Engage New York Curriculum – Hart District Revised

Curriculum Map

Number and quantity

Strand	CCSS	Module/Lesson in Engage New York						Example
		Algebra 1		Geometry		Algebra 2		
The Real Number system	**N-RN**	**Taught**	**Assume Mastery**	**Taught**	**Assume Mastery**	**Taught**	**Assume Mastery**	
Extend the properties of exponents to rational exponents								
Explain how the definition of the meaning of rational exponents follows from extending the properties of integer exponents to those values. Allowing for radicals in terms of rational exponents.	N-RN.1	**CA**				**M3TA**		
Rewrite expressions involving radicals and rational exponents using properties of exponents	N-RN.2	**CA**				**M3TA**		
Use properties of rational and irrational numbers								
Explain why the sum or product of two rational numbers is rational; that the sum of a rotational number and an irrational number is irrational; and the product of a nonzero rational number and an irrational number is irrational.	N-RN.3	**CA M4TB**					**M1**	

Strand	CCSS	Module/Lesson in Engage New York						Example
		Algebra 1		Geometry		Algebra 2		
Quantities	**N-Q**	**Taught**	**Assume Mastery**	**Taught**	**Assume Mastery**	**Taught**	**Assume Mastery**	
Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin o graphs and data display.	N-Q.1	**CA M1TA M1TD**	**M3**				**M1**	
Define appropriate quantities for the purpose of descriptive modeling.	N-Q.2	**CA M1TA M5TA M5TB**	**M3 M4**			**M1TB**		**What does this look like in module 5? What does this look like in alg 2 m3tb**
Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.	N-Q.3	**CA M1TA M5TB**	**M3 M4**					**What does this look like in module 5?**

Strand	CCSS	Module/Lesson in Engage New York						Example
		Algebra 1		Geometry		Algebra 2		
The Complex Number System	**N-CN**							
Perform arithmetic operations with complex numbers								
Know there is a complex number *I* such that $i^2 = -1$, and every complex number has the form a + b*i* with a and b real	N-CN.1					**CA M1TD**		
Use the relation $i^2 = -1$ and the commutative, associative, and distributive properties to add, subtract, and multiply complex numbers	N-CN.2					**CA M1TD**		
Solve quadratic equations with real coefficients that have complex solutions	N.CN.7					**CA M1TD**		
Use Complex numbers in polynomial identities and equations								
Extend polynomial identities to the complex numbers	N.CN.8(+)					**CA**		
Know the Fundamental Theorem of Algebra; show that it is true for quadratic polynomials.	N.CN.9(+)					**CA**		

Strand	CCSS	Module/Lesson in Engage New York						Example
		Algebra 1		Geometry		Algebra 2		
Seeing Structure in Expression	**A-SSE**							
Interpret the structure of expressions		**Taught**	**Assume Mastery**	**Taught**	**Assume Mastery**	**Taught**	**Assume mastery**	
Interpret expressions that represent a quantity in terms of its context	A-SSE.1							A-SSE1.A how do you assume mastery in M3 but focus on it in M4?
Interpret parts of an expression, such as terms, factors, and coefficients.	A-SSE.1A	**CA M1TD M4TA M4TB**	**M3**			**CA**	**M1**	
Interpret complicated expressions by viewing one or more of their parts as a single entity.	A-SSE.1B	**CA M1TD M4TA M4TB**	**M3**			**CA**	**M1**	
Use the structure of an expression to identify ways to rewrite it	A-SSE.2	**CA M1TB M4TA M4TB**	**M3**			**M1TA M1TB**		What does this look like in Module 3? How assume mastery in M3 but focus in M4
Write expressions in equivalent forms to solve problems								
Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression.								Need to find out where A-SSE 3.b is taught
Factor a quadratic expression to reveal the zeros of the function it defines.	A-SSE.3.a	**CA M4TA M4TB**					**M1**	
Complete the square in a quadratic expression to reveal the maximum and minimum value of the function it defines.	A-SSE3.b	**CA M4TB**						
Use properties of exponents to transform expressions for exponential functions	A-SSE.3.c	**M3TD**						
Derive the formula for the sum of finite geometric series (when the common ration	A-SSE.4					CA		

is not 1), and use the formula to solve problems.								

Strand	CCSS	Module/Lesson in Engage New York						Example
		Algebra 1		Geometry		Algebra 2		
Arithmetic with Polynomials and Rational Expressions	**A-APR**							
Perform arithmetic operations on polynomials (beyond quadratic)		**Taught**	**Assume Mastery**	**Taught**	**Assume Mastery**	**Taught**	**Assume Mastery**	
Understand that polynomials form a system analogous to the integers, namely they are closed under the operations of addition, subtraction, and multiplication; add, subtract, and multiply polynomials.	A-APR.1	**CA M1TB M4TA**				**CA**	**M1**	
Understand the relationship between zeros and factors of polynomials.								
Know and apply the Remainder Theorem	A-APR.2					**CA M1TB**		
Identify zeros of polynomials when suitable factorizations are available and use the zero's to construct a rough graph of the function defined by the polynomials.	A-APR.3	**M4TB**				**CA M1TB**		
Use polynomials Identities to solve problems								
Prove polynomial identities and use them to describe numerical relationships.	A-APR.4					**CA M1TA**		
Know and apply the binomial theorem for the expansion of $(x + y)^n$ in powers of x and y for a positive integer n, where z and y are numbers, with coefficients determined for example by Pascal's Triangle.	A-APR.5(+)					**CA**		

Rewrite rational expressions (linear and quadratic denominators)								
Rewrite simple rational expressions in different ways; write a(x)/b(x) in the form q(x) + r(x)/b(x), where a(x), b(x), q(x), and R9x) are polynomials with the degree of r(x) less than the degree of b(x), using inspection, long division, or for the more complicated examples, a computer generated algebra system.	A-APR.6					**CA M1Tc**		
Understand that rational expressions form a system analogous to the rational numbers, closed under addition, subtraction, multiplication, and division; add, subtract, multiply, and divide.	A-APR.7(+)					**CA**		

Strand	CCSS	Module/Lesson in Engage New York						Example
		Algebra 1		Geometry		Algebra 2		
Creating Equations	**A-CED**	**Taught**	**Assume Mastery**	**Taught**	**Assume Mastery**	**Taught**	**Assume Mastery**	
Create equations and inequalities in on variable **including ones with absolute value** and use them to solve problems. Include equations arising from linear and quadratic functions, and simple rational and exponential functions	A-CED.1	**CA M1TD M3TD M4TA M4TB M5TB**				**CA M3TB**	**M1**	**What is the difference between alg 1 and alg2**
Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.	A-CED.2	**CA M1TA M1TD M4TA M4TB M4TC M5TA M5TB**	**M3**			**CA**	**M1**	**What does this look like in module 4? Double check module 3….how assume mastery but then focus in mod 4**
Represent constraints by equations or inequalities, and by systems of equation and/or inequalities and interpret solutions as viable or non-viable options in modeling context.	A-CED.3	**CA M1TC**	**M3**			**CA**	**M1**	
Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations.	A-CED4	**CA M1TC**	**M3 M4**			**CA**	**M1**	

Strand	CCSS	Module/Lesson in Engage New York						Example
		Algebra 1		Geometry		Algebra 2		
Reasoning with Equations and Inequalities	**A-REI**							
Understand solving equations as a process of reason and explain the reasoning.		**Taught**	**Assume Mastery**	**Taught**	**Assume Mastery**	**Taught**	**Assume Mastery**	
Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solutions.	A-REI.1	**CA M1TC**	**M3 M4**			**M1TB**		**Where is this taught in the previous modules?**
Solve simple rational and radical equations in one variable, and give examples showing how extraneous solutions may arise.	A-REI.2					**CA M1TC M1TD**		
Solve equations and inequalities in one variable.								
Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.	A-REI.3	**CA M1TC M1TD**	**M3 M4**				**M1**	
Solve one-variable equations and inequalities involving absolute value, graphing the solutions and interpreting them in context.	A-REI.3.1 (California standard)	**CA (only)**				**CA**		
Solve quadratic equations in one variable	A-REI.4							**Students in algebra will not be expected to write solutions for quadratic equations that have roots with nonzero imaginary parts.**
Use the method of completing the square to transform any quadratic equation in x into an equation of the form $(x-p)^2 = q$ that have the same solutions. Derive the quadratic formula from this	A-REI.4a	**CA M4TB**					**M1**	

Solve quadratic equations by inspection, taking square roots, completing the square, the quadratic formula and factoring as appropriate to the form of the equation. Recognize when the quadratic formula gives complex solutions and write them as a ± bi.	A-REI.4b	**CA M4TA M4TB**				**M1TB**		
Solve systems of equations								
Prove that, given a system of two equations in two variables, replacing one equation by the sum of that equation and a multiple of the other produces a system with the same solutions.	A-REI.5	**CA M1TC**					**M1**	
Solve systems of linear equations exactly and approximately, focusing on pairs of linear equations	A-REI.6	**CA M1TC**	**M3**	**M4**		**M1TC**		
Solve a simple system consisting of a linear equation and quadratic equation in two variables algebraically and graphically.	A-REI.7	**CA**				**M1TC M1TD**		
Represent and solve equations and inequalities graphically.								
Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plan, often forming a curve.	A-REI.10	**CA M1TC**	**M3 M4**				**M1**	
Explain why the x-coordinates of the points where the graph of the equations y = f(x) and y = g(x) intersect are the solutions of the equations f(x) = g(x).	A-REI.11	**CA M3TC M4TA**				**CA M3TD**	**M1**	
Graph the solutions to linear inequality in two variables as a half-plan, and graph the solution set to a system of linear inequalities in two variables as the intersection of the corresponding half-planes.	A-REI.12	**CA M1TC**		**M4**				

Functions

Strand	CCSS	Module/Lesson in Engage New York						Example
		Algebra		Geometry		Algebra 2		
Interpret Functions	**F-IF**							
Understand the concept of function and use function notation.								
Understand that a function from one set (called the domain) to another set (called the range) assigns to each element of the domain exactly one element of the range.	F-IF.1	**CA** **M3TA** **M3TB**	**M4**					
Use function notation, evaluate functions for inputs in their domain, and interpret statements that use function notation in terms of a context.	F-IF.2	**CA** **M3TA** **M3TB**	**M4**					
Recognize that sequences are functions, sometimes defined recursively, whose domain is a subset of integers.	F-IF.3	**CA** **M3TA**						
Interpret functions that arise in applications in terms of the context.								
For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch the graphs showing key features given a verbal description of the relationships.	F-IF.4	**CA** **M3TB** **M3TD** **M4TA** **M4TB** **M5TA** **M5TB**				**CA**		
Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes.	F-IF.5	**CA** **M3TB** **M4TA** **M5TA** **M5TB**				**CA**		
Calculate and interpret the average rate of change of a function over a specified interval. Estimate the rate of change from a graph.	F-IF.6	**CA** **M3TA** **M3TD** **M4TA**				**CA**		

		M4TB M4TC M5TB						
Analyze functions using different representations								
Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology in more complicated cases	F-IF.7.							**F-IF.7.e___what is it for algebra and where is it taught**
Graph linear and quadratic functions and show intercepts, maxima, and minima	F-IF.7A	**CA M3TB M4TA M4TB**	**M5**					
Graph square root, cube root, and piecewise-defined functions including step functions and absolute value functions	F-IF.7.b	**CA M3TC M4TC**	**M5**			CA		
	F-IF.7.c					CA		
Graph exponential and logarithmic functions, showing intercepts and end behavior, and trigonometric functions, showing period, midline, and amplitude	F-IF.7.e	**CA**				CA		
Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function.	F-IF.8					**CA**		
Use the process of factoring and completing the square in a quadratic function to show zeros, extreme values, an symmetry of the graph, and interpret these in terms of a context.	F-IF.8.a	**CA M4TB M4TC**	**M5**					
Use the properties of exponents to interpret expressions for exponential functions.	F-IF.8.b	**CA**						
Compare properties of two functions each represented in different ways.	F-IF.9	**CA M3TD M4TC**	**M5**			**CA**		

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		Algebra 1		Geometry		Algebra 2		
Building functions	**F-BF**							
Build a function that models a relationship between two quantities.								
Write a function that describes a relationship between two quantities.	F-BF.1.							**1b???**
Determine an explicit expression, a recursive process, or steps for calculation from a context	F-BF.1a	**CA M3TA M3TD M5TA M5TB**	**M4**					
Combine standard function types using arithmetic operations.	F-BF1.b	**CA**						
Write arithmetic and geometric sequences both recursively and with an explicit formula, use them to model situations, and translate between the two forms.	F-BF.2	**CA**						
Build new functions from existing functions								
Identify the effect on the graph of replacing f(x) by f(x) + k, and f(x + k) for specific values of k (both positive and negative); find the values of k given the graphs. Include recognizing even and odd functions from their graphs and algebraic expression for them	F-BF.3	**CA M3TC M4TC**				**CA**		
Find inverse functions	F-BF.4.a	**CA**				**CA**		

Strand	CCSS	Module/Lesson in Engage New York						Example
		Algebra 1		Geometry		Algebra 2		
Linear, Quadratic, and Exponential Models	**F-LE**							
Construct and compare linear, quadratic, and exponential models to solve problems								
Distinguish between situations that can be modeled with linear functions and with exponential functions.	F-LE.1							
Prove that linear functions grow by equal differences over equal intervals and that exponential functions grow by equal factors over equal intervals.	F-LE.1.a	**CA** **M3TA**						
Recognize situations in which on quantity changes at a constant rate per unit interval relative to another.	F-LE.1.b	**CA** **M3TA** **M5TA** **M5TB**						
Recognize situations in which a quantity grows or decays by a constant percent rate per unit interval relative to another.	F-LE.1.c	**CA** **M3TA** **M5TA** **M5TB**						
Construct linear and exponential functions, including arithmetic and geometric sequences, given a graph, a description of a relations, or two input-output pairs.	F-LE.2	**CA** **M3TA** **M3TD** **M5TA**						
Observe using graphs and tables that a quantity increasing exponentially eventually exceeds a quantity increasing linearly, quadratically, or as a polynomial function.	F-LE.3	**CA** **M3TA**						
For exponential models, express as a logarithm the solution to $ab^{ct} = d$ where a,c, and d are numbers and the base b is 2, 10 or e; evaluate the logarithm using technology.	F-LE.4							
Prove simple laws of logarithms	F-LE4.1 CA standard					**CA**		

Use the definition of logarithms to translate between logarithms in any base.	F-LE.4.2 CA standard					**CA**		
Understand and use the properties of logarithms to simplify logarithmic numeric expressions and to identify their approximate value.	F-LE.4.3 CA standard					**CA**		
Interpret expressions for functions in terms of the situation modeled.								
Interpret the parameters in a linear or exponential function in terms on context.	F-LE.5	**CA M3TD**	**M5**					
Apply quadratic functions to physical problems such as motion of an object under the force of gravity.	F-LE.6	**CA** **CA only**						

Strand	**CCSS**	**Module/Lesson in Engage New York**						**Example**
		Algebra		**Geometry**		**Algebra 2**		
Trigonometric Functions	**F-TF**							
Extend the domain of trigonometric functions using the unit circle.								
Understand radian measure of angle as the length of the arc on the unit circle subtended by the angle.	F-TF.1					**CA**		
Explain how the unit circle in the coordinate plane enables the extension of trigonometric functions to all real numbers, interpreted as radian measures of angles traversed counterclockwise around the unit circle.	F-TF.2					**CA**		
Graph all six basic trigonometric functions	F.TF.2.1 CA standard					**CA**		

Strand	CCSS	Module/Lesson in Engage New York						Example
		Algebra		Geometry		Algebra 2		
Model periodic phenomena with trigonometric function								
Choose trigonometric functions to model periodic phenomena with specified amplitude, frequency, and midline.	F-TF.5					**CA**		

Strand	CCSS	Module/Lesson in Engage New York						Example
		Algebra		Geometry		Algebra 2		
Prove and apply trigonometric identities								
Prove the Pythagorean identity $sin^2(\theta) + cos^2(\theta) = 1$ and use it to find $sin(\theta), cos(\theta)$, or $\tan(\theta)$ given $sin(\theta), cos(\theta)$, or $\tan(\theta)$ and the quadrant angle.	F-TF.8					**CA**		

Geometry

Strand	CCSS	Module/Lesson in Engage New York						Example
		Algebra		Geometry		Algebra 2		
Congruence	**G-CO**							
Experiment with Transformations in the Plan								
Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notations of point, line, distance along a line, and distance around a circular arc.	**G-CO.1**			**CA**	**M1TA**			
Represent transformations in the plan using e.g., transparencies and geometry software; describe transformations as functions that take points in the plan as inputs and give other points as outputs. Compare transformations that preserve distance and able to those that do not.	**G-C0.2**			**CA**	**M1TC**			

Given a rectangle, parallelogram, trapezoid, or regular polygon, describe the rotations and reflection that carry it onto itself.	**G-CO.3**			**CA M1TC**	**M5**			
Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments.	**G-CO.4**			**CA**	**M1TC**			
Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure using e.g., graph paper, tracing paper, or geometry software. Specify a sequence of transformations that will carry a given figure onto another.	**G-CO.5**			**CA M1Tc**	**M5**			
Understand Congruence in Terms of Ridged Motions.								
Use geometric descriptions of rigid motion to transform figures and to predict the effect of a given rigid motion on a given figure; given two figures, use the definition of congruence in terms of rigid motions to decide if they are congruent.	**G-CO.6**			**CA**	**M1TC**			
Use definition of congruence in terms of rigid motions to show that two triangles are congruent if and on if corresponding pairs of sides and corresponding pairs of angles are congruent.	**G-CO.7**			**CA M1TC**	**M1TD**			
Explain how the criteria for triangle congruence (ASA, SAS, and SSS) follow from the definition of congruence in terms of rigid motions.	**G-CO.8**			**CA**	**M1TD**			
Prove Geometric Theorems								
Prove theorems about lines and angles.	**G-CO.9**			**CA M1TB M1Tb**	**M5**			
Prove theorems about triangles.	**G-CO.10**			**CA M1TE**	**M5**			
Prove theorems about parallelograms	**G-CO.11**			**CA M1TE**	**M5**			

Make Geometric Constructions								
Make formal geometric constructions with a variety of tools and methods.	**G-CO.12**			**CA M1TA M1TC**	**M5**			
Construct and equilateral triangle, a square, and a regular hexagon inscribed in a circle.	**G-CO.13**			**CA M1TA**	**M1TF**			

Strand	CCSS	Module/Lesson in Engage New York						Example
		Algebra		Geometry		Algebra 2		
Similarity, Right Triangles, and Trigonometry.	**G-SRT**							
Understand similarity in terms of similarity transformations								
Verify experimentally the properties of dilations given by a center and a scale factor.	G-SRT.1.a G-SRT.1.B			**CA M2TA**	**M2TB**			
Given two figures, use the definition of similarity transformations to decide if they are similar; explain using similarity transformations the meaning of similarity for triangles as the equality of all corresponding pairs of angles and the proportionality of all corresponding pairs of sides.	G-SRT.2			**CA**	**M2TC**			
Use the properties of similarity transformations to establish the Angle-Angle (AA) criterion for two triangles to be similar.	G-SRT.3			**CA**	**M2TC**			
Prove theorems involving similarity.								
Prove theorems about triangles. Theorems include: a line parallel to one side of a triangle divides the other two proportionally, and conversely; the Pythagorean Theorem proved using triangle similarity.	G-SRT.4			**CA M2TA**	**M2TB M2TD**			

Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.	G-SRT.5			**CA**	**M2TC**			
Define Trigonometric ratios and solve problems involving right triangles.								
Understand that by similarity, side ratios in right triangles are properties of the angles in the triangle, leading to definitions of trigonometric ratios for acute angles.	G-SRT.6			**CA**	**M2TE**			
Explain and use the relationship between the sine and cosine of complementary angles.	G-SRT.7			**CA**	**M2TE**			
Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems.	G-SRT.8			**CA**	**M2TE**			
Derive and use the trigonometric rations for special right triangles.	G-SRT.8.1 (CA)			**CA**				
Apply trigonometry to general triangles.								
Derive the formula A=1/2ab sin(C) for the area of a triangle by drawing an auxiliary line from the vertex perpendicular to the opposite side.	G-SRT.9(+)(CA)			**CA**				
Prove the Law of Sines and Cosines and use them to solve problems.	G-SRT.10(+)(CA)			**CA**				
Understand the Law of Sines and Law of Cosines to find unknown measurements in right and non-right triangles.	G-SRT.11(+)(CA)			**CA**				

Strand	CCSS	Module/Lesson in Engage New York						Example
		Algebra		Geometry		Algebra 2		
Circles	**G-C**							
Understand and apply theorems about circles								
Prove circles are similar.	**G-C.1**			**CA** **M5TB**				
Identify and describe relationships among inscribed angles, radii, and chords. Include relationships between central, inscribed, and circumscribed angles; inscribed angles on a diameter are right angles; the radius of a circle is perpendicular to the tangent where the radius intersects the circle.	**G-C.2**			**CA** **M5TA** **M5TB** **M5TC**				
Construct the inscribed and circumscribed circles of a triangle, and prove properties of angles for a quadrilateral inscribed in a circle.	G-C.3			**CA** **M5TA** **M5TC**				
Construct a tangent line from a point outside a given circle to the circle.	G-C.4(+)							
Find arc lengths and areas of sectors of circles.								
Derive using similarity the fact that the length of the arc intercepted by an angle is proportional to the radius, and define the radian measure of the angle as the constant of proportionality; derive the formula for are of a sector. **Convert between radians and degrees.**	G-C.5			**CA**	**M5TB**			

Strand	CCSS	Module/Lesson in Engage New York						Example
		Algebra		Geometry		Algebra 2		
Expressing Geometric Properties with Equations	**G-GPE**							
Translate between the geometric description and the equation for conic section.								
Derive the equation of a circle of given center and radius using the Pythagorean Theorem; complete the square to find the center and radius of a circle.	G-GPE.1			**CA**	**M5TD**		**M1**	
Derive the equation of a parabola given a focus and directrix.	G-GPE.2			**CA**		**M1TC**		
Given a quadratic equation of the form $ax^2 + by^2 + cx + dy + e = 0$, use the method for completing the square to put the equation into standard form; identify where the graph of the equation is a circle, ellipse, parabola, or hyperbola and graph the equation. (circles an parabolas only)	G-GPE.3.1 CA standard					**CA**		
Use Coordinates to Prove Simple Geometric Theorems Algebraically								
Use coordinates to prove simple geometric theorems algebraically.	G-GPE.4			**CA M4TB**	**M4TD M5TD**			
Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems.	G-GPE.5			**CA**	**M4TB**			
Find the point on a directed line segment between two given points that partitions the segment in a given rations.	G-GPE.6			**CA**	**M4TD**			
Use coordinates to compute perimeters of polygons and areas of triangles and rectangles.	G-GPE.7			**CA M4TA**	**M4TC**			

Strand	CCSS	Module/Lesson in Engage New York						Example
		Algebra		Geometry		Algebra 2		
Geometric Measurement and Dimension	**G-GMD**							
Explain volume formulas and use them to solve problems.								
Give an informal argument for the formulas for the circumference of a circle, area of a circle, volume of a cylinder, pyramid, and cone.	G-GMD.1			**CA M3TA**	**M3TB**			
Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems.	G-GMD.3			**CA M2TA**	**M3TB**			
Visualize relationships between two-dimensional and three-dimensional objects.								
Identify the shapes of two-dimensional cross-sections of three-dimensional objects, and identify three-dimensional objects generated by rotations of two-dimensional objects.	G-GMD.4			**CA**	**M3TB**			
Know that the effect of a scale factor K greater than zero on length, area, and volume is to multiply each by K, K^2, and K^3 respectively; determine the length, area, and volume measures using scale factors.	G-GMD.5(CA)			**CA**				
Verify experimentally that in a triangle, angles opposite longer sides are larger, sides opposite larger angles are longer, and the sum if any two side lengths is greater than the remaining side length; apply these relationships to solve real-world and mathematical problems.	G-GMD.6(CA)			**CA**				

Strand	CCSS	Module/Lesson in Engage New York						Example
		Algebra		Geometry		Algebra 2		
Modeling with Geometry.	**G-MG**							
Apply geometric concepts in modeling situations.								
Use geometric shapes, their measurements, and their properties to describe objects.	G-MG.1			**CA M2TC M3TB**	**M4**			
Apply concepts of density based on area and volume in modeling situations.	G-MG.2			**CA M3TB**				
Apply geometric methods to solve design problems.	G-MG.3			**CA M3TB (mod 2???)**	**M4**			

Statistics and Probability

Strand	CCSS	Module/Lesson in Engage New York						Example
		Algebra		Geometry		Algebra 2		
Interpreting Categorical and Quantitative Data	**S-ID**	**Taught**	**Assumed Mastery**	**Taught**	**Assumed Mastery**	**Taught**	**Assumed Mastery**	
Summarize, represent, and interpret data on a single count or measurement variable								
Represent data with plots on the real number line (dot plots, histograms, and box plots)	S-ID.1	**CA M2TA M2TB**				**CA**		
Use statistics appropriate to the shape of the data distribution to compare center and spread of two or more different data sets.	S-ID.2	**CA M2TA M2TB**						
Interpret differences in shape, center, and spread in the context of the data sets,	S-ID.3	**CA M2TA**						

accounting for possible effects of extreme data points.		**M2TB**						
Use the mean and standard deviation of a data set to fit it to a normal distribution and to estimate pollution percentages. Recognize that there are data sets for which such a procedure is not appropriate. Use calculators, spreadsheets, and tables to estimate areas under the normal curve.	S-ID.4					**CA**		
Interpret expressions for functions in terms of the situation they model.								
Summarize categorical data for two categories in two-way frequency tables. Interpret relative frequencies in the context of the data. Recognize possible associations and trends in the data.	S-ID.5	**CA M2TC**						
Represent data on two quantitative variables on a scatter plot, and describe how the variables are related.	S-ID.6	**CA M2TD**						
Fit the function to the data; use functions fitted to data to solve problems in the contest of the date. Use given functions or choose a function suggested by the context. Emphasize linear, quadratic and exponential models.	S-ID.6.A	**CA M2TD**						
Informally assess the fit of a function by plotting and analyzing residuals.	S-ID.6.B	**CA M2TD**						
Fit a linear function for a scatter plot that suggests a linear association	S-ID.6.C	**CA M2TD**						
Interpret linear models								
Interpret the slope and intercept of a linear model in the context of the data.	S-ID.7	**CA M2TD**						
Compute (using technology) and interpret the correlation coefficient of a linear fit.	S-ID.8	**CA M2TD**						
Distinguish between correlation and causation.	S-ID.9	**CA M2TC M2TD**						

Strand	CCSS	Module/Lesson in Engage New York						Example
		Algebra		Geometry		Algebra 2		
Making inferences and justifying conclusions	**S-IC**							
Understand and evaluate random processes underlying statistical experiments.								
Understand statistics as a process for making inferences about population parameters based on a random sample form that pollution.	S-IC.1					**CA**		
Decide if a specified model is consistent with results from a given data-generating process.	S.IC.2					**CA**		
Make inferences and justify conclusion from sample surveys, experiments, and observational studies.								
Recognize the purpose of and differences among sample surveys, experiments, and observational studies; explain how randomization relates to each	S-IC.3					**CA**		
Use data from a sample survey to estimate population mean or proportion; develop a margin of error through the use of simulation models for random sampling.	S-IC.4					**CA**		
Use data from randomized experiment to compare two treatments; use simulation to decide if differences between parameters are significant.	S.IC.5					**CA**		
Evaluate reports based on data.	S-IC.6					**CA**		

Strand	CCSS	Module/Lesson in Engage New York						Example
		Algebra		Geometry		Algebra 2		
Conditional Probability and the Rules of Probability.	**S-CP**							
Understand Independence and Conditional Probability and use them to Interpret Data.								
Describe events as subsets of a sample space using characteristics of the outcomes, or as unions, intersections, or complements of other events.	S-CP.1			**CA**				
Understand that two events A and B are independent if the probability of A and B occurring together is the product of their probabilities, and use characterization to determine if they are independent.	S-CP.2			**CA**				
Understand the conditional probability of A given B as P(A and B)/P(B), and interpret independence of A and B as saying that the conditional probability of A given B is the same as the probability of A, and the conditional probability of B given A is that same as the probability of A.	S-CP.3			**CA**				
Construct and interpret two-way frequency tables of data when two categories are associated with each object being classified. Use the two-way frequency table as a sample space to decide if events are independent and to approximate conditional probabilities.	S-CP.4			**CA**				
Recognize and explain the concepts of conditional probability and independence in everyday language and everyday situations.	S-CP.5			**CA**				
Use the Rules of Probability to Compute the Probabilities of Compound Events in a Uniform Probability Model.								

Find the conditional probability of A given B as the fraction of B's outcomes that also belong to A, and interpret the answer in terms of the model.	S-CP.6			**CA**				
Apply the addition rule, P(A or B) = P(A) + P(B) – P(A and B), and interpret the answer in terms of the model.	S-CP.7			**CA**				
Apply the general Multiplication Rule in a uniform probability model, P(A and B) = P(A)P($B|A$)= P(B)P($A|B$), and interpret the answer in terms of the model.	S-CP.8(+)			**CA**				
Use permutations and combinations to compute the probabilities of compound events and solve problems	S-CP.9(+)			**CA**				

Strand	**CCSS**	**Module/Lesson in Engage New York**						**Example**
		Algebra		**Geometry**		**Algebra 2**		
Using probability to make decision	**S.MD**							
Use probabilities to make fair decisions	S.MD.6(+)			**CA**				
Analyze decisions and strategies using probability concepts.	S.MD.7(+)			**CA**				

Algebra

Mastery of the following standards are assumed for Algebra Module 1

6.NS.7	Understand ordering and absolute value of rational numbers. a. Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram. b. Write. Interpret, and explain statements of order for rational numbers in real-world context.
6.EE.3	Apply the properties of operations to generate equivalent expressions.
6.EE.4	Identify when two expression are equivalent.
6.EE.5	Understand solving an equation or inequality as a process of answering questions: which value from a specified step, if any make the equation true?
6.EE.6	Use variables to represent numbers and write expression when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or depending on the purpose at hand any number in a specific set.
6.EE.7	Solve real-world and mathematical problems by writing and solving equations of the form $x + p$ and $px = q$ for cases in which p,q and x are all nonnegative rational numbers.
6.EE.8	Write an inequality of the form $x > c$ or $x < c$ to represent a constraint or condition in a real-world or mathematical problem. Recognize that inequalities of the form $x > c$ and $x < c$ have infinitely many solutions; represent solutions of such inequalities on number line diagrams.
7.EE.1	Apply properties of operations as strategies to add, subtract, factor, and expand linear expression with rational coefficients.
7.EE.2	Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are real.
7.EE.3	Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess reasonable of answers using mental computation and estimation strategies.
7.EE.4	Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities. a. Solve word problems leading to equations of the for $px + q = r$ and $p(x + q) = r$, where p, q, and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach. b. Solve word problems leading to inequalities to the form $px + q > r$ or $px + q < r$, where p, q, and r are specific rational numbers. Graph the solution set of the inequality and interpret it in context of the problem.
8.EE.1	Know and apply the properties of integer exponents to generate equivalent numerical expressions.

8.EE.2	Use square root and cube root symbols to represent solutions to equations of the form $x^2 = p$ and $x^3 = p$, where p is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that $\sqrt{2}$ is irrational.
8.EE.7	Solve linear equations in one variable. a. Give examples of linear equations in one variable with one solution, infinitely many solutions, or now solutions. Show which of these possibilities is the case by successively transforming the given equation into simpler forms, until an equivalent equation of the form x = a, a = a, or a = b results. b. Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.
8.EE.8	Analyze and solve pairs of simultaneous linear equations. a. Understand that solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs, because points of intersection satisfy both equations simultaneously. b. Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection. c. Solve real-world and mathematical problems leading to two linear equations in two variables.

Mastery of the following standards are assumed for Algebra Module 2

6.SP.1	Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers.
6.SP.2	Understand that a set of data collected to answer a statistical question has distribution which can be described by its center, spread, and overall shape.
6.SP.3	Recognize that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation describes how its values vary with a single number.
6. SP.4	Display numerical data in plots on a number line, including dot plots, histograms, and box plots.
6.SP.5	Summarize numerical data sets in relation to their context such as by: a. Reporting the number of observation b. Describing the nature of the attribute under investigation, including how it was measure and its units of measurement. c. Giving quantitative measures of center (median and/or mean) and variability (interquartile range and/or mean absolute deviation), as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered. d. Relating the choice of measures of center and variability to the shape of the data distribution and the context in which the data were gathered.
8.SP.1	Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association.
8.SP.2	Know that straight lines are widely used to model relationships between two quantitative variables. For scatter plots that suggests a linear association, informally fit a straight line, and informally assess the model fit by judging the closeness of the data points to the line.
8.SP.3	Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept.

8.SP.4	Understand that patterns of association can also be seen in bivariate categorical data by displaying frequencies and relative frequencies in a tow-way table. Construct and interpret subjects. Use relative frequencies calculated for rows or columns to describe possible association between the two variables.

Mastery of the following standards are assumed for Algebra Module 3

8.EE.1	Know and apply the properties of integer exponents to generate equivalent numerical expressions.
8.EE.2	Use square root and cube root symbols to represent solutions to equations in the form $x^2 = p$ and $x^3 = p$, where p is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that $\sqrt{2}$ is irrational.
8.F.1	Understand that a function is a rule that assign to each input exactly one output. The graph of a function is the set of ordered pairs consisting of an input and the corresponding output.
8.F.2	Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions).
8.F.3	Interpret the equation y = mx + b as defining a linear function, whose graph is a straight line; give examples of function that ore not linear.
8.B.4	Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relations or from two (x,y) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or table values.
8.F.5	Describe qualitatively the functional relationship between two quantities by analyzing a graph. Sketch a graph that exhibits the qualitative features of a function that has been described verbally.

Mastery of the following standards are assumed for Algebra Module 4

8.NS.1	Know that numbers that are not rational are called irrational. Understand informally that every number has a decimal expansion; for rational numbers show that the decimal expansion repeats eventually, and convert a decimal expansion which repeats eventually into a rational number.
8.EE.1	Know and apply the properties of integer exponents to generate equivalent numerical expressions.

Mastery of the following standards are assumed for Algebra Module 5

8.F.4	Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relations or from two (x,y) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or table values.
8.F.5	Describe qualitatively the functional relationship between two quantities by analyzing a graph. Sketch a graph that exhibits the qualitative features of a function that has been described verbally.

Mastery of the following standards are assumed for geometry Module 1

8.G.1	
8.G.2	
8.G.3	
8.G.5	

Mastery of the following standards are assumed for geometry Module 2

7G.1	
8.G.3	
8.G.5	

Mastery of the following standards are assumed for geometry Module 3

7.G.3	
7.G.4	
8.G.7	
8.G.9	

Mastery of the following standards are assumed for geometry Module 5

8.G.7	
8.G.8	