taken in the first three years of high school. Since PrepNet requires the completion of at least two years of a foreign language, Mandarin I will be followed by Mandarin II when we add that course and help prepare for success in Mandarin III, then AP Mandarin. The course is designed around the skills needed to learn basic vocabulary and grammar and engage in rudimentary conversation. Geography and culture of the Mandarin-speaking world with an emphasis on Northern and SouthWestern China is also addressed. Students are expected to write short passages and read simple stories with comprehension and make written and oral presentations on a variety of topics.

MANDARIN I UNIT PROGRESSION

Unit 1: Greeting • • • •

Objectives:

- Learn the pinyin system
- Understand the 4 Chinese tones
- Greet and say goodbye to people
- Introduce yourself and exchange names with others
- Understand how Chinese greet and address one another

Unit 1 Priority Standards and Learner Objectives:

Priority Standard 1: engage in person to person communication in the target language.

Level 2

1.2.1a: Answer simple highly-practiced/memorized questions

1.2.2a: Ask simple highly-practiced/memorized questions related to familiar and personal topics.

1.2.3: Communicate in a manner that is partially understandable, with errors that force interpretation.

Level 3

1.3.1a: Provide answers and explanations to teacher prompted questions.

1.3.2a: Provide follow-up questions using details.

1.3.3: Communicate in a manner that is fully understandable, with some errors which do not impede comprehensibility.

Level 4

1.4.1: Thoroughly and correctly ask and answer impromptu questions as it relates to the exchange using vocabulary beyond what is taught in class.

1.4.2: Communicate in a manner that is fully understandable, with ease and clarity of expression.

Priority Standard 2a : Interpret the target language in spoken and/or written form(s), in the target language.

Level 2

2.2.1a: Identify basic meaning from spoken and written texts.

2.2.2: Identify the main idea.

Level 3

2.3.1a: Infer basic meaning from spoken and written texts.

2.3.2a: Explain the main idea with some supporting details.

Level 4

2.4.1a: Contextualize a source by incorporating cultural knowledge.

2.4.2a: Generate a claim using provided resources.

Priority Standard 3 : Present verbal output of the target language.

Level 2

3.2.1: Express accurate information

3.2.2: Present in a manner that is partially understandable, with errors that force interpretation.

3.2.3: Approach the audience with a register that is generally appropriate for the presentation, except for occasional shifts.

Level 3

3.3.1: Express organized and accurate information.

3.3.2: Present in a manner that is fully understandable, with some errors which do not impede comprehensibility.

3.3.3: Approach the audience with a register that is most appropriate for the presentation.

Level 4

3.4.1: Express organized and accurate information and include a cultural reference or moral focus connection.

3.4.2: Present in a manner that is fully comprehensible including vocabulary above and beyond what is taught in class, with ease and clarity of expression.

3.4.3: Deliver a relevant hook (i.e. - exaggerated statement, facts, quotes, video, question)

Unit 2: Age and Nationality • • • • •

Objectives:

- Count from 1 to 99
- Learn Chinese hand gestures for numbers 1 to 10
- Ask and answer questions pertaining to age and nationality
- Learn about the Chinese Zodiac

Unit 2 Priority Standards and Learner Objectives:

- Same as Unit 1

Unit 3: Family • • • •

Objectives:

- Identify family members and ask others about their families
- Ask whether someone has pets
- Ask and answer questions regarding quantity
- Measure words

Unit 3 Priority Standards and Learner Objectives:

- Same as Unit 1

Unit 4: Job and Language • • • • •

Objectives:

- Inquire about someone's occupation
- Ask and answer questions about what languages one can speak
- Asking yes and no questions
- Talking about "what"

Unit 4 Priority Standards and Learner Objectives:

- Same as Unit 1

Unit 5: Time • • • •

Objectives:

- State and ask the time
- Talk about future events
- Make appointments
- Apologize for tardiness
- Ask and answer questions about days of the week and months

Unit 5 Priority Standards and Learner Objectives:

- Priority standard 1 and 3 are the same

Priority Standard 2b: Interpret the target language in spoken and/or written form(s), in the target language.

Level 2

- 2.2.1: Identify basic meaning from spoken and written texts.
- 2.2.2: Identify the main idea.
- 2.2.3: Identify the intended audience of an authentic material.

Level 3

- 2.3.1: Infer basic meaning from spoken and written texts.
- 2.3.2b: Explain the main idea using previous knowledge and/or evidence from an authentic material.
- 2.3.3: Justify the intended audience of an authentic material.

Level 4

- 2.4.1: Contextualize a source by incorporating cultural knowledge.
- 2.4.2b: Generate a claim using previous knowledge and/or provided resources.
- 2.4.3: Evaluate the effectiveness of the source, based on the intended audience.

Unit 6: Food • • • •

Objectives:

- Inquire and express preferences for food and drink
- Express hunger
- Order food and drinks at a restaurant
- Discuss various dishes and their flavors
- Offer to pay for a meal

Unit 6 Priority Standards and Learner Objectives:

- Same as Unit 5

Unit 7: Shopping • • • •

Objectives:

- Ask about the availability and cost of different items or products in a store
- Understand and use different denominations and amounts of money
- Negotiate prices
- Use the correct expressions when paying with cash and receiving change

Unit 7 Priority Standards and Learner Objectives:

- Same as Unit 6

Unit 8: Academics • • • •

Objectives:

- Discuss classes and school subjects
- Express interest in something, Indicate levels of difficulty
- Discuss exams, homework and classroom situations
- Talking about “how”

Unit 8 Priority Standards and Learner Objectives:

- Same as Unit 7

MANDARIN II

Course Length: 2 semesters

Credits: 1.0

Recommended Grade Levels: 10, 11, 12

Prerequisites: Mandarin I proficiency

Course Description: The purpose of this course is to reinforce the fundamental skills of the Mandarin language that the student acquired in Mandarin 1. Learning Mandarin requires being exposed to large amounts of the new Chinese characters and getting accustomed to communicate in that language. Mandarin II is designed to keep learning grammar and vocabulary, but the emphasis will be on how we use the target language to communicate in real world tasks/situations. Students are expected to write short passages and read simple stories with comprehension and make written and oral presentations in Chinese characters on a variety of topics.

MANDARIN II UNIT PROGRESSION

Unit 1: Clothing • •

Objectives:

- List and express preferences for different colors
- Name different articles of clothing
- Discuss and find appropriate sizes
- Make comparisons

Unit 1 Priority Standards and Learner Objectives:

Priority Standard 1: engage in person to person communication in the target language.

Level 2

1.2.1a: Answer simple highly-practiced/memorized questions

1.2.2a: Ask simple highly-practiced/memorized questions related to familiar and personal topics.

1.2.3: Communicate in a manner that is partially understandable, with errors that force interpretation.

Level 3

1.3.1a: Provide answers and explanations to teacher prompted questions.

1.3.2a: Provide follow-up questions using details.

1.3.3: Communicate in a manner that is fully understandable, with some errors which do not

impede comprehensibility.

Level 4

1.4.1: Thoroughly and correctly ask and answer impromptu questions as it relates to the exchange using vocabulary beyond what is taught in class.

1.4.2: Communicate in a manner that is fully understandable, with ease and clarity of expression.

Priority Standard 2a : Interpret the target language in spoken and/or written form(s), in the target language.

Level 2

2.2.1a: Identify basic meaning from spoken and written texts.

2.2.2: Identify the main idea.

Level 3

2.3.1a: Infer basic meaning from spoken and written texts.

2.3.2a: Explain the main idea with some supporting details.

Level 4

2.4.1a: Contextualize a source by incorporating cultural knowledge.

2.4.2a: Generate a claim using provided resources.

Priority Standard 3 : Present verbal output of the target language.

Level 2

3.2.1: Express accurate information

3.2.2: Present in a manner that is partially understandable, with errors that force interpretation.

3.2.3: Approach the audience with a register that is generally appropriate for the presentation, except for occasional shifts.

Level 3

3.3.1: Express organized and accurate information.

3.3.2: Present in a manner that is fully understandable, with some errors which do not impede comprehensibility.

3.3.3: Approach the audience with a register that is most appropriate for the presentation.

Level 4

1.4.1: Thoroughly and correctly ask and answer impromptu questions as it relates to the exchange using vocabulary beyond what is taught in class.

1.4.2: Communicate in a manner that is fully understandable, with ease and clarity of expression.

Unit 2: Hobbies and Activities • • • •

Objectives:

- Inquire about what people like to do in their free time
- Discuss sports and leisure activities
- Discuss musical performances and instruments
- Express how often you like to do something

Unit 2 Priority Standards and Learner Objectives:

- Same as Unit 1

Unit 3: Travel & Navigation • • • •

Objectives:

- Ask and answer questions about vacation plans
- Describe different modes of transportation
- Give and receive directions
- Express the distance between two places
- Describe the attractions of China's capital

Unit 3 Priority Standards and Learner Objectives:

- Same as Unit 1

Unit 4: Technology and Modern China • • • • • • • •

Objectives:

- Use expressions related to computers and the internet
- Use terms for posting letters and packages as well as sending emails
- Wish someone a safe trip
- Learn more about the maglev Train and China's high-speed rail

Unit 4 Priority Standards and Learner Objectives:

- Same as Unit 1

Unit 5: Relationships & People • •

Objectives:

- Describe your emotions
- Discuss relationships, marriage, and break-ups
- Arrange to go on a date with someone
- Describe a person's qualities and attributes

Unit 5 Priority Standards and Learner Objectives:

- Priority standard 1 and 3 are the same

Priority Standard 2b: Interpret the target language in spoken and/or written form(s), in the target language.

Level 2

- 2.2.1: Identify basic meaning from spoken and written texts.
- 2.2.2: Identify the main idea.
- 2.2.3: Identify the intended audience of an authentic material.

Level 3

- 2.3.1: Infer basic meaning from spoken and written texts.
- 2.3.2b: Explain the main idea using previous knowledge and/or evidence from an authentic material.
- 2.3.3: Justify the intended audience of an authentic material.

Level 4

- 2.4.1: Contextualize a source by incorporating cultural knowledge.
- 2.4.2b: Generate a claim using previous knowledge and/or provided resources.
- 2.4.3: Evaluate the effectiveness of the source, based on the intended audience.

Unit 6: Medicine • •

Objectives:

- Refer to different parts of the body
- Inquire after a person's health

- Describe the symptoms of an illness
- Talk about the weather and the seasons

Unit 6 Priority Standards and Learner Objectives:

- Same as Unit 5

Unit 7: Business • •

Objectives:

- Talk about your part-time job
- What do you do
- Post graduation plans
- Learn about the importance of “guanxi” or connections

Unit 7 Priority Standards and Learner Objectives:

- Same as Unit 6

Unit 8: Festivals • • • •

Objectives:

- Talk about the customs and traditions of Chinese holiday
- Use the appropriate expressions to convey New Year’s greetings and wishes
- Compare and contrast various Chinese and Western holidays

Unit 8 Priority Standards and Learner Objectives:

- Same as Unit 7

American Sign Language I (ASL I)

Course Length: 2 semesters

Credits: 1.0

Recommended Grade Levels: 9, 10, 11

Prerequisites: None

Course Description: In alignment with the National Standards for Foreign Language Education, American Sign Language I (ASL I) is an introductory level course typically taken in the first three years of high school. Since PrepNet requires the completion of at least two years of a foreign language, ASL I will be followed by ASL II when we add that course and help prepare for success in ASL III. The course is designed around the skills needed to learn basic vocabulary and grammar and engage in rudimentary conversation. Students are expected to understand short conversations and make oral presentations on a variety of topics.

Objectives (The learning targets for this class include the introduction of the following skills & National World language standards)

1. Communication - Students will engage in conversations, provide and obtain information, express feelings & emotions as well as exchange opinions. Students will understand a variety of topics. Students will be able to convey information, concepts & ideas for a variety of purposes
2. Culture- Gain knowledge & understanding of the American Deaf and Hard of Hearing cultures.
3. Connections- Students will connect with other disciplines & acquire information.
4. Comparisons- Students will develop insight into the Nature of ASL & the D/HH Culture.
5. Community- Students will participate in multi-lingual communities at home & around the USA.

AMERICAN SIGN LANGUAGE I UNIT PROGRESSION

UNIT 1: “Introducing Oneself” The basics of an Introduction to Sign Language.

Sections include:

- *Section 1.1: Strategies for Learning ASL*
- *Section 1.2: Cardinal Numbers 1 - 10*
- *Section 1.3: Fingerspelling Names and Fist Letters*
- *Section 1.4: Deaf Profile - Andrew Foster*
- *Section 1.5: Conversations with WH-Word Questions, Beginning & Ending conversations and maintaining eye contact*
- *Section 1.6: Cardinal Numbers 11 - 15*

- *Section 1.7: Cultural Component - Appropriate ways of communicating with others*
- *Section 1.8: Identifying a person*
- *Section 1.9: Inside, Above & Below*
- *Section 1.10: Commands involving the Body & Commands involving Objects*
- *Section 1.11: Test your Eye-Q & taking the Signer's Perspective*
- *Section 1.12: Cultural Component - Getting others' Attention*

UNIT 2: "EXCHANGING PERSONAL INFORMATION"

- *Section 2.1: Yes-No Questions, Making Connections & Gallaudet University*
- *Section 2.2: Cardinal Numbers 16 - 10*
- *Section 2.3: Tic-Tac-Toe*
- *Section 2.4: Language Backgrounds - Transitions*
- *Section 2.5: Up Letters & Up Letters Names*
- *Section 2.6: Who Enjoys What? & Deaf Profile - Regina Olson Hughes*
- *Section 2.7: Cardinal Numbers 20 - 29*
- *Section 2.8: Describing Shapes*
- *Section 2.9: Identifying People who are Present / Names & Tidbits*
- *Section 2.10: Double Letters Names*
- *Section 2.11: Negotiating a Signing Environment*
- *Section 2.12: Conversational Strategies*

UNIT 3: "DISCUSSING LIVING SITUATIONS"

- *Section 3.1: Real World Orientation*
- *Section 3.2: Giving Commands Involving a Location*
- *Section 3.3: Deaf Profile - Douglas Tilden*
- *Section 3.4: Moving Letter Z*
- *Section 3.5: Wh-Word Question - Which?*
- *Section 3.6: Ordinal Numbers 1st - 9th & Giving Basic Directions*

- *Section 3.7: Identify & Draw*
- *Section 3.8: Cardinal Numbers 30 - 66*
- *Section 3.9: Spatial Agreement - Orienting Signs*
- *Section 3.10: Expressing Needs & Story Corner; "The Elevator Incident"*
- *Section 3.11: "Down" Letters*
- *Section 3.12: Time*
- *Section 3.13: Spatial Agreement - Modifying Verb Movement & Agreement Verbs*
- *Section 3.14: Cultural Component - A Visual Way of Living*
- *Section 3.15: Asking What is the Sign*
- *Section 3.16: Cultural Component: Speaking in the Presence of a Deaf Person*

UNIT 4: "TALKING ABOUT FAMILY"

- *Section 4.1: Contrastive Structure*
- *Section 4.2: Forming Negative Responses*
- *Section 4.3: Rocking Numbers 67 - 98*
- *Section 4.4: Deaf Profile - Marie Jean Philip*
- *Section 4.5: Ranking*
- *Section 4.6: Moving Letter "J"*
- *Section 4.7: Telling Ages*
- *Section 4.8: Possessive Adjectives*
- *Section 4.9: What is the Relationship?*
- *Section 4.10: Questions After a Negative Statement*
- *Section 4.11: Ten Years Later*
- *Section 4.12: Numbers Review 1 - 100*
- *Section 4.13: David's Keys*
- *Section 4.14: Commenting on Family Members*
- *Section 4.15: Cultural Component - Maintaining a Clear Sightline*

UNIT 5: “TELLING ABOUT ACTIVITIES”

- *Section 5.1: Wh-word Questions - When & What a Person Did/Will Do*
- *Section 5.2: Agreement Verbs*
- *Section 5.3: “G” & “H” Letters*
- *Section 5.4: Designating Locations for Non-Present People*
- *Section 5.5: Are you Done?*
- *Section 5.6: Sequencing Activities*
- *Section 5.7: Tell How Often*
- *Section 5.8: Tell about an “Out of the Ordinary” Activity*
- *Section 5.9: Commonly Fingerspelled Words & Deaf Profile - Clayton Valli*

UNIT 6: “STORYTELLING”

- *“TIMBER”*
 - *Section 6.1: New Vocabulary*
 - *Section 6.2: One-Person Role Shift in Narratives*
 - *Section 6.3: Two-Person Role Shift in Narratives*
 - *Section 6.4: Story Cohesion*
- *“The Gum Story”*
 - *Section 6.5: New Vocabulary*
 - *Section 6.6: Entrances & Exits*
 - *Section 6.7: One-Person Role Shift*
 - *Section 6.8: Story Cohesion*
- *“The Gallaudet & Clerc Story”*
 - *Section 6.9: New Vocabulary*
 - *Section 6.10: Two-Person Role Shift in Narratives*
 - *Section 6.11: Maintaining Spatial Agreement*
 - *Section 6.12: Story Cohesion*
- *“Childhood Stories”*

- *Section 6.13: “Wrong Name” & “If Only I Could Fly”*
- *Section 6.14: “A True Fish Story”*
- *Section 6.15: “I Wanna Be Different”*
- *Section 6.16: “Ghost In My Room”*
- *Section 6.17: Guidelines*

ELECTIVES

At PrepNet schools, students are given the opportunity to study a variety of elective courses in the hopes of developing well-rounded character. Going above and beyond the state requirements, PrepNet offers several elective courses for students to choose from.

Michigan Merit Curriculum Graduation Requirements:

- **0.5 credit Physical Education**
- **0.5 credit Health**
- **1 credit Visual, Performing, or Applied Arts**

PrepNet Elective Courses Available:

- Physical Education & Health
- Advanced Physical Education and Wellness
- Wind Ensemble
- Jazz Band
- Concert Band (note: audition required)
- Introductory Choir
- Concert Choir (note: audition required)
- AP Music Theory
- Foundational Art
- 2D/3D Art
- Digital Media Arts
- AP Studio Art
- AP Computer Science
- Intro to Computer Science
- Game Design
- Web Page Design
- AP Computer Science

PHYSICAL EDUCATION & WELLNESS

Course Length: 2 semesters

Credits: 1.0

Recommended Grade Levels: 9, 10, 11, 12

Prerequisites: None

Course Description: In preparation for a healthy life style full of physical activity and in alignment with Michigan High School Content Expectations, Physical Education and Health is designed with the goal of developing physically educated individuals who have the knowledge, skills, and confidence to enjoy a lifetime of healthful physical activity. This course is an introductory level course that can be taken at any time in high school. Units in the physical education portion of the course are designed around the rules and strategies for various sports, including, but not limited to, soccer, dance and ultimate Frisbee. The Wellness units of this course cover the importance of physical activity, violence prevention and safety, tobacco/alcohol/drug use, nutrition, disease prevention, social/emotional gambling, and personal and sun safety.

PHYSICAL EDUCATION & WELLNESS UNIT PROGRESSION

PE

Multiple Units: Sports Vary by School

Priority Standards and Learner Objectives:

PE Priority Standard 1: Demonstrate understanding of movement concepts, principles, strategies, and tactics as they apply to the learning and performance of physical activities

Level 2

- 1.2.1: Identify basic rules of the sport
- 1.2.2: Identify basic equipment and playing area
- 1.2.3: Understand basic movement patterns and motor skills

Level 3

- 1.3.1: Identify errors or problems with a skill
- 1.3.2: Differentiate between certain positioning/technique/movements
- 1.3.3: Understands concepts of team strategies

Level 4

- 1.4.1: Teach skill to another student, or group of students with little to no prior knowledge/experience

Priority Standard 2: Perform essential sport-specific motor skills

Level 2

- 2.2.1: Demonstrate essential skills in a closed environment (form, technique, control)

Level 3

- 2.3.1: Apply all elements of the essential skills in a dynamic settings (small setting games, game-like drills).

Level 4

- 2.4.1: Utilize all necessary sport specific skills consistently in game situation

Priority Standard 3: Demonstrate responsibility for achieving personal fitness goals

Level 2

- 3.2.1: Perform personal fitness assessments
- 3.2.2: Create SMART goal to improve personal fitness
- 3.2.3: Track fitness tests

Level 3

- 3.3.1: Achieve growth in the following areas of personal fitness:
 - Muscular Strength
 - Flexibility
 - Muscular Endurance
 - Cardiovascular

Level 4

- 3.4.1: Meets or exceeds fitnessgram national standards
- 3.4.2: Design a week long workout plan for a teacher assigned individual
- 3.4.3: Teach a workout/warm-up in class

Health

Unit 1: Healthy Behaviors

Unit 1 Priority Standards and Learner Objectives:

Health Priority Standard 1: Access, analyze, and interpret health information

Level 2

- 1.2.1: Evaluate the credibility of resources (local and virtual) for health information and services.
- 1.2.2: Evaluate the validity of health information.

Level 3

- 1.3.1: Interpret and relate health information to life.
- 1.3.2: Summarize information from a source (people, scenarios, experiences).
- 1.3.3: Compare and Contrast information from multiple sources (people, scenarios, experiences).

Level 4

- 1.4.1: Discredit an invalid source using information from valid source(s).

Unit 2: Decision Making

Unit 2 Priority Standards and Learner Objectives:

- Same as Unit 1

Unit 3: Goal Setting

Unit 3 Priority Standards and Learner Objectives:

Health Priority Standard 2: Draw conclusions, make judgments, and take a stance on health related issues

Level 2

- 2.2.1: Identify the effect(s) of health issues.
- 2.2.2: Identify and organize information surrounding a health issue.

Level 3

- 2.3.1: Explain the effect(s) of health issues on our lives.
- 2.3.2: Take a personal stance on a health issue and support it with artifacts.
- 2.3.3: Generate an opposing stance on a health issue and discredit it using reliable information.

Level 4

- 2.4.1: Formally advocate a meaningful health issue with credible information to an audience outside of class.

Unit 4: Advocacy

Unit 4 Priority Standards and Learner Objectives:

Health Priority Standard 1: Access, analyze, and interpret health information

Level 2

- 1.2.1: Evaluate the credibility of resources (local and virtual) for health information and services.
- 1.2.2: Evaluate the validity of health information.

Level 3

- 1.3.1: Interpret and relate health information to life.
- 1.3.2: Summarize information from a source (people, scenarios, experiences).
- 1.3.3: Compare and Contrast information from multiple sources (people, scenarios, experiences).

Level 4

- 1.4.1: Discredit an invalid source using information from valid source(s).

Health Priority Standard 2: Draw conclusions, make judgments, and take a stance on health related issues

Level 2

- 2.2.1: Identify the effect(s) of health issues.
- 2.2.2: Identify and organize information surrounding a health issue.

Level 3

- 2.3.1: Explain the effect(s) of health issues on our lives.
- 2.3.2: Take a personal stance on a health issue and support it with artifacts.
- 2.3.3: Generate an opposing stance on a health issue and discredit it using reliable information.

Level 4

- 2.4.1: Formally advocate a meaningful health issue with credible information to an audience outside of class.

Unit 5: Communication

Unit 5 Priority Standards and Learner Objectives:

Health Priority Standard 2: Draw conclusions, make judgments, and take a stance on health related issues

Level 2

- 2.2.1: Identify the effect(s) of health issues.
- 2.2.2: Identify and organize information surrounding a health issue.

Level 3

- 2.3.1: Explain the effect(s) of health issues on our lives.
- 2.3.2: Take a personal stance on a health issue and support it with artifacts.
- 2.3.3: Generate an opposing stance on a health issue and discredit it using reliable information.

Level 4

- 2.4.1: Formally advocate a meaningful health issue with credible information to an audience outside of class.

ADVANCED PHYSICAL EDUCATION AND WELLNESS

Course Length: 2 semesters

Credits: 1.0

Recommended Grade Levels: 10, 11, 12

Prerequisites: Physical Education

Course Description: In preparation for a healthy life style full of physical activity and in alignment with Michigan High School Content Expectations, Advanced Physical Education and Wellness is a continuation of Physical Education and Wellness. This course is designed to be taken after the successful completion of Physical Education and Wellness and is not required for graduation. Designed to take Physical Education and Wellness knowledge and skills to the next level, this course requires students take on leadership roles, tackle independent projects, and collaborate on group projects. Through discussions, various texts, movies, projects, group work, skill activities, and game play, students will develop the skills necessary to actively participate in fitness and health activities, demonstrate basic knowledge of kinesiology, and create new games at the collegiate level.

ADVANCED PHYSICAL EDUCATION AND WELLNESS UNIT PROGRESSION

Tournament 1: Ultimate Frisbee

Tournament 1 Learner Objectives:

- Explain the history of ultimate Frisbee
- Describe field dimensions and general equipment needed
- Explain scoring during game play
- Identify the main aspects of general game play including rules and strategies
- Define common vocabulary related to the game of ultimate Frisbee

Tournament 1 Michigan High School Content Expectations:

- Content Standard 1: A physically educated person demonstrates competency in motor skills and movement patterns needed to perform a variety of physical activities
- Content Standard 2: A physically educated person demonstrates understanding of movement concepts, principles, strategies, and tactics as they apply to the learning and performance of physical activities
- Content Standard 3: A physically educated person participates regularly in lifelong physical activity
- Content Standard 4: A physically educated person achieves and maintains a health-enhancing level of physical fitness
- Content Standard 5: A physically educated person exhibits responsible personal and social behavior that respects self and others in physical activity settings
- Content Standard 6: A physically educated person values physical activity for health, enjoyment, challenge, self-expression, and/or social interaction

Tournament 2: Wiffleball

Tournament 2 Learner Objectives:

- Explain the history of wiffleball
- Describe field dimensions and general equipment needed
- Explain scoring and substitutions during game play
- Identify the main aspects of general game play and rules
- Define common vocabulary related to the game of wiffleball

Tournament 2 Michigan High School Content Expectations:

- Same as Tournament 1

Tournament 3: Touch Football

Tournament 3 Learner Objectives:

- Explain the history of touch football
- Describe field dimensions and general equipment needed
- Explain scoring and substitutions during game play
- Identify the main aspects of general game play, rules, blocking, tackling/touching, carrier restrictions, and penalties
- Define common vocabulary related to the game of touch football

Tournament 3 Michigan High School Content Expectations:

- Same as Tournament 1

Tournament 4: Soccer

Tournament 4 Learner Objectives:

- Explain the history of soccer
- Describe field dimensions and general equipment needed
- Explain scoring and substitutions during game play
- Identify the main aspects of general game play, rules, restarts, and fouls
- Define common vocabulary related to the game of soccer

Tournament 4 Michigan High School Content Expectations:

- Same as Tournament 1

Tournament 5: Softball

Tournament 5 Learner Objectives:

- Explain the history of softball
- Describe field dimensions and general equipment needed
- Explain scoring and substitutions during game play
- Identify the main aspects of general game play and rules
- Define common vocabulary related to the game of softball

Tournament 5 Michigan High School Content Expectations:

- Same as Tournament 5

Tournament 6: Volleyball

Tournament 6 Learner Objectives:

- Explain the history of volleyball
- Describe court dimensions and general equipment needed
- Explain scoring and substitutions during game play
- Identify the main aspects of general game play, rules, rally scoring, and faults
- Define common vocabulary related to the game of volleyball

Tournament 6 Michigan High School Content Expectations:

- Same as Tournament 1

Tournament 7: Speedball

Tournament 7 Learner Objectives:

- Explain the history of speedball
- Describe field dimensions and general equipment needed
- Explain scoring and substitutions during game play
- Identify the main aspects of general game play, rules, restarts, and fouls
- Define common vocabulary related to the game of speedball

Tournament 7 Michigan High School Content Expectations:

- Same as Tournament 1

Tournament 8: Badminton

Tournament 8 Learner Objectives:

- Explain the history of badminton
- Describe court dimensions and general equipment needed
- Explain scoring and substitutions during game play
- Identify the main aspects of general game play, rules, restarts, and faults
- Define common vocabulary related to the game of badminton

Tournament 8 Michigan High School Content Expectations:

- Same as Tournament 1

Health Unit 1: Anti-Bullying/Safety

Health Unit 1 Learner Objectives:

- Explain the effects of violence on individuals, families, communities, and our nation.
- Describe the characteristics of situations which are dangerous, and those that must be reported to the authorities.
- Define and describe bullying, sexual violence, and sexual harassment, and their effects

- on individuals and communities.
- Describe the Michigan laws regarding bullying, sexual violence, and sexual harassment.

Health Unit 1 Michigan High School Content Expectations:

- 3.1 Explain the effects of violence on individuals, families, communities, and our nation.
- 3.2 Describe the characteristics of situations which are dangerous, and those that must be reported to the authorities.
- 3.3 Define and describe bullying, sexual violence, and sexual harassment, and their effects on individuals and communities.
- 3.4 Describe the Michigan laws regarding bullying, sexual violence, and sexual harassment.
- 3.5 Locate resources in one's community and on the Internet for information and services regarding harassment, violence, and abusive relationships; and assess the validity of these resources.
- 3.6 Apply strategies to access and get help for self or others
- 3.7 Apply strategies to avoid and report dangerous situations, including conflicts involving weapons and gangs.
- 3.8 Demonstrate strategies to stay safe in a violent situation.
- 3.9 Apply skills and strategies for avoiding and dealing with sexual harassment and exploitation, including when using the Internet.
- 3.10 Assess characteristics of hypothetical relationships for warning signs of harm or abuse.
- 3.11 Analyze social pressures to refrain from telling on others or reporting dangerous situations.
- 3.12 Analyze the role of friends and peers in the escalation of conflicts and the promotion of violence.
- 3.13 Demonstrate the ability to use conflict resolution skills.
- 4.1 Identify the characteristics of positive relationships, and analyze their impact on personal, family, and community health.
- 4.2 Describe the warning signs, risk factors, and protective factors for depression and suicide.
- 4.3 Locate resources in one's community and on the Internet for information and services regarding depression and suicide prevention; and analyze the validity of these resources.
- 4.4 Demonstrate how to seek help for self or others when suicide may be a risk.
- 4.5 Demonstrate the ability to express emotions constructively, including use of anger management skills.
- 4.6 Develop short-term and long-term personal goals and aspirations.
- 4.7 Apply decision-making and problem-solving steps to generate alternative solutions regarding social situations that could place one's health or safety at risk.
- 4.8 Predict the potential short- and long-term effects of each alternative on self and others, and defend the healthy choice(s).
- 4.9 Demonstrate the ability to apply listening and assertive communication skills in situations that may involve parents, family members, other trusted adults, peers, boyfriends/girlfriends, and health professionals.
- 4.10 Demonstrate how to respond constructively to the anger of others.

Health Unit 2: Fitness Through Physical Activity

Health Unit 2 Learner Objectives:

- Distinguish between unhealthy and healthy ways to manage weight.
- Assess one's personal nutrition needs and level of physical activity according to the federal dietary guidelines.
- Assess one's personal preferences regarding healthy eating and physical activity.
- Assess personal barriers to healthy eating and physical activity, and develop practical solutions to remove these barriers.
- Develop a personal plan for improving one's nutrition, incorporating physical activity into daily routines, and maintaining a healthy weight.

Health Unit 2 Michigan High School Content Expectations:

- 1.1 Distinguish between unhealthy and healthy ways to manage weight.
- 1.2 Locate resources in one's community and on the Internet for nutrition information, nutrition services, and help with weight management or unhealthy eating patterns; and assess the validity of the resources.
- 1.3 Demonstrate the ability to use information on food labels to choose nutrient-dense foods and beverages, and to avoid or limit foods and beverages that are low in nutrients or may impact health conditions.
- 1.4 Prepare meal plans according to the federal dietary guidelines.
- 1.5 Assess one's personal nutrition needs and level of physical activity according to the federal dietary guidelines.
- 1.6 Assess one's personal preferences regarding healthy eating and physical activity.
- 1.7 Assess personal barriers to healthy eating and physical activity, and develop practical solutions to remove these barriers.
- 1.8 Develop a personal plan for improving one's nutrition, incorporating physical activity into daily routines, and maintaining a healthy weight.
- 1.9 Predict the health benefits of eating healthy and being physically active; and the potential health consequences of not doing so.
- 1.10 Advocate for nutritional food choices and physical activity at school.

Health Unit 3: Skeletal System

Health Unit 3 Learner Objectives:

- Systems of specialized cells within organisms help them perform the essential functions of life.
- Multicellular organisms have a hierarchical structural organization, in which any one system is made up of numerous parts and is itself a component of the next level.

Health Unit 3 Next Generation Science Standards:

- LS1.A: Structure and Function
 - HS-LS1-1. Construct an explanation based on evidence for how the structure of DNA determines the structure of proteins which carry out the essential functions of life through systems of specialized cells. [Assessment Boundary: Assessment does not include identification of specific cell or tissue types, whole body

systems, specific protein structures and functions, or the biochemistry of protein synthesis.]

- HS-LS1-2. Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms. [Clarification Statement: Emphasis is on functions at the organism system level such as nutrient uptake, water delivery, and organism movement in response to neural stimuli. An example of an interacting system could be an artery depending on the proper function of elastic tissue and smooth muscle to regulate and deliver the proper amount of blood within the circulatory system.] [Assessment Boundary: Assessment does not include interactions and functions at the molecular or chemical reaction level.]

Health Unit 4: Physical Activity and Injury

Health Unit 4 Learner Objectives:

- List and describe some activity-related physical injuries
- List some guidelines for preventing injuries during physical activity.
- Explain how to apply RICE formula to the treatment of injuries.
- Identify different types of risky exercises.

Health Unit 4 Michigan High School Content Expectations:

- 1.1 Distinguish between unhealthy and healthy ways to manage weight.
- 1.2 Locate resources in one's community and on the Internet for nutrition information, nutrition services, and help with weight management or unhealthy eating patterns; and assess the validity of the resources.
- 1.3 Demonstrate the ability to use information on food labels to choose nutrient-dense foods and beverages, and to avoid or limit foods and beverages that are low in nutrients or may impact health conditions.
- 1.4 Prepare meal plans according to the federal dietary guidelines.
- 1.5 Assess one's personal nutrition needs and level of physical activity according to the federal dietary guidelines.
- 1.6 Assess one's personal preferences regarding healthy eating and physical activity.
- 1.7 Assess personal barriers to healthy eating and physical activity, and develop practical solutions to remove these barriers.
- 1.8 Develop a personal plan for improving one's nutrition, incorporating physical activity into daily routines, and maintaining a healthy weight.
- 1.9 Predict the health benefits of eating healthy and being physically active; and the potential health consequences of not doing so.
- 1.10 Advocate for nutritional food choices and physical activity at school.

Health Unit 5: Wellness Fair

Health Unit 5 Learner Objectives:

- Distinguish between unhealthy and healthy ways to manage weight.
- Assess one's personal nutrition needs and level of physical activity according to the federal dietary guidelines.
- Assess one's personal preferences regarding healthy eating and physical activity.

- Assess personal barriers to healthy eating and physical activity, and develop practical solutions to remove these barriers.
- Develop a personal plan for improving one's nutrition, incorporating physical activity into daily routines, and maintaining a healthy weight.

Health Unit 5 Michigan High School Content Expectations:

- Same as Health Unit 4

Health Unit 6: Muscles

Health Unit 6 Learner Objectives:

- Systems of specialized cells within organisms help them perform the essential functions of life.
- Multicellular organisms have a hierarchical structural organization, in which any one system is made up of numerous parts and is itself a component of the next level.

Health Unit 6 Next Generation Science Standards:

- LS1.A: Structure and Function
 - HS-LS1-1. Construct an explanation based on evidence for how the structure of DNA determines the structure of proteins which carry out the essential functions of life through systems of specialized cells. [Assessment Boundary: Assessment does not include identification of specific cell or tissue types, whole body systems, specific protein structures and functions, or the biochemistry of protein synthesis.]
 - HS-LS1-2. Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms. [Clarification Statement: Emphasis is on functions at the organism system level such as nutrient uptake, water delivery, and organism movement in response to neural stimuli. An example of an interacting system could be an artery depending on the proper function of elastic tissue and smooth muscle to regulate and deliver the proper amount of blood within the circulatory system.] [Assessment Boundary: Assessment does not include interactions and functions at the molecular or chemical reaction level.]

CONCERT BAND/WIND ENSEMBLE/JAZZ BAND/ORCHESTRA

Course Length: 2 semesters

Credits: 1.0

Recommended Grade Levels: 9, 10, 11, 12

Prerequisites: None (Wind Ensemble, Jazz Band, and Orchestra); Audition (Concert Band)

Course Description:

- Wind Ensemble: In alignment with Michigan High School Content Expectations, Wind Ensemble can be taken at any time during high school. This class is composed of wind, brass, and percussion instruments. Students will build on previous instrumental and performing experiences while exploring a variety of styles and genres of music. The course is organized around a Winter Performance and a Spring Performance. All course content and objectives focus on preparing students for these performances. Rehearsals and performances outside the school day will be required.
- Jazz Band: In alignment with Michigan High School Content Expectations, Jazz Band can be taken at any time during high school. This class is composed of a limited scope of wind, brass, electric (guitar and bass), and percussion instruments. Students will build on previous instrumental and performing experiences while exploring a variety of styles within the jazz genre of music. The course is organized around a Winter Performance and a Spring Performance. All course content and objectives focus on preparing students for these performances. Rehearsals and performances outside the school day will be required.
- Concert Band: In alignment with Michigan High School Content Expectations, Concert Band can be taken at any time during high school. This course covers all of the same material in the same units as Band. Enrollment in Concert Band is contingent upon an audition. Rehearsals and performances outside the school day will be required.
- Orchestra: In alignment with Michigan High School Content Expectations, Concert Band can be taken at any time during high school. This course covers all of the same material in the same units as Band. Rehearsals and performances outside the school day will be required.

CONCERT BAND/WIND ENSEMBLE/JAZZ BAND UNIT PROGRESSION

Winter Performances

Priority Standards and Learner Objectives:

PE Priority Standard 1: Music Performance

Level 2

- 1.2.1a: Play/ Sing concert music excerpts with partial success.

Level 3

- 1.3.1a: Play/ Sing concert music excerpts.
- 1.3.2a: Fluently play 6 major scales, 1 octave, with music - (BAND/ORCHESTRA)

- 1.3.3a: Fluently sing 6 lines of the choir diet - (CHOIR)

Level 4

- 1.4.1a: Play/Sing concert music excerpts with expression and good intonation.
- 1.4.2a: Fluently play 6 major scales, full range, without music - (BAND/ORCHESTRA)
- 1.4.3a: Improvise over an existing accompaniment.

Priority Standard 2: Music Theory

Level 2

- 2.2.1a: Identify Major key signatures.
- 2.2.2a: Identify notes/rests (through 16ths).
- 2.2.3a: Sight read an appropriately leveled piece of music, with partial success.

Level 3

- 2.3.1a: Write Major key scales using Major scale formula and key signatures.
- 2.3.2a: Label notes, rhythms, and solfege of a piece of music.
- 2.3.3a: Sight read an appropriately leveled piece of music .
- 2.3.4a: Compose a 8 measure piece of music (melody & rhythm) in a major key using a simple time signature.

Level 4

- 2.4.1a: Analyze advanced rhythms (ie. syncopate, dotted rhythms).
- 2.4.2a: Compose and play an 8 measure piece of music (melody & rhythm) that contains good voice leading and makes harmonic sense.

Priority Standard 3: Music History & Appreciation

Level 2

- 3.2.1a: Describe listening examples using music terminology.
- 3.2.2a: Identify elements of music.

Level 3

- 3.3.1a: Identify and describe basic form and dynamics/style/texture of a piece of music.
- 3.3.2a: Contextualize music in a historical and cultural context.

Level 4

- 3.4.1a: Formally analyze a piece of music that was not analyzed in class.
- 3.4.2a: Attend and summarize a musical event attended outside of school.

Priority Standard 4: Musicianship Practices

Level 2

- 4.2.1: Demonstrate punctuality and preparedness.

Level 3

- 4.3.1: Demonstrate proper performance, rehearsal, and/or audience etiquette when

required.

Level 4

- 4.4.1: Demonstrate proper performance, rehearsal, and/or audience etiquette when required, while leading others.

Spring Performances

Priority Standards and Learner Objectives:

- Same as Winter Performances

CONCERT CHOIR/INTRODUCTORY CHOIR

Course Length: 2 semesters

Credits: 1.0

Recommended Grade Levels: 9, 10, 11, 12

Prerequisites: None (Intro Choir); Audition (Concert Choir)

Course Description:

- Introductory Choir: In alignment with Michigan High School Content Expectations, Choir can be taken at any time during high school. Students will build on previous vocal and performing experiences while exploring a variety of styles and genres of music. The course is organized around a Winter Performance and a Spring Performance. All course content and objectives focus on preparing students for these performances. Rehearsals and performances outside the school day will be required.
- Concert Choir: In alignment with Michigan High School Content Expectations, Concert Choir can be taken at any time during high school. This course covers all of the same material in the same units as Choir. Enrollment in Concert Choir is contingent upon an audition, making this course the premier vocal performing organization within the school. Rehearsals and performances outside the school day will be required.

CONCERT CHOIR/INTRODUCTORY UNIT PROGRESSION

Winter Performances

Priority Standards and Learner Objectives:

PE Priority Standard 1: Music Performance

Level 2

- 1.2.1a: Play/ Sing concert music excerpts with partial success.

Level 3

- 1.3.1a: Play/ Sing concert music excerpts.
- 1.3.2a: Fluently play 6 major scales, 1 octave, with music - (BAND/ORCHESTRA)
- 1.3.3a: Fluently sing 6 lines of the choir diet - (CHOIR)

Level 4

- 1.4.1a: Play/Sing concert music excerpts with expression and good intonation.
- 1.4.2a: Fluently play 6 major scales, full range, without music - (BAND/ORCHESTRA)
- 1.4.3a: Improvise over an existing accompaniment.

Priority Standard 2: Music Theory

Level 2

- 2.2.1a: Identify Major key signatures.
- 2.2.2a: Identify notes/rests (through 16ths).
- 2.2.3a: Sight read an appropriately leveled piece of music, with partial success.

Level 3

- 2.3.1a: Write Major key scales using Major scale formula and key signatures.
- 2.3.2a: Label notes, rhythms, and solfege of a piece of music.
- 2.3.3a: Sight read an appropriately leveled piece of music .
- 2.3.4a: Compose a 8 measure piece of music (melody & rhythm) in a major key using a simple time signature.

Level 4

- 2.4.1a: Analyze advanced rhythms (ie. syncopate, dotted rhythms).
- 2.4.2a: Compose and play an 8 measure piece of music (melody & rhythm) that contains good voice leading and makes harmonic sense.

Priority Standard 3: Music History & Appreciation

Level 2

- 3.2.1a: Describe listening examples using music terminology.
- 3.2.2a: Identify elements of music.

Level 3

- 3.3.1a: Identify and describe basic form and dynamics/style/texture of a piece of music.
- 3.3.2a: Contextualize music in a historical and cultural context.

Level 4

- 3.4.1a: Formally analyze a piece of music that was not analyzed in class.
- 3.4.2a: Attend and summarize a musical event attended outside of school.

Priority Standard 4: Musicianship Practices

Level 2

- 4.2.1: Demonstrate punctuality and preparedness.

Level 3

- 4.3.1: Demonstrate proper performance, rehearsal, and/or audience etiquette when required.

Level 4

- 4.4.1: Demonstrate proper performance, rehearsal, and/or audience etiquette when required, while leading others.

Spring Performances

Priority Standards and Learner Objectives:

- Same as Winter Performances

AP MUSIC THEORY

Course Length: 2 semesters

Credits: 1.0

Recommended Grade Levels: 11, 12

Prerequisites: None

Course Description: Aligned with standards and objectives set by the AP CollegeBoard, AP Music Theory is a college level course typically taken as an upperclassman. The ultimate goal of an AP Music Theory course is to develop a student's ability to recognize, understand, and describe the basic materials and processes of music that are heard or presented in a score. The achievement of this goal may be best promoted by integrated approaches to the student's development of aural, sight-singing, written, compositional and analytical skills through listening, performance, written, creative and analytical exercises. Students demonstrate their mastery of college level Music Theory knowledge and skills on the AP Music Theory Exam, given in May. A passing score on the exam may earn students college Music theory credit. Placement and credit are granted by institutions in accordance with their own policies, not by those of the College Board or the AP Program.

AP MUSIC THEORY UNIT PROGRESSION

Unit 1: Elements of Pitch, Rhythm, and Tertian Harmony

Unit 1 Learner Objectives:

- Introduce matrix for basic sight singing and dictation practice
 - Sing unison scales, and familiar melodies, mapping to the matrix with solfege and/or scale degree numbers
 - Develop a “word bank” of rhythms for students to plug in for dictation
 - Contextual listening includes listening for tonality, rhythm, and meter

Unit 1 CollegeBoard Standards:

- I. Musical Terminology
 - A. Terms for intervals, triads, seventh chords, scales, and modes
 - B. Terms pertaining to rhythm and meter, melodic construction and variation, harmonic function, cadences and phrase structure, texture, small forms, and musical performance
- II. Notational Skills
 - A. Rhythms and meters
 - B. Clefs and pitches
 - C. Key signatures, scales, and modes
 - D. Intervals and chords
 - E. Melodic transposition
- III. Basic Compositional Skills
 - A. Four-voice realization of figured-bass symbols and Roman numerals
 - B. Composition of a bass line (with chord symbols) for a given melody
- IV . Score Analysis (with or without aural stimulus)
 - A . Small-scale and large-scale harmonic procedures, including:

- 1 . identification of cadence types
 - 2 . Roman-numeral and figured-bass analysis, including nonharmonic tones, seventh chords, and secondary-dominant chords
 - 3 . identification of key centers and key relationships; recognition of modulation to closely related keys
- B . Melodic organization and developmental procedures
 - 1 . scales (e .g ., major, minor, pentatonic, whole-tone, modal)
 - 2 . motivic development and relationships (e .g ., inversion, retrograde, sequence, imitation)
- C . Rhythmic/metric organization
 - 1 . meter type (e .g ., duple, triple, quadruple, irregular) and beat type (e .g ., simple, compound)
 - 2 . rhythmic devices and procedures (e .g ., augmentation, diminution, hemiola)
- D . Texture
 - 1 . types (e .g ., monophony, homophony, polyphony)
 - 2 . devices (e .g ., imitation, canon)
- E . Formal devices and/or procedures
 - 1 . phrase structure
 - 2 . phrases in combination (e .g ., period, double period, phrase group)
 - 3 . small forms
- V . Aural Skills
 - A . Sight-singing (major and minor modes, treble and bass clefs, diatonic and chromatic melodies, simple and compound meters)
 - B . Melodic dictation (major and minor modes, treble and bass clefs, diatonic and chromatic melodies, simple and compound meters)
 - C . Harmonic dictation (notation of soprano and bass lines and harmonic analysis in a four-voice texture)
 - D . Identification of isolated pitch and rhythmic patterns
 - E . Detection of errors in pitch and rhythm in one- and two-voice examples
 - F . Identification of processes and materials in the context of music literature representing a broad spectrum of genres, media, and styles
 - 1 . melodic organization (e .g ., scale-degree function of specified tones, scale types, mode, contour, sequences, motivic development)
 - 2 . harmonic organization (e .g ., chord function, inversion, quality)
 - 3 . tonal organization (e .g ., cadence types, key relationships)
 - 4 . meter and rhythmic patterns
 - 5 . instrumentation (i .e ., identification of timbre)
 - 6 . texture (e .g ., number and position of voices, degree of independence, presence of imitation, density)
 - 7 . formal procedures (e .g ., phrase structure; distinctions among literal repetition, varied repetition, and contrast; small forms)

Unit 2: Diatonic Triads and Seventh Chords in Major and Minor Keys

Unit 2 Learner Objectives:

- Sing simple melodies and map to matrix
- Begin adding melodies alone or in pairs

- Contextual Listening adds intervals, triads, and sevenths

Unit 2 Michigan High School Content Expectations:

- Same as Unit 1

Unit 3: Principles of Voice Leading and Harmonic Progression

Unit 3 Learner Objectives:

- Add skips to simple matrix melodies
- Contextual Listening Includes function chorale analysis
- Cadence identification through Bach chorales and hymns

Unit 3 Michigan High School Content Expectations:

- Same as Unit 1

Unit 4: Advanced Part Writing and Melodic Structure

Unit 4 Learner Objectives:

- Contextual Listening includes non-chord tones
- Matrix dictation includes AP-style length and melodic structure

Unit 4 Michigan High School Content Expectations:

- Same as Unit 1

Unit 5: The Dominant 7 and Other Diatonic Seventh Chords

Unit 5 Learner Objectives:

- Contextual listening with more complex harmony
- Add sevenths to matrix exercises
- Sight singing melodies with outlined seventh chords

Unit 5 Michigan High School Content Expectations:

- Same as Unit 1

Unit 6: Secondary Function Chords

Unit 6 Learner Objectives:

- Hearing “Fi” in melodies
- Sight sing with Fi
- Matrix exercises with secondary chords

Unit 6 Michigan High School Content Expectations:

- Same as Unit 1

Unit 7: Modulation and Formal Structure

Unit 7 Learner Objectives:

- Contextual listening focuses on formal structure
- Increased use of Barron's book for practice
- Abandon matrix for AP-style dictation assignments

Unit 7 Michigan High School Content Expectations:

- Same as Unit 1

PUBLICATIONS

Course Length: 2 semesters

Credits: 1.0

Recommended Grade Levels: 12

Prerequisites: None

Course Description: This challenging and fast-paced class creates the school newspaper and yearbook. It utilizes reporting, writing, editing, photography, layout and design skills. It is organized into editors and writers, and relies heavily on group work, self-motivation, and self-discipline.

Opportunities and activities in the course develop students who learn and practice the writing and editing skills necessary to design a newspaper and yearbook; study the legal, moral, and ethical issues surrounding media production; refine their writing skills to ensure accuracy and consistency in style; and practice the elements of journalistic writing.

PUBLICATONS UNIT PROGRESSION

Unit 1: Intro to Journalism

Unit 1 Learner Objectives

- Investigate notable journalists and explore their contributions to the profession.
- Practice and apply research
- Create a report/presentation
- Find relevant information

Unit 1 Common Core Standards:

- RI 1.1 Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text, including determining where the text leaves matters uncertain.
- W 1.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and over reliance on any one source and following a standard format for citation.
- SL 1.5 Integrate multimedia and visual displays into presentations to clarify information, strengthen claims and evidence, and add interest.

Unit 2: The ethics of Journalism

Unit 2 Learner Objectives

- Define, identify, and analyze elements of ethics in newspaper publication
- Analyze and apply the codes of conducts of successful newspapers
- Reflect on individual responsibilities as a member of the newspaper staff

Unit 2 Common Core Standards:

- SL 1.1 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.
- W 1.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and over reliance on any one source and following a standard format for citation.

Unit 3: Intro to News Writing

Unit 3 Learner Objectives

- Analyze structure of inverted pyramid and apply it to their writing
- Compare and contrast different leads and relation to article
- Determine purpose and audience of article and use the same standards in their own writing
- Edit and revise their writing to standards of professional journalistic writing

Unit 3 Common Core Standards:

- RI 1.6 Determine an author's point of view or purpose in a text in which the rhetoric is particularly effective, analyzing how style and content contribute to the power, persuasiveness, or beauty of the text.
- W 1.1 Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.
- W 1.5 Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.

Unit 4: Intro to Newspaper Design

Unit 4 Learner Objectives

- Analyze the impact of a page design on a reader
- Analyze the appropriateness and placement of different articles on a page
- Recognize the balance among white space, copy, and art
- Learn and demonstrate basic function of the online newspaper module

Unit 4 Common Core Standards:

- W 1.6 Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information
- SL 1.5 Integrate multimedia and visual displays into presentations to clarify information, strengthen claims and evidence, and add interest.

Unit 5: Newspaper reporting/interviewing

Unit 5 Learner Objectives

- Select appropriate and effective sources for purpose and audience
- Prepare for and lead formal interview according to professional standards
- Validate information from more than one source

Unit 5 Common Core Standards:

- SL 1.1 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.
- W 1.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and over reliance on any one source and following a standard format for citation.
- RI 1.7 Integrate and evaluate multiple sources of information presented in different media or formats (e.g., visually, quantitatively) as well as in words in order to address a question or solve a problem.

Unit 6: The Writing Process

Unit 6 Learner Objectives

- Identify purpose and appropriateness of leads, quotes, and paraphrasing
- Select timely articles appropriate for a student newspaper
- Self-edit and accept editing from fellow classmates
- Revise and evaluate writing based on standards of quality journalism (that they've been learning)

Unit 6 Common Core Standards:

- RI 1.1 Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text, including determining where the text leaves matters uncertain.
- RI 1.6 Determine an author's point of view or purpose in a text in which the rhetoric is particularly effective, analyzing how style and content contribute to the power, persuasiveness, or beauty of the text.
- W 1.5 Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.
- W 1.1 Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.

FOUNDATIONAL ART

Course Length: 2 semesters

Credits: 1.0

Recommended Grade Levels: 9, 10, 11, 12 (1st year high school art)

Prerequisites: None

Course Description: In preparation for AP courses and in alignment with the Michigan High School Content Expectations, Foundational Art is an introductory level art course that is typically taken in 9th grade. This course begins with the question “What is Art?” and proceeds to lead students through an exploration of the elements of art, art criticism, line and texture, value and color. Form, space and perspective, art history, principals of design, pattern and rhythm, emphasis and contrast, balance, movement and unity are also addressed. This course is designed to engage students in creative problem solving through projects that encourage the use of traditional, as well as digital, mediums. The effective use of the elements and principles of design will be emphasized throughout the lessons and projects. An inspiring survey of genres and art forms will be investigated through art history, encouraging the emergence and development of personal voice and style.

FOUNDATIONAL ART UNIT PROGRESSION

Unit 1: Creative Process & Conceptual Thinking

Priority Standards and Learner Objectives:

Priority Standard 1: Conceptualize and Create works of art

Level 2

- 1.2.1 Create a composition utilizing the appropriate medium.
- 1.2.2 Develop a plan for a specific project.

Level 3

- 1.3.1 Demonstrate the use of relevant and appropriate medium and/or vocabulary of art.
- 1.3.2 Execute a plan for a specific project.

Level 4

- 1.4.1 Expand on an idea to create multiple works based on a concept.
- 1.4.2 Prepare work for presentation and/or present in a professional setting.
- 1.4.3 Maintain a portfolio.
- 1.4.4 Expand on an idea to create a work of art based on a medium not explored in class.
- 1.4.5 Create an artist statement to go with a personal art piece.

Priority Standard 2: Analyze and Critique Art

Level 2

- 2.2.1 Identify and explain the four stages of art criticism.

- 2.2.2 Describe a work of art using visual facts.

Level 3

- 2.3.1 Analyze a piece of art using art terminology.
- 2.3.2 Interpret a piece of art and justify the interpretation.
- 2.3.3 Evaluate a piece of art based on evidence.

Level 4

- 2.4.1 Compare and contrast works of art utilizing the stages of art criticism.
- 2.4.2 Analyze evidence from outside sources to justify revisions to personal artwork.

Unit 2: Effective Composition

Priority Standards and Learner Objectives:

- Same as Unit 1

Unit 3: Observational Art from Life

Priority Standards and Learner Objectives:

- Same as Unit 1

Unit 4: Color Theory

Priority Standards and Learner Objectives:

- Same as Unit 1

Unit 5: Final Project

Priority Standards and Learner Objectives:

- Same as Unit 1

Unit 6: Creative Process and Reflections

Priority Standards and Learner Objectives:

Priority Standard 1: Conceptualize and Create works of art

Level 2

- 1.2.1 Create a composition utilizing the appropriate medium.
- 1.2.2 Develop a plan for a specific project.

Level 3

- 1.3.1 Demonstrate the use of relevant and appropriate medium and/or vocabulary of art.
- 1.3.2 Execute a plan for a specific project.

Level 4

- 1.4.1 Expand on an idea to create multiple works based on a concept.
- 1.4.2 Prepare work for presentation and/or present in a professional setting.
- 1.4.3 Maintain a portfolio.
- 1.4.4 Expand on an idea to create a work of art based on a medium not explored in class.
- 1.4.5 Create an artist statement to go with a personal art piece.

Priority Standard 3: Connect Art to Self & Culture

Level 2

- 3.2.1 Identify and explain your source(s) of inspiration.
- 3.2.2 Recognize personal style and culture.

Level 3

- 3.3.1 Connect your work to your inspiration, stating similarities and/or differences.
- 3.3.2 Justify how self-identify and/or visual culture affects your art

Level 4

- 3.4.1 Appraise the impact of art on society.

Unit 7: Functionality

Priority Standards and Learner Objectives:

- Same as Unit 6

Unit 8: Structures

Priority Standards and Learner Objectives:

- Same as Unit 6

Unit 9: Visual Culture

Priority Standards and Learner Objectives:

- Same as Unit 6

Unit 10: Final Project

Priority Standards and Learner Objectives:

- Same as Unit 6

2D ART

Course Length: 2 semesters

Credits: 1.0

Recommended Grade Levels: 10, 11, 12

Prerequisites: Foundational Art

Course Description: 2D Art is a year-long class that focuses on developing the student's originality, craftsmanship and ability to create. Students will explore the elements and principles through the use of 2D mediums. They will build a greater understanding of design, collage, fabric design, weaving, fashion design, fashion illustration, drawing, painting and printmaking they will develop technical skills and familiarize themselves with the functions of visual elements as they create an individual portfolio of work for evaluation.

Course Objectives (applicable for all units):

- Build a working vocabulary of art, design, and visual communication terminology.
- Know about and explore various design forms, elements, traits of elements and formal relationships.
- Produce the best possible design solution within given limits of time and resources.
- Be able to effectively apply valid design principles to a variety of visual expressions and communication problems.
- Become familiar with the process of design, design analysis, and creative problem-solving.

Initiate an awareness of artists and designers who are, or were, remarkable for their designs.

- Establish an ability to identify the design problem; discern pertinent project needs and goals by reading project description and by questioning the instructor and active listening during project presentation and discussions.
- Apply visual design principles to concept development and design analysis.
- Communicate clearly your design concepts/goals via concise, written concept statements.
- Select successful concept-driven solutions and apply design principles in projects.
- Be able to justify design choices/solutions relative to client/project's posed problem and your concept statement.
- Practice and extend creative problem-solving skills by exploring, presenting and evaluating a multiplicity of ideas for each concept.
- Practice and develop illustrative sketching and rapid visualization techniques in development sketches, concept presentations and in-process project discussions/crits.
- Practice and extend ability to think visually, to develop visual concepts and to communicate visual solutions.
- Practice and develop rendering and presentation techniques in design presentations.
- Express understanding of design issues in oral presentations, class discussions and critiques.
- Recognize the relationship between human behavior and designed environment, graphics and objects.

Michigan High School Content Expectations:

- Standard 1: Apply skills and knowledge to perform in the arts. (VPAA: C1, C2, C3, C4, C5, P1, P2, P4, R1, R4)
 - ART.VA.I.HS.1 Apply acquired knowledge and skills to the creative problem solving process. (21st Century Skills: I.4, II.2)
 - ART.VA.I.HS.2 Intentionally use art materials and tools when applying techniques and skills to communicate ideas. (21st Century Skills: I.6, III.3, III.6)
 - ART.VA.I.HS.3 Demonstrate understanding of organizational principles and methods to solve specific visual arts problems. (21st Century Skills: I.4, II.5, III.3)
 - ART.VA.I.HS.4 Exhibit, present, and publish quality works of art. (21st Century Skills: I.4, I.6, III.3, III.6)
 - ART.VA.I.HS.5 Responsibly and safely manage materials and tools. (21st Century Skills: III.4, III.6, III.8)
- Standard 2: Apply skills and knowledge to create in the arts. (VPAA: C1, C2, C3, C4, C5, P1, P2, P4, R1, R4)
 - ART.VA.II.HS.1 Identify, define problems, and reflect upon possible visual solutions. (21st Century Skills: I.2, I.3, I.4)
 - ART.VA.II.HS.2 Create artwork using materials and techniques with skill so that personal intentions are carried out. (21st Century Skills: I.1, I.2, II.7, III.3)
 - ART.VA.II.HS.3 Apply organizational principles and methods to create innovative works of art and design products. (21st Century Skills: I.1, I.2, III.3)
 - ART.VA.II.HS.4 Apply knowledge and skill to symbolize the essence of an idea. (21st Century Skills: I.1, I.6)
 - ART.VA.II.HS.5 Reflect, articulate, and edit the development of artwork throughout the creative process. (21st Century Skills: I.4, II.7, III.3, III.4)
 - ART.VA.II.HS.6 Use emergent technologies and materials to create artistic products that demonstrate knowledge of context, values, and aesthetics. (21st Century Skills: I.1, II.1, II.2, II.3, III.2, III.7)
 - ART.VA.II.HS.7 Create collaboratively to resolve visual problems. (21st Century Skills: I.1, I.4, I.5, III.1)
 - ART.VA.II.HS.8 Explore social and global issues through the application of the creative process. (21st Century Skills: III.7, III.8, III.9, III.10)
- Standard 3: Analyze, describe, and evaluate works of art. (VPAA: C2, C3, C4, C5, P2, P3, R1, R2, R3, R4)
 - ART.VA.III.HS.1 Analyze and describe the formal characteristics of a work of art or design. (21st Century Skills: I.3, II.1, III.1)
 - ART.VA.III.HS.2 Describe how organizational principles are used to elicit emotional responses. (21st Century Skills: I.3, II.1, III.1)
 - ART.VA.III.HS.3 Critically observe a work of art to evaluate and respond to the artist's intent using art vocabulary and terminology. (21st Century Skills: I.2, I.3, I.6, II.1)
 - ART.VA.III.HS.4 Evaluate the quality and effectiveness of one's artwork. (21st Century Skills: I.3, II.1, III.4)
 - ART.VA.III.HS.5 Recognize and understand the relationships between personal experiences and the development of artwork. (21st Century Skills: I.3)
- Standard 4: Understand, analyze, and describe the arts in their historical, social, and cultural contexts. (VPAA: C2, C3, C4, C5, P2, P3, R1, R2, R3, R4)
 - ART.VA.IV.HS.1 Observe and describe artwork with respect to history and culture. (21st Century Skills: I.6, II.1, III.1, III.2, III.7, III.8, III.9, III.10)

- o ART.VA.IV.HS.2 Describe the functions and explore the meaning of specific art objects within varied cultures, times, and places. (21ST Century Skills: I.3, I.6, III.2, III.7)
 - o ART.VA.IV.HS.3 Analyze the correlation between art, history, and culture throughout time. (21st Century Skills: I.6, III.1, III.2, III.7, III.8, III.9, III.10)
 - o ART.VA.IV.HS.4 Use knowledge of art and design history to inform personal artwork. (21st Century Skills: I.1, I.3, II.5, II.7, III.3, III.7)
- Standard 5: Recognize, analyze, and describe connections among the arts; between the arts and other disciplines; between the arts and everyday life. (VPAA: C2, C3, C4, C5, P2, P3, R1, R2, R3, R4)
 - o ART.VA.V.HS.1 Design creative solutions that impact everyday life. (21st Century Skills: I.1, I.2, I.4, III.3, III.4, III.6)
 - o ART.VA.V.HS.2 Explore and understand the variety of art and design careers. (21st Century Skills: II.2, II.3, II.5, III.7)
 - o ART.VA.V.HS.3 Explore and understand the application of the creative process throughout career pathways. (21st Century Skills: II.1, II.2, II.3, II.5, III.2, III.7, III.8, III.9, III.10)
 - o ART.VA.V.HS.4 Identify commonalities, differences, and connections between the art disciplines. (21st Century Skills: I.3)
 - o ART.VA.V.HS.5 Recognize the role of art across the academic curriculum. (21st Century Skills: I.3)
 - o ART.VA.V.HS.6 Understand artistic knowledge as an important tool for successful living in the 21st century. (21st Century Skills: II.1, II.5, III.7)
 - o ART.VA.V.HS.7 Analyze the impact of visual culture on society. (21st Century Skills: I.3, III.2, III.7)
 - o ART.VA.V.HS.8 Identify the role visual arts play in enhancing civic responsibility and community. (21st Century Skills: I.3, I.6, III.2, III.4, III.7, III.9)

2D ART UNIT PROGRESSION

Unit 1: Advanced Drawing

Unit 1 Learner Objectives:

- Identify and discuss the many applications of drawing in art and design.
- Use drawing materials with a proper drawing technique.
- Create blind and open contour drawings.
- Identify the role of perspective and positive/negative space in drawing.
- Identify and capture the effects of 1-, 2- and 3- point perspective.
- Identify and capture the effects of positive and negative space in a drawing subject.
- Identify how light casts a shadow and affects the value in a drawing subject.
- Identify mid-tones, highlights, shadow edge, core shadow, reflected light, and cast shadow in a drawing subject.
- Create a value study capturing a range of tones from highlights to core shadow.

- Draw a complex still life composed of multiple objects, human figures, landscapes and subjects of choice
- Analyze and evaluate their own work and that of other students through the process of critique using terms and concepts appropriate to the medium.

Unit 2: Printmaking

Unit 2 Learner Objectives:

- Create editions of prints utilizing one or more print techniques that demonstrate both technical and conceptual consideration.
- Learn and apply different printmaking techniques and processes with proficiency.
- Analyze and evaluate their own work and that of other students through the process of critique using terms and concepts appropriate to the medium.
- Understand the history of printmaking as a distinctive form of art production.

Unit 3: 2D Fiber Arts

Unit 3 Learner Objectives:

- Observe how fiber arts from different time periods have influenced the fiber arts of contemporary artists.
- Learn the importance and significance of fiber arts to a variety of cultures throughout history.
- Analyze art techniques used by fiber artists and apply the techniques to their own work.
- Recognize career opportunities in the area of fiber arts.
- Develop an appreciation for the fiber arts through their own fiber art experiences.
- Create functional and non-functional fiber art works.
- Recognize and apply the art elements and principles to their fiber arts work.
- Develop their own personal artistic style when producing fiber arts.
- Use art forms from other cultures as a source of inspiration for their fiber art works.
- Develop creative problem solving skills.
- Demonstrate respect for their work and the work of others.
- Analyze and evaluate their own work and that of other students through the process of critique using terms and concepts appropriate to the medium.

Unit 4: Painting

Unit 4 Learner Objectives:

- Learn the use of traditional and non-traditional painting materials

- Exploration of the formal properties of color, tone, and composition
- Learn to utilize painting techniques, such as dry brush, glazing, staining, impasto, wet-into-wet color mixing and modulation of hue, value, and saturation
- Explore the use of assorted painting tools
- Solving pictorial and conceptual problems through research, application and resolution preparing to more independently generate their own ideas
- Understanding of historical and contemporary art practices preparing to generate their ideas independently

Unit 5: Illustration

Unit 5 Learner Objectives:

- Create editorial illustrations, icons, retro poster designs, 3D illustrations, and book title designs in Illustrator.
- Develop and sketch illustration concepts to prepare them for digital creation.
- Use shape and freehand drawing tools to create complex shapes and patterns.
- Use gradients to create lighting and shadow effects.
- Create simple iconographic illustrations and shapes.
- Create illustrations inspired by art history.
- Create objects with 3D proportions and lighting effects and place them in perspective on a plane.
- Create a sequential illustration that repeats certain features and colors over a series of frames to maintain a consistent look.
- Design a symmetrical title or identity that integrates repeated graphic elements and typography.

Unit 6: Fashion Design

Unit 6 Learner Objectives:

- Anticipate new consumer trends
- Create clothing designs based on research and imagination
- Marketing clothes and accessories
- Creation of clothing material using hand sewing/ application techniques

3D ART

Course Length: 2 semesters

Credits: 1.0

Recommended Grade Levels: 10, 11, 12

Prerequisites: Foundational Art

Course Description: 3D Art is a year-long class that focuses on developing the student's originality, craftsmanship and ability to create. This course is an introduction to the basic elements, materials, and techniques of sculpture. Approaches may include modeling such as with clay, addition such as assemblage, or subtraction such as carving. The student learns how to approach the basic elements of three-dimensional form including scale, mass, color, movement, and use of space in a sculptural manner.

Course Objectives (applicable for all units):

- Build a working vocabulary of art, design, and visual communication terminology.
- Know about and explore various design forms, elements, traits of elements and formal relationships.
- Produce the best possible design solution within given limits of time and resources.
- Be able to effectively apply valid design principles to a variety of visual expressions and communication problems.
- Become familiar with the process of design, design analysis, and creative problem-solving.
- Initiate an awareness of artists and designers who are, or were, remarkable for their designs.
- Establish an ability to identify the design problem; discern pertinent project needs and goals by reading project description and by questioning the instructor and active listening during project presentation and discussions.
- Apply visual design principles to concept development and design analysis.
- Communicate clearly your design concepts/goals via concise, written concept statements.
- Select successful concept-driven solutions and apply design principles in projects.
- Be able to justify design choices/solutions relative to client/project's posed problem and your concept statement.
- Practice and extend creative problem-solving skills by exploring, presenting and evaluating a multiplicity of ideas for each concept.
- Practice and develop illustrative sketching and rapid visualization techniques in development sketches, concept presentations and in-process project discussions/crits.
- Practice and extend ability to think visually, to develop visual concepts and to communicate visual solutions.
- Practice and develop rendering and presentation techniques in design presentations.
- Express understanding of design issues in oral presentations, class discussions and critiques.
- Recognize the relationship between human behavior and designed environment, graphics and objects.

Michigan High School Content Expectations:

- Standard 1: Apply skills and knowledge to perform in the arts. (VPAA: C1, C2, C3, C4,

- C5, P1, P2, P4, R1, R4)
 - ART.VA.I.HS.1 Apply acquired knowledge and skills to the creative problem solving process. (21st Century Skills: I.4, II.2)
 - ART.VA.I.HS.2 Intentionally use art materials and tools when applying techniques and skills to communicate ideas. (21st Century Skills: I.6, III.3, III.6)
 - ART.VA.I.HS.3 Demonstrate understanding of organizational principles and methods to solve specific visual arts problems. (21st Century Skills: I.4, II.5, III.3)
 - ART.VA.I.HS.4 Exhibit, present, and publish quality works of art. (21st Century Skills: I.4, I.6, III.3, III.6)
 - ART.VA.I.HS.5 Responsibly and safely manage materials and tools. (21st Century Skills: III.4, III.6, III.8)
- Standard 2: Apply skills and knowledge to create in the arts. (VPAA: C1, C2, C3, C4, C5, P1, P2, P4, R1, R4)
 - ART.VA.II.HS.1 Identify, define problems, and reflect upon possible visual solutions. (21st Century Skills: I.2, I.3, I.4)
 - ART.VA.II.HS.2 Create artwork using materials and techniques with skill so that personal intentions are carried out. (21st Century Skills: I.1, I.2, II.7, III.3)
 - ART.VA.II.HS.3 Apply organizational principles and methods to create innovative works of art and design products. (21st Century Skills: I.1, I.2, III.3)
 - ART.VA.II.HS.4 Apply knowledge and skill to symbolize the essence of an idea. (21st Century Skills: I.1, I.6)
 - ART.VA.II.HS.5 Reflect, articulate, and edit the development of artwork throughout the creative process. (21st Century Skills: I.4, II.7, III.3, III.4)
 - ART.VA.II.HS.6 Use emergent technologies and materials to create artistic products that demonstrate knowledge of context, values, and aesthetics. (21st Century Skills: I.1, II.1, II.2, II.3, III.2, III.7)
 - ART.VA.II.HS.7 Create collaboratively to resolve visual problems. (21st Century Skills: I.1, I.4, I.5, III.1)
 - ART.VA.II.HS.8 Explore social and global issues through the application of the creative process. (21st Century Skills: III.7, III.8, III.9, III.10)
- Standard 3: Analyze, describe, and evaluate works of art. (VPAA: C2, C3, C4, C5, P2, P3, R1, R2, R3, R4)
 - ART.VA.III.HS.1 Analyze and describe the formal characteristics of a work of art or design. (21st Century Skills: I.3, II.1, III.1)
 - ART.VA.III.HS.2 Describe how organizational principles are used to elicit emotional responses. (21st Century Skills: I.3, II.1, III.1)
 - ART.VA.III.HS.3 Critically observe a work of art to evaluate and respond to the artist's intent using art vocabulary and terminology. (21st Century Skills: I.2, I.3, I.6, II.1)
 - ART.VA.III.HS.4 Evaluate the quality and effectiveness of one's artwork. (21st Century Skills: I.3, II.1, III.4)
 - ART.VA.III.HS.5 Recognize and understand the relationships between personal experiences and the development of artwork. (21st Century Skills: I.3)
- Standard 4: Understand, analyze, and describe the arts in their historical, social, and cultural contexts. (VPAA: C2, C3, C4, C5, P2, P3, R1, R2, R3, R4)
 - ART.VA.IV.HS.1 Observe and describe artwork with respect to history and culture. (21st Century Skills: I.6, II.1, III.1, III.2, III.7, III.8, III.9, III.10)
 - ART.VA.IV.HS.2 Describe the functions and explore the meaning of specific art

- objects within varied cultures, times, and places. (21ST Century Skills: I.3, I.6, III.2, III.7)
 - ART.VA.IV.HS.3 Analyze the correlation between art, history, and culture throughout time. (21st Century Skills: I.6, III.1, III.2, III.7, III.8, III.9, III.10)
 - ART.VA.IV.HS.4 Use knowledge of art and design history to inform personal artwork. (21st Century Skills: I.1, I.3, II.5, II.7, III.3, III.7)
- Standard 5: Recognize, analyze, and describe connections among the arts; between the arts and other disciplines; between the arts and everyday life. (VPAA: C2, C3, C4, C5, P2, P3, R1, R2, R3, R4)
 - ART.VA.V.HS.1 Design creative solutions that impact everyday life. (21st Century Skills: I.1, I.2, I.4, III.3, III.4, III.6)
 - ART.VA.V.HS.2 Explore and understand the variety of art and design careers. (21st Century Skills: II.2, II.3, II.5, III.7)
 - ART.VA.V.HS.3 Explore and understand the application of the creative process throughout career pathways. (21st Century Skills: II.1, II.2, II.3, II.5, III.2, III.7, III.8, III.9, III.10)
 - ART.VA.V.HS.4 Identify commonalities, differences, and connections between the art disciplines. (21st Century Skills: I.3)
 - ART.VA.V.HS.5 Recognize the role of art across the academic curriculum. (21st Century Skills: I.3)
 - ART.VA.V.HS.6 Understand artistic knowledge as an important tool for successful living in the 21st century. (21st Century Skills: II.1, II.5, III.7)
 - ART.VA.V.HS.7 Analyze the impact of visual culture on society. (21st Century Skills: I.3, III.2, III.7)
 - ART.VA.V.HS.8 Identify the role visual arts play in enhancing civic responsibility and community. (21st Century Skills: I.3, I.6, III.2, III.4, III.7, III.9)

3D ART UNIT PROGRESSION

Unit 1: Introduction to Sculpture/Environment

Unit 1 Learner Objectives:

- Understand how the principles and elements of design are tied into form and function
- Discuss the purpose of traditional and contemporary functional and nonfunctional sculpture within a variety of time frames, cultures, and uses.
- Discuss the uses of sculpture in everyday objects.
- Discuss the roles of architects, industrial designers and other professions who influence sculpture and art around us.
- Analyze shape and form, techniques process and materials used by various cultures to create functional and/or non-functional objects.(i.e. Egyptian, Native American, Ancient Greek Roman, African, European, and contemporary)
- Discuss and analyze the sculptural and architectural elements of a 20th-century site-specific sculpture.
- Work in teams to choose a space that will serve as a setting for a sculpture.

- Construct a three-dimensional model for a large-scale, site-specific sculpture using found and/or natural objects.
- work in teams to produce a site specific sculpture based off the environment or place
- Take responsibility for maintaining all sculpture materials, tools and equipment, and follow correct classroom procedures.
- Self-assess their work through written and verbal analysis and participate in class critiques.
- Maintain a portfolio of sketches and written assignments related to the sculpture projects.

Unit 2: Additive Sculpture

Unit 2 Learner Objectives:

- Sculpts from observation or reference (e.g., animals, figurative) the expressive linear quality of wire
- Organizes the elements and principles to create a balanced composition (including formal, informal and radial compositions) in a 3-d work of art
- Creates artwork that is representational and abstract
- Identifies, discusses and uses color theory including the terms value, intensity, and hues (e.g., dull red versus primary red)
- Utilizes both geometric and organic based forms in their sculptures
- Uses positive and negative space to create different compositions using a variety of sculpting techniques
- Analyzes given artworks from a variety of movements and historical periods using appropriate art vocabulary while discussing the elements and principles of art (e.g., color, line, space, shape, form, pattern, texture, contrast, rhythm, composition, balance, movement, unity)
- Translates a concept into a 3-dimensional form by the use of additive or subtractive sculpting techniques
- Applies an understanding of shape and form using a variety of materials in a sculptural format to communicate a personal message (e.g. politics, social issues, and personal experience)
- Take responsibility for maintaining all sculpture materials, tools and equipment, and follow correct classroom procedures.
- Self-assess their work through written and verbal analysis and participate in class critiques.
- Maintain a portfolio of sketches and written assignments related to the sculpture projects.

Unit 3: Subtractive/Relief Sculpture

Unit 3 Learner Objectives:

- Learn the definition and types of relief sculpture.
- Learn the definition and types of balance.
- Learn about the elements and principles of art needed to construct the relief sculpture.
- Learn about sculptors who create relief sculptures
- To be able to design a relief sculpture using different types of balance.
- To be able to use the elements and principles of art to successfully compose a relief sculpture using materials (clay, paper, etc.)
- Demonstrate skills in all of the basic sculptural techniques: paper manipulation and construction techniques using metal, plaster, wood, wire, clay and found objects.
- Apply basic surface finishing and application techniques: texture, patinas, glazes and paints.
- Define and solve challenging sculpture problems.
- Demonstrate proper skills and safety practices using a variety of sculpture tools including: rasps, saws, hot glue guns, matt knives, wire cutters and hammers
- Take responsibility for maintaining all sculpture materials, tools and equipment, and follow correct classroom procedures.
- Self-assess their work through written and verbal analysis and participate in class critiques.
- Maintain a portfolio of sketches and written assignments related to the sculpture projects.

Unit 4: Figurative

Unit 4 Learner Objectives:

- Create Naum Gabo inspired figurative sculptures focusing on planes
- create a sculptural portrait using the elements and principles of design according to sculpture
- Take responsibility for maintaining all sculpture materials, tools and equipment, and follow correct classroom procedures.
- Self-assess their work through written and verbal analysis and participate in class critiques.
- Maintain a portfolio of sketches and written assignments related to the sculpture projects.

Unit 5: Does the sculpture become part of the environment or does the environment become part of the sculpture?

Unit 5 Learner Objectives:

- Take responsibility for maintaining all sculpture materials, tools and equipment, and follow correct classroom procedures.

- Self-assess their work through written and verbal analysis and participate in class critiques.
- Maintain a portfolio of sketches and written assignments related to the sculpture projects.
- Understand how the principles and elements of design are tied into form and function
- Discuss the purpose of traditional and contemporary functional and non-functional sculpture within a variety of time frames, cultures, and uses.
- Discuss the roles of architects, industrial designers and other professions who influence sculpture and art around us.

Unit 6: Kinetic

Unit 6 Learner Objectives:

- Understand what kinetic sculptures are and how time affects viewer's perception of them.
- understand symmetrical and asymmetrical balance
- Understand the relationship of this project to art history as result of their in-depth study of Calder (and other kinetic artists) and his influence on other artists.
- understand the importance of art in public spaces
- gain a greater understanding of three-dimensional structures
- increase their awareness of the environment and the world of insects
- understand that art functions as a means to increase knowledge in all content area
- Take responsibility for maintaining all sculpture materials, tools and equipment, and follow correct classroom procedures.
- Self-assess their work through written and verbal analysis and participate in class critiques.
- Maintain a portfolio of sketches and written assignments related to the sculpture projects.

DIGITAL MEDIA

Course Length: 2 semesters

Credits: 1.0

Recommended Grade Levels: 10, 11, 12

Prerequisites: Foundational Art

Course Description: In preparation for AP courses and in alignment with the Michigan High School Content Expectations, Digital Media is a fine art elective that can be taken after the successful completion of Foundational Art. This course is designed around the expectation that students gain a greater appreciation and understanding of both 2-dimensional and 3-dimensional art. Building on the base knowledge from Foundational Art, students utilize advanced art techniques, and learn new ways to manipulate mediums. Students will build on and expand their understanding and knowledge of the elements and principles of design that they gained in foundational art. Students will explore the design process, drafting, drawing, and sculpture and art history. Various technological tools, such as GIMP and Inkscape, will be utilized.

DIGITAL MEDIA UNIT PROGRESSION

Unit 1: What is Digital Media/Graphic Design?

Unit 1 Learner Objectives:

- Define digital media
- Know which programs are available for me to use
- Define ways in which digital media is accessible to the public
- Discuss ways that digital media influences the world around me

Unit 1 Michigan High School Content Expectations:

- Standard 1: Apply skills and knowledge to perform in the arts. (VPAA: C1, C2, C3, C4, C5, P1, P2, P4, R1, R4)
 - ART.VA.I.HS.1 Apply acquired knowledge and skills to the creative problem solving process. (21st Century Skills: I.4, II.2)
 - ART.VA.I.HS.2 Intentionally use art materials and tools when applying techniques and skills to communicate ideas. (21st Century Skills: I.6, III.3, III.6)
 - ART.VA.I.HS.3 Demonstrate understanding of organizational principles and methods to solve specific visual arts problems. (21st Century Skills: I.4, II.5, III.3)
 - ART.VA.I.HS.4 Exhibit, present, and publish quality works of art. (21st Century Skills: I.4, I.6, III.3, III.6)
 - ART.VA.I.HS.5 Responsibly and safely manage materials and tools. (21st Century Skills: III.4, III.6, III.8)
- Standard 2: Apply skills and knowledge to create in the arts. (VPAA: C1, C2, C3, C4, C5, P1, P2, P4, R1, R4)
 - ART.VA.II.HS.1 Identify, define problems, and reflect upon possible visual solutions. (21st Century Skills: I.2, I.3, I.4)
 - ART.VA.II.HS.2 Create artwork using materials and techniques with skill so that personal intentions are carried out. (21st Century Skills: I.1, 1.2, II.7, III.3)

- ART.VA.II.HS.3 Apply organizational principles and methods to create innovative works of art and design products. (21st Century Skills: I.1, I.2, III.3)
- ART.VA.II.HS.4 Apply knowledge and skill to symbolize the essence of an idea. (21st Century Skills: I.1, I.6)
- ART.VA.II.HS.5 Reflect, articulate, and edit the development of artwork throughout the creative process. (21st Century Skills: I.4, II.7, III.3, III.4)
- ART.VA.II.HS.6 Use emergent technologies and materials to create artistic products that demonstrate knowledge of context, values, and aesthetics. (21st Century Skills: I.1, II.1, II.2, II.3, III.2, III.7)
- ART.VA.II.HS.7 Create collaboratively to resolve visual problems. (21st Century Skills: I.1, I.4, I.5, III.1)
- ART.VA.II.HS.8 Explore social and global issues through the application of the creative process. (21st Century Skills: III.7, III.8, III.9, III.10)
- Standard 3: Analyze, describe, and evaluate works of art. (VPAA: C2, C3, C4, C5, P2, P3, R1, R2, R3, R4)
 - ART.VA.III.HS.1 Analyze and describe the formal characteristics of a work of art or design. (21st Century Skills: I.3, II.1, III.1)
 - ART.VA.III.HS.2 Describe how organizational principles are used to elicit emotional responses. (21st Century Skills: I.3, II.1, III.1)
 - ART.VA.III.HS.3 Critically observe a work of art to evaluate and respond to the artist's intent using art vocabulary and terminology. (21st Century Skills: I.2, I.3, I.6, II.1)
 - ART.VA.III.HS.4 Evaluate the quality and effectiveness of one's artwork. (21st Century Skills: I.3, II.1, III.4)
 - ART.VA.III.HS.5 Recognize and understand the relationships between personal experiences and the development of artwork. (21st Century Skills: I.3)
- Standard 4: Understand, analyze, and describe the arts in their historical, social, and cultural contexts. (VPAA: C2, C3, C4, C5, P2, P3, R1, R2, R3, R4)
 - ART.VA.IV.HS.1 Observe and describe artwork with respect to history and culture. (21st Century Skills: I.6, II.1, III.1, III.2, III.7, III.8, III.9, III.10)
 - ART.VA.IV.HS.2 Describe the functions and explore the meaning of specific art objects within varied cultures, times, and places. (21ST Century Skills: I.3, I.6, III.2, III.7)
 - ART.VA.IV.HS.3 Analyze the correlation between art, history, and culture throughout time. (21st Century Skills: I.6, III.1, III.2, III.7, III.8, III.9, III.10)
 - ART.VA.IV.HS.4 Use knowledge of art and design history to inform personal artwork. (21st Century Skills: I.1, I.3, II.5, II.7, III.3, III.7)
- Standard 5: Recognize, analyze, and describe connections among the arts; between the arts and other disciplines; between the arts and everyday life. (VPAA: C2, C3, C4, C5, P2, P3, R1, R2, R3, R4)
 - ART.VA.V.HS.1 Design creative solutions that impact everyday life. (21st Century Skills: I.1, I.2, I.4, III.3, III.4, III.6)
 - ART.VA.V.HS.2 Explore and understand the variety of art and design careers. (21st Century Skills: II.2, II.3, II.5, III.7)
 - ART.VA.V.HS.3 Explore and understand the application of the creative process throughout career pathways. (21st Century Skills: II.1, II.2, II.3, II.5, III.2, III.7, III.8, III.9, III.10)
 - ART.VA.V.HS.4 Identify commonalities, differences, and connections between

- the art disciplines. (21st Century Skills: I.3)
- ART.VA.V.HS.5 Recognize the role of art across the academic curriculum. (21st Century Skills: I.3)
- ART.VA.V.HS.6 Understand artistic knowledge as an important tool for successful living in the 21st century. (21st Century Skills: II.1, II.5, III.7)
- ART.VA.V.HS.7 Analyze the impact of visual culture on society. (21st Century Skills: I.3, III.2, III.7)
- ART.VA.V.HS.8 Identify the role visual arts play in enhancing civic responsibility and community. (21st Century Skills: I.3, I.6, III.2, III.4, III.7, III.9)

Unit 2: Design Process

Unit 2 Learner Objectives:

- Explain the five steps within the design process
- Explain the principles of design and how they affect a piece of art
- Create a piece using the design process and principles of design

Unit 2 Michigan High School Content Expectations:

- Same as Unit 1

Unit 3: GIMP and Raster

Unit 3 Learner Objectives:

- Define what GIMP is in relation to digital media class
- Know how to use GIMP to manipulate and enhance digital images
- Define the tools of GIMP and understand how to use filters
- Discuss ways that GIMP can help me enhance my digital artwork

Unit 3 Michigan High School Content Expectations:

- Same as Unit 1

Unit 4: Photo Manipulation with GIMP

Unit 4 Learner Objectives:

- Use GIMP to create a layered composition using mixed medium.
- Understand how culture affects the way we see the world.
- Successfully use the layers panel in GIMP.

Unit 4 Michigan High School Content Expectations:

- Same as Unit 1

Unit 5: Typography

Unit 5 Learner Objectives:

- Define typography and discuss how typography influences digital media and graphic

design.

- Identify the anatomy of Type.
- Understand how companies use logos and slogans to attract viewers/customers.
- Know how to use the Elements of Art and the Principles of Design to effectively create graphic designs with the intent to attract viewers to a particular event.

Unit 5 Michigan High School Content Expectations:

- Same as Unit 1

Unit 6: Inkscape and Vectors

Unit 6 Learner Objectives:

- Define vector images and know the creative process behind creating vector images.
- Know how digital media uses vector images and describe their use in the world around me.
- Know how to use Inkscape and how it can help me create my own artwork.
- Create my portrait and profile using only Inkscape.

Unit 6 Michigan High School Content Expectations:

- Same as Unit 1

Unit 7: Branding Identity

Unit 7 Learner Objectives:

- Define the various types of logos.
- Identify the design elements used to effectively create logos to attract a target audience.
- Use Inkscape to create logo and branding material for my company.
- Understand how companies use logos to attract their target audience.

Unit 7 Michigan High School Content Expectations:

- Same as Unit 1

Unit 8: Advertising Design

Unit 8 Learner Objectives:

- Understand how graphic designers discover and create advertising solutions.
- Create an advertising poster.
- Identify the design principles used in advertisements and determine if they are effective or not.

Unit 8 Michigan High School Content Expectations:

- Same as Unit 1

Unit 9: Environmental and Information Design

Unit 9 Learner Objectives:

- Analyze environmental and information design solutions.
- Create effective signage for our school.
- Design a space using Google Sketch up.

Unit 9 Michigan High School Content Expectations:

- Same as Unit 1

Unit 10: Animation

Unit 10 Learner Objectives:

- View and discuss the work of animation artists and technological influences on animations.
- Use my knowledge of sketching to create a storyboard.
- Download and use Synfig effectively to create an animation.

Unit 10 Michigan High School Content Expectations:

- Same as Unit 1

Unit 11: Self-Directed Project

Unit 11 Learner Objectives:

- Use the tools, programs and concepts learned in class to design a creative digital media project.
- Work independently to create a project using my own ideas and inspiration.
- Explain the creative process involved in making my project.

Unit 11 Michigan High School Content Expectations:

- Same as Unit 1

AP STUDIO ART

Course Length: 2 semesters

Credits: 1.0

Recommended Grade Levels: 11, 12 (1st year high school art)

Prerequisites: None

Course Description: Aligned with standards and objectives set by the AP CollegeBoard, AP Studio Art is a college level course typically taken as an upperclassman. This course is designed to encourage creative and systematic investigation of formal and conceptual issues, while emphasizing making art as an ongoing process that involves the student in informed and critical decision making. Course content helps students develop technical skills and familiarize them with the functions of the visual elements, while encouraging them to become independent thinkers and problem solvers who will contribute inventively and critically to their culture through the making of art. Under the tutelage and guidance of a certified art instructor, students will create a body of work that demonstrates knowledge of a wide variety of techniques and concepts for submission in drawing. This body of work is submitted to the CollegeBoard in May. A passing score on the portfolio may earn students college Art credit. Placement and credit are granted by institutions in accordance with their own policies, not by those of the College Board or the AP Program.

AP STUDIO ART UNIT PROGRESSION

Breadth Project 1: Portraits

Project 1 CollegeBoard Breadth Requirements:

- The use of various spatial systems, such as linear perspective, the illusion of three dimensional forms, aerial views, and other ways of creating and organizing space
- The use of various subjects, such as the human figure, landscape, and still-life objects
- The use of various kinds of content, such as that derived from observation, an expressionistic viewpoint, imaginary or psychological imagery, social commentary, political statements; and other personal interests
- Arrangement of forms in a complex visual space
- The use of different approaches to represent form and space, such as rendered, gestural, painterly, expressionist, stylized, or abstract form
- The investigation of expressive mark-making

Breadth Project 2: Still Life

Project 2 CollegeBoard Breadth Requirements:

- The use of various spatial systems, such as linear perspective, the illusion of three dimensional forms, aerial views, and other ways of creating and organizing space
- The use of various subjects, such as the human figure, landscape, and still-life objects
- The use of various kinds of content, such as that derived from observation, an expressionistic viewpoint, imaginary or psychological imagery, social commentary, political statements; and other personal interests

- Arrangement of forms in a complex visual space
- The use of different approaches to represent form and space, such as rendered, gestural, painterly, expressionist, stylized, or abstract form
- The investigation of expressive mark-making

Breadth Project 3: Altered Surfaces

Project 3 CollegeBoard Breadth Requirements:

- The use of various spatial systems, such as linear perspective, the illusion of three dimensional forms, aerial views, and other ways of creating and organizing space
- The use of various subjects, such as the human figure, landscape, and still-life objects
- The use of various kinds of content, such as that derived from observation, an expressionistic viewpoint, imaginary or psychological imagery, social commentary, political statements; and other personal interests
- Arrangement of forms in a complex visual space
- The use of different approaches to represent form and space, such as rendered, gestural, painterly, expressionist, stylized, or abstract form
- The investigation of expressive mark-making

Breadth Project 4: Bones!

Project 4 CollegeBoard Breadth Requirements:

- The use of various spatial systems, such as linear perspective, the illusion of three dimensional forms, aerial views, and other ways of creating and organizing space
- The use of various subjects, such as the human figure, landscape, and still-life objects
- The use of various kinds of content, such as that derived from observation, an expressionistic viewpoint, imaginary or psychological imagery, social commentary, political statements; and other personal interests
- Arrangement of forms in a complex visual space
- The use of different approaches to represent form and space, such as rendered, gestural, painterly, expressionist, stylized, or abstract form
- The investigation of expressive mark-making

Breadth Project 5: Line and Shape Superheroes and Icons

Project 5 CollegeBoard Breadth Requirements:

- The use of various spatial systems, such as linear perspective, the illusion of three dimensional forms, aerial views, and other ways of creating and organizing space
- The use of various subjects, such as the human figure, landscape, and still-life objects
- The use of various kinds of content, such as that derived from observation, an expressionistic viewpoint, imaginary or psychological imagery, social commentary, political statements; and other personal interests
- Arrangement of forms in a complex visual space
- The use of different approaches to represent form and space, such as rendered, gestural, painterly, expressionist, stylized, or abstract form
- The investigation of expressive mark-making

Breadth Project 6: Machines

Project 6 CollegeBoard Breadth Requirements:

- The use of various spatial systems, such as linear perspective, the illusion of three dimensional forms, aerial views, and other ways of creating and organizing space
- The use of various subjects, such as the human figure, landscape, and still-life objects
- The use of various kinds of content, such as that derived from observation, an expressionistic viewpoint, imaginary or psychological imagery, social commentary, political statements; and other personal interests
- Arrangement of forms in a complex visual space
- The use of different approaches to represent form and space, such as rendered, gestural, painterly, expressionist, stylized, or abstract form
- The investigation of expressive mark-making

Breadth Project 7: Narrative Illustration

Project 7 CollegeBoard Breadth Requirements:

- The use of various spatial systems, such as linear perspective, the illusion of three dimensional forms, aerial views, and other ways of creating and organizing space
- The use of various subjects, such as the human figure, landscape, and still-life objects
- The use of various kinds of content, such as that derived from observation, an expressionistic viewpoint, imaginary or psychological imagery, social commentary, political statements; and other personal interests
- Arrangement of forms in a complex visual space
- The use of different approaches to represent form and space, such as rendered, gestural, painterly, expressionist, stylized, or abstract form
- The investigation of expressive mark-making

Breadth Project 8: Motion

Project 8 CollegeBoard Breadth Requirements:

- The use of various spatial systems, such as linear perspective, the illusion of three dimensional forms, aerial views, and other ways of creating and organizing space
- The use of various subjects, such as the human figure, landscape, and still-life objects
- The use of various kinds of content, such as that derived from observation, an expressionistic viewpoint, imaginary or psychological imagery, social commentary, political statements; and other personal interests
- Arrangement of forms in a complex visual space
- The use of different approaches to represent form and space, such as rendered, gestural, painterly, expressionist, stylized, or abstract form
- The investigation of expressive mark-making

Breadth Project 9: Natural Patterns

Project 9 CollegeBoard Breadth Requirements:

- The use of various spatial systems, such as linear perspective, the illusion of three dimensional forms, aerial views, and other ways of creating and organizing space
- The use of various subjects, such as the human figure, landscape, and still-life objects
- The use of various kinds of content, such as that derived from observation, an expressionistic viewpoint, imaginary or psychological imagery, social commentary, political statements; and other personal interests
- Arrangement of forms in a complex visual space
- The use of different approaches to represent form and space, such as rendered, gestural, painterly, expressionist, stylized, or abstract form
- The investigation of expressive mark-making

Breadth Project 10: Personal Narratives

Project 10 CollegeBoard Breadth Requirements:

- The use of various spatial systems, such as linear perspective, the illusion of three dimensional forms, aerial views, and other ways of creating and organizing space
- The use of various subjects, such as the human figure, landscape, and still-life objects
- The use of various kinds of content, such as that derived from observation, an expressionistic viewpoint, imaginary or psychological imagery, social commentary, political statements; and other personal interests
- Arrangement of forms in a complex visual space
- The use of different approaches to represent form and space, such as rendered, gestural, painterly, expressionist, stylized, or abstract form
- The investigation of expressive mark-making

Breadth Project 11: Shadows

Project 11 CollegeBoard Breadth Requirements:

- The use of various spatial systems, such as linear perspective, the illusion of three dimensional forms, aerial views, and other ways of creating and organizing space
- The use of various subjects, such as the human figure, landscape, and still-life objects
- The use of various kinds of content, such as that derived from observation, an expressionistic viewpoint, imaginary or psychological imagery, social commentary, political statements; and other personal interests
- Arrangement of forms in a complex visual space
- The use of different approaches to represent form and space, such as rendered, gestural, painterly, expressionist, stylized, or abstract form
- The investigation of expressive mark-making

Breadth Project 12: Space and Balance

Project 12 CollegeBoard Breadth Requirements:

- The use of various spatial systems, such as linear perspective, the illusion of three dimensional forms, aerial views, and other ways of creating and organizing space
- The use of various subjects, such as the human figure, landscape, and still-life objects

- The use of various kinds of content, such as that derived from observation, an expressionistic viewpoint, imaginary or psychological imagery, social commentary, political statements; and other personal interests
- Arrangement of forms in a complex visual space
- The use of different approaches to represent form and space, such as rendered, gestural, painterly, expressionist, stylized, or abstract form
- The investigation of expressive mark-making