Curriculum Planning Document – Math			
Content Area/Grade Level: Math/Kindergarten			
Course Description:			
	Educational Delivery Methodologies	**Evidence of Mastery**	**Comments**
Domain: Counting and Cardinality			
Cluster 1: Know number names and the count sequence.			
Cluster 2: Count to tell the number of objects.			
Cluster 3: Compare numbers.			
Domain: Operations and Algebraic Thinking			
Cluster 1: Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.			
Domain: Number and Operations in Base Ten			
Cluster 1: Work with numbers 11–19 to gain foundations for place value.			
Domain: Measurement and Data			
Cluster 1: Describe and compare measurable attributes.			
Cluster 2: Classify objects and count the number of objects in categories.			
Domain: Geometry			
Cluster 1: Identify and describe shapes.			
Cluster 2: Analyze, compare, create, and compose shapes.			
Strand: Language Standards			
Cluster 1: Conventions of Standard English			
Cluster 2: Knowledge of Language (Begins Grade 2)			
Cluster 3: Vocabulary Acquisition and Use			

Curriculum Planning Document – Math			
Content Area/Grade Level: Math/Grade 1			
Course Description:			
	Educational Delivery Methodologies	**Evidence of Mastery**	**Comments**
Domain: Operations and Algebraic Thinking			
Cluster 1: Represent and solve problems involving addition and subtraction.			
Cluster 2: Understand and apply properties of operations and the relationship between addition and subtraction.			
Cluster 3: Add and subtract within 20.			
Cluster 4: Work with addition and subtraction equations.			
Domain: Number and Operations in Base Ten			
Cluster 1: Extend the counting sequence.			
Cluster 2: Understand place value.			
Cluster 3: Use place value understanding and properties of operations to add and subtract.			
Domain: Measurement and Data			
Cluster 1: Measure lengths indirectly and by iterating length units.			
Cluster 2: Tell and write time.			
Cluster 3: Represent and interpret data.			
Domain: Geometry			
Concept 1: Reason with shapes and their attributes.			

Curriculum Planning Document – Math			
Content Area/Grade Level: Math/Grade 2			
Course Description:			
	Educational Delivery Methodologies	**Evidence of Mastery**	**Comments**
Domain: Operations and Algebraic Thinking			
Cluster 1: Represent and solve problems involving addition and subtraction.			
Cluster 2: Add and subtract within 20.			
Cluster 3: Work with addition and subtraction equations.			
Domain: Number and Operations in Base Ten			
Cluster 1: Understand place value.			
Cluster 2: Use place value understanding and properties of operations to add and subtract.			
Domain: Measurement and Data			
Cluster 1: Measure and estimate lengths in standard units.			
Cluster 2: Relate addition and subtraction to length.			
Cluster 3: Work with time and money.			
Concept 4: Represent and interpret data.			
Domain: Geometry			
Concept 1: Reason with shapes and their attributes.			

Curriculum Planning Document – Math			
Content Area/Grade Level: Math/Grade 3			
Course Description:			
	Educational Delivery Methodologies	**Evidence of Mastery**	**Comments**
Domain: Operations and Algebraic Thinking			
Cluster 1: Represent and solve problems involving multiplication and division.			
Cluster 2: Understand properties of multiplication and the relationship between multiplication and division.			
Cluster 3: Multiply and divide within 100.			
Cluster 4: Solve problems involving the four operations, and identify and explain patterns in arithmetic.			
Domain: Number and Operations in Base Ten			
Cluster 1: Use place value understanding and properties of operations to perform multi-digit arithmetic.			
Domain: Number and Operations—Fractions			
Concept 1: Develop understanding of fractions as numbers.			
Domain: Measurement and Data			
Concept 1: Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.			
Cluster 2: Represent and interpret data.			
Cluster 3: Geometric measurement: understand concepts of area and relate area to multiplication and to addition.			
Cluster 4: Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.			
Domain: Geometry			
Cluster 1: Reason with shapes and their attributes.			

Curriculum Planning Document – Math			
Content Area/Grade Level: Math/Grade 4			
Course Description:			
	Educational Delivery Methodologies	**Evidence of Mastery**	**Comments**
Domain: Operations and Algebraic Thinking			
Cluster 1: Use the four operations with whole numbers to solve problems..			
Cluster 2: Gain familiarity with factors and multiples.			
Cluster 3: Generate and analyze patterns.			
Domain: Number and Operations in Base Ten			
Cluster 1: Generalize place value understanding for multidigit whole numbers.			
Concept 2: Use place value understanding and properties of operations to perform multi-digit arithmetic.			
Domain: Number and Operations—Fractions			
Concept 1: Extend understanding of fraction equivalence and ordering.			
Cluster 2: Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers.			
Cluster 3: Understand decimal notation for fractions, and compare decimal fractions.			
Domain: Measurement and Data			
Concept 1: Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.			
Cluster 2: Represent and interpret data.			
Cluster 3: Geometric measurement: understand concepts of angle and measure angles.			
Domain: Geometry			
Cluster 1: Draw and identify lines and angles, and classify shapes by properties of their lines and angles.			

Curriculum Planning Document – Math			
Content Area/Grade Level: Math/Grade 5			
Course Description:			
	Educational Delivery Methodologies	**Evidence of Mastery**	**Comments**
Domain: Operations and Algebraic Thinking			
Cluster 1: Write and interpret numerical expressions.			
Cluster 2: Analyze patterns and relationships.			
Domain: Number and Operations in Base Ten			
Cluster 1: Understand the place value system.			
Concept 2: Perform operations with multi-digit whole numbers and with decimals to hundredths.			
Domain: Number and Operations—Fractions			
Concept 1: Use equivalent fractions as a strategy to add and subtract fractions.			
Cluster 2: Apply and extend previous understandings of multiplication and division to multiply and divide fractions.			
Domain: Measurement and Data			
Concept 1: Convert like measurement units within a given measurement system.			
Cluster 2: Represent and interpret data.			
Cluster 3: Geometric measurement: understand concepts of angle and measure angles.			
Domain: Geometry			
Cluster 1: Graph points on the coordinate plane to solve real-world and mathematical problems.			
Cluster 2: Classify two-dimensional figures into categories based on their properties.			

Curriculum Planning Document – Math

Content Area/Grade Level: Math/Grade 6

Course Description: This two-semester course focuses on statistics with an in-depth focus on the following: rational number systems (whole numbers, integers, fractions, decimals), plane geometry (including measurement and symmetry), introduction to variables and formulas, patterns, simple equations, number theory, probability, and functions. Opportunities for the development of middle school problem-solving skills are also included. These lessons are designed to be integrated into the regular classroom or may be used as a stand-alone mini-unit course. Learning strategies include working backwards, making a table, and creating a pattern.

	Educational Delivery Methodologies	Evidence of Mastery	Comments
Domain: Ratios and Proportional Relationships			
Cluster 1: Understand ratio concepts and use ratio reasoning to solve problems.	• Online video lecture • Refer to a graphic to convert a ratio into fraction, decimal, and percent	• Lab assessment • Homework/ Practice • Quiz	In online lectures, highly qualified teachers model problem-solving methods.
Domain: The Number System			
Cluster 1: Apply and extend previous understandings of multiplication and division to divide fractions by fractions.	• Online video lectures • Journal activity about reciprocals • Use area models to divide fractions	• Lab assessment • Homework/ Practice • Quiz	
Concept 2: Compute fluently with multi-digit numbers and find common factors and multiples.	• Online video lectures • Area models and graphic models used to find GCF/LCM • Homework/Practice sets	• Lab assessment • Homework/ Practice • Quiz	
Concept 3: Apply and extend previous understandings of numbers to the system of rational numbers.	• Online video lectures • Area model used to understand square roots • Perform calculations by taking square roots	• Lab assessment • Homework/ Practice • Quiz	
Domain: Expressions and Equations			

Concept 1: Apply and extend previous understandings of arithmetic to algebraic expressions.	• Online video lectures • Use patterns to write algebraic expressions • Use number sense to solve one-step equations	• Lab assessment • Homework/ Practice • Quiz	
Cluster 2: Reason about and solve one-variable equations and inequalities.	• Online video lecture • To solve an equation, make a table to find a pattern • Use number sense to solve one-step equations • Translate words into numbers and symbols • Graph an inequality	• Lab assessment • Homework/ Practice • Quiz	
Cluster 3: Represent and analyze quantitative relationships between dependent and independent variables.	• Online video lectures • Translate English sentences into algebraic expressions	• Lab assessment • Homework/ Practice • Quiz	
Domain: Geometry			

Cluster 1: Solve real-world and mathematical problems involving area, surface area, and volume.	• Online video lectures
	  o Plane Geometry
	  o Measurement
	• Break a figure into similar parts
	• Alter the dimensions of a graphic figure to determine the relationship between size and surface area
		• Lab assessment
		• Homework/ Practice
		• Quiz	

Cluster 2: Classify two-dimensional figures into categories based on their properties.	• Online video lectures o Plane Geometry • Using logical reasoning • Finding geometric patterns	• Lab assessment • Homework/ Practice • Quiz	
Domain: Statistics and Probability			

Cluster 1: Develop understanding of statistical variability.	• Online video lectures • Use mean, median, mode, and range formulas • Make a table of data • Use a line plot to chart a data set • Make an organize data list • Use various graphs, plots, and other graphical depictions of data	• Lab assessment • Homework/ Practice • Quiz	
Cluster 2: Summarize and describe distributions.	• Online video lectures • Use a tree diagram and the counting principle to understand permutations • Draw marbles from a bag in a simulation to understand theoretical and experimental probability • Interact with various diagrams and graphs to determine the best representation for a data set.	• Lab assessment • Homework/ Practice • Quiz	

Curriculum Planning Document – Math

Content Area/Grade Level: Math/Grade 7

Course Description: This two-semester course solidifies students' knowledge of number theory (including fractions, prime factorization, exponents, and percents), proportional reasoning, beginning algebraic concepts (including solving one- and two-step equations containing rational numbers), two-and three-dimensional figures, geometry topics, and an introduction to graphing on a coordinate plane. Opportunities for the development of middle school problem-solving skills are also included. These lessons are designed to be integrated into the regular classroom or may be used as a stand-alone mini-unit course. Learning strategies include writing equations, "try, check, and revise," and drawing diagrams.

	Educational Delivery Methodologies	Evidence of Mastery	Comments
Domain: Ratios and Proportional Relationships			
Cluster 1: Analyze proportional relationships and use them to solve real-world and mathematical problems.	• Online video lectures • Draw a diagram and solve a simpler problem • Using a graphic model to determine part from the percent or whole and variations of the like • Determine the weight of a person on the moon using ratios and proportions • Similar figures in geometry	• Lab assessment • Homework/ Practice • Quiz	In online lectures, highly qualified teachers model problem-solving methods.
Domain: The Number System			
Cluster 1: Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.	• Online lecture videos • Use graphic models to perform operations using fractions, mixed numbers, and rational numbers	• Lab assessment • Homework/ Practice • Quiz	
Domain: Expressions and Equations			

Cluster 1: Use properties of operations to generate equivalent expressions.	• Online lecture videos • Use the order of operations, divisibility rules, and combing like terms to evaluate an expression • Review examples of the various algebraic properties	• Lab assessment • Homework/ Practice • Quiz	
Cluster 2: Solve real-life and mathematical problems using numerical and algebraic expressions and equations.	• Online lecture videos • Using a problem-solving plan • Using number sense to solve equations	• Lab assessment • Homework/ Practice • Quiz	
Domain: Geometry			
Cluster 1: Draw, construct and describe geometrical figures and describe the relationships between them.	• Online lecture videos • Manipulate graphic models to change the size of solitary angles and angles within a geometric shape (triangle, polygon) • Compare the three types of triangles • Identify the characteristics of congruent and similar figures • Translate a figure horizontally and vertically about an *xy* plane in a graphic model • Manipulate a reflection to discover the properties of symmetry	• Lab assessment • Homework/ Practice • Quiz	

Cluster 2: Solve real-life and mathematical problems involving angle measure, area, surface area, and volume.	• Online video lectures • Solve problems involving two-dimensional figures, including the circumference and area of a circle; perimeter and area of quadrilaterals, parallelograms, triangles; the area of complex figures; surface area of prisms, cylinders, and spheres; volumes of rectangular prisms, cylinders, pyramids, cones, and spheres • Manipulate graphic models to show relationships between the sides of a geometric figure and its surface area and volume	• Lab assessment • Homework/ Practice • Quiz	
Domain: Statistics and Probability			
Cluster 1: Use random sampling to draw inferences about a population.	• Online video lecture • Online content reading about strata-sampling calculations and developing a useful survey	• Homework/ Practice • Quiz	
Cluster 3: Draw informal comparative inferences about two populations.	• Online video lecture • Online content reading about strata-sampling calculations and developing a useful survey	• Journal activity • Homework/ Practice • Quiz	

Cluster 2: Investigate chance processes and develop, use, and evaluate probability models.	• Online video lectures • Use a graphic model to compare theoretical and experimental probability of drawing colored marbles from a bag. • Introduce different probability models • Use a dynamic tree graph to represent a variety of permutations derived when using a graphic model to "draw" letters from a cube	• Journal activity • Lab assessment • Homework/Practice • Quiz • Topic Test	

Curriculum Planning Document – Math

Content Area/Grade Level: Math/Grade 8

Course Description: Pre-Algebra: This two-semester preparation course for students on the verge of Algebra I offers rational number theory (including comparing and ordering on a number line), drawing conclusions from statistical data, ratios, proportions and percents, spatial thinking (including congruency, translations, and symmetry), sequences and patterns, and polynomials and functions. Opportunities for development of vital problem-solving skills at the middle school level are also included. These lessons are designed to be integrated into the regular curriculum or may be used as a stand-alone mini-unit course. Learning strategies include writing algebraic expressions, generating patterns, and problem simulations.

	Educational Delivery Methodologies	Evidence of Mastery	Comments
Domain: The Number System			
Cluster 1: Know that there are numbers that are not rational, and approximate them by rational numbers.	• Online video lecture • Online content discusses rational vs. irrational numbers, providing examples and the "fraction test," i.e. if a number cannot be written as a ration—fraction—then it is irrational. • Use square roots to approximate the value of an irrational number	• Journal activity • Homework/ practice • Quiz	In online lectures, highly qualified teachers model problem-solving methods.
Domain: Expressions and Equations			
Concept 1: Work with radicals and integer exponents.	• Online video lecture • Express a radical by using integer exponents, e.g. $b^{1/2}$= √b.	• Online content practice • Homework/ Practice • Quiz	This content is taught in the Algebra I course

Cluster 2: Understand the connections between proportional relationships, lines, and linear equations.	• Online video lecture • Analyze a mapping diagram, ordered pairs, and a graph to determine if a relation is a function and linear equation • Write and graph linear functions	• Lab assessment • Journal activity • Homework/ Practice • Quiz	
Cluster 3: Analyze and solve linear equations and pairs of simultaneous linear equations.	• Online video lecture • Make a T-chart to solve and graph linear equations • Use substitution to solve a system of equations • Experiment with a system of equations representing a cat-and-mouse chase to observe the relationship between the two lines as one changes	• Lab assessment • Homework/ Practice • Quiz	
Domain: Functions			
Cluster 1: Define, evaluate, and compare functions.	• Online video lectures • Use graphic models to evaluate a relation as a function • Describe features of a function	• Lab assessment • Homework/ Practice • Quiz	
Cluster 2: Use functions to model relationships between quantities.	• Online video lecture • Online content discusses the various uses of functions, provides examples, and gives practice problems that use rules in writing functions • Practice using slope intercept, rate of change	• Lab assessment • Homework/ Practice • Quiz	

Cluster 3: Investigate chance processes and develop, use, and evaluate probability models.	• Online video lectures • Using a simulation, compare the theoretical and experimental probabilities of compound independent events when drawing marbles from a bag • Use of fundamental counting principle, factorials	• Lab assessment • Journal activity • Homework/ Practice • Quiz	
Domain: Geometry			
Cluster 1: Understand congruence and similarity using physical models, transparencies, or geometry software.	• Online video lectures • Using a simulation, apply constraints to two right triangles to observe the conditions under which congruence is guaranteed • Using a simulation, vary the scale factor and rotation of an image to observe its similarity to the original image	• Lab assessment • Journal activity • Homework/ Practice • Quiz	
Cluster 2: Understand and apply the Pythagorean Theorem.	• Online video lecture • Using a simulation, examine a visual, geometric application of the Pythagorean Theorem	• Lab assessment • Journal activity • Homework/ Practice • Quiz	

Cluster 3: Solve real-world and mathematical problems involving volume of cylinders, cones and spheres.	• Online video lectures • Using a simulation, vary the height and base-edge or radius length of a pyramid or cone and examine how its three-dimensional representation changes. Determine the area of the base and the volume of the solid. Compare the volume of a skew pyramid or cone to the volume of a right pyramid or cone.	• Lab assessment • Journal activity • Homework/ Practice • Quiz	
Domain: Statistics and Probability			
Cluster 1: Investigate patterns of association in bivariate data.	• Online video lectures • Using a simulation, study the effect of changing marbles on dependent events	• Lab assessment • Journal activity • Homework/ Practice • Quiz	

Curriculum Planning Document – Math

Content Area/Grade Level: Math/High School

Course Description: **Algebra I:** Two-semester course covers topics such as real numbers and probability; writing, solving and graphing equations and inequalities; functions and their graphs; quadratic equations and functions; radical and rational expressions and equations; and graphing translations, including rotations, dilations, and reflections.

Algebra II: Two-semester course covers advanced algebraic concepts, including trigonometry, statistical analysis, permutations, and sequences and series. Students learn to manipulate and use matrices in various formats to determine data relationships and also delve into function types such as polynomial, logarithmic, quadratic, exponential, and rational and periodic.

Pre-Calculus: Two-semester course explores the relationship between advanced algebra topics and trigonometry. An exploration into the nature of graphs nonlinear systems and polynomial and rational functions Other topics include trigonometric graphs and identities, vectors, parametric equations, and sequences and series. Students are introduced to limits, continuity, derivatives, and the Fundamental Theorem of Calculus.

	Educational Delivery Methodologies	Evidence of Mastery	Comments
Domain: The Real Number System			
Cluster 1: Extend the properties of exponents to rational exponents	• Online video lectures • Practice sets focused on mastering laws of exponents when using rational numbers • Online content includes examples of translating rational exponents into radicals with an index • Online content includes solving problems with rational exponents by using properties of rational exponents	• Lab assessment • Journal activity • Homework/ Practice • Quiz • Test	Algebra I Algebra II

Concept 2: Use properties of rational and irrational numbers.	• Online video lectures • Use graphic models to understand properties of rational and irrational numbers, e.g. receive feedback after selecting each step in using the multiplicative property to solve an operation that includes a radical expression • Perform all operations using properties of rational and irrational numbers	• Lab assessment • Journal activity • Online content practice problems • Homework/ Practice • Quiz • Test	Algebra I Algebra II
Domain: Quantities			
Cluster 1: Reason quantitatively and use units to solve problems	• Online video lectures • Model practice problems with real-world applications, like rates or dimensions, and include units, e.g., cm, cm^2, m/s^2	• Homework/ Practice • Quiz • Test • Cumulative Exam	Algebra I Geometry Algebra II Pre-Calculus Math Models and Applications
Domain: The Complex Number System			

Cluster 1: Perform arithmetic operations with complex numbers	• Online video lectures • Explain theory behind complex numbers, i.e., *i* functions like *x* in arithmetic operations in terms of combining like terms • Practice problems using complex number • Graphic model to manipulate	• Lab assessment • Online content practice • Homework/ Practice • Quiz	Algebra II Pre-Calculus
Cluster 2: Represent complex numbers and their operations on the complex plane	• Online video lecture • Journal activity explaining the relationship between the graph of a complex number and its complex conjugate	• Homework/ Practice • Quiz	Pre-Calculus
Cluster 3: Use complex numbers in polynomial identities and equations			Pre-Calculus
Domain: Vector and Matrix Quantities			
Cluster 1: Represent and model with vector quantities.	• Online video lectures • Manipulate by rotating and resizing graphic models of geometric and algebraic vectors	• Lab assessment • Homework/ Practice • Quiz	Pre-Calculus

Cluster 2: Perform operations on vectors.	• Online video lectures • Manipulate graphic models to understand vector operations, i.e., resultant, cross product, vector equations and parametric equations	• Online content practice • Journal Activity • Homework/ Practice • Quiz • Test	Pre-Calculus
Cluster 3: Perform operations on matrices and use matrices in applications.	• Online video lectures • Use a graphic model to write a system of equations with intersecting lines. Plot the graphic and the matrix • Model matrix addition/subtraction, identity matrix, zero matrix, scalar and matrix multiplication, inverse; finding determinants using Cramer's Rule and the multiplicative inverse • Provide examples of vertex matrix, translation matrix, and reflection matrix	• Online content practice • Journal activity • Homework/ Practice • Quiz • Test	Algebra II Pre-Calculus

Additional High School Math Courses:
Geometry: Two-semester course features an introduction to geometry, triangle relationships and quadrilaterals. Trigonometry topics include tangent ratios and the Laws of Sine and Cosine.

Math Models and Applications: Two-semester course to reinforce, broaden, and extend the mathematical knowledge and skills acquired in Algebra I. The course uses mathematics as a tool to model real-world phenomena

Financial Math: Two-semester course on mathematics in personal and business settings. Students apply math skills such as percents, proportions, probability, data analysis, linear systems, exponential functions and formulas to real life situations.