

**Curriculum Maps
Mathematics**

Pre Algebra	Algebra 1	Algebra 2	Geometry
<p><u>2.1 Numbers, Number Systems and Number Relationships</u></p> <ul style="list-style-type: none"> • Represent and use numbers in a variety of equivalent forms, such as integers, percents, scientific notation, fractions, decimals, exponential notation and rationals; • Describe relationships among fractions, decimals and percents; • Apply ratios and proportions (scale drawings, maps); • Apply percents (discounts); • Represent numerical relationships on a two-dimensional graph (ordered pairs); • Describe effects of arithmetic operations; • Order numbers (integers, fractions, decimals, rationals); • Be able to use strategies to solve problems; • Use integers, fractions, decimals, percents, exponents, scientific notation, and square roots in equivalent forms; • Simplify expressions involving exponents, scientific notation and square roots; 	<p><u>2.1 Numbers, Number Systems and Number Relationships</u></p> <ul style="list-style-type: none"> • Represent and simplify numerical and algebraic expressions using integers, fractions, decimals, percents, exponents, scientific notation and square roots in equivalent forms; • Change scientific notation into standard form to verify reasonableness of an answer; • Classify numbers as rational or irrational and order them; • Use ratio, proportion and formulas to set up and compute problems of distance, rate, time, and similar triangles. 	<p><u>2.1 Numbers, Number Systems and Number Relationships</u></p> <ul style="list-style-type: none"> • Define and use a number's opposite, reciprocal and absolute value; • Raise a number to a power using integral, rational and negative exponents; • Find specified roots and write them in logarithmic form. 	<p><u>2.1 Numbers, Number Systems and Number Relationships</u></p> <ul style="list-style-type: none"> • Create equations based on: basic definitions, postulates and theorems (e.g., midpoint, angle bisector, supplementary and complementary angles, vertical angles, etc.); congruence of polygons; inequality of sides and angles in triangles; properties of quadrilaterals; and angles of parallel lines. • Create and simplify expressions that represent distance between 2 points; • Simplify conjunction and disjunction expressions; • Design number line graphs; • Find areas of polygons and circles; • Find sides of right triangles using the Pythagorean Theorem; Classify quadrilaterals and polygons; • Create Venn Diagrams.

Pre Algebra	Algebra 1	Algebra 2	Geometry
<ul style="list-style-type: none"> • Classify numbers as rational or irrational; • Solve problems involving distance, rate, time and similar triangles; • Raise a monomial term to a power; • Use a number line to order and compare; • Solve by using inverse operations. 			

Pre Algebra	Algebra 1	Algebra 2	Geometry
<p><u>2.2 Computation and Estimation</u></p> <ul style="list-style-type: none"> • Add, subtract, multiply and divide whole numbers, fractions, decimals, integers, and rationals; • Given a problem, write the appropriate proportion and solve it; • Choose an appropriate operation to solve a problem; • Determine whether a solution is sensible; • Use various estimation strategies; • Estimate before calculating; • Solve problems involving money, time and elapsed time; • Simplify problems with exponents; • Use prime factorization to find the greatest common factor (GCF) and the least common multiple (LCM) of numbers; • Simplify expressions and equations with parentheses, exponents, multiplication, division, addition and subtraction; • Add, subtract, multiply and divide with integers, decimals, fractions, percents, proper and improper fractions; • Use benchmarks to estimate; • Solve problems involving rate x time = distance; tips, discounts and percents; 	<p><u>2.2 Computation and Estimation</u></p> <ul style="list-style-type: none"> • Apply the order of operations to rational numbers including integers, decimal fractions, percents, and proper and improper fractions; • Use mental math, charts and calculators to approximate the value of irrational numbers; • Add, subtract, multiply and divide problems with irrational numbers; • Verify the reasonableness of an answer and check computations in both abstract and practical problems; • Name circumstances in which overestimating or underestimating can be used and when an exact or an approximate answer is appropriate. 	<p><u>2.2 Computation and Estimation</u></p> <ul style="list-style-type: none"> • Solve word problems with real world applications; • Use estimation skills to check for reasonableness of answers; • Estimate values of radicals; • Use scientific notation in approximating and estimating; • Write equations for word problems; • Include real-life situations. 	<p><u>2.2 Computation and Estimation</u></p> <ul style="list-style-type: none"> • Compute the volume of a right prism; • Compute the volume of a right pyramid given its height and the area of its base; • Compute the volume of a right circular cylinder given its radius (or diameter) and height; • Compute the volume of a sphere given its radius or diameter; • Compute the equation of a circle; • Compute the equation of an ellipse; • Simplify radical expressions; • Find sides of special triangles (30, 60, 90 and 45, 45, 90); • Classify angles as acute, right and obtuse by observation; • Estimate the areas of irregular shapes and volumes of irregular solids; • Measure line segments and angles using various increments of measurements; • Find the area of circles and polygons; • Calculate the volume of solids; • Perform basic computations on the scientific calculator; • Solve trigonometric ratios (sin, cos and tan) and compare them to standard trigonometry tables; • Compute percent problems.

Pre Algebra	Algebra 1	Algebra 2	Geometry
<ul style="list-style-type: none">• Round money and measurement, interpreting remainders.			

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<p><u>2.3 Measurement and Estimation</u></p> <ul style="list-style-type: none"> • Determine area by partitioning; • Determine volume and area of solids; • Determine area of polygons; • Determine area and circumference of a circle; • Determine perimeter of regular and irregular figures; • Estimate and verify measurements by using measuring tools; • Use the concepts of rate and indirect measurement in the solution of problems; • Select the appropriate unit of measurement and the tool to find the measurement; • Apply measurement to interdisciplinary and real world problem solving situations, such as elapsed time; • Form a net to determine the polygons in each figure; • Use $\text{rate} \times \text{time} = \text{interest}$ and $\text{principal} \times \text{rate} \times \text{time} = \text{simple interest}$; • Using a protractor, explore complementary, supplementary and right angle relationships; • Use distance, rate, perimeter, area, volume, capacity, weight, mass and angle; • Use scale measurements. 	<p><u>2.3 Measurement and Estimation</u></p> <ul style="list-style-type: none"> • Use both metric and customary systems to calculate area, volume, distance, etc.; • Find distance, interest and other rate problems using appropriate formulas; • Apply the correct unit of measurement to distance, rate, perimeter, area, volume, capacity, weight, mass, and angles; • Describe the relationship between changes in linear dimensions and perimeter, area and volume using units, square units and cubic units of measure; • Use scale measurements when working with maps, drawings, and scale models; • Use a ruler, protractor and other tools of measurement with accuracy. 	<p><u>2.3 Measurement and Estimation</u></p> <ul style="list-style-type: none"> • Use proper units of measurement throughout real world application problems; • Convert angle measures from degree to radian and vice versa; • Visualize angles on the unit circle to compare their degree and radian equivalence; • Estimate quadrants where various sized angles would be located, including positive and negative values. 	<p><u>2.3 Measurement and Estimation</u></p> <ul style="list-style-type: none"> • Compute measurements in both degrees and angles; • Convert between degrees and radians; • Compute distance between 2 points; • Solve proportions involving quadratic equations; • Compute the area of plane figures; • Compute the volume of solids; • Compute actual measurements using proportional relationships.

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<ul style="list-style-type: none">• Create and use a scale that will work within given parameters.			

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<p><u>2.4 Mathematical Reasoning and Connections</u></p> <ul style="list-style-type: none"> • Make conjectures and test using counter examples; • Use if/then statements to construct valid arguments; • Using compatible numbers, benchmarks to estimate; • Show and explain each step involved in solving a computation with rational numbers; • Be able to pick, from a group of problems, examples of inductive and deductive reasoning; • Interpret data using mean, median and mode. 	<p><u>2.4 Mathematical Reasoning and Connections</u></p> <ul style="list-style-type: none"> • Use sound reasoning and counter examples; • Create if...then statements; • Explain and use procedures for computing and estimating with rational numbers; • Use specific examples to generalize and apply the rule to concrete situations. 	<p><u>2.4 Mathematical Reasoning and Connections</u></p> <ul style="list-style-type: none"> • Use postulates of algebra to construct valid arguments (addition, subtraction, multiplication, and division properties of equality, substitution, distributive property); • Use algebraic definitions to justify reasoning; • Use truth tables to determine whether compound statements are true or false. 	<p><u>2.4 Mathematical Reasoning and Connections</u></p> <ul style="list-style-type: none"> • Display logical reasoning, given diagrams or other information; • Justify theorems about congruent figures, parallel lines, angles of triangles; • Write negation, biconditional, converse, inverse and contrapositive forms of sentences from a given statement; • Write statements in “if, then” form; • Create truth tables.

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<p data-bbox="184 305 569 358"><u>2.5 Mathematical Problem Solving and Communication</u></p> <ul data-bbox="184 367 600 764" style="list-style-type: none"> <li data-bbox="184 367 600 488">• Explore problem solving strategies (guess and check, plug in, estimate, calculator, Venn diagram); <li data-bbox="184 496 600 602">• Use numerical tables, equations, formulas, charts, graphs and diagrams to verify and interpret results; <li data-bbox="184 610 600 667">• Show familiar use of rubrics from open-ended questions; <li data-bbox="184 675 600 764">• Eliminate extraneous information or when recognize the need for more information. 	<p data-bbox="619 305 1003 358"><u>2.5 Mathematical Problem Solving and Communication</u></p>	<p data-bbox="1054 305 1438 358"><u>2.5 Mathematical Problem Solving and Communication</u></p> <ul data-bbox="1054 367 1470 667" style="list-style-type: none"> <li data-bbox="1054 367 1470 488">• Use ideas from algebra, geometry and trigonometry to solve real world problems involving several steps; <li data-bbox="1054 496 1470 553">• Write each step of the problem using proper form and labels; <li data-bbox="1054 561 1470 667">• Write a step-by-step description to explain the process used in solving open-ended word problems. 	<p data-bbox="1488 305 1873 358"><u>2.5 Mathematical Problem Solving and Communication</u></p> <ul data-bbox="1488 367 1904 917" style="list-style-type: none"> <li data-bbox="1488 367 1904 488">• Understand criteria for justification of responses including the use of words, symbols, and diagrams; <li data-bbox="1488 496 1904 553">• Use conjectures in extended response questions; <li data-bbox="1488 561 1904 643">• Select appropriate math concepts and apply them to non routine and multi step problems; <li data-bbox="1488 651 1904 732">• Write a clear, step by step explanation of the procedures of the geometry application; <li data-bbox="1488 740 1904 764">• Verbally defend reasoning; <li data-bbox="1488 773 1904 854">• Present problem solving procedures succinctly and correctly; <li data-bbox="1488 862 1904 917">• Create Venn Diagrams showing relationships of quadrilaterals.

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<p><u>2.6 Statistics and Data Analysis</u></p> <ul style="list-style-type: none"> • Construct circle graphs; • Collect, organize, display data for given situations using appropriate displays, such as circle graphs, box and whisker plots, scatter plots, glyphs; • Use data analysis to write an evaluative argument in a real life situation; • Determine the best measure of central tendency (mean, median, mode) and calculate it; • Use mean, median, mode, quartiles, and range; • Analyze the effects of missing or incorrect data; • Fit a line to the scatter plot of two quantities; • Design an unbiased question and decide on an appropriate group/location; • Use stem and leaf and box and whisker plots; • Use scientific/graphing calculators and spreadsheets; • Determine if a survey question is biased. 	<p><u>2.6 Statistics and Data Analysis</u></p> <ul style="list-style-type: none"> • Use mean, median, mode, quartiles, range and standard deviation; • Design, describe and carry out a random sampling; • Explain effects on reliability of sampling procedures and of missing or incorrect information; • Construct a “stem and leaf”, “box and whisker” and “scatter” plot and use scientific calculators and other appropriate technology. 	<p><u>2.6 Statistics and Data Analysis</u></p> <ul style="list-style-type: none"> • Given a particular scenario and several possibilities of how to choose a sample, students will select the best example of a random sample; • Given a set of data, find the mean, median, mode, variance and standard deviation; • Use graphing software or a graphing calculator to organize and visually represent data; • Represent data using scatter plots, box-and-whisker plots, stem-and-leaf diagrams; • Use a scatter plot to identify the correlation shown by a set of data; • Approximate the best-fitting line for positive or negative correlations and determine its equation. 	<p><u>2.6 Statistics and Data Analysis</u></p> <ul style="list-style-type: none"> • Use the results of class test scores to find the mean, median, mode and range; • Compare the scores using data analysis of box and whisker graphs and stem and leaf graphs; • Construct a pie chart with specific percents and compute the exact central angle measure for the information given; • Create graphs to represent the results of their random sampling experiment; • Collect data from their school community to conduct a random sampling experiment.

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<p><u>2.7 Probability and Predictions</u></p> <ul style="list-style-type: none"> • Use simulation to develop a model for real life situations; • Find the probability of dependent and independent events; • Predict and then determine by experimentation, include certainty, impossibility, equally likely, not equally likely events; • Use factorials, fundamental counting principle, and making a tree diagram; • Use visual representations such as tables, charts and graphs; • Make predictions based on sample size; • Compute the probability for an event, change the fraction to a percent, and compare it to other events; • Use dependent versus independent events to make valid predictions. 	<p><u>2.7 Probability and Predictions</u></p> <ul style="list-style-type: none"> • Apply strategies such as tree diagrams, factorials, and algorithms; • Use simulations and appropriate technology; • Present, compare and contrast results from observations, experiments and mathematical models; • Define and determine dependence or independence, and the probability of compound events. 	<p><u>2.7 Probability and Predictions</u></p> <ul style="list-style-type: none"> • Identify mutually exclusive and independent events; • Find probabilities of multiple events; • Find the probability that an event will occur and determine the odds in favor of that event occurring; • Calculate chi-square values and use them to test hypotheses. 	<p><u>2.7 Probability and Predictions</u></p> <ul style="list-style-type: none"> • Calculate the probability that a class of students will all begin naming the vertices of a polygon with the same letter. • Find the probability that a cube with different colored sides will turn up red on three successive rolls.

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<p><u>2.8 Algebra and Functions</u></p> <ul style="list-style-type: none"> • Evaluate algebraic expressions (include exponents); • Solve simple equations, inequalities; • Given a problem situation, create a model, a table, and write the rule; • Distinguish between an unknown and a variable; • Use order of operations; • Solve systems of line equations by graphing; • Simplify algebraic expressions by combining like terms (model with chips); • Continue an observed pattern (numerical or geometric); • Describe the pattern using an algebraic expression; • Write expressions, equations and inequalities; • Use algebra tiles to model integers and equations; • Determine by substituting or solving if a value is a solution; • Create a graph using a graphing calculator or computer spread sheet. 	<p><u>2.8 Algebra and Functions</u></p> <ul style="list-style-type: none"> • Recognize and generalize number patterns, geometric patterns, and sequences (including iterative processes) using tables, graphs (including scatter plots), expressions and matrices; • Read and interpret linear and non linear graphs and tables; • Model real life events with non linear graphs; • Display and interpret given and collected data; • Use the measures of central tendency and variability to make informed decisions; • Given data, estimate the probability of an event; • Make predictions based on interpolations and extrapolations of data/graphs; • Add, subtract, multiply and divide rational numbers; • Use order of operations (including powers); • Evaluate expressions, formulas and functions; • Determine appropriate domain and range of relationships; • Identify dependent and independent variables; • Create and interpret scatter plots; visually determine line of best fit; 	<p><u>2.8 Algebra and Functions</u></p> <ul style="list-style-type: none"> • Organize data in tables, matrices and graphs; • Represent data graphically; • Define and use relations and functions; • Decide whether a relation is a function; • Combine functions; • Add functions; • Analyze vertical and horizontal translations of a function; • Review types of numbers; • Solve equations using irrational numbers; • Define and interpret slopes; • Use the slope intercept form to write equations; • Write linear equations in slope intercept and standard form; • Make predictions with linear functions; • Solve one variable equations and inequalities; • Solve absolute value equations and inequalities; • Solve and graph equations and inequalities with two variables; • Graph absolute value equations with two variables; • Find experimental probability; • Find and use theoretical probability; 	<p><u>2.8 Algebra and Functions</u></p> <ul style="list-style-type: none"> • Differentiate between equations of parallel and perpendicular lines. • Represent graphs of lines and circles in equation form. • Recognize the equation of a circle. • Represent graphs of lines and circles in equation form. • Solve proportions to find measures of sides of similar triangles and polygons. • Construct pie charts using exact proportions of percents to angle measure of a circle.

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	<ul style="list-style-type: none"> • Write a rule for a relationship using functional notation; • Model and solve (algebraically and graphically) one/two step linear equations; • Add and subtract like terms; • Use the distributive property; • Solve equations for one variable in terms of another (literal equations); • Solve simple inequalities and graph their solutions; • Solve proportions; • Read solutions from a graph; • Find the rate of change (slope) for a linear function; • Find the x and y intercepts and interpret their meaning in real world applications; • Determine the effects of changing the 'm' value in $y = mx + b$; • Write the slope intercept form of a line; • Use algebraic transformations to write both the standard form ($ax + by = c$) and the slope intercept form ($y = mx + b$) of a line; • Relate parallel and perpendicular lines to slope; • Algebraically, find the line of best fit for data either given or collected; 	<ul style="list-style-type: none"> • Organize data and matrices; • Add, subtract and multiply matrices; • Solve matrices equations; • Find and use inverse matrices to solve equations; • Solve a system by graphing; • Graph systems of inequalities; • Use substitution to solve a system of equations; • Use elimination method to solve a system; • Use elimination method to solve systems with three variables; • Solve systems of equations using inverse matrices; • Compare methods used to solve a system; • Recognize and use quadratic functions; • Decide whether to use linear or quadratic models; • Find minimum or maximum value of a function; • Graph a parabola in vertex form; • Find the vertex of a parabola; • Write equations in vertex and standard form; • Find the inverse of a function; • Use the square root function; • Solve quadratic equations by factoring, identifying square roots, completing the square, and by formula; 	

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	<ul style="list-style-type: none"> • Apply algebraic patterns to basic number theory and number relations; • Analyze linear, exponential, and simple quadratic relationships; • Model concepts such as integers, like terms, and equations using manipulatives; • Compute answers using order of operations; • Select appropriate properties such as commutative, associative and distributive; • 	<ul style="list-style-type: none"> • Graph complex numbers; • Simplify complex numbers; • Use the discriminant to determine solutions for quadratic equations; • Explore graphs of power functions; • Use exponentials for radicals; • Use powers and roots to solve equations; • Describe graphs of polynomial functions; • Fit polynomial models to data; • Analyze the factored form of polynomials; • Write a polynomial from its zeros; • Solve polynomial equations by factoring; • Use synthetic division; • Find zeros of a function; • Solve problems involving population growth; • Graph exponential functions; • Use logarithmic notation; • Graph and evaluate logarithmic functions; • Use the properties of logarithms; • Solve equations with exponents; • Use logarithms to solve equations; • Use exponents to solve logarithmic equations; 	

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	<ul style="list-style-type: none"> • Discuss how closely the linear regression equation models the data by examining the correlation coefficient; • Solve systems graphically, by substitution and by elimination (linear combination); • Write and solve a system of linear equations that model a real world application; interpret parts of the graph; • Identify quadratic functions; • Graph quadratic functions; translate graphs by changing the parameters; • Find the line of symmetry in the graph of a quadratic function; • Find the maximum or minimum in the graph of a quadratic function; • Find the y intercept; • Simplify radicals; determine approximate roots (to the nearest integer value); • Find the x intercepts (find roots of the corresponding equation) by graphing and solving the quadratic formula; • Find a quadratic curve of best fit using the calculator; • Identify exponential functions; • Model exponential growth and decay; • Describe and interpret graphs; 	<ul style="list-style-type: none"> • Identify and solve inverse variations; • Graph inverse variations; • Simplify rational expressions; • Add, subtract, multiply and divide rational expressions; • Solve rational expressions; • Find patterns in a sequence and produce a mathematical model; • Graph a given set of data. Look for any patterns that may occur; • Use a table to record data. See if a pattern is developing. Write a formula to express the pattern; • Identify and generate arithmetic and geometric sequences; • Find the nth term of an arithmetic or geometric sequence. 	

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	<ul style="list-style-type: none">• Use laws of exponents to simplify expressions;• Add, subtract, multiply and divide polynomials;• Factor polynomials;• Solve equations by factoring;		

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<p><u>2.9 Geometry</u></p> <ul style="list-style-type: none"> • Draw and describe the results of transformation, such as reflections and rotations (slides, flips and turns); • Describe quantitatively, geometric relationships, such as number of sides, faces, vertices, diagonals, sums of angles; • Distinguish between and apply congruency and similarity to the solution of geometric problems; • Apply the Pythagorean Theorem; • Describe angle relationships formed by transversal and parallel lines; • Do simple constructions, such as angle bisectors; • Use a compass, protractor or computer software (geoboard), construct angle bisectors and perpendicular bisectors; • Draw, label or measure angle relationships; • Classify polygons (triangle, decagon) as regular or irregular; • Recognize and construct quadrilaterals, circles, spheres, cones and cylinders, cubes, pyramids and prisms; • Recognize angle relationships such as alternate exterior or alternate interior; • Select similar/congruent figures. 	<p><u>2.9 Geometry</u></p> <ul style="list-style-type: none"> • Find the next element of a number or picture pattern; • Identify points, lines, rays and segments; • Use drawings to represent types of polygons; • Draw and list the properties of lines, angles, polygons, and solid figures; • Investigate using experimentation involving the ratio of circumference to diameter; • Transform figures using basic operations and illustrate the results on a coordinate plane. 	<p><u>2.9 Geometry</u></p> <ul style="list-style-type: none"> • Use the distance formula to find the distance between any two points in the plane; • Find the coordinates of the midpoint of a segment, given the coordinates of the endpoints; • Sketch a graph showing vertical translation, stretching or shrinking; • Sketch a graph showing horizontal translation, stretching or shrinking. 	<p><u>2.9 Geometry</u></p> <ul style="list-style-type: none"> • Find the next element in a number or picture pattern; • Identify points, lines, rays and segments; • Identify a pair of perpendicular lines; • Identify the vertex and sides of an angle; • Compute the measure of an angle using a protractor; • Identify an angle as right, acute, obtuse or straight; • Compute the complement and supplement of an angle; • Find a missing angle using a property of vertical angles; • Identify parallel lines and compute angles formed by a transversal; • Categorize triangles by angles and sides; • Identify properties of isosceles triangles; • Compute the missing angle of a triangle, given two angles; • Compute exterior angles of a triangle given the interior angles; • Identify a polygon (up to 10 sides) by name; • Draw the diagonals of a polygon; • Compute the sum of the interior and exterior angles of a convex polygon;

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			<ul style="list-style-type: none"> • Compute the measure of an interior or exterior angle of a regular polygon; • Find missing parts of congruent triangles and identify the corresponding parts of congruent triangles that are congruent; • Identify and construct and/or draw a median and altitude of a triangle using technology and tools; • Identify and construct or draw an angle bisector using technology and tools; • Identify and construct or draw a perpendicular bisector of a line segment using technology and tools; • Identify points of concurrency and apply them to real life problems; • Identify quadrilaterals by their special properties; • Draw and compute the mid-segment of a trapezoid; • Identify three lengths which will or will not form a triangle; • Identify the largest and smallest side/angle given the angle/side of a triangle; • Apply properties of coordinate geometry of parallel and perpendicular lines;

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			<ul style="list-style-type: none"> • Draw a radius, chord, tangent, secant and diameter of a circle; • Draw a central angle, major arc, minor arc and semi-circle of a circle; • Compute the measure of a central angle of a circle; • Draw and compute the measure of an inscribed angle of a circle; • Compute the measure of an angle inscribed in a semi-circle; • Draw the reflection of an object in a line; • Draw the translation of an object in a plane; • Draw the rotation of an object in a plane; • Draw the product of two plane transformations; • Compute the area of a rectangle; • Compute the area of a polygon made up of rectangles; • Compute the area of a parallelogram; • Compute the area of a triangle (directly or indirectly) using base and height of triangle; • Compute the area of a rhombus; • Compute the area of a trapezoid; • Draw the apothem and radius of a regular polygon; • Compute the area of a regular polygon using measures of apothem and perimeter;

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			<ul style="list-style-type: none"> • Compute the area of a circle given the radius or diameter; • Compute the radius (diameter) of a circle given the area or circumference; • Draw a sector of a circle; • Compute the arc length of a sector of a circle; • Compute the area of a sector of a circle; • Identify two triangles/polygons as similar; • Compute missing sides of similar triangles using proportions; • Compute a missing length given a scale drawing; • Compute missing parts of triangles given a line parallel to one side of the triangle; • Draw the dilation (expansion or contraction) of an object in a plane; • Compute missing sides of similar polygons; • Compute the ratio of perimeters/area of similar triangles given sides of one triangle and one side;

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			<ul style="list-style-type: none"> • Measure sides and angles of geometric figures. • Construct geometric figures. • Prove theorems inductively. • Use the Geometer's Sketchpad to inscribe regular polygons in a circle and compute the perimeter of the polygon. • Find the measure of sides of similar triangles. • Set up and solve proportions created by similar triangles in the real world. • Find examples of similar triangles in the real world. • Prove two triangles are similar using AA, SAS and SSS similarity.

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<p><u>2.10 Trigonometry</u></p> <ul style="list-style-type: none"> Solve the Pythagorean Theorem, proportions in right triangles, and right triangle relationships; Compute indirect measurements using trigonometric ratios. 	<p><u>2.10 Trigonometry</u></p> <ul style="list-style-type: none"> Calculate the measure of sides in a right triangle; 	<p><u>2.10 Trigonometry</u></p> <ul style="list-style-type: none"> Define a function; Determine domain and range; Use functional notation; Find the inverse of a function; Perform composition of functions; Interpret slope and y intercept; Graph linear equations from various data; Write the equation of a line given various data; Solve equations; Solve inequalities in one or two variables; Solve systems of equations; Add and multiply matrices; Compute determinants; Determine the inverse of a 2x2 matrix; Simplify radicals containing different indices; Simplify sums, differences, products, and quotients of radical expressions (including rationalizing denominators); Evaluate and simplify expressions in either exponential or radical form; Solve equations containing radicals; Graph equations in general and point slope form; 	<p><u>2.10 Trigonometry</u></p> <ul style="list-style-type: none"> Simplify square roots and estimate values; Compute the hypotenuse of a right triangle given the legs of a triangle; Compute the leg of a right triangle given the other leg and the hypotenuse; Identify a triple of numbers that forms a right triangle; Compute missing sides of a 30-60-90 right triangle; Compute missing sides of a 45-45-90 right triangle; Compute missing sides of a right triangle using the tangent ratio; Compute missing sides of a right triangle using the sine ratio; Compute missing sides of a right triangle using the cosine ratio; Solve a word problem using an angle of depression; Solve a word problem using an angle of elevation; Draw diagrams of angles less than 0 degrees and more than 180 degrees. Describe the graphs of sine, cosine and tangent. Apply the Pythagorean Theorem to find the length of a missing side of a right triangle, given an incomplete figure.

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		<ul style="list-style-type: none"> • Identify special properties (maximum, minimum and axis of symmetry); • Complete the square and relate the process to solving and/or graphing quadratic functions; • Solve equations by factoring and the quadratic formula; • Solve inequalities in one variable; • Graph and analyze conics (circles, ellipses, hyperbolas, parabolas); • Simplify quotients of polynomial and/or rational functions; • Simplify sums, differences, products and quotients of polynomial functions; • Solve rational equations; • Solve direct, inverse and joint variations; • Graph equations of the form $xy = k$ and identify their asymptotes, domain, and range; • Apply the remainder and/or factor theorems using synthetic division; • Determine domain and range of exponential functions; • Simplify products and quotients of exponential expressions; • Graph logarithmic functions; • Determine the domain and range of logarithmic functions; 	<ul style="list-style-type: none"> • Determine the sine, cosine or tangent ratios of acute angles of right triangles, given two or three sides of the triangle. • Identify right, acute and obtuse angles. • Find the lengths of sides and measures of angles of oblique triangles.

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		<ul style="list-style-type: none"> • Apply the basic properties of logarithms (solving logarithmic and exponential equations; • Convert between degrees and radians; • Define the unit circle and its application to the sine and cosine of a standard position angle; • Find the sine and the cosine of an angle from various data; • Define tangent, cotangent, secant and cosecant; • Apply the trigonometric functions to special angles (30, 45, 60 and multiples of 90); • Define reference angle; • Evaluate trigonometric functions of angles using reference angles, tables and/or calculators; • Relate right triangle trigonometry to problem solving; • Use the law of sines and cosines in problem solving; • Use trigonometric relationships to simplify expressions and prove identities; • Use the sum, difference, double and half angle formulas; • Graph trigonometric functions; • Identify periodic functions from their graph; • Graph the trigonometric functions. Determine the period and the amplitude. 	

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		<ul style="list-style-type: none">• Use trigonometric ratios to solve right triangles, including those relating to real-world situations.	

Pre Algebra	Algebra 1	Algebra 2	Geometry
<p><u>2.11 Concepts of Calculus</u></p> <ul style="list-style-type: none"> Given a linear equation and one coordinate, be able to determine the other coordinate; Compute the slope of a line and determine if it is negative or positive; Continue a pattern of numbers or objects. 	<p><u>2.11 Concepts of Calculus</u></p> <ul style="list-style-type: none"> Construct T-tables and/or graph and observe results; Investigate the number relationships which create a pattern; Apply the concepts of unit rates, ratios, and slope. 	<p><u>2.11 Concepts of Calculus</u></p> <ul style="list-style-type: none"> Model exponential growth and decay; Determine the maximum or minimum values for polynomial functions over specified intervals; Determine maximum and minimum values in multi-step problems; Determine the sum of a finite series; Calculate a specific term in a geometric sequence given a non-integer common ratio. 	<p><u>2.10 Concepts of Calculus</u></p> <ul style="list-style-type: none"> Find the maximum and minimum values from a given equation and by inspecting a graph; Perform the vertical line test on a function graph; List the possible X-coordinates (domain) and Y-coordinates (range) of a set of ordered pairs; Use a graphing calculator to identify intervals over which a function increases, decreases or remains constant; Compute sums of finite sequences and infinite series; Estimate area under curves using sequences of areas.