Common Core Math Standards
Grade 8 – The Number System

1. After reading the standard, underline nouns and circle verbs. 2) Using the verbs, craft the "I Can" statement(s). 3) Embed Bloom's Taxonomy key words within the statement(s).

Common Core Standards	Converted/Unpacked Standards "I Can" Statements (Student-Centered)	Vocabulary
CC.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	I can… 8.NS.1a Define and represent rational numbers 8.NS.1b Define and represent irrational numbers 8.NS.1c Recognize that all real numbers can be written in a decimal form 8.NS.1d Change rational and irrational numbers to decimals 8.NS.1e Convert a decimal number (repeating/terminating) into a fraction 8.NS.1f Determine if a decimal number is rational or irrational 8.NS.1g Recognize that a repeating/terminating decimal is a rational number 8.NS.1h Convert terminating and repeating decimals to fractions	Rational Irrational

	8.NS.1i Distinguish between rational and irrational Numbers	
CC. 8.NS.2 2. Use rational approximations of irrational numbers to compare the size of irrational numbers, locate them approximately on a number line diagram, and estimate the value of expressions (e.g., π 2). For example, by truncating the decimal expansion of √2, show that √2 is between 1 and 2, then between 1.4 and 1.5, and explain how to continue on to get better approximations	I can… 8.NS.2a Estimate irrational numbers 8.NS.2b Find the square roots of perfect squares 8.NS.2c Estimate the decimal for a square root 8.NS.2d Locate rational numbers on a number line 8.NS.2e Locate irrational numbers on a number line 8.NS.2f Locate the approximate location of irrational numbers on a number line based on perfect squares 8.NS.2g Construct a number line that includes rational and irrational numbers 8.NS.2h Compare and contrast irrational numbers identifying larger vs. smaller numbers 8.NS.2i Recognize if a number is rounded or repeats when using a calculator 8.NS.2j Determine which number is bigger when given any set of numbers written in any form	Square roots Perfect squares Number line

Common Core Math Standards
Grade 8 – Expressions and Equations

1. After reading the standard, underline nouns and circle verbs. 2) Using the verbs, craft the "I Can" statement(s). 3) Embed Bloom's Taxonomy key words within the statement(s).

Common Core Standards	Converted/Unpacked Standards "I Can" Statements (Student-Centered)	Vocabulary
CC.8.EE.1 Know and apply the properties of integer exponents to generate equivalent numerical expressions. For example, 32 × 3–5 = 3–3 = 1/33 = 1/27	I can… 8.EE.1a Recognize integers 8.EE.1b Add and subtract integers 8.EE.1c Multiply and divide integers 8.EE.1d Recognize exponents 8.EE.1e Fluently read exponents 8.EE.1f Read equivalent expressions with exponents 8.EE.1g Generate equivalent expressions with Exponents 8.EE.1h Identify the laws of exponents including multiplication, division, power of a power, and zero exponents 8.EE.1i Apply the laws of exponents	Integers Exponents Equivalent Bases Algebraic expression

	when multiplying and dividing like and unlike bases 8.EE.1j Convert bases with negative exponents to fractions 8.EE.1k Simplify algebraic expressions, involving zero exponents 8.EE.1l Simplify algebraic expressions, involving negative exponents 8.EE.1m Simplify algebraic expressions, by applying the multiplication properties of exponents [exponents are added] 8.EE.1n Simplify algebraic expressions, by applying the power properties of exponents [exponents are multiplied] 8.EE.1o Simplify algebraic expressions, by applying the division properties of exponents [exponents are subtracted] 8.EE.1p Simplify algebraic expressions, using several properties	

CC.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 √2 is irrational	I can… 8.EE.2a Evaluate square roots of perfect squares. 8.EE.2b Evaluate cube roots of perfect cubes 8.EE.2c Recognize that non perfect squares and cubes are irrational. 8.EE.2d Recognizing the inverse operation of squared is square rooting 8.EE.2e Recognizing the inverse operation of cubed is cube rooting	Perfect cube Cube root Inverse operation
CC. 8.EE.3 Use numbers expressed in the form of a single digit times an integer power of 10 to estimate very large or very small quantities, and to express how many times as much one is than the other. For example, estimate the population of the United States as 3 × 108 and the population of the world as 7 × 109, and determine that the world population is more than 20 times larger.	I can… 8.EE.3a Write numbers in scientific notation 8.EE.3b Use base 10 multiplication to compare the values of numbers in scientific notation 8.EE.3c Analyze values written in scientific notation 8.EE.3d Distinguish between small and large values of numbers in scientific notation by looking at exponents 8.EE.3eEstimate values written in scientific notation 8.EE.3f Convert numbers from scientific notation to standard form	Scientific notation Standard form

CC.8.EE.4 Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities (e.g., use millimeters per year for seafloor spreading). Interpret scientific notation that has been generated by technology	I can… 8.EE.4a Multiply numbers written in scientific notation using the laws of exponents 8.EE.4b Divide numbers written in scientific notation using the laws of exponents 8.EE.4c Interpret real-life situations using scientific notations 8.EE.4d Demonstrate knowledge of scientific notation by using a calculator or other form of technology to solve problems	Laws of exponents
CC.8.EE.5 Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways. For example, compare a distance-time graph to a distance-time equation to determine which of two moving objects has greater speed.	I can… 8.EE.5 Graph proportional relationships. 8.EE.5 Interpret the unit rate as the slope of the graph. 8.EE.5 Compare and contrast proportional relationships from a graph, table, or description 8.EE.5 Analyze graphs, tables, and equations and explain what is being represented 8.EE.5 Identify that the slope is the same between any two points on a line based on the proportional relationship of m=y/x	Proportional Unit rate Slope

CC.8.EE.6 Use similar triangles to explain why the slope m is the same between any two distinct points on a non-vertical line in the coordinate plane; derive the equation y = mx for a line through the origin and the equation y = mx + b for a line intercepting the vertical axis at b.	I can… 8.EE.6 Explain why triangles are similar 8.EE.6 Determine the slope between two points on a coordinate plane 8.EE.6 Determine the slope between two points using slope formula $m = \frac{y_1 - y_2}{x_1 - x_2}$ 8.EE.6 Identify *m* as the slope of a line and *b* as the point where the line intercepts the y-axis (y-intercept) 8.EE.6 Construct an equation using the slope *m* and the y-intercept *b* in the form of y=mx + b 8.EE.6 Compare the sides of similar triangles by counting units to understand the slope of a non-vertical line is rise to run 8.EE.6 Justify why the slope is the same between any two points on a non-vertical line	Similar figures Coordinate plane Slope y-intercept
CC.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 no 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 (where a and b are different numbers).	I can… **a.** 8.EE.7 I can solve one-variable equations including those with the variables being on both sides of the equals sign. 8.EE.7 Solve multi-step one-variable equations, with	Distributive property Like terms Variables

b. Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.	variables on both sides of the equation. 8.EE.7 Create an ordered pair to support my solution and justification 8.EE.7 Recognize one solution, infinitely many solution, and no solution when solving multi-step equations I Can: **b.** 8.EE.7 Solve linear equations by using the distributive property. 8.EE.7 Solve multi-step one-variable equations, by combining like terms.	

CC.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. For example, 3x + 2y = 5 and 3x + 2y = 6 have no solution because 3x + 2y cannot simultaneously be 5 and 6. c. Solve real-world and mathematical problems leading to two linear equations in two variables. For example, given coordinates for two pairs of points, determine whether the line through the first pair of points intersects the line through the second pair.	I can a 8.EE.8 **Graph** 2 linear equations, written in standard form on the same graph and find the point of intersection (System of Equations) *8.EE.8* **Graph** 2 linear equations, written in slope-intercept form on the same graph and find the point of intersection (System of Equations) I Can: **b**. 8.EE.8 Solve a system of equations by substitution, involving 1 solution. 8.EE.8 Solve a system of equations by substitution, involving no solution [parallel lines] 8.EE.8 Solve a system of equations by substitution, involving infinitely many solutions [same line] 8.EE.8 Solve a system of equations by elimination, involving 1 solution. 8.EE.8 Solve a system of equations by elimination, involving no solution [parallel lines] 8.EE.8 Solve a system of equations by elimination, involving infinitely many solutions	System of equations Substitutions Elimination Infinite

	[same line] 8.EE.8 Distinguish between one solution, no solution, and infinitely many solution by graphing a system of equations 8.EE.8 Identify system of equations that have no solution or infinitely many solutions through simple inspection 8.EE.8 Rearrange linear equations from slope intercept form to standard form and vice versa in order to solve using a given method. I Can: **c.** 8.EE.8 Examine real-world problems and write the linear systems of equations 8.EE.8 Decide which method to use when solving systems of linear equations in real-world situations. 8.EE.8 Explain how the point of intersection represents 2 linear equations	

Common Core Math Standards
Grade 8 – Functions

2. After reading the standard, underline nouns and circle verbs. 2) Using the verbs, craft the "I Can" statement(s). 3) Embed Bloom's Taxonomy key words within the statement(s).

Common Core Standards	Converted/Unpacked Standards "I Can" Statements (Student-Centered)	Vocabulary
CC.8.F.1 Understand that a function is a rule that assigns 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.1	I can… 8.F.1 Define function 8.F.1 Identify the domain and range of a relation 8.F.1 Calculate the y-value for an equation when given the x-value 8.F.1 Calculate the x-value for an equation when given the y-value 8.F.1 Create a table for an equation 8.F.1 Determine if a table is a function 8.F.1 Represent a function in the form of ordered pairs (table) and graphs.	Function Domain Range Relation
CC.8.F.2 Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). For example, given a linear function represented by a table of values and a linear function represented by an algebraic expression, determine which function has the greater rate of change.	I can… 8.F.2 Compare/contrast two functions with the same representation (graphically, numerically, verbally) 8.F.2 Compare/contrast two functions with different representations	Rate of change

	8.F.2 Compare functions represented in different forms to determine which has the greater rate of change (slope) **	
CC. 8.F.3 Interpret the equation y = mx + b as defining a **linear function**, whose graph is a straight line; give examples of functions that are not linear. For example, the function A = s2 giving the area of a square as a function of its side length is not linear because its graph contains the points (1,1), (2,4) and (3,9), which are not on a straight line.	I can… 8.F.3 Identify that non-linear is not straight 8.F.3 Use equations to categorize functions as linear or non-linear 8.F.3 Use graphs to categorize functions as linear or non-linear 8.F.3 Use tables to categorize functions as linear or non-linear	Non-linear
CC.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 relationship 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 a table of values.	I can… 8.F.4 Identify the slope and y-intercept from a graph, table, and equation. 8.F.4 Understand that the y-intercept is the initial value of a function 8.F.4 Construct an equation from a real-world situation 8.F.4 Write an equation given the slope and y-intercept 8.F.4 Determine the rate of change (slope) and the y-intercept given real-world situations	

CC.8.F.5 Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear). Sketch a graph that exhibits the qualitative features of a function that has been described verbally.	I can… 8.F.5 Identify the types of slope as positive or negative, linear or non-linear 8.F.5 Analyze a graph of two quantities (ie. distance over time) 8.F.5 Sketch the graph of a function from a verbal description. 8.F.5 Provide a verbal description of a function graph.	

Common Core Math Standards
Grade 8 - Geometry

1. After reading the standard, underline nouns and circle verbs. 2) Using the verbs, craft the "I Can" statement(s). 3) Embed Bloom's Taxonomy key words within the statement(s).

Common Core Standards	Converted/Unpacked Standards "I Can" Statements (Student-Centered)	Vocabulary
CC.8.G.1 Verify experimentally the properties of rotations, reflections, and translations. A) Lines are taken to lines, and line segments to line segments of the same length. B) Angles are taken to angles of the same measure. C) Parallel lines are taken to parallel lines.	I can… 8.G.1 Define congruent 8.G.1 Construct an image from pre-image, using geometric tools. 8.G.1 Construct a rotation, reflection, translations 8.G.1 Justify that an image and pre-image are congruent for all transformations using compasses, protractors, and rulers. 8.G.1 Recognize the angles formed by two parallel lines and a transversal 8.G.1 Justify why angles(formed by parallel lines and a transversal) are congruent using angle relationships	Rotations Reflections Translations Transformations Congruent

CC.8.G.2 Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that exhibits the congruence between them.	I can… 8.G.2 Determine if two figures are congruent by identifying the transformation used to produce the figures 8.G.2 Recognize the symbol for congruency (≅) and write statements of congruency 8.G.2 Describe the sequence of transformations from one figure to another	Congruency (≅)
CC.8.G.3 Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates.	I can… 8.G.3 Identify the new coordinates of a translation 8.G.3 Identify the new coordinates of a reflection 8.G.3 Identify the new coordinates of a rotation 8.G.3 Identify the new coordinates of a dilation 8.G.3 Understand image and pre-image are similar in dilations	Dilation Coordinates
CC.8.G.4 Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them.	I can… 8.G.4 Describe that the angles of similar figures are congruent and the sides of similar figures are proportional 8.G.4 Produce similar figures from dilations using scale factors	Similar **Symbol**

	8.G.4 Describe the list of steps that would produce similar figures when given the scale factors (dilation) 8.G.4 Differentiate between scale factor that would enlarge a figure's size and one that would reduce it	
CC.8.G.5 Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles.	I can… 8.G.5 Find the missing angle of a triangle. 8.G.5 Find the measures of missing angles 8.G.5 Find the exterior angle of a triangle 8.G.5 Make conjectures about relationships between angles 8.G.5 Determine the relationship between two angles when given parallel lines and a transversal. 8.G.5 Find the missing angle measure when given two similar triangles. 8.G.5 Construct various triangles and find the measures of interior and exterior angles 8.G.5 Explore and justify relationships that exist between angle sums and exterior angle sums of	

	triangles 8.G.5 Explore and justify relationships that exist between angles created when parallel lines are cut by a transversal 8.G.5 Explore and justify relationships that exist between the angle – angle criterion for similarity of triangles 8.G.5 Construct various triangles and find measures of the interior and exterior angles 8.G.5 Form a hypothesis about the relationship between the measure of an exterior angle and the other two angles of a triangle 8.G.5 Apply my knowledge of angle relationships to find the measure of missing angles 8.G.5 Construct parallel lines and transversal to examine the relationships between created angles 8.G.5 Apply my knowledge of vertical, adjacent, and supplementary angles to identify other pairs of congruent angles 8.G.5 Construct triangles having line segments of different lengths but with two corresponding congruent	

	angles 8.G.5 Compare ratios of sides to find a constant scale factor of similar triangles	
CC.8.G.6 Explain a proof of the Pythagorean Theorem and its converse.	I can… 8.G.6 Understand the Pythagorean Theorem 8.G.6 Use the Pythagorean Theorem to find the missing side of a right triangle. 8.G.6 Use the Pythagorean Theorem to determine if three length measurements form a right triangle 8.G.6 Identify the parts of a right triangle (legs and hypotenuse) 8.G.6 Recognize the diagonal of a parallelogram with right angles as the hypotenuse of the right triangles formed 8.G.6 Verify the Pythagorean Theorem by examining the area of squares coming off of each side of the right triangle 8.G.6 Determine if a triangle is a right triangle by using the Pythagorean Theorem 8.G.6 Identify Pythagorean triples 8.G.6 Explain a proof of the Pythagorean Theorem	

CC.8.G.7 Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.	I can… 8.G.7 Solve word problems using the Pythagorean Theorem 8.G.7 Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world problems in 2 dimension and 3 dimensions 8.G.7 Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in mathematical problems in 2 dimension and 3 dimensions	
CC.8.G.8 Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.	I can… 8.G.8 Use the Pythagorean Theorem (instead of the distance formula) to find the distance between two points in a coordinate plane 8.G.8 Construct a right triangle on a coordinate plane to determine the distance between two points 8.G.8 Determine the length of the diagonal or hypotenuse of a right triangle on a coordinate plane 8.G.8 Use the coordinate plane to create a right triangle relationship whereby the distance between two points can be determined by	

	solving for the hypotenuse of the Pythagorean Theorem.	
CC.8.G.9 Know the formula for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.	I can… 8.G.9 Identify the shapes of cones, cylinders, and spheres 8.G.9 Use appropriate formulas for volume of cones, cylinders, and spheres in mathematical and real-world situations	

Common Core Math Standards
Grade 8 – Statistics and Probability

3. After reading the standard, underline nouns and circle verbs. 2) Using the verbs, craft the "I Can" statement(s). 3) Embed Bloom's Taxonomy key words within the statement(s).

Common Core Standards	Converted/Unpacked Standards "I Can" Statements (Student-Centered)	Vocabulary
CC.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.	I can… 8.SP.1 Graph a set of points 8.SP.1 Interpret scatter plot as linear or nonlinear 8.SP.1 Interpret scatter plot as positive, negative, constant, or no correlation. 8.SP.1 Interpret the graph as strong correlation (clustering) or weak (outliers) 8.SP.1 Construct a scatter plot on a plane using two variables 8.SP.1 Investigate the relationship between two quantities on a scatter plot 8.SP.1 Predict future outcomes using a scatter plot 8.SP.1 Analyze the trend of a scatter plot and determine whether there is a positive, negative(linear),	

	or no relationship(non-linear) 8.SP.1 Describe patterns in the data such as clustering and outliers	
CC.8.SP.2 Know that straight lines are widely used to model relationships between two quantitative variables. For scatter plots that suggest 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.	I can… 8.SP.2 Write the equation [line-of-best fit] for a scatter plot, by finding the slope and y-intercept. 8.SP.2 Write the equation [line-of-best fit] for a scatter plot, using the calculator [STAT key]	
CC. 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. For example, in a linear model for a biology experiment, interpret a slope of 1.5 cm/hr as meaning that an additional hour of sunlight each day is associated with an additional 1.5 cm in mature plant height	I can… 8.SP.3 Graph the equation to demonstrate how the data is related 8.SP.3 Use the line of best fit to determine an equation in two variables for the data (y=mx + b) 8.SP.3 Use slope intercept form (y= mx + b) to determine the slope and y-intercept of the line of best fit 8.SP.3 Interpret the meaning of the slope and y intercept in the context of the data given	

	8.SP.3 Determine relevant information from graph	
CC.8.SP.4 Understand that patterns of association can also be seen in vicariate categorical data by displaying frequencies and relative frequencies in a two-way table. Construct and interpret a two-way table summarizing data on two categorical variables collected from the same subjects. Use relative frequencies calculated for rows or columns to describe possible association between the two variables. For example, collect data from students in your class on whether or not they have a curfew on school nights and whether or not they have assigned chores at home. Is there evidence that those who have a curfew also tend to have chores?	I can… 8.SP.4 Determine if there is a correlation between the information 8.SP.4 Read a graph to determine a correlation 8.SP.4 Construct a graph based on information given 8.SP.4 Create a frequency table with collected data 8.SP.4 Interpret a frequency table 8.SP.4 Make predictions and analyze the data between the variables in the frequency table 8.SP.4 Justify and defend the accuracy of my predictions	