

MATH Connections correlation to West Virginia Standards

<p>Correlation Key: "X" Coverage = Secondary concept of the activity or problem. Students gain a basic understanding or introduction of the concept.</p> <hr/> <p>"XX" In-depth coverage = Primary concept that is the focus of the activity or problem. Students gain thorough understanding of the concept.</p>	MATH Connections 1A				MATH Connections 1B				MATH Connections 2A			MATH Connections 2B			MATH Connections 3A				MATH Connections 3B			
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Algebra/Geometry Preparation Objectives

Standard 1: Number and Operations (MA.S.1)

Students will:																						
? demonstrate understanding of numbers, ways of representing numbers, and relationships among numbers and number systems;	X	XX	XX	X	X	XX	X	X	X	X	X	X	X	X	X	XX	X	X	X	XX	XX	
? demonstrate meanings of operations and how they relate to one another;		XX			X		X							XX		XX				XX		
? compute fluently and make reasonable estimates through communication, representation, reasoning and proof, problem solving, and making connections within and beyond the field of mathematics.	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX

Algebra/Geometry Preparation Objectives

Students will:																						
AGP.1.1 identify and use properties of numbers (commutative, associative, distributive, etc).		XX	X	X	X	X			XX	X	X	X	XX	XX	X	XX	X	X	X	XX	X	
AGP.1.2 add, subtract, multiply, and divide decimals, integers, fractions and mixed numbers.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
AGP.1.3 use order relations to compare, order, or locate whole numbers, integers, fractions, and decimals on a number line.	XX		XX	X	X	X			X	X	X	X	X	X	X	X	X	X	X	XX	XX	

Standard 2: Algebra (MA.S.2)

Students will:																						
? demonstrate understanding of patterns, relations, and functions;		XX	X	XX	X	XX	X	X	XX		X	X	X	X	XX	XX	XX			X	XX	
? represent and analyze mathematical situations and structures using algebraic symbols;		XX	XX	XX	XX	XX	X		XX	X	XX	XX	XX	XX	XX	XX	XX	X	XX	XX	XX	
? use mathematical models to represent and understand quantitative relationships; and	X	X	XX	XX	XX	XX	XX	X	XX	X	XX	XX	XX		XX	XX	XX	XX	XX	XX	XX	
? analyze change in various contexts through communication, representation, reasoning and proof, problem solving, and making connections within and beyond the field of mathematics.		XX	XX	XX	XX	XX			XX	X	XX	X	X	XX	XX	XX	XX	X	XX		XX	

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	AGP.2.1 substitute values, evaluate expressions involving variables, and calculate formulas to solve application problems.		XX	X	X	X	XX	X		XX		X	X	X	X	XX	X	X	X	X	X	X	X
AGP.2.2 solve equations with at least two operations.		XX	XX	XX	XX	X	X		XX	X	XX	X	X	XX	XX	XX	X	X	X	X	XX	XX	
Standard 3: Geometry (MA.S.3)																							
Students will:																							
? analyze characteristics and properties of two- and three-dimensional geometric shapes and develop mathematical arguments about geometric relationships;									XX	XX	X	XX	XX	X	X					XX	XX		XX
? specify locations and describe spatial relationships using coordinate geometry and other representational systems;									XX	XX	X	XX	XX	X	X					XX			
? apply transformations and use symmetry to analyze mathematical situations; and			XX						X			XX			X		X						
? solve problems using visualization, spatial reasoning, and geometric modeling through communication, representation, reasoning and proof, problem solving, and making connections within and beyond the field of mathematics.	X		XX	XX	XX	XX	XX	X	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX
AGP.3.1 use a compass to construct congruent angles, bisect angles, and bisect line segments.									XX	XX													
AGP.3.2 estimate and find circumference and area of a circle.												XX											
AGP.3.3 estimate and find the area and perimeter of polygons									XX	X		XX											
AGP.3.4 estimate and find the surface area and the volume of three-dimensional figures.													XX										
AGP.3.5 identify angle relationships: complementary, supplementary, vertical, and adjacent.										XX													XX
AGP.3.6 identify angle relationships; involving parallel lines and apply in solving problems (corresponding angles, alternate interior angles, and alternate exterior angles).										XX													XX
AGP.3.7 investigate similar triangles and apply proportions in problem solving situations.										XX	XX												
AGP.3.8 develop and explore circle relationships, emphasizing the vocabulary of circles.											X	XX	X										
Standard 4: Measurement (MA.S.4)																							

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Students will:																						
? demonstrate understanding of measurable attributes of objects and the units, systems, and processes of measurement; and		XX				X			XX	X	X	X	XX		X	X			X	XX	X	
? apply appropriate techniques, tools and formulas to determine measurements through communication, representation, reasoning and proof, problem solving, and making connections within and beyond the field of mathematics.									XX	X	XX	XX	XX		X				XX		X	XX
AGP.4.1 estimate, measure, and perform operations involving length, mass, and capacity using customary and metric units.	X	XX				XX			XX	X	X	XX	XX		X				XX			
AGP.4.2 use a protractor to measure and draw angles.										XX	XX	XX	XX									
Standard 5: Data Analysis and Probability (MA.S.5)																						
Students will:																						
? formulate questions that can be addressed with data and collect, organize, and display relevant data to answer them;	XX				X			XX				X						XX				
? select and use appropriate statistical methods to analyze data;	XX			XX	XX			XX				X						XX				
? develop and evaluate inferences and predictions that are based on models; and	X			XX				XX										XX				
? apply and demonstrate an understanding of basic concepts of probability through communication, representation, reasoning and proof, problem solving, and making connections within and beyond the field of mathematics.								XX										XX				
AGP.5.1 read, interpret, and construct graphs to solve problems.			XX	XX	XX	XX			XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	X	X	
AGP.5.2 use data to determine mean, median, mode, and range.	XX			X				XX				X						XX				
AGP.5.3 find the probability of complementary events and exclusive events.								XX										XX				
Algebra I Objectives																						
Standard 2: Algebra (MA.S.2)																						
Students will:																						

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	? demonstrate understanding of patterns, relations, and functions;		XX	X	X		XX								XX	XX	XX	X				XX
? represent and analyze mathematical situations and structures using algebraic symbols;		XX	XX	XX	XX	XX	X		XX	X	XX	XX	XX	XX	XX	XX	XX	X	XX	XX	XX	
? use mathematical models to represent and understand quantitative relationships; and	X	X	XX	XX	XX	XX	XX	X	XX	X	XX	XX	XX		XX	XX	XX	XX	XX	XX	XX	
? analyze change in various contexts through communication, representation, reasoning and proof, problem solving, and making connections within and beyond the field of mathematics.		XX	XX	XX	XX	XX			XX	X	XX	X	X	XX	XX	XX	XX	X	XX		XX	
Algebra I Objectives																						
Students will:																						
A1.2.1 simplify and evaluate algebraic expressions using grouping symbols, order of operations and properties of real numbers with justification of steps.		XX	X	X	X	XX	X		XX		X	X	X	X	XX	X	X	X	XX	X	X	
A1.2.2 solve multi-step linear equations in one variable and apply skills toward solving practical problems.		XX	XX	XX	XX	XX			XX						XX				XX	X		
A1.2.3 solve multi-step linear inequalities in one variable, interpret the results on a number line and apply the skills toward solving practical problems.			XX																			
A1.2.4 solve literal equations for a given variable and apply the skills toward solving practical problems.					XX								XX						XX			
A1.2.5 analyze a given set of data for the existence of a pattern numerically, algebraically and graphically; determine the domain and range; and determine if the relation is a function.		XX	XX	X		XX									XX	XX	XX					
A1.2.6 solve absolute value equations in one variable and interpret the results on a number line.	X														X							
A1.2.7 use the laws of exponents to perform operations on expressions with integral exponents.		XX														XX						
A1.2.8 determine the slope of a line given an equation of a line, the graph of a line and two points to be identified.			XX	XX	XX	XX			X						XX				XX			
A1.2.9 graph linear equations using slope-intercept, point slope, and x- and y-intercepts.			XX	X	X	XX													XX			
A1.2.10 write an equation of a line given a graph of a line, two points on the line, the slope and a point, and the slope and y-intercept.			XX	XX	XX	XX			X				X						X			

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A1.2.11 solve systems of linear equations numerically and graphically, by the elimination method and by the substitution method.		X	X		XX					X				XX					XX			
A1.2.12 add and subtract polynomials.								XX							XX							
A1.2.13 multiply and divide binomials by binomials or monomials.													X		X							
A1.2.14 factor polynomials by using appropriate methods.															X							
A1.2.15 estimate and simplify square roots into both exact and approximate forms.					X											X						
A1.2.16 solve quadratic equations by graphing, factoring and quadratic formula.															XX							
A1.2.17 add, subtract, multiply and divide simple rational expressions.															X							
A1.2.18 collect, organize, interpret data and predict outcomes using the mean, mode, median, and range.	XX			X				XX				X										
A1.2.19 perform a linear regression and use the results to predict specific values of a variable, and identify the equation for the line of regression.				XX	XX							X										
A1.2.20 predict the outcomes of simple events using the rules of probability.								XX										XX				
A1.2.21 use process (flow) charts and histograms, scatter diagrams and normal distribution curves.					XX		XX	XX										XX	XX			
Applied Mathematics I Objectives																						
Standard 2: Algebra (MA.S.2)																						
Students will:																						
? demonstrate understanding of patterns, relations, and functions;		XX	X	XX	X	XX	X	X	XX		X	X	X	X	XX	XX	XX			X	XX	
? represent and analyze mathematical situations and structures using algebraic symbols;		XX	XX	XX	XX	XX	X		XX	X	XX	XX	XX	XX	XX	XX	XX	X	XX	XX	XX	
? use mathematical models to represent and understand quantitative relationships; and	X	X	XX	XX	XX	XX	XX	X	XX	X	XX	XX	XX		XX	XX	XX	XX	XX	XX	XX	
? analyze change in various contexts through communication, representation, reasoning and proof, problem solving, and making connections within and beyond the field of mathematics.		XX	XX	XX	XX	XX			XX	X	XX	X	X	XX	XX	XX	XX	X	XX		XX	
Applied Mathematics I Objectives																						

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Students will:																						
AM1.2.1 solve practical problems involving computation using estimation.	XX	XX	XX	XX	XX	XX			XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	
AM1.2.2 write numbers in scientific notation and combine numbers written in scientific notation to solve practical problems.		XX													XX							
AM1.2.3 distinguish between counting and measuring using micrometers, calipers and other precision tools to make measurements.																						
AM1.2.4 solve practical problems and interpret results using rational numbers and vectors.																					XX	
AM1.2.5 evaluate algebraic expressions using grouping symbols, order of operations and properties of real numbers with justification of steps.		XX	X	X	X	X			XX	X	X	X	X	X	X	X	X	X	X	XX	X	
AM1.2.6 translate word phrases into algebraic expressions or word sentences into equations and inequalities.		XX	XX	XX	XX	XX			XX	X	XX	XX	XX	XX	XX	XX	XX	X	XX	X	X	
AM1.2.7 justify steps in the solving of equations based on the properties of real numbers.		XX												X						XX		
AM1.2.8 solve literal equations for a given variable and apply the skills toward solving practical problems.					XX																	
AM1.2.9 solve practical problems using a four-step problem solving approach.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
AM1.2.10 solve multi-step linear equations in one variable and apply skills toward solving practical problems.		XX	XX	XX	X	X			XX	X	X	X	XX	X	XX	X	X	X	XX	XX	XX	
AM1.2.11 solve multi-step linear inequalities in one variable, interpret the results on a number line and apply the skills toward solving practical problems.																			XX	XX		
AM1.2.12 solve absolute value equations in one variable and interpret the results on a number line.	X														X							
AM1.2.13 collect, organize, interpret data, and predict outcomes using the mean, mode, median, range and standard deviation.	XX			XX			XX					X						XX				
AM1.2.14 estimate and simplify square roots into both exact and approximate forms.					XX													X				

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	AM1.2.15 use the laws of exponents to perform operations on expressions with integral exponents.		XX														XX					
AM1.2.16 predict the outcomes of simple events using the rules of probability.								XX										XX				
Applied Mathematics II Objectives																						
Standard 2: Algebra (MA.S.2)																						
Students will:																						
? demonstrate understanding of patterns, relations, and functions;		X																				
? represent and analyze mathematical situations and structures using algebraic symbols;		XX	X	X		XX								XX	XX	XX	X				XX	
? use mathematical models to represent and understand quantitative relationships; and	X	X	XX	XX	XX	XX	XX	X	XX	X	XX	XX	XX		XX	XX	XX	XX	XX	XX	XX	XX
? analyze change in various contexts through communication, representation, reasoning and proof, problem solving, and making connections within and beyond the field of mathematics.		XX	XX	XX	XX	XX			XX	X	XX	X	X	XX	XX	XX	XX	X	XX			XX
Applied Mathematics II Objectives																						
Students will:																						
AM2.2.1 analyze a given set of data for the existence of a pattern numerically, algebraically and graphically; determine the domain and range; and determine if the relation is a function.		X		X		XX									XX							X
AM2.2.2 determine the slope of a line given an equation of a line, the graph of a line and two points to be identified.			XX	XX	XX	XX			X						X				XX			
AM2.2.3 graph linear equations using slope-intercept, point slope, and x- and y-intercepts.			XX	XX	XX	XX					X			X	X				XX			
AM2.2.4 write an equation of a line given graph of a line, two points on the line, the slope and a point, and the slope and y-intercept.			XX	XX	XX	XX			X	X				X	X				XX			
AM2.2.5 solve systems of linear equations numerically and graphically, by the elimination method and by the substitution method.		X	X		XX				X					XX					XX			
AM2.2.6 add and subtract polynomials.								XX							XX							
AM2.2.7 multiply and divide binomials by binomials or monomials.											X		X		X							

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AM2.2.8 factor polynomials by using appropriate methods.									X						X								
AM2.2.9 solve quadratic equations by graphing, factoring and quadratic formula.															XX								
AM2.2.10 add, subtract, multiply and divide simple rational expressions.															X								
AM2.2.11 use process (flow) charts and histograms, scatter diagrams, and normal distribution curves in order to perform statistical process (quality) control.	XX			XX	XX		X	XX				X						XX					
AM2.2.12 perform a linear regression and use the results to predict specific values of a variable. Identify the equation for the line of regression.				XX	XX							X											

Geometry and Applied Geometry Objectives
Standard 3: Geometry (MA.S.3)

Students will:																							
? analyze characteristics and properties of two- and three-dimensional geometric shapes and develop mathematical arguments about geometric relationships;									XX	XX		XX	XX						XX				XX
? specify locations and describe spatial relationships using coordinate geometry and other representational systems;			XX	XX	XX	XX			X	X	X	XX	XX	X	XX	X	X	X	XX	X	X		
? apply transformations and use symmetry to analyze mathematical situations; and			X						XX			XX			X								
? solve problems using visualization, spatial reasoning, and geometric modeling through communication, representation, reasoning and proof, problem solving, and making connections within and beyond the field of mathematics.	X		XX	XX	XX	XX	XX	X	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX

Geometry Objectives

Students will:																							
G.3.1 represent points, lines, and planes pictorially with proper identification, as well as basic concepts derived from these undefined terms, such as segments, rays and angles.			XX	X	X	X			XX	XX	X	XX	XX	XX	X	X	X	X	X	X	X	X	XX
G.3.2 differentiate between inductive and deductive reasoning.																				XX	XX	XX	

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G.3.3 use the basic concepts of symbolic logic including identifying the converse, inverse, and contrapositive of a conditional statement and testing the validity of conclusions with Venn Diagrams.							X	X				XX	X								XX	XX	XX
G.3.4 construct logical arguments in formal and informal methods with direct and indirect reasoning.										XX		XX	X								XX	XX	XX
G.3.5 apply definitions, theorems, and postulates related to such topics as complementary, supplementary, and vertical angles and angles formed by perpendicular lines.										XX													XX
G.3.6 explore the relationship between angles formed by two lines cut by a transversal when lines are and are not parallel, and use the results to develop methods to show parallelism.										XX													XX
G.3.7 investigate and verify congruence relationships in triangles.										XX	X												XX
G.3.8 explore and identify properties of quadrilaterals and verify the properties for parallelograms, rectangles, rhombuses, squares, and trapezoids.									XX	X											X		
G.3.9 investigate measures of angles and lengths of segments to determine the existence of triangles (triangle inequality) and the order of sides and unknown side lengths or angles and inaccessible heights and distances, construct scaled drawings, and derive the basis for the trigonometric ratios.										XX	XX	X	X										
G.3.10 using trigonometric ratios, determine lengths of sides and measures of angles in right triangles.											XX	X	X					X					
G.3.11 apply the Pythagorean Theorem and its converse in solving practical problems and in deriving the special right triangle relationships.									XX	X	X	X	XX							X			
G.3.12 investigate measures of angles formed by chords, tangents, and secants of a circle and the relationship to its arcs.												XX											
G.3.13 given a polygon, find angle measures of interior and exterior angles; find length of sides from given data; and use properties of regular polygons to find missing data.									XX	X	X	X	X										
G.3.14 develop properties of tessellating figures and use those properties to tessellate the plane.																							

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G.3.15 develop and apply formulas for area, perimeter, surface area, and volume and apply them in the modeling of practical problems.									XX	XX	X	XX	XX		XX				XX				
G.3.16 develop and apply concepts of analytical geometry such as formulas for distance, slope, and midpoint and apply these to finding dimensions of polygons on the coordinate plane.									XX	XX	XX	XX	XX		X				X				
G.3.17 using various methods, construct a triangle's medians, altitudes, angle and perpendicular bisectors; identify conjectures and develop mathematical arguments about their relationships.									XX	XX			XX										
G.3.18 using transformational geometry, create a reflection, translation, rotation, glide reflection and dilation of a figure; and apply transformations and use symmetry to analyze mathematical situations.			X									X											
G.3.19 compare and contrast other geometry to Euclidean geometry.																							XX
G.3.20 find or approximate the area of irregularly shaped regions.									XX			XX									XX		
G.3.21 using the Cartesian coordinate system, find the dimensions of a polygon, given the coordinates of the polygon.									X	X									X				
Algebra II Objectives																							
Standard 2: Algebra (MA.S.2)																							
Students will:																							
? demonstrate understanding of patterns, relations, and functions;		XX	X	XX	X	XX	X	X	XX		X	X	X	X	XX	XX	XX			X	XX		
? represent and analyze mathematical situations and structures using algebraic symbols;		XX	XX	XX	XX	XX	X		XX	X	XX	XX	XX	XX	XX	XX	XX	X	XX	XX	XX		
? use mathematical models to represent and understand quantitative relationships; and	X	X	XX	XX	XX	XX	XX	X	XX	X	XX	XX	XX		XX	XX	XX	XX	XX	XX	XX		
? analyze change in various contexts through communication, representation, reasoning and proof, problem solving, and making connections within and beyond the field of mathematics.		XX	XX	XX	XX	XX			XX	X	XX	X	X	XX	XX	XX	XX	X	XX			XX	
Algebra II Objectives																							
Students will:																							

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A2.2.1 write equations of lines given various information including parallel and perpendicular lines and vertical and horizontal lines.			XX	X	X	X				XX	X				X								
A2.2.2 factor higher order polynomials by applying various methods including factoring by grouping and the sum and difference of two cubes.									X						X								
A2.2.3 define and use to develop the complex number system; simplify powers and products of it.																							
A2.2.4 perform basic operations with complex numbers and give answers in simplest form.																							
A2.2.5 simplify radicals and expressions involving fractional exponents and convert between the two forms.																X							
A2.2.6 solve quadratic equations over the set of complex numbers: apply the techniques of factoring and completing the square and the quadratic formula; use the discriminant to determine the nature of the roots; confirm the solutions numerically and graphically; and apply to practical problems.																	XX						
A2.2.7 define the components of a matrix: develop and use the appropriate field properties by adding, subtracting, and multiplying; solve a system of linear equations using matrices; and apply skills toward solving practical problems.																		XX					
A2.2.8 solve equations containing radicals and exponents.															XX								
A2.2.9 define a function: find the domain, range, zeros; find the inverse of a function; find the value of a function for a given element in its domain; and perform basic operations on functions including composition of functions.																					XX	XX	XX
A2.2.10 explore basic families of functions: recognize linear, quadratic, absolute value, step, and exponential functions; and convert among graphs, tables and equations.																					XX	XX	XX
A2.2.11 solve quadratic inequalities and graph their solution sets.																							

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	Chapter 1	Chapter 2	Chapter 3	Chapter 4	Chapter 5	Chapter 6	Chapter 7	Chapter 8	Chapter 1	Chapter 2	Chapter 3	Chapter 4	Chapter 5	Chapter 6	Chapter 1	Chapter 2	Chapter 3	Chapter 4	Chapter 5	Chapter 6	Chapter 7	Chapter 8
CM.2.2 interpret graphs of functions (i.e., linear, quadratic, exponential).				XX	XX	XX									XX	XX	XX					
CM.2.3 solve application problems using linear, quadratic and exponential functions with emphasis on data collection and analysis.				XX	XX	XX									XX	XX						
CM.2.4 use appropriate formulas to solve workplace problems.		X	X	X	X	X	X		XX	XX	X	XX	XX	XX	XX	XX	XX	XX	XX	XX		
CM.2.5 calculate costs, simple and compound interest, finance charges, loan payments and taxes.		XX	XX		XX	XX			XX					XX	XX	XX						
CM.2.6 compare various methods of investing money.		XX	XX		XX	XX										XX						
Standard 3: Geometry (MA.S.3)																						
Students will:																						
? analyze characteristics and properties of two- and three-dimensional geometric shapes and develop mathematical arguments about geometric relationships;									XX	XX		XX	XX		X					XX	XX	X
? specify locations and describe spatial relationships using coordinate geometry and other representational systems;				XX					XX	XX	XX	XX	XX							XX		
? apply transformations and use symmetry to analyze mathematical situations; and				XX					XX			XX	XX									
? solve problems using visualization, spatial reasoning, and geometric modeling through communication, representation, reasoning and proof, problem solving, and making connections within and beyond the field of mathematics.	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX
Geometry Objectives																						
Students will:																						
CM.3.1 apply concepts of geometry including the Pythagorean Theorem, similar triangles, and right triangle trigonometry.									XX	XX	XX	XX	XX				XX			XX		
CM.3.2 solve workplace problems involving perimeter, area, surface area and volume.									XX	XX		XX	XX		XX					XX		XX
CM.3.3 investigate the applications of various geometric shapes and patterns to art, architecture, and nature.									XX			XX	XX									XX
Standard 5: Data Analysis and Probability (MA.S.5)																						

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	Chapter 1	Chapter 2	Chapter 3	Chapter 4	Chapter 5	Chapter 6	Chapter 7	Chapter 8	Chapter 1	Chapter 2	Chapter 3	Chapter 4	Chapter 5	Chapter 6	Chapter 1	Chapter 2	Chapter 3	Chapter 4	Chapter 5	Chapter 6	Chapter 7	Chapter 8
Students will:																						
? formulate questions that can be addressed with data and collect, organize, and display relevant data to answer them;	XX			X	X			XX				X						XX				
? select and use appropriate statistical methods to analyze data;	XX			XX	XX			XX				X						XX				
? develop and evaluate inferences and predictions that are based on models; and	XX			XX	XX			XX				X						XX				
? apply and demonstrate an understanding of basic concepts of probability through communication, representation, reasoning and proof, problem solving, and making connections within and beyond the field of mathematics.								XX										XX				
Data Analysis and Probability Objectives																						
Students will:																						
CM.5.1 relate mathematical content to its historical development.		X							X			X						X	X	XX	XX	
CM.5.2 integrate other disciplines into the study of mathematics through simulations, research, and projects	XX		X					XX										X				
CM.5.3 determine possible outcomes using tree diagrams and the counting principles of permutations and combinations.					XX		XX	XX										XX				
CM.5.4 apply the basic probability rules in expressing the chances of events occurring using technology when appropriate.								XX										XX				
CM.5.5 create and interpret data using various methods of displaying numerical data, including frequency distributions, graphs, histograms, stem-and-leaf plots, and box-and-whiskers plots, using technology when appropriate.	XX			XX	XX			XX							X	X	X	XX				
CM.5.6 relate the measures of central tendency and the measures of dispersion to a normal distribution.																		XX				
CM.5.7 apply the measures of central tendency and the measures of dispersion to workplace situations.	X																	X				
CM.5.8 use statistical tools for workplace applications such as quality control, marketing and predicting trends.				XX	XX													XX				
Trigonometry Objectives																						

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Standard 3: Geometry (MA.S.3)

Students will:																							
? analyze characteristics and properties of two- and three-dimensional geometric shapes and develop mathematical arguments about geometric relationships;									XX	XX	XX	XX	XX							XX	XX		
? specify locations and describe spatial relationships using coordinate geometry and other representational systems;			XX	X	X	X			XX	XX	X	X	XX		X	X	X	X	X				
? apply transformations and use symmetry to analyze mathematical situations; and			XX						XX			XX	XX										
? solve problems using visualization, spatial reasoning, and geometric modeling through communication, representation, reasoning and proof, problem solving, and making connections within and beyond the field of mathematics.	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX

Trigonometry Objectives

Students will:																							
T.3.1 define the six trigonometric functions in terms of a right triangle and find the values of the functions of an angle in standard position, given a point on the terminal side of the angle. Circular function definitions will be connected with trigonometric function definitions.											XX								XX				
T.3.2 find the values of the other trigonometric functions, given the value of one trigonometric function.											X												
T.3.3 develop recall of the values of the six trigonometric functions of special angles as related to the unit circle.											XX								X				
T.3.4 use a calculator to find the values of the trigonometric functions for any angle and to find the measure of an angle given the value of one of its trigonometric functions.										X	XX									X			
T.3.5 convert angle measures from radians to degrees and vice versa.																			XX				
T.3.6 verify trigonometric identities by making substitutions and recalling basic identities.												X											
T.3.7 solve trigonometric equations that include both infinite solutions and solutions with a restricted domain.												X								XX			

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T.3.8 find the value of inverse trigonometric functions.									X	XX							XX					
T.3.9 find the area of a triangle given the measures of two sides and the included angle or the measures of three sides (Heron's formula).																						
T.3.10 express complex numbers in polar form: perform operations including adding, subtracting, multiplying, and dividing; evaluate powers and roots of complex numbers using De Moivre's Theorem; and graph complex numbers.																						
T.3.11 solve practical problems involving triangles using the trigonometric functions, the Pythagorean Theorem, the Law of Sines, and the Law of Cosines.								XX	XX	XX	X	X					X					
T.3.12 recognize the graph of the six trigonometric functions. Given an equation in the form of $y=a\sin(bx+c)+d$, identify the domain and range; determine the period, phase shift, amplitude and vertical shift; and sketch at least one period of the graph.																	XX					
T.3.13 model periodic data sets using graphs, tables, and equations.																	XX					
T.3.14 recognize and graph the inverse of trigonometric functions. Restrictions on the domain will be included.																	XX					
T.3.15 develop and use formulas such as sum or difference of two angles, double-angle, and half-angle.																						
T.3.16 perform mathematical operations with vectors and use vectors to solve practical problems.																						
Probability and Statistics Objectives																						
Standard 5: Data Analysis and Probability (MA.S.5)																						
Students will:																						
? formulate questions that can be addressed with data and collect, organize, and display relevant data to answer them;	XX			XX	X			XX											XX			
? select and use appropriate statistical methods to analyze data; develop and evaluate inferences and predictions that are based on models; and	XX			XX	X			XX											XX			

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? apply and demonstrate an understanding of basic concepts of probability through communication, representation, reasoning and proof, problem solving, and making connections within and beyond the field of mathematics.							XX										XX					
Probability and Statistics Objectives																						
Students will:																						
PS.5.1 distinguish between experimental and theoretical probability.							XX										XX					
PS.5.2 create and interpret data using various methods of displaying circle graphs, histograms, and frequency curves, and make predictions about outliers.	XX						XX										XX					
PS.5.3 determine possible outcomes using tree diagrams and the counting principles of permutations and combinations.					X		XX	XX									XX					
PS.5.4 express the chances of events occurring either in terms of a probability or odds.								XX									XX					
PS.5.5 use the normal distribution and the binomial distribution including pascal's triangle, to determine probability of events.																	XX					
PS.5.6 interpret and calculate measures of central tendency (mean, median, and mode) from data through experimentation.	XX			X	X		XX					X					XX					
PS.5.7 interpret and calculate measures of dispersions (range and standard deviation) from data presented in a variety of forms such as charts, tables and graphs or from data created through experimentation.	XX			XX													XX					
PS.5.8 describe individual performances in terms of percentiles, z-scores, and t- scores.																	XX					
PS.5.9 describe the role of sampling, randomness, bias, and sample size in data collection and interpretation.	X			X			X										XX					
PS.5.10 explain and illustrate the use and misuse of statistics.	X			X			X										XX					
PS.5.11 test the validity of a hypothesis using appropriate statistical concepts.																	XX					

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PS.5.12 determine the correlation values for given data or for data generated by students and use the results to describe the association of the variables within the given data. Identify whether this association is systematic or predictable.				X	X																		
PS.5.13 calculate the Chi-Square values for a given population.																							
PS.5.14 perform a t-test for a designated set of data, and use the results to test the validity of a hypothesis.																							
PS.5.15 perform a regression analysis on a set of data, either given or created through experimentation, and use the results to predict specific values of a variable. Identify the regression equation.				XX	XX							X											
PS.5.16 perform an analysis of variance (ANOVA) and interpret the results.																							
Pre-calculus Objectives																							
Standard 2: Algebra (MA.S.2)																							
Students will:																							
? demonstrate understanding of patterns, relations, and functions;		XX	X	XX	X	XX	X	X	XX		X	X	X	X	XX	XX	XX				X	XX	
? represent and analyze mathematical situations and structures using algebraic symbols;		XX	XX	XX	XX	XX	X		XX	X	XX	XX	XX	XX	XX	XX	XX	X	XX	XX	XX		
? use mathematical models to represent and understand quantitative relationships; and	X	X	XX	XX	XX	XX	XX	X	XX	X	XX	XX	XX		XX	XX	XX	XX	XX	XX	XX	XX	
? analyze change in various contexts through communication, representation, reasoning and proof, problem solving, and making connections within and beyond the field of mathematics.		XX	XX	XX	XX	XX			XX	X	XX	X	X	XX	XX	XX	XX	X	XX			XX	
Algebra Objectives																							
Students will:																							
PC.2.1 investigate and sketch the graphs of polynomials and rational functions using the characteristics of zeros, upper and lower bounds, y-intercepts, symmetry, asymptotes and end behavior, maximum and minimum points and domain and range.																							

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PC.2.2 solve higher order polynomial equations utilizing techniques such as Descartes' Rule of Signs, upper and lower bounds, and Rational Root Theorem.															XX								
PC.2.3 expand binomials with positive integral exponents by the use of Pascal's triangle and the Binomial Theorem.																		X					
PC.2.4 establish the relationship between exponential and logarithmic functions; graph related functions and include their domain and range.																XX							
PC.2.5 solve equations and practical problems involving exponential and logarithmic expressions: include natural and common logarithms; use laws of exponents; and confirm solutions graphically and numerically.																XX							
PC.2.6 solve problems involving the sum of finite and infinite sequences and series. Sigma (summation) notation will be included.																						XX	
PC.2.7 find the limit of a function, a sequence, or a series by graphing, intuitive reasoning, algebraic methods, and numerical substitution.																						XX	
PC.2.8 perform mathematical operations with vectors and use vectors to solve practical problems.																							
PC.2.9 apply the method of mathematical induction to prove formulas and statements.																							XX
Standard 3: Geometry (MA.S.3)																							
Students will:																							
? analyze characteristics and properties of two- and three-dimensional geometric shapes and develop mathematical arguments about geometric relationships.									XX	XX	X	XX	XX	X	X					XX	XX		XX
? specify locations and describe spatial relationships using coordinate geometry and other representational systems.									XX	XX	X	XX	XX	X	X					XX			
? apply transformations and use symmetry to analyze mathematical situations; and			XX						X			XX			X		X						
? solve problems using visualization, spatial reasoning, and geometric modeling through communication, representation, reasoning and proof, problem solving, and making connections within and beyond the field of mathematics.	X		XX	XX	XX	XX	XX	X	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX

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Geometry Objectives																						
Students will:																						
PC.3.1 graph functions and conic sections using translation.			XX									XX			XX		XX					
PC.3.2 investigate properties and solve practical problems of the conic sections.												X					X					X
Standard 5: Data Analysis and Probability (MA.S.5)																						
Students will:																						
? formulate questions that can be addressed with data and collect, organize, and display relevant data to answer them;	XX			XX	X			XX												XX		
? select and use appropriate statistical methods to analyze data;	XX			XX	X			XX												XX		
? develop and evaluate inferences and predictions that are based on models; and				XX	XX												XX	XX	XX			
? apply and demonstrate an understanding of basic concepts of probability through communication, representation, reasoning and proof, problem solving, and making connections within and beyond the field of mathematics.								XX												XX		
Data Analysis and Probability Objectives																						
Students will:																						
PC.5.1 perform a regression analysis on a set of data and use the results to predict specific values of a variable. Identify the regression equation.				XX	XX								X									