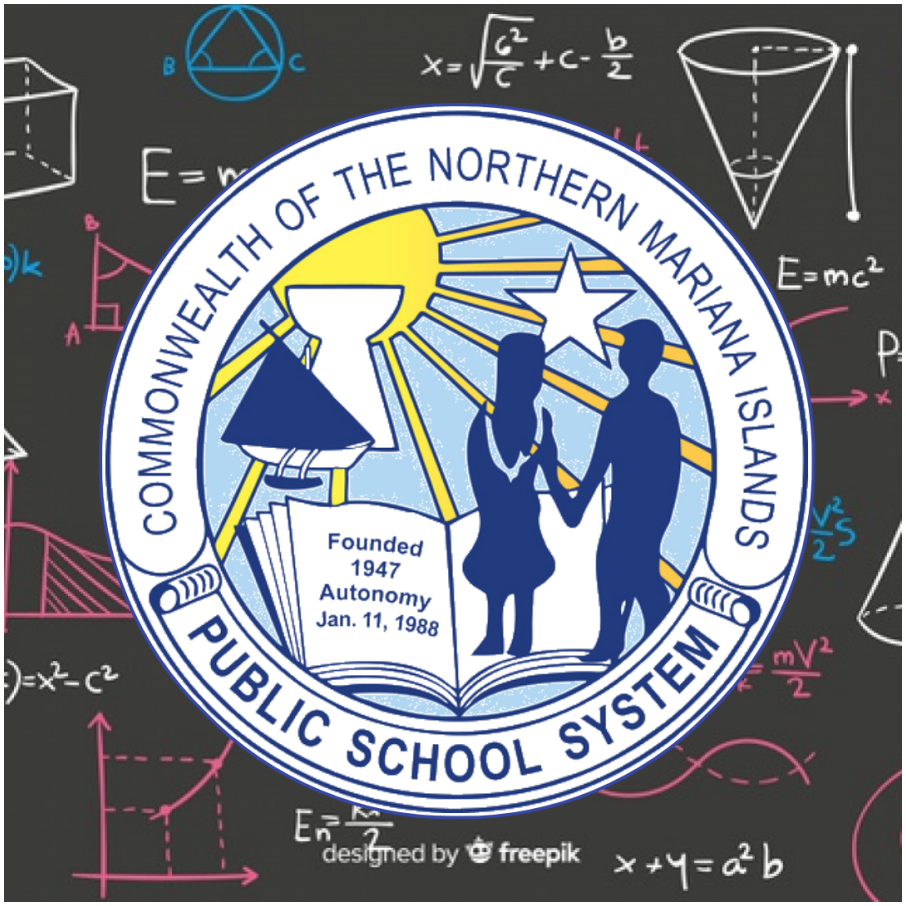

CNMI PUBLIC SCHOOL SYSTEM
OFFICE OF CURRICULUM AND INSTRUCTION
HIGH SCHOOL PRIORITY STANDARDS MAP
MATHEMATICS

ALGEBRA I
Priority Standards Map
Mathematics

High School Algebra 1 Priority Standards Map
Mathematics

Legend:

	Content Area		Vocabulary
	Grade Level and Quarter		Weekly Pacing
	Rationale		Priority Standards
	Primary Instructional Materials		

Content Area: Algebra 1	
Grade Level: 9	**Quarter: 1**
This standards map is developed with the following premises: ● Students will be assessed only on the Priority Standards ● Teachers can expose students to or have students practice all the other standards but they will not be assessed on those standards. ● The adopted curriculum covers multiple standards per lesson. ● The criteria to choose Priority/Power Standards are: **Endurance:** Those standards that provide students with knowledge and skills beyond a single test date. **Leverage:** Those standards that provide knowledge and skills that are necessary for success in the next grade or level of instruction. **Readiness:** Those standards that provide the knowledge and skills that are necessary for success in the next grade or level of instruction.	
Primary Instructional Materials (BOE Approved): ● Algebra 1: Common Core (Pearson)	
Enduring Understandings: Chapter 1 ● Algebra uses symbols to represent quantities that are unknown or that vary. Mathematical phrases and real-world relationships can be represented using symbols and operations. ● Equations are used to represent the relationship between two quantities that have the same value. ● Sometimes the value of one quantity can be found if the value of another is known. The relationship between the quantities can be represented in different ways, including tables, equations, and graphs.	**Essential Questions:** Chapter 1 ● How can you represent quantities, patterns, and relationships? ● How are properties related to algebra? Chapter 2 ● Can equations that appear to be different be equivalent? ● How can you solve equations? ● What kinds of relationships can proportions represent? Chapter 3 ● How do you represent relationships between quantities that are not equal? ● Can inequalities that appear to be different be equivalent? ● How can you solve inequalities?

● Powers can be used to shorten the representation of repeated multiplication. When simplifying an expression operations must be performed in the correct order. ● The definition of a square root can be used to find the exact square roots of some nonnegative numbers. Numbers can be classified by their characteristics. ● Relationships that are always true for real numbers are called properties, which are rules used to rewrite and compare expressions. ● Any real numbers can be added or subtracted using a number line model or using rules involving absolute value. ● The rules for multiplying real numbers are related to the properties of real numbers and the definitions of operations. ● The distributive property can be used to simplify the product of a number and a sum or difference. An algebraic expression can be simplified by combining the parts of the expression that are alike. Chapter 2 ● Equivalent equations are equations that have the same solution(s). Students learn to use the properties of equality and inverse operations to find equivalent equations. ● Equations can describe, explain, and predict various aspects of the real world. Students will solve one-step, two-step, and multi-step linear equations, as well as equations with variables on both sides. ● Ratios and rates can be used to compare quantities and make conversions. ● If two ratios are equal and a quantity in one of the ratios is unknown, the unknown quantity can be found by writing and solving a proportion. ● Proportional reasoning can be used to find missing side lengths in similar figures. ● Percents represent another application of proportions. The percent proportion Chapter 3 ● An inequality is a mathematical sentence that uses an inequality symbol to compare the values of two expressions. Inequalities can be represented with	

symbols. Their solutions can be represented on a number line. • Just as properties of equality can be used to solve equations, properties of inequalities can be used to solve inequalities (including multi-step and compound inequalities). • Just as equivalent equations can be used to solve equations, equivalent inequalities can be used to solve inequalities (including multi-step and compound inequalities). • An equivalent pair of linear equations or inequalities can be used to solve absolute value equations and inequalities. • Absolute value equations and inequalities can be solved by first isolating the absolute value expression, if necessary, then writing an equivalent pair of linear equations or inequalities. •	
Pacing Map (by weeks):	**Standards and Benchmarks:** **(BOE Approved):**
Weeks 1 - 2	Chapter 1 • **A-SSE.A.1a:** Interpret parts of an expression, such as terms, factors, and coefficients. • **N-RN.B.3:** Explain why the sum or product of two rational numbers is rational that the sum of a rational number and a irrational number is irrational. • **A-CED.A.3:** Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or nonviable options in a modeling context. • **A-CED.A.2:** Create equations in two or more variables to represent relationships between quantities; equations on coordinate axes with labels and scales. • **N-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.
Weeks 3 - 4	Chapter 1 & 2 • **A-CED.A.1:** Create equations and inequalities in one variable and use them to solve problems. • **A-REI.A.1:** Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the

	assumption that the original equation has a solution. • **A-REI.D.10:** Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a line). • **N-RN.B.3:** Explain why the sum or product of two rational numbers is rational; that the sum of a rational number and an irrational number is irrational; and that the product of a nonzero rational number and an irrational number is irrational. • **A-SSE.A.1a:** Interpret parts of an expression, such as terms, factors, and coefficients. • **A-CED.A.2:** Use the structure of an expression to identify ways to rewrite it. • **A-REI.B.3:** Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.
Weeks 5 - 6	Chapter 2 & 3 • **A-REI.A.1:** Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. • **A-CED.A.1:** Create equations and inequalities in one variable and use them to solve problems. • **A-REI.B.3:** Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters. • **A-CED.A.4:** Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations. • **N-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. • **N-Q.A.2:** Define appropriate quantities for the purpose of descriptive modeling.
Weeks 7 - 8	Chapter 2 & 3 • **A-REI.B.3:** Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters. • **N-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. • **A-CED.A.1:** Create equations and inequalities in one variable and use them to solve problems. • **N-Q.A.3:** Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.
Weeks 9 -10	Chapter 3

	• **A-REI.B.3:** Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters. • **A-CED.A.1:** Create equations and inequalities in one variable and use them to solve problems. • **N-Q.A.2:** Define appropriate quantities for the purpose of descriptive modeling. • **A-SSE.A.1:** Interpret expressions that represent a quantity in terms of its context. • **A-SSE.A.1b:** Interpret complicated expressions by viewing one or more of their parts as a single entity.

Content Area: Algebra 1	
Grade Level: 9	**Quarter: 2**
This standards map is developed with the following premises: • Students will be assessed only on the Priority Standards • Teachers can expose students to or have students practice all the other standards but they will not be assessed on those standards. • The adopted curriculum covers multiple standards per lesson. • The criteria to choose Priority/Power Standards are: **Endurance:** Those standards that provide students with knowledge and skills beyond a single test date. **Leverage:** Those standards that provide knowledge and skills that are necessary for success in the next grade or level of instruction. **Readiness:** Those standards that provide the knowledge and skills that are necessary for success in the next grade or level of instruction.	
Primary Instructional Materials (BOE Approved): Algebra 1: Common Core (Pearson)	
Enduring Understandings: **Chapter 4** • The value of one variable may be uniquely determined by the value of another variable. Such relationships may be represented using tables, words, equations, sets of ordered pairs, and graphs. • The set of all solutions of an equation forms the equation's graph. A graph may include solutions that do not appear in a table. A real-world graph should only show points that make sense in the given situation. • Many real-world functional relationships can be represented by equations. You can use an equation to find the solution of a given real-world problem.	**Essential Questions:** **Chapter 4** • How can you represent and describe functions? • Can functions describe real-world situations? **Chapter 5** • What does the slope of a line indicate about the line? • What information does the equation of a line give you? • How can you make predictions based on a scatter plot? **Chapter 6** • How can you solve system of equations or inequalities? • Can systems of equations model real-world situations?

• A function is a special type of relation in which each value in the domain is paired with exactly one value in the range. • When you can identify a pattern in a sequence, you can use it to extend the sequence. You can also model some sequences with a function rule that you can use to find any term of the sequence. **Chapter 5** • Ratios can be used to show a relationship between changing quantities, such as vertical or horizontal change. • If the ratio of two variables is constant, then the variables have a special relationship, called a direct variation. • A line on a graph can be represented by a linear equation. Forms of linear equations include the Slope-Intercept, Point-Slope, and Standard forms. • The relationship between two lines can be determined by comparing their slopes and y-intercepts. • Two sets of numerical data can be graphed as ordered pairs. If the two sets of data are related, a line on the graph can be used to estimate or predict values. **Chapter 6** • Systems of linear equations can be used to model problems. Systems of equations can be solved by graphing or substituting a variable. • A linear inequality in two variables has an infinite number of solutions. These solutions can be represented in the coordinate plane as the set of all points on one side of a boundary line. The solutions of a system of linear inequalities can be represented by the region where the graphs of the individual inequalities overlap.	
Pacing Map (by weeks):	**Standards and Benchmarks:** **(BOE Approved):**
Weeks 1 - 2	**Chapter 4** • **A-REI.D.10:** Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a line). • **F-BF.A.1a**: Determine an explicit expression, a recursive process, or steps for calculation from a context. • **F-BF.A.2**: Write arithmetic and geometric sequences both recursively and

	with an explicit formula, use them to model situations, and translate between the two forms. • **F-IF.A.1**: Understand that a function from one set (called the domain) to another set (called the range) assigns to each element of the domain exactly one element of the range. If *f* is a function and *x* is an element of its domain, then *f(x)* denotes the output of *f* corresponding to the input *x*. The graph of *f* is the graph of the equation *y = f(x)*. • **F-IF.B.5**: Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes. • **N-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.
Weeks 3 - 4	**Chapter 4 & 5** • **A-CED.A.2:** Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales. • **A-SSE.A.1a:** Interpret parts of an expression, such as terms, factors, and coefficients. • **F-IF.A.2**: Use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context. • **F-IF.A.3**: Recognize that sequences are functions, sometimes defined recursively, whose domain is a subset of the integers. • **F-IF.B.4**: For a function that models a relationship between two quantities, interpret key features of 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. • **F-LE.A.2:** Construct linear equations or inequalities given a graph, a description of a relationship, or two input-output pairs. • **N-Q.A.2**: Define appropriate quantities for the purpose of descriptive modeling.
Weeks 5 - 6	**Chapter 5** • **A-CED.A.2:** Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales. • **A-SSE.A.1a:** Interpret parts of an expression, such as terms, factors, and coefficients. • **F-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. • **F-IF.B.4**: For a function that models a relationship between two quantities, interpret key features of 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. • **F-IF.B.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. • **F-IF.C.7a:** Graph linear and quadratic functions and show intercepts, maxima, and minima. • **F-IF.C.7b:** Graph square root, cube root, and piecewise-defined functions, including step functions and absolute value functions. • **F-LE.A.1b:** Recognize situations in which one quantity changes at a constant rate per unit interval relative to another. • **F-LE.A.2:** Construct linear equations or inequalities given a graph, a description of a relationship, or two input-output pairs. • **F-LE.B.5:** Interpret the parameters in a linear or exponential function in terms of a context. • **G-GPE.B.5:** Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems. • **N-Q.A.2**: Define appropriate quantities for the purpose of descriptive modeling. • **S-ID.B.6c:** Fit a linear function for a scatter plot that suggests a linear association. • **S-ID.C.7:** Interpret the slope (rate of change) and the intercept (constant term) of a linear model in the context of the data. • **S-ID.C.8:** Compute (using technology) and interpret the correlation coefficient of a linear fit. • **S-ID.C.9:** Distinguish between correlation and causation.
Weeks 7 - 8	**Chapter 6** • **A-CED.A.3:** Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or nonviable options in a modeling context. • **A-REI.C.5:** Prove that, given a system of two equations in two variables, replacing one equation by the sum of that equation and a multiple of the other produces a system with the same solutions.

	• **A-REI.C.6:** Solve systems of linear equations exactly and approximately, focusing on pairs of linear equations in two variables. • **A-REI.D.12:** Graph the solution set of a system of linear inequalities in two variables as the intersection of the corresponding half-planes. • **N-Q.A.3:** Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.
Week 9	**Chapter 6** • **A-CED.A.3:** Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or nonviable options in a modeling context. • **A-REI.C.5:** Prove that, given a system of two equations in two variables, replacing one equation by the sum of that equation and a multiple of the other produces a system with the same solutions. • **A-REI.C.6:** Solve systems of linear equations exactly and approximately, focusing on pairs of linear equations in two variables. • **A-REI.D.12:** Graph the solution set of a system of linear inequalities in two variables as the intersection of the corresponding half-planes. • **N-Q.A.3:** Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.

Content Area: Algebra 1	
Grade Level: 9	**Quarter: 3**
This standards map is developed with the following premises: • Students will be assessed only on the Priority Standards • Teachers can expose students to or have students practice all the other standards but they will not be assessed on those standards. • The adopted curriculum covers multiple standards per lesson. • The criteria to choose Priority/Power Standards are: **Endurance:** Those standards that provide students with knowledge and skills beyond a single test date. **Leverage:** Those standards that provide knowledge and skills that are necessary for success in the next grade or level of instruction. **Readiness:** Those standards that provide the knowledge and skills that are necessary for success in the next grade or level of instruction.	
Primary Instructional Materials (BOE Approved): Algebra 1: Common Core (Pearson)	
Enduring Understandings: **Chapter 7:**	**Essential Questions:** **Chapter 7:**

• **the idea can be extended to include zero and negative exponents** • **properties of exponents make it easier to simplify products or quotients of powers with the same base or powers raised to a power or products raised to a power** • **rational exponents can represent radicals** • **the parent of the family of exponential functions is $y = ab^x$. The independent variable is an exponent. This family of functions can model growth or decay of an initial amount.** • **in a geometric sequence, the ratio of any term to its preceding term is a constant value.** **Chapter 8** • **Monomials can be used to form larger expressions called polynomials. Polynomials can be added and subtracted.** • **There are several ways to find the product of two binomials, including models, algebra, and tables** • **Some trinomials of the form ax2 + bx + c and some polynomials of a degree greater than 2 can be factored to equivalent forms which are the product of two binomials.** • **The properties of real numbers can be used to multiply a monomial by a polynomial or simplify the product of binomials.** • **The properties of real numbers can also be used to factor some trinomials of the form ax2 + bx + c.** **Chapter 9:** • **The family of quadratic functions models certain situations where the rate of change is not constant. These functions are graphed by a symmetric curve with a highest or lowest point corresponding to a maximum or minimum value.** • **In the quadratic function y = ax2 + bx + c, the value of b translates the position of the axis of symmetry** • **Quadratic equations can be solved by a variety of methods, including graphing and finding the square root, using the Zero-Product Property,**	• How can you represent numbers less than 1 using exponents? • How can you simplify expressions involving exponents? • What are the characteristics of exponential functions? **Chapter 8:** • Can two algebraic expressions that appear to be different be equivalent? • How are the properties of real numbers related to polynomials? **Chapter 9:** • What are the characteristics of a quadratic functions? • How can you solve a quadratic equation? • How can you use functions to model real-world situations?

writing the equation in the form m2 = n, or using Quadratic Formula. • **Systems of linear and quadratic equations can be solved graphically and algebraically. This type of system can have two solutions, one solution, or no solutions.**	
Pacing Map (by weeks):	**Standards and Benchmarks:** **(BOE Approved):**
1 - 2	**Chapter 7** **N-RN.A.1** Explain how the definition of the meaning of rational exponents follows from extending the properties of integer exponents to those values, allowing for a notation for radicals in terms of rational exponents. **N-RN.A.2** Rewrite expressions involving radicals and rational exponents using the properties of exponents. **A-SSE.A.1** Interpret expressions that represent a quantity in terms of its context. **A-SSE.A.1a** Interpret parts of an expression, such as terms, factors, and coefficients. **A-SSE.A.1b** Interpret complicated expressions by viewing one or more of their parts as a single entity. **A-SSE.B.3C** Use the properties of exponents to transform expressions for exponential functions. **A-CED.A.2** Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales. **F-IF.A.3** Recognize that sequences are functions, sometimes defined recursively, whose domain is a subset of the integers**.** **F-IF.B.4** For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. **F-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. **F-IF.C.7a** Graph linear and quadratic functions and show intercepts, maxima, and minima. **F-IF.C.8** Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function**.** **F-IF.C.8b** Use the properties of exponents to interpret expressions for exponential functions. **F-BF.A.1** Write a function that describes a relationship between two quantities. **F-BF.A.1a** Determine an explicit expression, a recursive process, or steps for calculation from a context. **F-BF.A.2** Write arithmetic and geometric sequences both recursively and with an explicit formula, use them to model situations, and translate between the two forms.

	F-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. **F-LE.A.1** Distinguish between situations that can be modeled with linear functions and with exponential functions. **F-LE.A.1c** Recognize situations in which a quantity grows or decays by a constant percent rate per unit interval relative to another. **F-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 **F-LE.B.5** Interpret the parameters in a linear or exponential function in terms of a context.
3 - 4	**Chapter 8** **A.APR.A.1** Understand that polynomials form a system analogous to the integers, namely, they are closed under the operations of addition, subtraction, and multiplication; add, subtract, and multiply polynomials. **A.SSE.A.2** Use the structure of an expression to identify ways to rewrite it. For example, see x4 – y4 as (x2)2 – (y2)2, thus recognizing it as a difference of squares that can be factored as (x2 – y2)(x2 + y2).
5 - 6	**Chapter 8-9** **A-SSE.A.1** Interpret expressions that represent a quantity in terms of its context. **A-SSE.A.1a** Interpret parts of an expression, such as terms, factors, and coefficients. **A-SSE.A.1b** Interpret complicated expressions by viewing one or more of their parts as a single entity. **A.SSE.A.2** Use the structure of an expression to identify ways to rewrite it. For example, see x4 – y4 as (x2)2 – (y2)2, thus recognizing it as a difference of squares that can be factored as (x2 – y2)(x2 + y2). **A-CED.A.2** Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales. **F-IF.B.4** For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. **F-IF.B.5** Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes.q **F-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. **F-IF.C.7a** Graph linear and quadratic functions and show intercepts, maxima, and minima.

	F-IF.C.7b Graph square root, cube root, and piecewise-defined functions, including step functions and absolute value functions. **F-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. **F-IF.B.4** For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. **F-IF.C.8a** Use the process of factoring and completing the square in a quadratic function to show zeros, extreme values, and symmetry of the graph, and interpret these in terms of a context. **F-IF.C.9** Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). **F-BF.A.1** Write a function that describes a relationship between two quantities. **F-IF.B.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. **F-LE.A.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.
7 - 8	**Chapter 9** **A-CED.A.1** Create equations and inequalities in one variable and use them to solve problems. **A-CED.A.4** Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations. **A-REI.A.1** Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method. **A-REI.B.4** Solve quadratic equations in one variable. **A-REI.B.4a** Use the method of completing the square to transform any quadratic equation in x into an equation of the form (x – p)2 = q that has the same solutions. Derive the quadratic formula from this form. **A-REI.B.4b** Solve quadratic equations by inspection (e.g., for x2 = 49), taking square roots, completing the square, the quadratic formula and

	factoring, as appropriate to the initial form of the equation. Recognize when the quadratic formula gives complex solutions and write them as a ± bi for real numbers a and b. **F-IF.C.7a** Graph linear and quadratic functions and show intercepts, maxima, and minima. **F-IF.C.8a** Use the process of factoring and completing the square in a quadratic function to show zeros, extreme values, and symmetry of the graph, and interpret these in terms of a context. **A-SSE.A.1** Interpret expressions that represent a quantity in terms of its context. **A-SSE.A.1a** Interpret parts of an expression, such as terms, factors, and coefficients.
9 -10	**Chapter 9** **A-SSE.A.1b** Interpret complicated expressions by viewing one or more of their parts as a single entity. **A-SSE.B.3** Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression. **A-SSE.B.3a** Factor a quadratic expression to reveal the zeros of the function it defines. **A-SSE.B.3b** Complete the square in a quadratic expression to reveal the maximum or minimum value of the function it defines. **N-Q.A.3** Choose a level of accuracy appropriate to limitations on measurement when reporting quantities. **F-BF.A.1b** Combine standard function types using arithmetic operations. **F-LE.A.1** Distinguish between situations that can be modeled with linear functions and with exponential functions. **F-LE.A.1a** Prove that linear functions grow by equal differences over equal intervals; exponential functions grow by equal factors over equal intervals. **F-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). **F-LE.A.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. **S-ID.B.6a** Fit a function to the data; use functions fitted to data to solve problems in the context of the data. **A-REI.C.7** Solve a simple system consisting of a linear equation and a quadratic equation in two variables algebraically and graphically. **A-REI.D.10** Understand that the graph of an equation in two variables is

	the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a line). **A-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. **A-SSE.A.1a** Interpret parts of an expression, such as terms, factors, and coefficients. b. Interpret **N-RN.B.3** Explain why the sum or product of two rational numbers is rational; that the sum of a rational number and an irrational number is irrational; and that the product of a nonzero rational number and an irrational number is irrational.

Content Area: Algebra 1	
Grade Level: 9	**Quarter: 4**
This standards map is developed with the following premises: ● Students will be assessed only on the Priority Standards ● Teachers can expose students to or have students practice all the other standards but they will not be assessed on those standards. ● The adopted curriculum covers multiple standards per lesson. ● The criteria to choose Priority/Power Standards are: **Endurance:** Those standards that provide students with knowledge and skills beyond a single test date. **Leverage:** Those standards that provide knowledge and skills that are necessary for success in the next grade or level of instruction. **Readiness:** Those standards that provide the knowledge and skills that are necessary for success in the next grade or level of instruction.	
Primary Instructional Materials (BOE Approved): Algebra 1: Common Core (Pearson)	
Enduring Understandings: ● Operations can be performed with radical expressions and radical expressions can be simplified using the multiplication and division properties of square roots. ● Square root functions can be graphed by plotting points or using translations of the parent square root function. ● Sine, cosine, and tangent ratios can be used to find the measurements of sides or angles of right triangles.	**Essential Questions:** ● How are radical expressions represented? ● What are the characteristics of square root functions? ● How can you solve a radical equation? ● How are rational expressions represented? ● What are the characteristics of rational functions? ● How can you solve a rational equation? ● How can collecting and analyzing data help you make decisions or predictions? ● How can you make and interpret different representations of data?

● The simplest form of rational expression is like the simplest form of a numerical fraction. The numerator and denominator have no common factor other than 1. To simplify a rational expression, divide out common factors from the numerator and denominator. ● Rational expressions and polynomials can be added, subtracted, multiplied and divided using the same properties used to multiply and divide numerical fractions. ● If the product of two variables is a nonzero constant, then the variables form an inverse variation. ● To graph a rational function $f(x)$, it is necessary to understand the graph's behavior near values of x where the function is undefined. ● A rational equation can be solved by first multiplying each side of the equation by the LCD. When each side of a rational equation is a single rational expression, the equation can be solved using the Cross Products Property. ● Different measures can be used to interpret and compare sets of data. ● When collecting data, it is important for the results to accurately represent the situation. ● Data can be organized in matrices or in intervals. Different measures can be used to interpret and compare sets of data. Separating data into subsets is a useful way to summarize and compare data sets. ● Counting methods can be used to find the number of possible ways to choose objects with and without regard to order. ● The probability of an event, or P(event), tells how likely it is that the event will occur. Probabilities can be found by	● How is probability related to real-world events?

reasoning mathematically or by using experimental data. The probability of a compound event can sometimes be found from expressions of the probabilities of simpler events.	
Pacing Map (by weeks):	**Standards and Benchmarks:** **(BOE Approved):**
Weeks 1 - 2	**F-IF.B.4** For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. **G-SRT.C.8-** Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems. **A-REI.A.2-** Solve simple rational radical equations in one variable, and give examples showing how extraneous solutions may arise. **A-CED.A.2-** Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales. **F-IF.C.7b-** Graph square root, cube root, and piecewise-defined functions, including step functions and absolute value functions. **G-SRT.C.6-** Understand that by similarity, side ratios in right triangles are properties of the angles in the triangle, leading to definitions of trigonometric ratios for acute angles.
Weeks 3 - 4	**Week 3:** **A-CED.A.1** Create equations and inequalities in one variable and use them to solve problems. **A-CED.A.2** Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales. **A-CED.A.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. **G-SRT.C.8-** Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems.

	A-REI.A.2- Solve simple rational radical equations in one variable, and give examples showing how extraneous solutions may arise. **A-CED.A.2-** Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales. **F-IF.C.7b-** Graph square root, cube root, and piecewise-defined functions, including step functions and absolute value functions. **G-SRT.C.6-** Understand that by similarity, side ratios in right triangles are properties of the angles in the triangle, leading to definitions of trigonometric ratios for acute angles. **Week 4:** **A-APR.D.7-** Understanding that rational expressions form a system analogous to the rational numbers, closed under addition, subtraction, multiplication, and division by a nonzero rational expression; add, subtract, multiply, and divide rational expressions. **A-APR.D.6-** Rewrite simple rational expressions in different forms; write $a(x)/b(x)$ in the form $q(x) + r(x)/b(x)$, where $a(x)$, $b(x)$, $q(x)$, and $r(x)$ are polynomials with the degree of $r(x)$ less than the degree of $b(x)$, using inspection, long division, or, for the more complicated examples, a computer algebra system. **A-REI.A.2-** Solve simple rational and radical equations in one variable, and give examples showing how extraneous solutions may arise. **A-CED.A.2-** Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales. **F-IF.B.4-** For a function that models a relationship between two quantities, interpret key features of 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.**
Weeks 5 - 6	**A-APR.D.7-** Understanding that rational expressions form a system analogous to the rational numbers, closed under addition, subtraction, multiplication, and division by a nonzero rational expression; add, subtract, multiply, and divide rational expressions.

	A-APR.D.6- Rewrite simple rational expressions in different forms; write $a(x)/b(x)$ in the form $q(x) + r(x)/b(x)$, where $a(x)$, $b(x)$, $q(x)$, and $r(x)$ are polynomials with the degree of $r(x)$ less than the degree of $b(x)$, using inspection, long division, or, for the more complicated examples, a computer algebra system. **A-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.* **A-REI.A.2-** Solve simple rational and radical equations in one variable, and give examples showing how extraneous solutions may arise. **A-CED.A.2-** Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales. **F-IF.B.4-** For a function that models a relationship between two quantities, interpret key features of 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.**
Weeks 7 - 8	**N-VM.C.6-**Use matrices to represent and manipulate data, e.g., to represent payoffs or incidence relationships in a network. **S-ID.A.1-** Represent data with plots on the real number line (dot plots, histograms, and box plots). **S-ID.A.2-** Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets. **N-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. **N-Q.A.2-** Define appropriate quantities for the purpose of descriptive modeling. **S-IC.B.3-** Recognize the purposes of and differences among sample surveys, experiments, and observational studies; explain how randomization relates to each. **S-IC.B.5-** Use data from a randomized experiment to compare two treatments; use simulations to decide if differences between parameters are significant.

	S-CP.B.9- Use permutations and combinations to compute probabilities of compound events and solve problems. **S-CP.A.1**- Describe events as subsets of a sample space (the set of outcomes) using characteristics (or categories) of the outcomes, or as unions, intersections, or complements of other events ("or," "and," "not"). **S-CP.A.4-** Construct and interpret two-way frequency tables of data when two categories are associated with each object being classified. Use the two-way table as a sample space to decide if events are independent and to approximate conditional probabilities. *For example, collect data from a random sample of students in your school on their favorite subject among math, science, and English. Estimate the probability that a randomly selected student from your school will favor science given that the student is in tenth grade. Do the same for other subjects and compare the results.* **S-CP.B.7-** Apply the Addition Rule, P(A or B) = P(A) + P(B) – P(A and B), and interpret the answer in terms of the model. S-CP.B.8- Apply the general Multiplication Rule in a uniform probability model, P(A and B) = P(A)P(B|A) = P(B)P(A|B), and interpret the answer in terms of the model. **S-IC.A.4-** Use data from a sample survey to estimate a population mean or proportion; develop a margin of error through the use of simulation models for random sampling.
Weeks 9	**N-VM.C.6-**Use matrices to represent and manipulate data, e.g., to represent payoffs or incidence relationships in a network. **S-ID.A.1-** Represent data with plots on the real number line (dot plots, histograms, and box plots). **S-ID.A.2-** Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets. **N-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. **N-Q.A.2-** Define appropriate quantities for the purpose of descriptive modeling.

	S-IC.B.3- Recognize the purposes of and differences among sample surveys, experiments, and observational studies; explain how randomization relates to each. **S-IC.B.5-** Use data from a randomized experiment to compare two treatments; use simulations to decide if differences between parameters are significant. **S-CP.B.9-** Use permutations and combinations to compute probabilities of compound events and solve problems. **S-CP.A.1**- Describe events as subsets of a sample space (the set of outcomes) using characteristics (or categories) of the outcomes, or as unions, intersections, or complements of other events ("or," "and," "not"). **S-CP.A.4-** Construct and interpret two-way frequency tables of data when two categories are associated with each object being classified. Use the two-way table as a sample space to decide if events are independent and to approximate conditional probabilities. *For example, collect data from a random sample of students in your school on their favorite subject among math, science, and English. Estimate the probability that a randomly selected student from your school will favor science given that the student is in tenth grade. Do the same for other subjects and compare the results.* **S-CP.B.7-** Apply the Addition Rule, P(A or B) = P(A) + P(B) – P(A and B), and interpret the answer in terms of the model. S-CP.B.8- Apply the general Multiplication Rule in a uniform probability model, P(A and B) = P(A)P(B|A) = P(B)P(A|B), and interpret the answer in terms of the model. **S-IC.A.4-** Use data from a sample survey to estimate a population mean or proportion; develop a margin of error through the use of simulation models for random sampling.

ALGEBRA II
Priority Standards Map
Mathematics

High School Algebra 2 Priority Standards Map
Mathematics

Legend:

	Content Area		Vocabulary
	Grade Level and Quarter		Weekly Pacing
	Rationale		Priority Standards
	Primary Instructional Materials		

Content Area: Algebra 2	
Grade Level: 11-12	**Quarter:1**
This standards map is developed with the following premises: ● Students will be assessed only on the Priority Standards ● Teachers can expose students to or have students practice all the other standards but they will not be assessed on those standards. ● The adopted curriculum covers multiple standards per lesson. ● The criteria to choose Priority/Power Standards are: **Endurance:** Those standards that provide students with knowledge and skills beyond a single test date. **Leverage:** Those standards that provide knowledge and skills that are necessary for success in the next grade or level of instruction. **Readiness:** Those standards that provide the knowledge and skills that are necessary for success in the next grade or level of instruction.	
Primary Instructional Materials (BOE Approved): Pearson Algebra 2, Common Core	
Enduring Understandings: **Chapter 1 Foundations of Algebra** 1-1: You can represent some patterns using diagrams, words, numbers, or algebraic expressions. 1-2: The set of real numbers has several special subsets related in particular ways. 1-3: You can represent represent some mathematical phrases and real-world quantities using algebraic expressions. 1-4: You can use the properties of equality and inverse operations to solve equations. Sometimes, no value of the variable makes an equation true. For identities, all values of the variable makes the equation true.	**Essential Questions:** **Chapter 1 Foundations of Algebra** How do variables help you model real-world situations? How can you use the properties of real-numbers to simplify algebraic expressions? How do you solve an equation or inequality? **Chapter 2 Functions, Equations, and Graphs** Does it matter which form of a linear equation you use? How do you use transformations to help graph absolute value functions? How can you model data with a linear function? **Chapter 3 Linear Systems**

1-5: Just as you use properties of equality to solve equations, you can use properties of inequality to solve inequalities. 1-6: An absolute value quantity is nonnegative. Since opposites have the same absolute value, an absolute value equation can have two solutions. You can write an absolute value inequality as a compound inequality without absolute value signs. **Chapter 2 Functions, Equations, and Graphs** 2-1: A pairing of items from two sets is special if each item from one set pairs with exactly one item from the second set. 2-2: Some quantities are in a relationship where the ratio of corresponding values is constant. 2-3: Consider a line in the coordinate plane. If you move from any point on the line to any other point on the line, the ratio of the vertical change to the horizontal change is constant. That constant ratio describes the slope of the line. 2-4 The slopes of two lines in the same plane indicate how the lines are related. 2-5 Sometimes it is possible to model data from a real-world situation with a linear equation. You can then use the equation to draw conclusions about the situation. 2-6 There are sets of functions, called families, in which each function is a transformation of a special function called the parent. 2-7 Just as the absolute value of x is its distance from 0, the absolute value of f(x), or |f(x)|, gives the distance from the line y=0 for each value of f(x). 2-8 Graphing an inequality in two variables is similar to graphing a line. The graph of a linear inequality contains all points on one side of the line and may or may not include the points on the line. **Chapter 3 Linear Systems** 3-1 To solve a system of equations, find a set of values that replace the variables in the equations and make each equation true. 3-2 You can solve a system of equations by writing equivalent systems until the value on one variable is clear. Then substitute to find the value(s) of the other variable. 3-3 You can solve a system of inequalities in more than one way. Graphing the solution is usually the most appropriate	How does representing functions graphically help you solve a system of equations? How does writing equivalent equations help you solve a system of equations? How are the properties of equality used in the matrix solution of a system of equations? **Chapter 4 Quadratic Functions and Equations** What are the advantages of a quadratic function in vertex form? in standard form? How is any quadratic function related to the parent quadratic function $y = x^2$? How are the real solutions of a quadratic equation related to the graph of the related quadratic function? **Chapter 12 Matrices** How can you use a matrix to organize data? How can you use a matrix equation to model a real-world situation? How can a matrix represent a transformation of a geometric figure in the plane?

method. The solution is the set of all points that are solutions of each inequality in the system. 3-4 Some real-world problems involve multiple linear relationships. Linear programming accounts for all of these linear relationships and gives the solution to the problem. 3-5 To solve systems of three equations in three variables, you can use some of the same algebraic methods you used to solve systems of two equations in two variables. 3-6 You can use a matrix to represent and solve a system of equations without writing the variables. **Chapter 4 Quadratic Functions and Equations** 4-1 The graph of any quadratic function is a transformation of the graph of the parent quadratic function, $y = x^2$. 4-2 For any quadratic function $f(x) = ax^2 + bx + c$,the values of a, b, and c provide key information about its graph. 4-3 Three noncollinear points, no two of which are in line vertically, are on the graph of exactly one quadratic function. 4-4 You can factor many quadratic trinomials $(ax^2 + bx + c)$into products of two binomials. 4-5 To find the zeros of a quadratic function $y = ax^2 + bx + c$, solve the related quadratic equation $0 = ax^2 + bx + c$. 4-6 Completing a perfect square trinomial allows you to factor the completed trinomial as the square of a binomial. 4-7 You can solve a quadratic equation $ax^2 + bx + c = 0$in more than one general way. In general, you can find a formula that gives values of x in terms of a, b, and c. 4-8 A basis for the complex numbers is a number whose square is -1. Every quadratic equation has complex number solutions (that sometimes are real numbers). 4-9 You can solve systems involving quadratic equations using methods similar to the ones used to solve systems of linear equations. **Chapter 12: Matrices** 12-1: You can extend the addition and subtraction of numbers to matrices. 12-2: The product of two matrices is a matrix. To find an element in the product matrix, you multiply the elements of a row from the first matrix to the corresponding elements of a column from the second matrix. Then add the products.	

12-3: The product of a matrix and its inverse matrix is the multiplicative identity matrix. Not all matrices have inverse matrices. 12-4: You can solve some matrix equations AX=B by multiplying each side of the equation by A^{-1}, the inverse of matrix A. 12-5: You can multiply a 2 X 1 matrix representing a point by a 2 X 2 matrix to rotate the point about the origin or reflect the point across a line. 12-6: A vector is a mathematical object that has both magnitude and direction.	
Pacing Map (by weeks):	**Standards and Benchmarks:** **(BOE Approved):**
Weeks 1 - 2	**N-RN.B.3**: Explain why the sum or product of two rational numbers is rational; that the sum of a rational number and an irrational number is irrational; and that the product of a nonzero rational number and an irrational number is irrational. **A-SSE.A.1a**: Interpret parts of an expression, such as terms, factors, and coefficients. **A-SSE.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*. **A-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*. **A-SSE.A.1b**: Interpret complicated expressions by viewing one or more of their parts as a single entity. *For example, interpret P(1+r)n as the product of P and a factor not depending on P*. **A-CED.A.2**: Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales. **F-IF.C.9**: Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). *For example, given a graph of one quadratic function and an algebraic expression for another, say which has the larger maximum*.
Weeks 3 - 4	**F-IF.A.1**: Understand that a function from one set (called the domain) to another set (called the range) assigns to each element of the domain exactly one element of the

	range. If *f* is a function and *x* is an element of its domain, then *f*(*x*) denotes the output of *f* corresponding to the input *x*. The graph of *f* is the graph of the equation *y* = *f*(*x*). **F-IF.B.4**: For a function that models a relationship between two quantities, interpret key features of 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*.* **F-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.
Weeks 5 - 6	**F-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. **A-CED.A.2**: Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales. **A-REI.C.6**: Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables. **A-REI.D.12**: Graph the solutions to a linear inequality in two variables as a half-plane (excluding the boundary in the case of a strict inequality), and graph the solution set to a system of linear inequalities in two variables as the intersection of the corresponding half-planes. **N-VM.C.8**: (+) Add, subtract, and multiply matrices of appropriate dimensions. **N-VM.C.6**: (+) Use matrices to represent and manipulate data, e.g., to represent payoffs or incidence relationships in a network. **A-APR.A.1:** Understand that polynomials form a system analogous to the integers, namely, they are closed under the operations of addition, subtraction, and multiplication; add, subtract, and multiply polynomials.

Weeks 7 - 8	**A-CED.A.3**: Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or nonviable options in a modeling context. *For example, represent inequalities describing nutritional and cost constraints on combinations of different foods.* Extends A-REI.C.6: Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables. **A-REI.C.8**: (+) Represent a system of linear equations as a single matrix equation in a vector variable. **F-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. **A-CED.A.2**: Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales. **F-IF.B.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.** **A-APR.A.1:** Understand that polynomials form a system analogous to the integers, namely, they are closed under the operations of addition, subtraction, and multiplication; add, subtract, and multiply polynomials.
Week 9	**A-SSE.A.2**: Use the structure of an expression to identify ways to rewrite it. *For example, see x4 – y4 as (x2)2 – (y2)2, thus recognizing it as a difference of squares that can be factored as (x2 – y2)(x2 + y2).* **A-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*. Reviews A-REI.B.4b: Solve quadratic equations in one variable.

	N-CN.A.1: Know there is a complex number *i* such that *i*2 = -1, and every complex number has the form *a + bi* with *a* and *b* real. **A-CED.A.3**: Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or nonviable options in a modeling context. *For example, represent inequalities describing nutritional and cost constraints on combinations of different foods.*

Content Area: Algebra 2	
Grade Level: 11-12	**Quarter:2**
This standards map is developed with the following premises: ● Students will be assessed only on the Priority Standards ● Teachers can expose students to or have students practice all the other standards but they will not be assessed on those standards. ● The adopted curriculum covers multiple standards per lesson. ● The criteria to choose Priority/Power Standards are: **Endurance:** Those standards that provide students with knowledge and skills beyond a single test date. **Leverage:** Those standards that provide knowledge and skills that are necessary for success in the next grade or level of instruction. **Readiness:** Those standards that provide the knowledge and skills that are necessary for success in the next grade or level of instruction.	
Primary Instructional Materials (BOE Approved): Pearson Algebra 2, Common Core	
Enduring Understandings: Chapter 5: Polynomials and Polynomial Functions 5-1: A polynomial function has distinguishing "behaviors." You can look at its algebraic form and know something about its graph. You can look at its graph and know something about its algebraic form. 5-2: Knowing the zeros of a polynomial function can help you understand the behavior of its graph. 5-3: If (x-a) is a factor of the polynomial function, then the polynomial has value 0 when x=a. If a is a real number, then the graph of the polynomial has (a,0), as an x-intercept. 5-4: You can divide polynomials using steps that are similar to the long-division steps that you use to divide whole numbers. 5-5: The factors of the numbers $P(x) = a_n x^n + a_{n-1}x^{n-1} + \ldots a_1 x + a_0$ can help you factor P(x) and solve the equation P(x)=0. 5-6: The degree of a polynomial equation tells you how many roots the equation has.	**Essential Questions:** **Chapter 5: Polynomials and Polynomial Functions** What does the degree of the polynomial tell you about its related polynomial? For a polynomial function, how are factors, zeroes, and x-intercepts related? For a polynomial equation, how are factors and roots related? **Chapter 6: Radical Functions and Rational Exponents** To simplify the *nth* root of an expression, what must be true about the expression? When you square each side of an equation, is the resulting equation equivalent to the original? How are a function and its inverse function related? **Chapter 8: Rational Functions** Are two quantities inversely proportional if an increase in one corresponds to a decrease in the other? What kinds of asymptotes are possible for a rational function? Are rational expression and its simplified form equivalent?

5-7: You can use a pattern of coefficients and the pattern $a^{n}, a^{n-1}b, a^{n-2}b^{2}, \ldots, a^{1}b^{n-1}, b^{n}$, to write the expansion $(a+b)^{n}$. 5-8: The behavior of the graphs of polynomial functions of different degrees can suggest which will best fit a particular real-world data set. 5-9: The graph of the function y=af(x-h)+k is a vertical stretch or compression by a factor |a|, a horizontal shift of h units, and a vertical shift of k units of the graph of y=f(x). Chapter 6 Radical Functions and Rational Expressions 6-1: Corresponding to every power (exponents) there is a root. For example, just as there are squares (second powers), there are square roots. Therefore, the *nth* root of an expression that contains an *nth* power as a factor can be simplified. 6-2: A radical expression can be simplified when the exponent of one factor of the radicand is a multiple of the radical's index. 6-3: Like radicals can be combined using properties of real numbers. 6-4: A radical expression can be written in an equivalent form using a fractional (rational) exponent instead of a radical sign. Ex: $\sqrt[n]{x} = \frac{1}{x^n}$ 6-5: Solving a square root equation may require squaring each side of the equation. This can introduce extraneous solutions. 6-6: Functions can be added, subtracted, multiplied, and divided based on how these operations are performed for real numbers. One difference, however, is that the domain of each function must be considered. 6-7: The inverse of a function may or may not be a function. When squaring both sides of an equation, the resulting equation may have more than one solutions than the original equation. 6-8: A square root function is the inverse of a quadratic function that has a restricted domain. If f *and* $f^{-1}$are functions and if either maps *a* to *b*, then the other maps *b,* to *a,* i.e., $(f \circ f^{-1})(a) = (f^{-1} \circ f)(a) = a$■	

Chapter 8: Rational Functions 8-1: In direct variation, two positive quantities either increase together or decrease together. In an inverse variation, as one quantity increases the other decreases. 8-2: Transformations of the parent reciprocal function include stretches, compressions (or shrinks), reflections, and horizontal and vertical translations. 8-3: A rational function is a ratio of polynomial functions. If a rational function is simplified form and the polynomial in the denominator is not constant, the graph of the rational function features asymptotic behavior. It looks quite different from the graphs of either of its polynomial components. 8-4: You can use much of what you know about multiplying and dividing fractions to multiply and divide rational expressions. 8-5: To operate with rational expressions, you can use much of what you know about operating with fractions. To add or subtract rational expressions, you first find a common denominator - preferably the least common multiple (LCM) or the denominators. 8-6: To solve an equation containing rational expressions, first multiply each side by the least common denominator of the rational expressions. Doing this, however, can introduce extraneous solutions.	
Pacing Map (by weeks):	**Standards and Benchmarks:** **(BOE Approved):**
Weeks 1 - 2	**F-IF.C.7c** : Graph polynomial functions, identifying zeros when suitable factorizations are available, and showing end behavior. **A-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.

	A-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 $p(x)$. **N-CN.C.7**:Solve quadratic equations with real coefficients that have complex solutions.
Weeks 3 - 4	**N-CN.C.7**:Solve quadratic equations with real coefficients that have complex solutions. **A-APR.C.5**: (+) Know and apply the Binomial Theorem for the expansion of $(x + y)$n in powers of x and y for a positive integer n, where x and y are any numbers, with coefficients determined for example by Pascal's Triangle. **F-IF.B.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.* **F-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.* **A-SSE-A.2**: Use the structure of an expression to identify ways to rewrite it. *For example, see* $x4 - y4$ *as* $(x2)2 - (y2)2$, *thus recognizing it as a difference of squares that can be factored as* $(x2 - y2)(x2 + y2)$.
Weeks 5 - 6	**A-REI.A.2**: Solve simple rational and radical equations in one variable, and give examples showing how extraneous solutions may arise. **N-RN.A.2**: Rewrite expressions involving radicals and rational exponents using the properties of exponents. **A-REI.A.2**: Solve simple rational and radical equations in one variable, and give examples showing how extraneous solutions may arise. **F-BF.A.1bc**: Combine standard function types using arithmetic operations. *For example, build a function that models the temperature of a cooling body by adding a constant function to a decaying exponential, and relate these functions to the model.*

	F-BF.A.1c: *Write a function that describes a relationship between two quantities.** **F-BF.B.4a**: Solve an equation of the form f(x) = c for a simple function f that has an inverse and write an expression for the inverse. *For example, f(x) =* $2x^2$ *or f(x) = (x+1)/(x-1) for x ≠ 1.* **A-APR.B.3**: 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*). **F-IF.C.7b**: Graph square root, cube root, and piecewise-defined functions, including step functions and absolute value functions.
Weeks 7 - 8	**F-IF.C.8**: Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function. **A-APR.B.3**: 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*). **A-CED.A.2**: Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.
Week 9	**F-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.* **F-IF.C.7d**: (+) Graph rational functions, identifying zeros and asymptotes when suitable factorizations are available, and showing end behavior. **A-SSE.A.1a**: Interpret parts of an expression, such as terms, factors, and coefficients. **A-APR.D.7**: (+) Understand that rational expressions form a system analogous to the rational numbers, closed under addition, subtraction, multiplication, and division by a nonzero rational expression; add, subtract, multiply, and divide rational expressions.

Content Area: Algebra 2	
Grade Level: 11-12	**Quarter: 3**

This standards map is developed with the following premises:

- Students will be assessed only on the Priority Standards
- Teachers can expose students to or have students practice all the other standards but they will not be assessed on those standards.
- The adopted curriculum covers multiple standards per lesson.
- The criteria to choose Priority/Power Standards are:
  Endurance: Those standards that provide students with knowledge and skills beyond a single test date.
  Leverage: Those standards that provide knowledge and skills that are necessary for success in the next grade or level of instruction.
  Readiness: Those standards that provide the knowledge and skills that are necessary for success in the next grade or level of instruction.

Primary Instructional Materials (BOE Approved):

Algebra 2: Common Core (Pearson)

Enduring Understandings:	**Essential Questions:**
Chapter 7: Exponential and Logarithmic Functions 7-1: You can represent repeated multiplication with a function in the form of $y = ab^x$ where b is a positive number other than 1. 7-2: The factor a in $y = ab^x$ can stretch or compress, and possibly reflect the graph of the parent function $y = b^x$. 7-3: The exponential function $y = b^x$ is one-to-one, so its inverse $x = b^y$ is a function. To express "y as a function of x" for the inverse, write $y = \log_b x$. 7-4: Logarithms and exponents have corresponding properties. 7-5: You can use logarithms to solve exponential equations. You can use exponents to solve logarithmic equations. 7-6: The functions $y = e^x$ and $y = \ln x$ are inverse functions. Just as before, this means that if $a = e^b$, then $b = \ln a$, and vice versa. Chapter 9: Sequence and Series 9-1: If the numbers in a list follow a pattern, variables may be used to relate each number in the list to its numerical position in the list.	**Chapter 7: Exponential and Logarithmic Functions** How do you model a quantity that changes regularly over time by the same percentage? How are exponents and logarithms related? How are exponential functions and logarithmic functions related? **Chapter 9: Sequence and Series** How can you represent the terms of a sequence explicitly? How can you represent them recursively? What are equivalent explicit and recursive definitions for an arithmetic sequence? How can you model a geometric sequence? How can you model its sum? **Chapter 10: Quadratic Relations and Conic Sections** What is the intersection of a cone and a plane parallel to a line along the side of a cone? What is the graph of $\frac{x^2}{9} + \frac{y^2}{9} = 1$? What is the difference between the algebraic representations of ellipses and hyperbolas?

9-2: In an arithmetic sequence, the difference between any two consecutive terms in always the same number. This number can be represented by a variable. 9-3: in a geometric sequence, the ratio of any term (after the first) to its preceding term is a constant value, no matter what two terms are compared. A geometric sequence can be built by multiplying each term by that constant. 9-4: When two terms and the number of terms in a finite arithmetic sequence are known, they can be substituted for variables in a formula to find the sum of the terms. 9-5: Just as with finite arithmetic series, the sum of a finite geometric series can be found using a formula. The first term, the number of terms, and the common ratio must be known. Chapter 10: Quadratic Relations and Conic Sections 10-1: There are four types of curves known as a conic sections: parabolas, circles, ellipses, and hyperbolas. Each curve has its own distinct shape and properties. 10-2: Each point of a parabola is equidistant from a point called the focus and a line called the directrix. 10-3: An equation of a circle with center (0, 0) and radius *r* in the coordinate plane is $x^2 + y^2 = r^2$. 10-4: A circle is a set of points a fixed distance from one point. An ellipse "stretches" a circle and is the set of points that have a total fixed distance from two points. 10-5: The shape of a hyperbola is guided by asymptotes. 10-6: In an *x* - *y* relationship, replacing *x* by *x-h* and *y* by *y-k* (with *h > 0* and *k > 0*) translates the graph of the relation *h* units to the right and *k* units up.	
Pacing Map (by weeks):	**Standards and Benchmarks:** **(BOE Approved):**
Weeks 1 - 2	**F-IF.C.7e**: Graph exponential and logarithmic functions, showing intercepts and end behavior, and trigonometric functions, showing period, midline, and amplitude. **F-IF.C.8**: Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function. **F-BF.B.4a**: Solve an equation of the form f(x) = c for a simple function f that has an inverse and write an expression for the inverse. *For example, f(x) =* $2x^2$ *or f(x) = (x+1)/(x-1) for x ≠ 1.*

	A-SSE.A.2: Use the structure of an expression to identify ways to rewrite it. *For example, see x4 – y4 as (x2)2 – (y2)2, thus recognizing it as a difference of squares that can be factored as (x2 – y2)(x2 + y2).*
Weeks 3 - 4	**A-SSE.B.4**: Derive the formula for the sum of a finite geometric series (when the common ratio is not 1), and use the formula to solve problems. *For example, calculate mortgage payments.** **F-IF.A.3**: Recognize that sequences are functions, sometimes defined recursively, whose domain is a subset of the integers. *For example, the Fibonacci sequence is defined recursively by f(0) = f(1) = 1, f(n+1) = f(n) + f(n-1) for n ≥ 1*. **A-SSE.B.4**: Derive the formula for the sum of a finite geometric series (when the common ratio is not 1), and use the formula to solve problems. *For example, calculate mortgage payments.** prepares for **F-LE.A.4**:For exponential models, express as a logarithm the solution to $ab^{ct} = d$where *a*, *c*, and *d*are numbers and the base *b* is 2, 10, or *e*; evaluate the logarithm using technology.
Weeks 5 - 6	**G-GPE.A.2**: Derive the equation of a parabola given a focus and directrix. **G-GPE.A.1**: Derive the equation of a circle of given center and radius using the Pythagorean Theorem; complete the square to find the center and radius of a circle given by an equation. **F-LE.A.4**: For exponential models, express as a logarithm the solution to $ab^{ct} = d$where *a*, *c*, and *d*are numbers and the base *b* is 2, 10, or *e*; evaluate the logarithm using technology.
Weeks 7 - 8	**G-GPE.A.3:** Derive the equations of ellipses and hyperbolas given the foci, using the fact that the sum or difference of distances from the foci is constant. **A-APR.D.6**: Rewrite simple rational expressions in different forms; write $^{a(x)}/_{b(x)}$ in the form $q(x) + {}^{r(x)}/_{b(x)}$, where $a(x)$, $b(x)$, $q(x)$, and $r(x)$ are polynomials with the degree of $r(x)$ less than the degree of $b(x)$, using inspection, long division, or, for the more complicated examples, a computer algebra system.
Week 9	**G-GPE.A.2**: Derive the equation of a parabola given a focus and directrix.

	A-APR.D.6: Rewrite simple rational expressions in different forms; write $^{a(x)}/_{b(x)}$ in the form $q(x) + {}^{r(x)}/_{b(x)}$, where $a(x)$, $b(x)$, $q(x)$, and $r(x)$ are polynomials with the degree of $r(x)$ less than the degree of $b(x)$, using inspection, long division, or, for the more complicated examples, a computer algebra system.

Content Area: Algebra 2	
Grade Level: 11-12	**Quarter: 4**
This standards map is developed with the following premises: ● Students will be assessed only on the Priority Standards ● Teachers can expose students to or have students practice all the other standards but they will not be assessed on those standards. ● The adopted curriculum covers multiple standards per lesson. ● The criteria to choose Priority/Power Standards are: **Endurance:** Those standards that provide students with knowledge and skills beyond a single test date. **Leverage:** Those standards that provide knowledge and skills that are necessary for success in the next grade or level of instruction. **Readiness:** Those standards that provide the knowledge and skills that are necessary for success in the next grade or level of instruction.	
Primary Instructional Materials (BOE Approved): Pearson Algebra 2, Common Core	
Enduring Understandings: Chapter 11: Probability and Statistics 11-1: You can use multiplication to quickly count the number of ways certain things can happen. 11-2: The probability of an impossible event is 0 (or 0%). The probability of a certain event is 1 (or 100%). Otherwise, the probability of an event is a number between 0 and 1 (or a percent between 0% and 100%). 11-3: To find the probability of two events occurring together, you have to decide whether one event occurring affects the other event. 11-4: Conditional probability exists when two events are dependent. 11-5: You can use probability models to analyze situations and make fair decisions. 11-6: You can describe and compares sets of data using various statistical measures, depending on what characteristics you want to study.	**Essential Questions:** **Chapter 11: Probability and Statistics** What is the difference between a permutation and a combination? What is the difference between experimental and theoretical probability? How are measures of central tendency different from standard deviation? **Chapter 13: Periodic Functions and Trigonometry** How can you model periodic behavior? What function has as its graph a sine curve with amplitude 4, period π,and a minimum at the origin? If you know the value of sin(θ), how can you find cos(θ),tan(θ), csc(θ), sec(θ), cot(θ). **Chapter 14: Trigonometric Identities and Equations** How do you verify that an equation involving the variable x is an identity? A trigonometric function corresponds to one number to many, how can its inverse be a function? How do the trigonometric functions relate to the trigonometric ratios for a right triangle?

11-7: Standard deviation is a measure of how far the numbers in a data set deviate from the mean. 11-8: You can get good statistical information about a population by studying a sample of the population. 11-9: You can use binomial probabilities in situations involving two possible outcomes. 11-10: Many common statistics (such as human height, weight, and blood pressure) gathered from samples in the natural world tend to have a *normal distribution* about their mean. Chapter 13: Periodic Functions and Trigonometry 13-1: Periodic behavior is behavior that repeats over intervals of constant length. 13-2: The measure of an angle in standard position is the input for two important functions. The outputs are the coordinates (called *cosine* and *sine*) of the point on the terminal side of the angle that is 1 unit from the origin. 13-3: An angle with a full circle rotation measures 2πradians. An angle with a semicircle rotation measures π radians. 13-4: As the terminal side of an angle rotates about the origin (beginning at 0∘.), its cosine value on the unit circle decreases from 1 to -1, and then increases back to 0. 13-5: As the terminal side of an angle rotates about the origin (beginning at 0∘), its cosine value on the unit circle decreases from 1 to -1, and the increases back to 1. 13-6: The tangent function has infinitely many points of discontinuity with a vertical asymptote at each point. ITs range is all real numbers. Its period is π, half that of both the cosine and sine functions. 13-7: You can translate periodic functions in the same way that you translate other functions. 13-8: Cosine, sine, and tangent have reciprocals. Cosine and *secant* are reciprocals as are sine and *cosecant*. Tangent and *cotangent* are also reciprocals. Chapter 14: Trigonometric Identities and Equations 14-1: Interrelationships among the six basic trigonometric functions make it possible to write trigonometric expressions in	

various equivalent forms, some of which can be significantly easier to work with than others, in mathematical applications. 14-2: Some trigonometric equations can be solved using an inverse trigonometric function to find one solution. Then, periodicity can be used to find all possible solutions. The unit circle can be used to find the values in either degrees or radians. 14-3: In right triangle trigonometry, the value of one trigonometric ratio determines the value of the others. 14-4: If you know two angles and a side of a triangle, you can use trigonometry to solve the triangle. If you know two sides and the included angle, you can find the area of the triangle. 14-5: If you know the measures of enough parts of a triangle to completely determine the triangle, you can solve the triangle. 14-6: Several trigonometric identities involve a single angle. Other trigonometric identities involve two angles. No important trigonometric identity is additive, for example; $sin(A + B) \neq sin(A) + sin(B)$. 14-7: The double- angle identities are special cases of the angle-sum identities. Substitute $\frac{\theta}{2}$ for θ in certain double angle identities and you get the *half-angle identities.*	
Pacing Map (by weeks):	**Standards and Benchmarks:** **(BOE Approved):**
Weeks 1 - 2	**S-CP.B.9**: (+) Use permutations and combinations to compute probabilities of compound events and solve problems. Prepares for S-IC.A.2: Decide if a specified model is consistent with results from a given data-generating process, e.g., using simulation. *For example, a model says a spinning coin falls heads up with probability 0.5. Would a result of 5 tails in a row cause you to question the model*? **S-CP.B.7**: Apply the Addition Rule, P(A or B) = P(A) + P(B) – P(A and B), and interpret the answer in terms of the model.

	S-CP.B.6: Find the conditional probability of *A* given *B* as the fraction of *B*'s outcomes that also belong to *A*, and interpret the answer in terms of the model. **S-IC.B.4** Use data from a sample survey to estimate a population mean or proportion; develop a margin of error through the use of simulation models for random sampling.
Weeks 3 - 4	**S-MD.B.6,7**: (+) Analyze decisions and strategies using probability concepts (e.g., product testing, medical testing, pulling a hockey goalie at the end of a game). **S-MD.B.6**: (+) Use probabilities to make fair decisions (e.g., drawing by lots, using a random number generator). **S-ID.A.4**: Use the mean and standard deviation of a data set to fit it to a normal distribution and to estimate population percentages. Recognize that there are data sets for which such a procedure is not appropriate. Use calculators, spreadsheets, and tables to estimate areas under the normal curve. **S-IC.A.1**:Understand statistics as a process for making inferences about population parameters based on a random sample from that population.
Weeks 5 - 6	Extends S-CP.B.9: (+) Use permutations and combinations to compute probabilities of compound events and solve problems. **S-ID.A.4**: Use the mean and standard deviation of a data set to fit it to a normal distribution and to estimate population percentages. Recognize that there are data sets for which such a procedure is not appropriate. Use calculators, spreadsheets, and tables to estimate areas under the normal curve. **F-TF.A.2**: Explain how the unit circle in the coordinate plane enables the extension of trigonometric functions to all real numbers, interpreted as radian measures of angles traversed counterclockwise around the unit circle. **F-TF.A.1**: Understand radian measure of an angle as the length of the arc on the unit circle subtended by the angle.
Weeks 7 - 8	**F-TF.A.2**: Explain how the unit circle in the coordinate plane enables the extension of trigonometric functions to all real numbers, interpreted as radian measures of angles traversed counterclockwise around the unit circle.

	F-TF.B.5: Choose trigonometric functions to model periodic phenomena with specified amplitude, frequency, and midline.* **F-IF.C.7e**: Graph exponential and logarithmic functions, showing intercepts and end behavior, and trigonometric functions, showing period, midline, and amplitude.
Week 9	**F-TF.C.8**: Prove the Pythagorean identity $sin^2(\theta) + cos^2(\theta) = 1$ and use it to find sin(θ), cos(θ), or tan(θ) given sin(θ), cos(θ), or tan(θ) and the quadrant of the angle. **F-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. **G-SRT.C.6**: Understand that by similarity, side ratios in right triangles are properties of the angles in the triangle, leading to definitions of trigonometric ratios for acute angles. **G-SRT.D.9**: (+) Derive the formula $A = 1/2\ ab\ \sin(C)$ for the area of a triangle by drawing an auxiliary line from a vertex perpendicular to the opposite side. **G-SRT.C.10**: (+) Prove the Laws of Sines and Cosines and use them to solve problems. **F-TF.C.9**: (+) Prove the addition and subtraction formulas for sine, cosine, and tangent and use them to solve problems.

GEOMETRY
Priority Standards Map
Mathematics

High School Geometry Priority Standards Map
Mathematics

Legend:

	Content Area		Vocabulary
	Grade Level and Quarter		Weekly Pacing
	Rationale		Priority Standards
	Primary Instructional Materials		

Content Area: Geometry	
Grade Level: 10th	**Quarter:** 1st Quarter
This standards map is developed with the following premises: ● Students will be assessed only on the Priority Standards ● Teachers can expose students to or have students practice all the other standards but they will not be assessed on those standards. ● The adopted curriculum covers multiple standards per lesson. ● The criteria to choose Priority/Power Standards are: **Endurance:** Those standards that provide students with knowledge and skills beyond a single test date. **Leverage:** Those standards that provide knowledge and skills that are necessary for success in the next grade or level of instruction. **Readiness:** Those standards that provide the knowledge and skills that are necessary for success in the next grade or level of instruction.	
Primary Instructional Materials (BOE Approved): Pearson	
Enduring Understandings: Chapter 1 - Students will make nets for solid figures - Isometric drawings and orthographic drawings will be used to show attributes of figures - Students will define basic geometric figures, (2) undefined terms such as *point, line* and *plane* will be shown with visual representations, and (3) postulates, which will lead to proofs - Segments will be measured with and without a coordinate grid - Students will use Midpoint and Distance Formulas - Protractors will be used to measure angles	**Essential Questions:** Chapter 1 Visualization: How can you represent a three-dimensional figure with a two-dimensional drawing? Reasoning: What are the building blocks of geometry? Measurement: How can you describe the attributes of a segment or angle? Chapter 2 Reasoning and Proof: How can you make a conjecture and prove that it is true?

Chapter 2 - Students will observe patterns leading to making conjectures - Students will solve equations giving their reasons for each step and connect this to simple proofs - Students will prove geometric relationships using given information, definitions, properties, postulates, and theorems Chapter 3 - Students will use postulates and theorems to explore lines in a plane - Students will use coordinate geometry to examine the slopes of parallel and perpendicular lines - Students will use the Triangle-Angle Sum Theorem - Students will write equations using slope-intercept form - Students will write equations using point-slope form. Chapter 9 - Students will explore translations, reflections, and rotations - Students will explore dilations - Transformations will be conducted both on and off the coordinate plane - Students will determine the new coordinates of a polygon after any given transformation - Students will identify congruence transformations and prove congruence using isometries	Chapter 3 Reasoning and Proof: How do you prove that two lines are parallel or perpendicular? Measurement: What is the sum of the measures of the angles of a triangle? Coordinate Geometry: How do you write an equation of a line in the coordinate plane? Chapter 9: Transformations: How can you change a figure's position without changing its size and shape? How can you change a figure's size without changing its shape? Coordinate Geometry: How can you represent a transformation in the coordinate plane? How do you recognize congruence and similarity in the figures?
Pacing Map (by weeks):	**Standards and Benchmarks:** **(BOE Approved):**
Weeks 1 - 2 Lesson 1-1 Nets and Drawing for Visualizing Geometry Lesson 1-2 Point, Line ,and Planes Lesson 1-3 Measuring Segments Lesson 1-4 Measuring Angles Lesson 1-5 Exploring Angle Pairs Lesson 1-6 Basic Constructions Lesson 1-7 Midpoint and Distance in the Coordinate Plane Lesson 1-8 Perimeter, Circumference, and Area 9-1 Translations	**G-CO.A.1:** Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc. **G-CO.D.12:** Make formal geometry constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.). *Copying a segment; copying an angle; bisecting a segment; bisecting an angle; constructing perpendicular lines, including the perpendicular bisector of a line segment; and constructing a line parallel to a given line through a point not on the line.*

	G-GPE.B.4: Use coordinates to prove simple geometric theorems algebraically. **G-GPE.B.6:** FInd a point on a directed line segment between two given points that partitions the segment in a given ratio. **N-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. **G-CO.A.2**: Identify and describe relationships among inscribed angles, radii, and chords. *Include the relationship between central, inscribed, and circumscribed angles; inscribed angles on a diameter are right angles; the radius of a circle is perpendicular to the tangent where the radius intersects the circle.* **G-CO.A.4:** (+) Construct a tangent line from a point outside a given circle to the circle.
Weeks 3 - 4 9-2 Reflections 9-3 Rotations 9-4 Compositions of Isometries 9-5 Congruence Transformations	**G-CO.B.6:** Use geometric descriptions of rigid motions to transform figures and to predict the effect of a given rigid motion on a given figure; given two figures, use the definition of congruence in terms of rigid motions to decide if they are congruent. **G-CO.A.2:** Identify and describe relationships among inscribed angles, radii, and chords. *Include the relationship between central, inscribed, and circumscribed angles; inscribed angles on a diameter are right angles; the radius of a circle is perpendicular to the tangent where the radius intersects the circle.* **G-CO.A.4:** (+) Construct a tangent line from a point outside a given circle to the circle. **G-CO.B.7:** Use the definition of congruence in terms of rigid motions to show that two triangles are congruent if and only if corresponding pairs of sides and corresponding pairs of angles are congruent. **G-CO.B.8:** Explain how the criteria for triangle congruence (ASA, SAS, and SSS) follow from the definition of congruence in terms of rigid motions.

Weeks 5 - 6 2-1 Patterns and Inductive Reasoning 2-2 Conditional Statements 2-3 Biconditionals and Definitions	**G-CO.A.5:** Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure using, e.g., graph paper, tracing paper, or geometry software. Specify a sequence of transformations that will carry a given figure onto another. **G-CO.B.6:** Use geometric descriptions of rigid motions to transform figures and to predict the effect of a given rigid motion on a given figure; given two figures, use the definition of congruence in terms of rigid motions to decide if they are congruent. **G.CO.C.9:** Prove theorems about lines and angles. *Theorems include: vertical angles are congruent; when a transversal crosses parallel lines, alternate interior angles are congruent and corresponding angles are congruent; points on a perpendicular bisector of a line segment are exactly those equidistant from the segment's endpoints.*
Weeks 7 - 8 2-4 Deductive Reasoning 2-5 Reasoning in Algebra and Geometry 2-6 Proving Angles Congruent	**G-GPE.B.7:** Use coordinates to compute perimeters of polygons and areas of triangles and rectangle, e.g., using the distance formula. **G.CO.C.9:** Prove theorems about lines and angles. *Theorems include: vertical angles are congruent; when a transversal crosses parallel lines, alternate interior angles are congruent and corresponding angles are congruent; points on a perpendicular bisector of a line segment are exactly those equidistant from the segment's endpoints.*
Week 9 Lesson 3-1 Lines and Angles Lesson 3-2 Properties of Parallel Lines Lesson 3-3 Proving Parallel Lines Lesson 3-4 Parallel and Perpendicular Lines Lesson 3-5 Parallel Lines and Triangles Lesson 3-6 Constructing Parallel and Perpendicular Lines Lesson 3-7 Equations of Lines in the Coordinate Plane Lesson Lesson 3-8 Slopes of Parallel and Perpendicular LInes	**G-GPE.B.7:** Use coordinates to compute perimeters of polygons and areas of triangles and rectangle, e.g., using the distance formula. **G-CO.A.1:** Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc. **G-CO.C.9:** Prove theorems about lines and angles. *Theorems include: vertical angles are congruent; when a transversal crosses parallel lines, alternate interior angles are congruent and corresponding angles are congruent; points on a perpendicular bisector of a line segment are exactly those equidistant from the segment's endpoints.*

	G-CO.A.10: Prove theorems about triangles. Theorems include: measures of interior angles of a triangle sum to 180°; base angles of isosceles triangles are congruent; the segment joining midpoints of two sides of a triangle is parallel to the third side and half the length; the medians of a triangle meet at a point. **G-CO.D.12:** Make formal geometry constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.). *Copying a segment; copying an angle; bisecting a segment; bisecting an angle; constructing perpendicular lines, including the perpendicular bisector of a line segment; and constructing a line parallel to a given line through a point not on the line.* **G.GPE.B.5:** Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems (e.g., find the equation of a line parallel or perpendicular to a given line that passes through a given point).

Content Area: Geometry	
Grade Level: 10th	**Quarter:** 2nd Quarter
This standards map is developed with the following premises: ● Students will be assessed only on the Priority Standards ● Teachers can expose students to or have students practice all the other standards but they will not be assessed on those standards. ● The adopted curriculum covers multiple standards per lesson. ● The criteria to choose Priority/Power Standards are: **Endurance:** Those standards that provide students with knowledge and skills beyond a single test date. **Leverage:** Those standards that provide knowledge and skills that are necessary for success in the next grade or level of instruction. **Readiness:** Those standards that provide the knowledge and skills that are necessary for success in the next grade or level of instruction.	
Primary Instructional Materials (BOE Approved): Pearson	
Enduring Understandings: Chapter 4 - Students will visualize the triangles placed on top of each other - students will use tick marks and angle marks to label corresponding sides and corresponding angles	**Essential Questions:** Chapter 4 Visualization: How do you identify corresponding parts of congruent triangles?

- students will use the Side-Side-Side Postulate, the Side-Angle-Side Postulate, the Angle-Side-Angle Postulate, the Angle-Angle-Side Theorem, and the Hypotenuse-Leg Theorem - Students will use the definitions and look at the number of congruent sides and angles Chapter 5 - Students will use Midpoint Formula to find the midsegments of triangles - Students will use the Distance Formula to examine relationships in triangles - Students will examine inequalities in one triangle - Students will examine inequalities in two triangles - Students will begin with the negation of the statement to be proved and will show a counter-example Chapter 7 - Students will form proportions based on known lengths of corresponding sides - Students will use the Angle-Angle Similarity Theorem - Students will use the Side-Angle-Side Similarity Theorem - Students will use the Side-Side-Side Similarity Theorem - A key to understanding corresponding parts of similar triangles is to show the triangles in like orientations Chapter 9 - Students will explore translations, reflections, and rotations - Students will explore dilations - Transformations will be conducted both on and off the coordinate plane - Students will determine the new coordinates of a polygon after any given transformation - Students will identify congruence transformations and prove congruence using isometries	Reasoning and Proof: How do you show that two triangles are congruent? How can you tell whether a triangle is isosceles or equilateral? Chapter 5 Coordinate Geometry: How do you use coordinate geometry to find relationships within triangles? Measurement: How do you solve problems that involve measurements of triangles? Reasoning and Proof: How do you write indirect proofs? Chapter 7 Similarity: How do you use proportions to find side lengths in similar polygons? Reasoning and Proof: How do you show two triangles are similar? Visualization: How do you identify corresponding parts of similar triangles? Chapter 9 Transformations: How can you change a figure's position without changing its size and shape? How can you change a figure's size without changing its shape? Coordinate Geometry: How can you represent a transformation in the coordinate plane? How do you recognize congruence and similarity in the figures?
Pacing Map (by weeks):	**Standards and Benchmarks:** **(BOE Approved):**
Weeks 1 - 2 4-1 Congruent Figures 4-2 Triangle Congruence by SSS and SAS 4-3 Triangle Congruence by ASA and AAS	**G-MG.A.3:** Apply geometric methods to solve design problems (e.g., designing an object or structure to satisfy physical constraints or minimize cost; working with typographic grid systems based on ratios).

4-4 Using Corresponding Parts of Congruent Triangles 4-5 Isosceles and Equilateral Triangles	**G-SRT.B.5:** Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures. **G-CO.C.10:** Prove theorems about triangles. Theorems include: measures of interior angles of a triangle sum to 180°; base angles of isosceles triangles are congruent; the segment joining midpoints of two sides of a triangle is parallel to the third side and half the length; the medians of a triangle meet at a point. **G-CO.D.12:** Make formal geometry constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.). *Copying a segment; copying an angle; bisecting a segment; bisecting an angle; constructing perpendicular lines, including the perpendicular bisector of a line segment; and constructing a line parallel to a given line through a point not on the line.*
Weeks 3 - 4 4-6 Congruence in Right Triangles 4-7 Congruence in Overlapping Triangles Lesson 5-1 Midsegments of Triangles Lesson 5-2 Perpendicular and Angle Bisectors Lesson 5-3 Bisectors in Triangles Lesson 5-4 Medians and Altitudes	**G-MG.A.3:** Apply geometric methods to solve design problems (e.g., designing an object or structure to satisfy physical constraints or minimize cost; working with typographic grid systems based on ratios). **G-CO.D.13:** Construct an equilateral triangle, a square, and a regular hexagon inscribed in a circle. **G-SRT.B.5:** Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures. **G-CO.C.9:** Prove theorems about lines and angles. *Theorems include: vertical angles are congruent; when a transversal crosses parallel lines, alternate interior angles are congruent and corresponding angles are congruent; points on a perpendicular bisector of a line segment are exactly those equidistant from the segment's endpoints.* **G-CO.C.10:** Prove theorems about triangles. Theorems include: measures of interior angles of a triangle sum to 180°; base angles of isosceles triangles are congruent; the segment joining midpoints of two sides of a triangle is parallel to the third side and half the length; the medians of a triangle meet at a point. **G-CO.D.12:** Make formal geometry constructions with a variety of

	tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.). *Copying a segment; copying an angle; bisecting a segment; bisecting an angle; constructing perpendicular lines, including the perpendicular bisector of a line segment; and constructing a line parallel to a given line through a point not on the line.* **G-C.A.3:** Construct the inscribed and circumscribed circles of a triangle, and prove properties of angles for a quadrilateral inscribed in a circle.
Weeks 5 - 6 Lesson 5-5 Indirect Proof Lesson 5-6 Inequalities in One Triangle Lesson 5-7 Inequalities in Two Triangles	**G-CO.C.10:** Prove theorems about triangles. Theorems include: measures of interior angles of a triangle sum to 180°; base angles of isosceles triangles are congruent; the segment joining midpoints of two sides of a triangle is parallel to the third side and half the length; the medians of a triangle meet at a point. **G-SRT.A.2:** Given two figures, use the definition of similarity in terms of similarity transformations to decide if they are similar; explain using similarity transformations the meaning of similarity for triangles as the equality of all corresponding pairs of angles and the proportionality of all corresponding pairs of sides.
Weeks 7 - 8 Lesson 7-1 Ratios and Proportions Lesson 9-6 Dilations Lesson 9-7 Similarity Transformations Lesson 7-2 Similar Polygons	**G-SRT.A.2:** Given two figures, use the definition of similarity in terms of similarity transformations to decide if they are similar; explain using similarity transformations the meaning of similarity for triangles as the equality of all corresponding pairs of angles and the proportionality of all corresponding pairs of sides. **G-SRT.A.1a:** A dilation takes a line not passing through the center of the dilation to a parallel line, and leaves a line passing through the center unchanged. **G-SRT.A.3:** Use the properties of similarity transformations to establish the AA criterion for two triangles to be similar. **G-SRT.B.5:** Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.
Weeks 9 Lesson 7-3 Proving Triangles Similar Lesson 7-4 Similarity in Right Triangles Lesson 7-5 Proportions in Triangles	**G-SRT.A.2:** Given two figures, use the definition of similarity in terms of similarity transformations to decide if they are similar; explain using similarity transformations the meaning of similarity for triangles as the equality of all corresponding pairs of angles and the proportionality of

	all corresponding pairs of sides. **G-SRT.B.4:** Prove theorems about triangles. *Theorems include: a line parallel to one side of a triangle divides the other two proportionally, and conversely the Pythagorean Theorem proved using triangle similarity.* **G-SRT.B.5:** Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.

Content Area: Geometry	
Grade Level: 10th	**Quarter:** 2nd Quarter
This standards map is developed with the following premises: ● Students will be assessed only on the Priority Standards ● Teachers can expose students to or have students practice all the other standards but they will not be assessed on those standards. ● The adopted curriculum covers multiple standards per lesson. ● The criteria to choose Priority/Power Standards are: **Endurance:** Those standards that provide students with knowledge and skills beyond a single test date. **Leverage:** Those standards that provide knowledge and skills that are necessary for success in the next grade or level of instruction. **Readiness:** Those standards that provide the knowledge and skills that are necessary for success in the next grade or level of instruction.	
Primary Instructional Materials (BOE Approved): Pearson	
Enduring Understandings: Chapter 4 - Students will visualize the triangles placed on top of each other - students will use tick marks and angle marks to label corresponding sides and corresponding angles - students will use the Side-Side-Side Postulate, the Side-Angle-Side Postulate, the Angle-Side-Angle Postulate, the Angle-Angle-Side Theorem, and the Hypotenuse-Leg Theorem - Students will use the definitions and look at the number of congruent sides and angles Chapter 5 - Students will use Midpoint Formula to find the midsegments of triangles	**Essential Questions:** Chapter 4 Visualization: How do you identify corresponding parts of congruent triangles? Reasoning and Proof: How do you show that two triangles are congruent? How can you tell whether a triangle is isosceles or equilateral? Chapter 5 Coordinate Geometry: How do you use coordinate geometry to find relationships within triangles? Measurement: How do you solve problems that involve measurements of triangles? Reasoning and Proof: How do you write indirect proofs?

- Students will use the Distance Formula to examine relationships in triangles - Students will examine inequalities in one triangle - Students will examine inequalities in two triangles - Students will begin with the negation of the statement to be proved and will show a counter-example Chapter 7 - Students will form proportions based on known lengths of corresponding sides - Students will use the Angle-Angle Similarity Theorem - Students will use the Side-Angle-Side Similarity Theorem - Students will use the Side-Side-Side Similarity Theorem - A key to understanding corresponding parts of similar triangles is to show the triangles in like orientations Chapter 9 - Students will explore translations, reflections, and rotations - Students will explore dilations - Transformations will be conducted both on and off the coordinate plane - Students will determine the new coordinates of a polygon after any given transformation - Students will identify congruence transformations and prove congruence using isometries	Chapter 7 Similarity: How do you use proportions to find side lengths in similar polygons? Reasoning and Proof: How do you show two triangles are similar? Visualization: How do you identify corresponding parts of similar triangles? Chapter 9 Transformations: How can you change a figure's position without changing its size and shape? How can you change a figure's size without changing its shape? Coordinate Geometry: How can you represent a transformation in the coordinate plane? How do you recognize congruence and similarity in the figures?
Pacing Map (by weeks):	**Standards and Benchmarks:** **(BOE Approved):**
Weeks 1 - 2 4-1 Congruent Figures 4-2 Triangle Congruence by SSS and SAS 4-3 Triangle Congruence by ASA and AAS 4-4 Using Corresponding Parts of Congruent Triangles 4-5 Isosceles and Equilateral Triangles	**G-SRT.B.5:** Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures. **G-CO.C.10:** Prove theorems about triangles. Theorems include: measures of interior angles of a triangle sum to 180°; base angles of isosceles triangles are congruent; the segment joining midpoints of two sides of a triangle is parallel to the third side and half the length; the medians of a triangle meet at a point. **G-CO.D.12:** Make formal geometry constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.). *Copying a segment; copying an angle; bisecting a segment; bisecting an angle; constructing perpendicular lines, including the perpendicular bisector*

	of a line segment; and constructing a line parallel to a given line through a point not on the line. **G-CO.D.13:** Construct an equilateral triangle, a square, and a regular hexagon inscribed in a circle.
Weeks 3 - 4 4-6 Congruence in Right Triangles 4-7 Congruence in Overlapping Triangles Lesson 5-1 Midsegments of Triangles Lesson 5-2 Perpendicular and Angle Bisectors Lesson 5-3 Bisectors in Triangles Lesson 5-4 Medians and Altitudes	**G-SRT.B.5:** Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures. **G-CO.C.9:** Prove theorems about lines and angles. *Theorems include: vertical angles are congruent; when a transversal crosses parallel lines, alternate interior angles are congruent and corresponding angles are congruent; points on a perpendicular bisector of a line segment are exactly those equidistant from the segment's endpoints.* **G-SRT.A.2:** Given two figures, use the definition of similarity in terms of similarity transformations to decide if they are similar; explain using similarity transformations the meaning of similarity for triangles as the equality of all corresponding pairs of angles and the proportionality of all corresponding pairs of sides. **G-CO.C.10:** Prove theorems about triangles. Theorems include: measures of interior angles of a triangle sum to 180°; base angles of isosceles triangles are congruent; the segment joining midpoints of two sides of a triangle is parallel to the third side and half the length; the medians of a triangle meet at a point. **G-CO.D.12:** Make formal geometry constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.). *Copying a segment; copying an angle; bisecting a segment; bisecting an angle; constructing perpendicular lines, including the perpendicular bisector of a line segment; and constructing a line parallel to a given line through a point not on the line.* **G-C.A.3:** Construct the inscribed and circumscribed circles of a triangle, and prove properties of angles for a quadrilateral inscribed in a circle.
Weeks 5 - 6 Lesson 5-5 Indirect Proof Lesson 5-6 Inequalities in One Triangle	**G-SRT.A.2:** Given two figures, use the definition of similarity in terms of similarity transformations to decide if they are similar; explain using similarity transformations the meaning of similarity for triangles as the

Lesson 5-7 Inequalities in Two Triangles	equality of all corresponding pairs of angles and the proportionality of all corresponding pairs of sides. **G-CO.C.10:** Prove theorems about triangles. Theorems include: measures of interior angles of a triangle sum to 180°; base angles of isosceles triangles are congruent; the segment joining midpoints of two sides of a triangle is parallel to the third side and half the length; the medians of a triangle meet at a point.
Weeks 7 - 8 Lesson 7-1 Ratios and Proportions Lesson 9-6 Dilations Lesson 9-7 Similarity Transformations Lesson 7-2 Similar Polygons	**G-SRT.A.1a:** A dilation takes a line not passing through the center of the dilation to a parallel line, and leaves a line passing through the center unchanged. **G-SRT.A.3:** Use the properties of similarity transformations to establish the AA criterion for two triangles to be similar. **G-SRT.B.5:** Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.
Week 9 Lesson 7-3 Proving Triangles Similar Lesson 7-4 Similarity in Right Triangles Lesson 7-5 Proportions in Triangles	**G-SRT.B.4:** Prove theorems about triangles. *Theorems include: a line parallel to one side of a triangle divides the other two proportionally, and conversely the Pythagorean Theorem proved using triangle similarity.* **G-SRT.B.5:** Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.

Content Area: GEOMETRY	
Grade Level: 10th	**Quarter:** 3rd Quarter
This standards map is developed with the following premises: ● Students will be assessed only on the Priority Standards ● Teachers can expose students to or have students practice all the other standards but they will not be assessed on those standards. ● The adopted curriculum covers multiple standards per lesson. ● The criteria to choose Priority/Power Standards are: **Endurance:** Those standards that provide students with knowledge and skills beyond a single test date. **Leverage:** Those standards that provide knowledge and skills that are necessary for success in the next grade or level of instruction. **Readiness:** Those standards that provide the knowledge and skills that are necessary for success in the next grade or level of instruction.	
Primary Instructional Materials (BOE Approved): PEARSON	
Enduring Understandings: Chapter 6 - Students will use the properties of parallel and perpendicular lines and diagonals to classify quadrilaterals	**Essential Questions:** Chapter 6 Measurement: How can you find the sum of the of the measures of polygon angles?

- Students will use coordinate geometry to classify special parallelogram - Students will examine slope and segment length in the coordinate plane - Students will use the Distance Formula in the coordinate plane. Chapter 8 - Students will use Pythagorean Theorem - Students will use trigonometric ratios to form proportions - Students will examine the sine ratio, cosine ratio, and tangent ratio - Chapter 10 - Students will use formulas to find areas of parallelograms, triangles, trapezoids, rhombuses, and kites. - Students will explore area concepts related to regular polygons; use trigonometry to find areas; and find circumferences and areas of circles. - Student will examine ratios among similar figures - Given a figure and its area, students will be able to find the area of a figure similar to the original figure	Reasoning and Proof: How can you classify quadrilaterals? Coordinate Geometry: How can you use coordinate geometry to prove general relationships? Chapter 8 Measurement: How can you find a side length or angle measure in a right triangle? Similarity: How do trigonometric ratios relate to similar right triangles? Chapter 10 Measurement: How do you find the area of a polygon or find the circumference and area of a circle? Similarity: How do perimeters and areas of similar polygons compare?
Pacing Map (by weeks):	**Standards and Benchmarks:** **(BOE Approved):**
Weeks 1 - 2 Lesson 8-1 The Pythagorean Theorem and Its Converse Lesson 8-2 Special Right Triangles Lesson 8-3 Trigonometry Lesson 8-4 Angles of Elevation and Depression	**G-SRT.C.8:** Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems. **G-SRT.B.4:** Prove theorems about triangles. *Theorems include: a line parallel to one side of a triangle divides the other two proportionally, and conversely; the Pythagorean Theorem proved using triangle similarity.* **G-SRT.C.7:** Explain and use the relationship between the sine and cosine of complementary angles. **G-MG.A.1:** Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).
Weeks 3 - 4 Lesson 8-5 Law of Sines Lesson 8-6 Law of Cosines Lesson 6-1 The Polygons Angle-Sum Theorems Lesson 6-2 Properties of Parallelograms	**G-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). **G-SRT.D.10:** Prove the Laws of Sines and Cosines and use them to solve problems. **G-SRT.B.5:** Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.

	G-CO.C.11: Prove theorems about parallelograms. *Theorems include: opposite sides are congruent, opposite angles are congruent, the diagonals of a parallelogram bisect each other, and conversely, rectangles are parallelograms with congruent diagonals.*
Weeks 5 - 6 Lesson 6-3 Proving That a Quadrilateral Is a Parallelogram Lesson 6-4 Properties of Rhombuses, Rectangles, and Squares Lesson 6-5 Conditions of Rhombuses, Rectangles, and Squares Lesson 6-6 Trapezoids and Kites	**G-CO.C.11:** Prove theorems about parallelograms. *Theorems include: opposite sides are congruent, opposite angles are congruent, the diagonals of a parallelogram bisect each other, and conversely, rectangles are parallelograms with congruent diagonals.* **G-SRT.B.5:** Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.
Weeks 7 - 8 Lesson 6-7 Polygons in the Co ordinate Plane Lesson 6-8 Applying Coordinate Geometry Lesson 6-9 Proofs Using Coordinate Geometry Lesson 10-1 Areas of Parallelograms and Triangles	**G-GPE.B.4:** Use coordinates to prove simple geometric theorems algebraically. **G-MG.A.1:** Use geometric shapes, their measures, and their properties to describe objects. **G-GPE.B.7:** Use coordinates to compute perimeters of polygons and areas of triangles and rectangles, e.g., using the distance formula.
Week 9 Lesson 10-2 Areas of Trapezoids, Rhombuses, and Kites Lesson 10-3 Areas of Regular Polygons Lesson 10-4 Perimeters and Areas of Similar Figures Lesson 10-5 Trigonometry and Area Lesson 10-6 Circles and Arcs Lesson 10-7 Areas of Circles and Sectors	**G-GMD.A.3:** Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems. **G-SRT.D.9:** Derive the formula A = 1/2 ab sin(C) for the area of a triangle by drawing an auxiliary line from a vertex perpendicular to the opposite side. **G-MG.A.1:** Use geometric shapes, their measures, and their properties to describe objects. **G-CO.A.1:** Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc. **G-CO.D.13:** Construct an equilateral triangle, a square, and a regular hexagon inscribed in a circle. **G-C.A.1:** Prove that all circles are similar **G-C.A.2:** Identify and describe relationships among inscribed angles, radii, and chords. Include the relationship between central, inscribed, and circumscribed angles; inscribed angles on a diameter are right angles; the radius of a circle is perpendicular to the tangent where the radius intersects the circle. **G-C.B.5:** Derive using similarity the fact that the length of the arc intercepted by an angle is proportional to the radius, and define the radian measure of the angle as the constant of proportionality; derive the formula for the area of a sector.

Content Area: GEOMETRY	
Grade Level: 10th	**Quarter: 4th Quarter**
This standards map is developed with the following premises: ● Students will be assessed only on the Priority Standards ● Teachers can expose students to or have students practice all the other standards but they will not be assessed on those standards. ● The adopted curriculum covers multiple standards per lesson. ● The criteria to choose Priority/Power Standards are: **Endurance:** Those standards that provide students with knowledge and skills beyond a single test date. **Leverage:** Those standards that provide knowledge and skills that are necessary for success in the next grade or level of instruction. **Readiness:** Those standards that provide the knowledge and skills that are necessary for success in the next grade or level of instruction.	
Primary Instructional Materials (BOE Approved): PEARSON	
Enduring Understandings: Chapter 11 - Students will use formulas to find surface areas and volumes of prisms, cylinders, pyramids, cones, and spheres. - Students will examine ratios among similar solids. - Given a figure and its surface area, students will be able to find the surface area of a solid similar to the original solid. - Given a figure and its volume, students will be able to find the volume of a solid similar to the original solid. Chapter 12 - Students will examine angles formed by lines that intersect inside and outside a circle - Students will relate arcs and angles - Students will use properties of tangent lines - students will use the relationships among chords, arcs, and central angles - Students will solve problems with angles formed by secants and tangents Chapter 13 - Students will find probabilities based on real-world observations as well as probabilities based strictly on mathematics.	**Essential Questions:** Chapter 11 Measurement: How do you find the surface area and volume of a solid? Similarity: How do the surface areas and volumes of similar solids compare? Chapter 12 Reasoning and Proof: How can you prove relationships between angles and arcs in a circle? Measurement: When lines intersects a circle, or within a circle, how do you find the measure of resulting angles, arcs, and segments? Coordinate Geometry: How do you find the equation of a circle in the coordinate plane? Chapter 13 Probability: What is the difference between experimental probability and theoretical probability? Data Representation: What is frequency table? Probability: What does it mean for an event to be random?

- Students will use frequency tables to find relative frequency. - Students will use two-way frequency tables to calculate conditional probability. - Students will learn different ways to model randomness and make fair decisions.	
Pacing Map (by weeks):	**Standards and Benchmarks:** **(BOE Approved):**
Week 1-2 11-1 Space Figures and Cross Sections 11-2 Surface Areas of Prisms and Cylinders 11-3 Surface Areas of Pyramids and Cones 11-4 Volumes of Prisms and Cylinders 11-5 Volumes of Pyramids and Cones	**GMD.B.4:** Identify the shapes of two-dimensional cross-sections of three-dimensional objects, and identify three-dimensional objects generated by rotations of two-dimensional objects. **G-MG.A.1:** Use geometric shapes, their measures, and their properties to describe objects **G-GMD.A.1:** Give an informal argument for the formulas for the circumference of a circle, area of a circle, volume of a cylinder, pyramid, and cone. **G-GMD.A.2:** Give an informal argument using Cavalieri's principle for the formulas for the volume of a sphere and other solid figures. **G-GMD.A.3:** Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems.
Week 3-4 11-6 Surface Areas and Volumes of Spheres 11-7 Areas and Volumes of Similar Solids 12-1 Tangent Lines 12-2 Chords and Arcs 12-3 Inscribed Angles	**G-GMD.A.3:** Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems. **G-MG.A.1:** Use geometric shapes, their measures, and their properties to describe objects **G-GMD.A.2:** Give an informal argument using Cavalieri's principle for the formulas for the volume of a sphere and other solid figures. **G-MG.A.2:** Apply concepts of density based on area and volume in modeling situations **G-C.A.4:** Construct a tangent line from a point outside a given circle to the circle. **G-C.A.2:** Identify and describe relationships among inscribed angles, radii, and chords. *Include the relationship between central, inscribed, and circumscribed angles; inscribed angles on a diameter are right angles; the radius of a circle is perpendicular to the tangent where the radius intersects the circle.*
Week 5-6 12-4 Angle Measures and Segments Lengths 12-5 Circles in the Coordinate Plane 12-6 Locus: A Set of Points	**G-C.A.2:** Identify and describe relationships among inscribed angles, radii, and chords. *Include the relationship between central, inscribed, and circumscribed angles; inscribed angles on a diameter are right*

13-1: Experimental and Theoretical Probability 13-2: Probability Distributions and Frequency Tables	*angles; the radius of a circle is perpendicular to the tangent where the radius intersects the circle.* **G-GPE.A.1:** Derive the equation of a circle of given center and radius using the Pythagorean Theorem; complete the square to find the center and radius of a circle given by an equation. **G-GMD.B.4:** Identify the shapes of two-dimensional cross-sections of three-dimensional objects, and identify three-dimensional objects generated by rotations of two-dimensional objects. **S-CP.A.1:** Describe events as subsets of a sample space (the set of outcomes) using characteristics (or categories) of the outcomes, or as unions, intersections, or complements of other events ("or," "and," "not"). **S-CP.A.4:** Construct and interpret two-way frequency tables of data when two categories are associated with each object being classified. Use the two-way table as a sample space to decide if events are independent and to approximate conditional probabilities. **S-CP.A.5:** Recognize and explain the concepts of conditional probability and the independence in everyday language and everyday situations.
Week 7-8 13-3: Permutations and Combinations 13-4: Compound Probability	**S-CP.B.7:** Apply the Addition Rule, P(A or B) = P(A) + P(B) – P(A and B), and interpret the answer in terms of the model. **S-CP.B.8:** Apply the general Multiplication Rule in a uniform probability model, P(A and B) = P(A)P(B|A) = P(B)P(A|B), and interpret the answer in terms of the model. **S-CP.B.9:** Use permutations and combinations to compute probabilities of compound events and solve problems.
Week 9 13-5: Probability Models 13-6: Conditional Probability Formulas 13-7: Modeling Randomness	**S-CP.A.4:** Construct and interpret two-way frequency tables of data when two categories are associated with each object being classified. Use the two-way table as a sample space to decide if events are independent and to approximate conditional probabilities. **S-CP.A.5:** Recognize and explain the concepts of conditional probability and independence in everyday language and everyday situations. **S-CP.A.3:** Understand the conditional probability of *A* given *B* as *P*(*A* and *B*)/*P*(*B*), and interpret independence of *A* and *B* as saying that the conditional probability of *A* given *B* is the same as the probability of *A*, and the conditional probability of *B* given *A* is the same as the probability of *B*.

	S.CP.B.6: Find the conditional probability of *A* given *B* as the fraction of *B*'s outcomes that also belong to *A*, and interpret the answer in terms of the model. **S.MD.B.6:** Use probabilities to make fair decisions (e.g., drawing by lots, using a random number generator). **S-MD.B.7:** Analyze decisions and strategies using probability concepts (e.g., product testing, medical testing, pulling a hockey goalie at the end of a game).