

COMMON CORE ELEMENTS AND ACHIEVEMENT DESCRIPTORS FOR SIXTH GRADE

Sixth Grade Mathematics Standards

CCSS Grade-Level Clusters	Common Core EE	Instructional Achievement Level Descriptor
Ratios and Proportional Relationships		
<p>Understand ratio concepts and use ratio reasoning to solve problems.</p> <p>6.RP.1. Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. <i>For example, “The ratio of wings to beaks in the bird house at the zoo was 2:1, because for every 2 wings there was 1 beak.” “For every vote candidate A received, candidate C received nearly 3 votes”</i></p> <p>6.RP.2. Understand the concept of a unit rate a/b associated with a ratio $a:b$ with $b \neq 0$, and use rate language in the context of a ratio relationship. <i>For example, “This recipe has a ratio of 3 cups of flour to 4 cups of sugar, so there is $\frac{3}{4}$ cup of flour for each cup of sugar.” “We paid \$75 for 15 hamburgers, which is a rate of \$5 per hamburger.”</i></p> <p>6.RP.3. Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations.</p> <p><i>a.</i> Make tables of equivalent ratios relating quantities with whole number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios.</p> <p><i>b.</i> Solve unit rate problems including those involving unit pricing and constant speed. <i>For example, if it took 7 hours to mow 4 lawns, then at that rate, how many lawns could be mowed in 35 hours? At what rate were lawns being mowed?</i></p> <p><i>c.</i> Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means 30/100 times the quantity); solve problems involving finding the whole, given a part and the percent.</p> <p><i>d.</i> Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.</p>	<p>EE6.RP.1-3. Demonstrate a simple ratio relationship.</p>	<p>Level IV AA Students will: EE6.RP.1-3. Use a ratio to describe a relationship using numbers and objects. Ex. Given an even number of red and twice as many green beads, identify the ratio of green beads, compared to red beads. Ex. While preparing a recipe, fill in a ratio of flour to sugar (e.g., one cup of sugar to four cups of flour.) Ex. Compare the number of male students to female students. Ex. Given the quantity of materials available and the number of groups who will conduct a science experiment, use a ratio relationship to describe how much each group will receive.</p> <p>Level III AA Students will: EE6.RP.1-3. Demonstrate a simple ratio relationship using a sharing model. Ex. Evenly distribute 10 cookies among 5 students. Ex. Evenly split \$20 among four students.</p> <p>Level II AA Students will: EE6.RP.1-3. Match items according to a simple ratio relationship. Ex. Give a pen and pencil to each classmate. Ex. Complete a ratio of two-to-one (i.e. AABAABAAB pattern; jump, jump, clap, jump, jump, clap)</p> <p>Level I AA Students will: EE6.RP.1-3. Identify a one-to-one relationship. (Indicate each object using touch, hand over hand, eye gaze, etc...) Ex. Given a stack of napkins, give a napkin to each classmate. Ex. When sorting mail in the main office, place one copy of the school newsletter in each teacher’s mailbox. Ex. Indicate each object as the teacher counts.</p>

The Number System		
<p>Apply and extend previous understandings of multiplication and division to divide fractions by fractions.</p> <p>6.NS.1. Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem. <i>For example, create a story context for $(2/3) \div (3/4)$ and use a visual fraction model to show the quotient; use the relationship between multiplication and division to explain that $(2/3) \div (3/4) = 8/9$ because $3/4$ of $8/9$ is $2/3$. (In general, $(a/b) \div (c/d) = ad/bc$.) How much chocolate will each person get if 3 people share $1/2$ lb of chocolate equally? How many $3/4$-cup servings are in $2/3$ of a cup of yogurt? How wide is a rectangular strip of land with length $3/4$ mi and area $1/2$ square mi?</i></p>	<p>EE6.NS.1. Compare relationships between fractions and understand that a number can be expressed as a fraction.</p>	<p>Level IV AA Students will: EE6.NS.1. Compute a quotient when a whole number is already divided into parts. <i>Ex. How much chocolate will each person get if 3 people share $1/2$ lb of chocolate equally? (could also use pizza)</i> <i>Ex. How many dimes in a dollar? Or how many quarters are in a dollar?</i></p> <p>Level III AA Students will: EE6.NS.1. Using a model, compute a quotient when a number is already divided. <i>Ex. If I had half of a cookie, cut it in half, and gave one piece to a friend, how much of a cookie will my friend get?</i></p> <p>Level II AA Students will: EE6.NS.1. Divide a whole number into halves, thirds, and quarters. (ie using visuals) <i>Ex. Use fractions disks to indicate wholes, halves, thirds, and quarters.</i></p> <p>Level I AA Students will: EE6.NS.1. Indicate half or a quarter of a whole. <i>Ex. Indicate half of a dollar using quarters. Or indicate half of a pizza using slices.</i></p>
<p>Compute fluently with multi-digit numbers and find common factors and multiples.</p> <p>6.NS. 2. Fluently divide multi-digit numbers using the standard algorithm.</p>	<p>EE6.NS.2. Divide two-digit/three-digit numbers without remainders.</p>	<p>Level IV AA Students will: EE6.NS.2. Divide up to three digit whole numbers by one or two digit numbers. <i>Ex.</i></p> <p>Level III AA Students will: EE6.NS.2. Divide up to three digit whole number dividends by one or two digit numbers using models. <i>Ex.</i></p> <p>Level II AA Students will: EE6.NS.2. Divide two digit dividend by a single divisor with or without models. <i>Ex.</i></p> <p>Level I AA Students will: EE6.NS.2.. Indicate the correct quotient when a two-digit dividend is divided by a single digit. <i>Ex. Given 10 chips divide them into two equal piles.</i> <i>Ex. Indicate the quotient using number cards.</i></p>

<p>Compute fluently with multi-digit numbers and find common factors and multiples.</p> <p>6.NS.3. Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.</p>	<p>EE6.NS.3. Add, subtract, multiply, and divide whole numbers with decimals up to the hundredths place.</p>	<p>Level IV AA Students will: EE6.NS.3. Add, subtract, multiply, and divide multi-digit numbers with decimals (with or without models). Level III AA Students will: EE6.NS.3. Add and subtract multi-digit numbers with decimals (with or without models). <i>Ex.</i></p> <p>Level II AA Students will: EE6.NS.3. Add and subtract multi-digit numbers with or without models. <i>Ex. 1 dollar minus 50 cents is 50</i></p> <p>Level I AA Students will: EE6.NS.3. Add multi-digit numbers with or without models. <i>Ex. cents 50 cents plus 50 cents is 1 dollar</i></p>
<p>Compute fluently with multi-digit numbers and find common factors and multiples.</p> <p>6.NS.4. Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1–100 with a common factor as a multiple of a sum of two whole numbers with no common factor. <i>For example express $36 + 8$ as $4(9 + 2)$.</i></p>	<p>EE6.NS.4. Identify common factors within numbers.</p>	<p>Level IV AA Students will: EE6.NS.4. List the factors of numbers 1 through 20 without models. <i>Ex.</i></p> <p>Level III AA Students will: EE6.NS.4. List the factors of numbers 1 through 20 with models. <i>Ex.</i></p> <p>Level II AA Students will: EE6.NS.4. List the factors of numbers 1 through 10 without models. <i>Ex.</i></p> <p>Level I AA Students will: EE6.NS.4. List the factors of numbers 1 through 10 with models. <i>Ex.</i></p>
<p>Apply and extend previous understandings of numbers to the system of rational numbers.</p> <p>6.NS.5. Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1–100 with a common factor as a multiple of a sum of two whole numbers with no common factor. <i>For example express $36 + 8$ as $4(9 + 2)$.</i></p>	<p>EE6.NS.5. Compare the value of numbers.</p>	<p>Level IV AA Students will: EE6.NS.5. Apply positive and negative numbers in real-world contexts from greater than positive 10 to less than negative 10.</p> <p>Level III AA Students will: EE6.NS.5. Order positive and negative number from least to greatest. <i>Ex.</i></p> <p>Level II AA Students will: EE6.NS.5. Order positive numbers from least to greatest. <i>Ex.</i></p>

		<p>Level I AA Students will: EE6.NS.5. Identify which is greater than and less than using fewer than 10.</p>
<p>Apply and extend previous understandings of numbers to the system of rational numbers.</p> <p>6.NS.6. Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates.</p> <p>a. Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line; recognize that the opposite of the opposite of a number is the number itself, e.g., $-(-3) = 3$, and that 0 is its own opposite.</p> <p>b. Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane; recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes.</p> <p>c. Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane.</p>	<p>EE6.NS.6. Compare the value of numbers.</p>	<p>Level IV AA Students will: EE6.NS.6. Count forward and backward on the number line from negative ten to ten. <i>Ex.</i></p> <p>Level III AA Students will: EE6.NS.6. Count forward on the number line from negative ten to ten. <i>Ex.</i></p> <p>Level II AA Students will: EE6.NS.6. Count forward and backward on the number line from zero to ten. <i>Ex.</i></p> <p>Level I AA Students will: EE6.NS.6. Count forward on the number line from zero to ten. <i>Ex.</i></p>
<p>Apply and extend previous understandings of numbers to the system of rational numbers.</p> <p>6.NS.7. & 6.NS.8.</p>	<p>EE6.NS.7-8. Not applicable</p>	
<p>Expressions and Equations</p>		
<p>Apply and extend previous understandings of arithmetic to algebraic expressions.</p> <p>6.EE.1. Write and evaluate numerical expressions involving whole-number exponents.</p> <p>6.EE.2. Write, read, and evaluate expressions in which letters stand for numbers.</p> <p>a. Write expressions that record operations with numbers and with letters standing for numbers. <i>For example, express the calculation “Subtract y from 5” as $5 - y$.</i></p> <p>b. Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, coefficient); view one or more parts of an expression as a single</p>	<p>EE6.EE.1-2. Evaluate algebraic expressions.</p>	<p>Level IV AA Students will: EE6.EE.1-2. Given a scenario, identify the correct number sentence. <i>Ex. There are 6 cookies and 2 chocolates for each of 4 people. How many treats are there altogether? Select the correct number sentence $6(4+2)$, $2(4+6)$, $4(6+2)$,</i></p> <p>Level III AA Students will: EE6.EE.1-2. Match number sentence with the correct representation. <i>Ex. Demonstrate $6-2$ using manipulatives</i></p> <p>Level II AA Students will: EE6.EE.1-2. Demonstrate a simple math sentence <i>Ex. Given the number sentence choose the correct representation</i></p>

<p>entity. For example, describe the expression $2(8 + 7)$ as a product of two factors; view $(8 + 7)$ as both a single entity and a sum of two terms.</p> <p>c. Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those involving whole number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations). For example, use the formulas $V = s^3$ and $A = 6s^2$ to find the volume and surface area of a cube with sides of length $s = 1/2$.</p>		<p>Level I AA Students will: EE6.EE.1-2. Identify math symbols ie “=” as meaning equal to (<,>,+,-,x,÷). <i>Ex.</i></p>
<p>Apply and extend previous understandings of arithmetic to algebraic expressions.</p> <p>6.EE.3. Apply the properties of operations to generate equivalent expressions. For example, apply the distributive property to the expression $3(2 + x)$ to produce the equivalent expression $6 + 3x$; apply the distributive property to the expression $24x + 18y$ to produce the equivalent expression $6(4x + 3y)$; apply properties of operations to $y + y + y$ to produce the equivalent expression $3y$.</p> <p>6.EE.4. Identify when two expressions are equivalent (i.e., when the two expressions name the same number regardless of which value is substituted into them). For example, the expressions $y + y + y$ and $3y$ are equivalent because they name the same number regardless of which number y stands for.</p>	<p>EE6.EE.3-4. Demonstrate understanding of equivalent expressions.</p>	<p>Level IV AA Students will: EE6.EE.3-4. Solve equivalent expressions to illustrate that they are equivalent or demonstrate their equivalence. <i>Ex. Given the expression $4+2=3+3$ student must demonstrate that both of these are 6</i></p> <p>Level III AA Students will: EE6.EE.3-4. Demonstrate understanding of equivalent expressions. <i>Ex. Given two expressions indicate if they are equivalent</i></p> <p>Level II AA Students will: EE6.EE.3-4. Indicate matching displays of the equal quantities. <i>Ex. Given two blue cubes which is the same 1 ship, 2 bears, or 3 ducks?</i></p> <p>Level I AA Students will: EE6.EE.3-4. Match different displays of the same quantity. <i>Ex. Are these two values equivalent? 3 ducks and two cubes</i></p>
<p>Reason about and solve one-variable equations and inequalities.</p> <p>6.EE.5. Understand solving an equation or inequality as a process of answering a question: which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true.</p> <p>6.EE.6. Use variables to represent numbers and write expressions 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 specified set.</p>	<p>EE6.EE.5-6. Match an equation to a real-world problem in which variables are used to represent numbers.</p>	<p>Level IV AA Students will: EE6.EE.5-6. Using a variable, generate an equivalent equation that represents a real-world problem. <i>Ex. We had ten cookies left today. Tomorrow we will bake some more cookies then we will have 18 cookies. Create an equation for this situation.</i></p> <p>Level III AA Students will: EE6.EE.5-6. Match an equation to a real-world problem in which variables are used to represent numbers. <i>Ex. We had ten cookies left today. Tomorrow we will bake some more cookies then we will have 18 cookies. How many cookies did we bake? 10, 8, or 18?</i></p> <p>Level II AA Students will: EE6.EE.5-6. Determine what is unknown in an equation. <i>Ex. $4+z=6$ Which part is the unknown?</i></p>

		<p>Level I AA Students will: EE6.EE.5-6. Identify the letter in a mathematical sentence. <i>Ex. $Z=6$ Identify the value of the variable $Z=$</i></p>
<p>Reason about and solve one-variable equations and inequalities. 6.EE.7., 6.EE.8.</p>	<p>EE6.EE.7-8. Not Applicable</p>	
<p>Represent and analyze quantitative relationships between dependent and independent variables. 6.EE.9.</p>	<p>EE6.EE.9. Not Applicable</p>	
<p>Geometry</p>		
<p>Solve real-world and mathematical problems involving area, surface area, and volume.</p> <p>6.G.1. Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the context of solving real-world and mathematical problems.</p>	<p>EE6.G.1. Demonstrate area.</p>	<p>Level IV AA Students will: EE6.G.1. Calculate the area of triangles, quadrilaterals, and polygons using a formula. <i>Ex.</i></p> <p>Level III AA Students will: EE6.G.1. Decompose a parallelogram into squares and triangles; find the area of a square. <i>Ex.</i></p> <p>Level II AA Students will: EE6.G.1. Given two shapes to compare, identify which shape has a larger area. <i>Ex. Which shape has a larger area a square or a pentagon?</i></p> <p>Level I AA Students will: EE6.G.1. Identify triangles and squares, and indicate correctly the shaded area. <i>Ex.</i></p>
<p>Solve real-world and mathematical problems involving area, surface area, and volume.</p> <p>6.G.2. Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas $V = lwh$ and $V = bh$ to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.</p>	<p>EE6.G.2. Demonstrate volume.</p>	<p>Level IV AA Students will: EE6.G.2. Calculate the volume of right rectangular prisms (using a formula) and describe volume. <i>Ex.</i></p> <p>Level III AA Students will: EE6.G.2. Given numerical representations of volume, place three objects in order from least to greatest volume. <i>Ex.</i></p> <p>Level II AA Students will: EE6.G.2. Given two shapes to compare, identify which shape has a larger volume. <i>Ex.</i></p>

		<p>Level I AA Students will: EE6.G.2. Identify rectangular prisms and cubes, and fill the inside to represent volume. <i>Ex.</i></p>
<p>Solve real-world and mathematical problems involving area, surface area, and volume.</p> <p>6.G.3. Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. Apply these techniques in the context of solving real-world and mathematical problems.</p>	<p>EE6.G.3. Plot points on a coordinate grid.</p>	<p>Level IV AA Students will: EE6.G.3. Plot the points of given shape in quadrant 1. <i>Ex.</i></p> <p>Level III AA Students will: EE6.G.3. Identify the points plotted in quadrant 1 on a coordinate grid. <i>Ex.</i></p> <p>Level II AA Students will: EE6.G.3. Plot one point in quadrant 1 of a coordinate grid. <i>Ex.</i></p> <p>Level I AA Students will: EE6.G.3. Connect the points plotted on a coordinate grid to draw a polygon. <i>Ex.</i></p>
<p>Solve real-world and mathematical problems involving area, surface area, and volume.</p> <p>6.G.4. Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real-world and mathematical problems.</p>	<p>EE6.G.4. Identify common three-dimensional shapes.</p>	<p>Level IV AA Students will: EE6.G.4. Identify the three-dimensional shapes as using a two dimensional representation (net). <i>Ex. Given a cylinder what is the matching real world object.</i></p> <p>Level III AA Students will: EE6.G.4. As related to real-world objects, Identify common three-dimensional shapes (i.e. sphere, cube, cylinder). <i>Ex.</i></p> <p>Level II AA Students will: EE6.G.4. Sort three-dimensional shapes and two-dimensional shapes. <i>Ex.</i></p> <p>Level I AA Students will: EE6.G.4. Match shapes. <i>Ex.</i></p>
Statistics and Probability		
<p>Develop understanding of statistical variability.</p> <p>6.SP.1. Recognize a statistical question as one that anticipates variability in the</p>	<p>EE6.SP.1. Develop a statistical question.</p>	<p>Level IV AA Students will: EE6.SP.1. Collect data, ask three questions about a set of numbers, then chart the data.</p>

<p>data related to the question and accounts for it in the answers. <i>For example, “How old am I?” is not a statistical question, but “How old are the students in my school?” is a statistical question because one anticipates variability in students’ ages.</i></p>		<p><i>Ex.</i></p> <p>Level III AA Students will: EE6.SP.1. Display data on a graph or table and ask two questions about the data. <i>Ex.</i></p> <p>Level II AA Students will: EE6.SP.1. Organize data and ask one question about the data. <i>Ex.</i></p> <p>Level I AA Students will: EE6.SP.1. Sort information into categories into two categories and answer one question about the data <i>Ex. Separate/organize the data into two categories and determine which group has more.</i></p>
<p>Develop understanding of statistical variability.</p> <p>6.SP.2. Understand that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape.</p> <p>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.</p>	<p>EE6.SP.2-3. Analyze data with mean, median, mode, and range.</p>	<p>Level IV AA Students will: EE6.SP.2-3. Collect data and calculate mean, median, mode, and range; make two observations about the calculations. <i>Ex.</i></p> <p>Level III AA Students will: EE6.SP.2-3. Interpret given data on mean, median, mode, and range; make two observations about the data. <i>Ex.</i></p> <p>Level II AA Students will: EE6.SP.2-3. Interpret given data on any two of the following mean, median, mode, and range; make two observations about the data. <i>Ex.</i></p> <p>Level I AA Students will: EE6.SP.2-3. Interpret given data on mean, median, mode, and range or make an observation about the data. <i>Ex.</i></p>
<p>Summarize and describe distributions. 6.SP.4</p>	<p>EE6.SP.4. Not applicable</p>	
<p>Summarize and describe distributions.</p> <p>6.SP.5. Summarize numerical data sets in relation to their context, such as by:</p> <p>a. Reporting the number of observations.</p>	<p>EE6.SP.5. Summarize data distributions on a graph or table.</p>	<p>Level IV AA Students will: EE6.SP.5. Summarize the data distributions on a graph or table in multiple ways. <i>Ex.</i></p>

<p>b. Describing the nature of the attribute under investigation, including how it was measured and its units of measurement.</p> <p>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.</p> <p>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.</p>		<p>Level III AA Students will: EE6.SP.5. Summarize data distributions on a graph or table in one way. <i>Ex.</i></p> <p>Level II AA Students will: EE6.SP.5. Use a graph to determine which category has the most (using a graph with multiple values). <i>Ex.</i></p> <p>Level I AA Students will: EE6.SP.5. Identify which has more or less (using a graph with two values) <i>Ex.</i></p>
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COMMON CORE ELEMENTS AND ACHIEVEMENT DESCRIPTORS FOR SEVENTH GRADE

Seventh Grade Mathematics Standards

CCSS Grade-Level Clusters	Common Core EE	Instructional Achievement Level Descriptor
Ratios and Proportional Relationships		
<p>Analyze proportional relationships and use them to solve real-world and mathematical problems. Analyze proportional relationships and use them to solve real-world and mathematical problems.</p> <p>7.RP.1. Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units. <i>For example, if a person walks 1/2 mile in each 1/4 hour, compute the unit rate as the complex fraction 1/2/1/4 miles per hour, equivalently 2 miles per hour.</i></p> <p>7.RP.2. Recognize and represent proportional relationships between quantities.</p> <p>a. Decide whether two quantities are in a proportional relationship, e.g., by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin.</p> <p>b. Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.</p> <p>c. Represent proportional relationships by equations. <i>For example, if total cost t is proportional to the number n of items purchased at a constant price p, the relationship between the total cost and the number of items can be expressed as $t = pn$.</i></p> <p>d. Explain what a point (x, y) on the graph of a proportional relationship means in terms of the situation, with special attention to the points $(0, 0)$ and $(1, r)$ where r is the unit rate.</p> <p>7.RP.3. Use proportional relationships to solve multistep ratio and percent problems. <i>Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error.</i></p>	<p>EE7.RP.1-3. Understand How to use ratios to solve problems.</p>	<p>Level IV AA Students will: EE7.RP.1-3. Identify the unit rate, and solve problems that describe a relationship between quantities <i>Ex. For every vote Candidate A received, Candidate B received three votes. If Candidate A received 10 votes, how many did Candidate B receive?</i></p> <p>Level III AA Students will: EE7.RP.1-3. Solve problems involving units of rate. <i>Ex.</i></p> <p>Level II AA Students will: EE7.RP.1-3. Given the visual model extend the given ratio <i>Ex. Given 3 red blocks and 2 blue blocks, if we add 3 more red blocks, how many more blue blocks are needed to continue the pattern?</i></p> <p>Level I AA Students will: EE7.RP.1-3. Given a visual model, identify ratios involving relationships between two quantities. <i>Ex. Roll the dice and move one spot for each spot on the die. Ex. Continue the pattern $xx\ y\ xx\ y\ xx\ \dots$</i></p>
The Number System		
<p>Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.</p> <p>7.NS.1. Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a</p>	<p>EE7.NS.1. Add and subtract fractions with like denominators (halves, thirds,</p>	<p>Level IV AA Students will: EE7.NS.1. Add and subtract fractions with like denominators (halves, thirds, fourths, and tenths) so the solution is less than or equal to one. <i>Ex.</i></p>

<p>horizontal or vertical number line diagram.</p> <p>a. Describe situations in which opposite quantities combine to make 0. <i>For example, a hydrogen atom has 0 charge because its two constituents are oppositely charged.</i></p> <p>b. Understand $p + q$ as the number located a distance q from p, in the positive or negative direction depending on whether q is positive or negative. Show that a number and its opposite have a sum of 0 (are additive inverses). Interpret sums of rational numbers by describing real-world contexts</p> <p>c. Understand subtraction of rational numbers as adding the additive inverse, $p - q = p + (-q)$. Show that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle in real-world contexts.</p> <p>d. Apply properties of operations as strategies to add and subtract rational numbers.</p>	<p>fourths, and tenths) so the solution is less than or equal to one.</p>	<p>Level III AA Students will: EE7.NS.1. Add fractions with like denominators (halves, thirds, fourths, and tenths) so the solution is less than or equal to one. <i>Ex.</i></p> <p>Level II AA Students will: EE7.NS.1. Use models to add halves, thirds, and fourths. <i>Ex. Given 3 red blocks and 2 blue blocks, if we add 3 more red blocks, how many more blue blocks are needed to continue the pattern?</i></p> <p>Level I AA Students will: EE7.NS.1. Use models to identify the whole and find the missing pieces of a whole. <i>Ex. Roll the dice and move one spot for each spot on the die.</i> <i>Ex. Continue the pattern xx y xx y xx ...</i></p>
<p>Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.</p> <p>7.NS.2. Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers.</p> <p>a. Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as $(-1)(-1) = 1$ and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts.</p> <p>b. Understand that integers can be divided, provided that the divisor is not zero, and every quotient of integers (with non-zero divisor) is a rational number. If p and q are integers, then $-(p/q) = (-p)/q = p/(-q)$. Interpret quotients of rational numbers by describing real-world contexts.</p> <p>c. Apply properties of operations as strategies to multiply and divide rational numbers.</p> <p>d. Convert a rational number to a decimal using long division; know that the decimal form of a rational number terminates in 0s or eventually repeats.</p>	<p>EE7.NS.2. Solve multiplication and division problems involving fractions.</p>	<p>Level IV AA Students will: EE7.NS.2. Multiply and divide fractions with like denominators (halves, thirds, fourths, and tenths). <i>Ex.</i></p> <p>Level III AA Students will: EE7.NS.2. Multiply fractions with like denominators (halves, thirds, fourths, and tenths) so the solution is less than or equal to one. <i>Ex.</i></p> <p>Level II AA Students will: EE7.NS.2. Use models to multiply halves, thirds, and fourths. <i>Ex.</i></p> <p>Level I AA Students will: EE7.NS.2. Use models to identify the whole and find the missing pieces of a whole. <i>Ex.</i></p>

<p>Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers. 7.NS.3. Solve real-world and mathematical problems involving the four operations with rational numbers.¹</p>	<p>EE7.NS.3. Embedded in 7.NS.1 and 7.NS.2</p>	
<p>Expressions and Equations</p>		
<p>Use properties of operations to generate equivalent expressions.</p> <p>7.EE.1. Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.</p> <p>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 related. <i>For example, $a + 0.05a = 1.05a$ means that “increase by 5%” is the same as “multiply by 1.05.”</i></p>	<p>EE7.EE.1-2. Use the relationship within addition and/or multiplication to illustrate that two expressions are equivalent.</p>	<p>Level IV AA Students will: EE7.EE.1-2. Apply the properties of operations to complete an equation. <i>Ex.</i></p> <p>Level III AA Students will: EE7.EE.1-2.. Show a property of operations to be true <i>Ex.</i></p> <p>Level II AA Students will: EE7.EE.1-2. Show equivalence using a property of operation. <i>Ex.</i></p> <p>Level I AA Students will: EE7.EE.1-2. Understand that different displays of the same quantity are equal. <i>Ex. Does $4+3=3+4$?</i></p>
<p>Solve real-life and mathematical problems using numerical and algebraic expressions and equations.</p> <p>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 the reasonableness of answers using mental computation and estimation strategies. <i>For example: If a woman making \$25 an hour gets a 10% raise, she will make an additional 1/10 of her salary an hour, or \$2.50, for a new salary of \$27.50. If you want to place a towel bar 9 3/4 inches long in the center of a door that is 27 1/2 inches wide, you will need to place the bar about 9 inches from each edge; this estimate can be used as a check on the exact computation.</i></p>		<p>Level IV AA Students will: EE7.EE.3. Solve two-step real-world addition and subtraction equations using positive and negative numbers between -20 and 20. <i>Ex.</i></p>
<p>Solve real-life and mathematical problems using numerical and algebraic expressions and equations.</p> <p>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.</p>	<p>EE7.EE.4. Use the concept of equality with models to solve addition and subtraction</p>	<p>Level III AA Students will: EE7.EE.4. Use the concept of equality to solve two-step real-world addition and subtraction equations. <i>Ex.</i></p>

<p>a. Solve word problems leading to equations of the form $px + q = r$ 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. <i>For example, the perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width?</i></p> <p>b. Solve word problems leading to inequalities of 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 the context of the problem. <i>For example: As a salesperson, you are paid \$50 per week plus \$3 per sale. This week you want your pay to be at least \$100. Write an inequality ... and describe the solutions.</i></p>	<p>equations.</p>	<p>Level II AA Students will: EE7.EE.4. Use the concept of equality to solve one-step real-world addition and subtraction equations. <i>Ex.</i></p> <p>Level I AA Students will: EE7.EE.4. Recognize equal quantities on both sides of an equation</p>
<p>Geometry</p>		
<p>Draw, construct, and describe geometrical figures and describe the relationships between them.</p> <p>7.G.1. Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.</p>	<p>EE7.G.1. Recognize similarities among basic two-dimensional geometric figures.</p>	<p>Level IV AA Students will: EE7.G.1. Create a 2:1 scale drawing of a two-dimensional geometric figure. <i>Ex.</i></p> <p>Level III AA Students will: EE7.G.1. Reproduce a 1:1 scale drawing of a two-dimensional geometric figure. <i>Ex.</i></p> <p>Level II AA Students will: EE7.G.1. Match two-dimensional shapes when given a group of various geometric figures. <i>Ex.</i></p> <p>Level I AA Students will: EE7.G.1. Demonstrate the ability to recognize a two-dimensional shape (triangle, rectangle, square) when given a complete shape. <i>Ex.</i></p>
<p>Draw, construct, and describe geometrical figures and describe the relationships between them.</p> <p>7.G.2. Draw (freehand, with ruler and protractor, and with technology) geometric shapes with given conditions. Focus on constructing triangles from three measures of angles or sides, noticing when the conditions determine a unique triangle, more than one triangle, or no triangle.</p>	<p>EE7.G.2. Draw, model or trace basic two-dimensional geometric shapes without a model (circle, triangle, rectangle/ square).</p>	<p>Level IV AA Students will: EE7.G.2. Draw or model three basic two-dimensional geometric shapes. <i>Ex.</i></p> <p>Level III AA Students will: EE7.G.2. Draw or model a basic two-dimensional geometric shape. <i>Ex.</i></p>

		<p>Level II AA Students will: EE7.G.2. Model or trace three basic two-dimensional geometric shapes. <i>Ex.</i></p> <p>Level I AA Students will: EE7.G.2. Model or trace a basic two-dimensional geometric shape.</p>
<p>Draw, construct, and describe geometrical figures and describe the relationships between them.</p> <p>7.G.3. Describe the two-dimensional figures that result from slicing three-dimensional figures, as in plane sections of right rectangular prisms and right rectangular pyramids.</p>	<p>EE7.G.3. Match a two-dimensional shape with a three-dimensional shape that shares an attribute.</p>	<p>Level IV AA Students will: EE7.G.3. Deconstruct a three-dimensional shape into two-dimensional figures(ie nets). <i>Ex.</i></p> <p>Level III AA Students will: EE7.G.3. Match a two-dimensional shape with a three- dimensional shape that shares an attribute. <i>Ex.</i></p> <p>Level II AA Students will: EE7.G.3. Describe common attributes of two- and three-dimensional shapes. <i>Ex.</i></p> <p>Level I AA Students will: EE7.G.3. Replicate the two-dimensional cross-section of a three-dimensional shape (cube, pyramid, rectangular prism) when given a complete shape. <i>Ex.</i></p>
<p>Solve real-life and mathematical problems involving angle measure, area, surface area, and volume.</p> <p>7.G.4. Know the formulas for the area and circumference of a circle and use them to solve problems; give an informal derivation of the relationship between the circumference and area of a circle.</p>	<p>EE7.G.4. Understand area and circumference as these concepts relate to circles.</p>	<p>Level IV AA Students will: EE7.G.4. Calculate the area and circumference of a circle (when given the formulas). <i>Ex.</i></p> <p>Level III AA Students will: EE7.G.4. Calculate the area or circumference of a circle (when give the formulas). <i>Ex.</i></p> <p>Level II AA Students will: EE7.G.4. Identify the area and circumference of a circle. <i>Ex.</i></p> <p>Level I AA Students will: EE7.G.4. Trace or indicate either the area or circumference of a circle.</p>

<p>Solve real-life and mathematical problems involving angle measure, area, surface area, and volume.</p> <p>7.G.5. Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure.</p>	<p>EE7.G.5. Understand different types of angles.</p>	<p>Level IV AA Students will: EE7.G.5. Create a model that illustrate supplementary and complementary angles. <i>Ex.</i></p> <p>Level III AA Students will: EE7.G.5. Identify adjacent, supplementary and complementary angles when given multiple pieces to fit together. <i>Ex.</i></p> <p>Level II AA Students will: EE7.G.5. Identify adjacent, and supplementary angles when given multiple pieces to fit together. <i>Ex.</i></p> <p>Level I AA Students will: EE7.G.5. Identify adjacent angles when given a figure showing intersecting lines. <i>Ex.</i></p>
<p>Solve real-life and mathematical problems involving angle measure, area, surface area, and volume.</p> <p>7.G.6. Solve real-world and mathematical problems involving area, volume and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.</p>	<p>EE7.G.6. Understand the geometric concepts of area, volume, and surface area.</p>	<p>Level IV AA Students will: EE7.G.6. Demonstrate the area of a square or rectangle, the volume of a cube or rectangular prism, and the surface area of a cube or rectangular prism <i>and</i> calculate one of the three (may use other related objects objects). <i>Ex.</i></p> <p>Level III AA Students will: EE7.G.6. Demonstrate the volume and surface area of a cube or rectangular prism, and demonstrate the area of a square or rectangle. (may use other related objects objects) <i>Ex.</i></p> <p>Level II AA Students will: EE7.G.6. Demonstrate the volume of a cube or rectangular prism and the area of a square or rectangle (may use other related objects objects). <i>Ex.</i></p> <p>Level I AA Students will: EE7.G.6. Demonstrate the area of a square or rectangle(may use other related objects objects). <i>Ex.</i></p>

Statistics and Probability		
<p>Use random sampling to draw inferences about a population.</p> <p>7.SP.1. Understand that statistics can be used to gain information about a population by examining a sample of the population; generalizations about a population from a sample are valid only if the sample is representative of that population. Understand that random sampling tends to produce representative samples and support valid inferences.</p>	<p>EE7.SP.1. Understand characteristics of sampling.</p>	<p>Level IV AA Students will: EE7.SP.1. Select which inference is most valid when given a selection of inferences based on a sample. <i>Ex.</i></p> <p>Level III AA Students will: EE7.SP.1. Select which sample provides for more valid generalization when provided with two sets of information based on different sample sizes. <i>Ex.</i></p> <p>Level II AA Students will: EE7.SP.1. Understand how sampling different populations can produce different results. <i>Ex.</i></p> <p>Level I AA Students will: EE7.SP.1. Understand that a sample is a group within a group. <i>Ex.</i></p>
<p>Use random sampling to draw inferences about a population.</p> <p>7.SP.2. Use data from a random sample to draw inferences about a population with an unknown characteristic of interest. Generate multiple samples (or simulated samples) of the same size to gauge the variation in estimates or predictions. <i>For example, estimate the mean word length in a book by randomly sampling words from the book; predict the winner of a school election based on randomly sampled survey data. Gauge how far off the estimate or prediction might be.</i></p>	<p>EE7.SP.2. Answer a question related to data from an experiment, given a model of data, or from data collected by the student using a random sample.</p>	<p>Level IV AA Students will: EE7.SP.2. Answer three or more questions about data collected from a random sample gathered by the student and explain or demonstrate the results. <i>Ex.</i></p> <p>Level III AA Students will: EE7.SP.2. Answer two questions related to data collected from a random sample. <i>Ex.</i></p> <p>Level II AA Students will: EE7.SP.2. Collect data to answer a given question. <i>Ex.</i></p> <p>Level I AA Students will: EE7.SP.2. Answer a question from a data collection. <i>Ex.</i></p>
<p>Draw informal comparative inferences about two populations.</p> <p>7.SP.3. Informally assess the degree of visual overlap of two numerical data distributions with similar variabilities, measuring the difference between the centers by expressing it as a multiple of a measure of variability. <i>For example, the mean height of players on the basketball team is 10 cm greater than the mean height of</i></p>	<p>EE7.SP.3. Compare two sets of data within a single data display (such as a picture graph, line plot, or bar graph)</p>	<p>Level IV AA Students will: EE7.SP.3. Compare data from two picture graphs, two line plots, or two bar graphs and make three or more inferences based on the comparison. <i>Ex.</i></p>

<p>players on the soccer team, about twice the variability (mean absolute deviation) on either team; on a dot plot, the separation between the two distributions of heights is noticeable.</p>	<p>and make inferences based on the comparison.</p>	<p>Level III AA Students will: EE7.SP.3. Compare two sets of data within a single data display such as a picture graph, line plot, or bar graph and make two inferences based on the comparison. <i>Ex.</i></p> <p>Level II AA Students will: EE7.SP.3. Summarize data on a graph or table in one way. <i>Ex.</i></p> <p>Level I AA Students will: EE7.SP.3. Read data from one given source.</p>
<p>Draw informal comparative inferences about two populations. 7.SP.4.</p>	<p>EE7.SP.4. Not applicable</p>	
<p>Investigate chance processes and develop, use, and evaluate probability models. 7.SP.5.</p>	<p>EE7.SP.5. Not applicable</p>	
<p>Investigate chance processes and develop, use, and evaluate probability models.</p> <p>7.SP.6. Approximate the probability of a chance event by collecting data on the chance process that produces it and observing its long-run relative frequency, and predict the approximate relative frequency given the probability. <i>For example, when rolling a number cube 600 times, predict that a 3 or 6 would be rolled roughly 200 times, but probably not exactly 200 times.</i></p>	<p>EE7.SP.6. Make predictions regarding the probability of a chance event based on data.</p>	<p>Level IV AA Students will: EE7.SP.6. Create a question and collect data regarding a chance event and make a prediction based on those data. <i>Ex.</i></p> <p>Level III AA Students will: EE7.SP.6. When given a question, collect data and make a prediction regarding the probability of a chance event. <i>Ex.</i></p> <p>Level II AA Students will: EE7.SP.6. Make a prediction regarding the probability of a chance event when given data by the teacher. <i>Ex.</i></p> <p>Level I AA Students will: EE7.SP.6. Describe the probability of an event occurring. <i>Ex. Will the sun rise tomorrow? Yes or No</i></p>
<p>Investigate chance processes and develop, use, and evaluate probability models.</p> <p>7.SP.7.</p> <p>7.SP.8.</p>	<p>EE7.SP.7-8. Not applicable</p>	

COMMON CORE ELEMENTS AND ACHIEVEMENT DESCRIPTORS FOR EIGHTH GRADE
Eighth Grade Mathematics Standards

CCSS Grade-Level Clusters	Common Core EE	Instructional Achievement Level Descriptor
The Number System		
<p>Know that there are numbers that are not rational, and approximate them by rational numbers.</p> <p>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.</p>	<p>EE8.NS.1 Understand the comparability between fractions and decimals.</p>	<p>Level IV AA Students will: EE8.NS.1. Round a number to the nearest hundredth when given a number containing a digit in the thousandths place. <i>Ex.</i></p> <p>Level III AA Students will: EE8.NS.1. Understand how to convert simple fractions into decimals, and expand a number through the hundredths place. <i>Ex.</i></p> <p>Level II AA Students will: EE8.NS.1. Understand how to convert simple fractions into decimals. <i>Ex.</i></p> <p>Level I AA Students will: EE8.NS.1. <i>Match/recognize equivalent fractions or decimals.</i></p>
<p>Know that there are numbers that are not rational, and approximate them by rational numbers.</p> <p>8.NS.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). <i>For example, by truncating the decimal expansion of $\sqrt{2}$, show that $\sqrt{2}$ is between 1 and 2, then between 1.4 and 1.5, and explain how to continue on to get better approximations.</i></p>	<p>EE8.NS.2 Understand the comparability between fractions and decimals.</p>	<p>Level IV AA Students will: EE8.NS.2. On a number line, plot a number that contains digits in the tenths and hundredths places. <i>Ex.</i></p> <p>Level III AA Students will: EE8.NS.2. On a number line, plot a number that contains a digit in the tenths place. <i>Ex.</i></p> <p>Level II AA Students will: EE8.NS.2. Plot a number that falls between two whole numbers (ie 1.5, 4.5, 9.5). <i>Ex.</i></p> <p>Level I AA Students will: EE8.NS.2. Identify whole numbers on a number line. <i>Ex.</i></p>

Expressions and Equations		
<p>Work with radicals and integer exponents.</p> <p>8.EE.1. Know and apply the properties of integer exponents to generate equivalent numerical expressions. <i>For example, $32 \times 3^{-5} = 3^{-3} = 1/33 = 1/27$.</i></p>	<p>EE8.EE.1 Know and apply the properties of integer exponents to whole numbers greater than 1.</p>	<p>Level IV AA Students will: EE8.EE.1. Deconstruct two-digit whole numbers with integer exponents into multiplication expressions and calculate the product. <i>Ex.</i></p> <p>Level III AA Students will: EE8.EE.1. Deconstruct two-digit whole numbers with integer exponents into multiplication expressions. <i>Ex.</i></p> <p>Level II AA Students will: EE8.EE.1. Deconstruct single-digit whole numbers with integer exponents into multiplication expressions and calculate the product. <i>Ex.</i></p> <p>Level I AA Students will: EE8.EE.1. Deconstruct single-digit whole numbers with integer exponents into multiplication expressions. <i>Ex.</i></p>
<p>Work with radicals and integer exponents.</p> <p>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.</p>	<p>EE8.EE.2 Understand and use square roots as they relate to small perfect squares up to 100.</p>	<p>Level IV AA Students will: EE8.EE.2. Demonstrate the relationship between whole numbers with integer exponents and square roots for small perfect squares up to 100. <i>Ex. $\sqrt{25} = 5$; $5^2 = 25$</i></p> <p>Level III AA Students will: EE8.EE.2. Using a calculator, students will find the square root of small perfect squares up to 100. <i>Ex.</i></p> <p>Level II AA Students will: EE8.EE.2. students will identify the square root of small perfect squares up to 100. (ie using a chart) <i>Ex.</i></p> <p>Level I AA Students will: EE8.EE.2. Identify the square root symbol. <i>Ex.</i></p>
<p>Understand the connections between proportional relationships, lines, and linear equations.</p> <p>8.EE.5. Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different</p>	<p>EE8.EE.5 Understand proportional relationships.</p>	<p>Level IV AA Students will: EE8.EE.5. Collect data, create a graph and make inferences regarding the relationship between the two items being graphed. <i>Ex.</i></p>

<p>proportional relationships represented in different ways. <i>For example, compare a distance-time graph to a distance-time equation to determine which of two moving objects has greater speed.</i></p>		<p>Level III AA Students will: EE8.EE.5. When provided with data, create a graph and make inferences regarding the relationship between the two items being graphed. <i>Ex.</i></p> <p>Level II AA Students will: EE8.EE.5. When provided with data and a graph, make inferences regarding the relationship between the two items being graphed. <i>Ex.</i></p> <p>Level I AA Students will: EE8.EE.5. When provided with data, a graph, and a set of two inferences, determine which inference is most valid. <i>Ex.</i></p>
<p>Understand the connections between proportional relationships, lines, and linear equations. 8.EE.6. N/A</p>	<p>EE8.EE.6 Not applicable.</p>	
<p>Analyze and solve linear equations and pairs of simultaneous linear equations. 8.EE.7. &8.EE.8.</p>	<p>EE8.EE.7-8 Not applicable.</p>	
<p>Functions</p>		
<p>Define, evaluate, and compare functions.</p> <p>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.²</p>	<p>EE8.F.1 Understand that a function is a rule that assigns to each input exactly one output.</p>	<p>Level IV AA Students will: EE8.F.1. Given a function table, identify the function and apply it for a missing variable. <i>Ex.</i></p> <p>Level III AA Students will: EE8.F.1. Given a function table and the pattern, identify the function. <i>Ex.</i></p> <p>Level II AA Students will: EE8.F.1. Identify the relationship between two numbers (increasing and decreasing). <i>Ex.</i></p> <p>Level I AA Students will: EE8.F.1. Identify the relationship between two numbers (increasing) <i>Ex.</i></p>

<p>Define, evaluate, and compare functions.</p> <p>8.F.2. Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). <i>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></p>		
<p>Define, evaluate, and compare functions.</p> <p>8.F.3. N/A</p>	<p>EE8.F.3. Not applicable.</p>	
<p>Use functions to model relationships between quantities.</p> <p>8.F.4. N/A</p>	<p>EE8.F.4. Not applicable.</p>	
<p>Use functions to model relationships between quantities.</p> <p>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.</p>	<p>EE8.F.5. Describe the functional relationship between two positive quantities by analyzing a linear graph.</p>	<p>Level IV AA Students will: EE8.F.5. Describe how a linear graph represents a relationship between two quantities and use the graph to answer questions using that relationship. <i>Ex.</i></p> <p>Level III AA Students will: EE8.F.5. Describe how a graph represents a relationship between two quantities. <i>Ex. Student indicates where points or levels are to be colored to create a graphical relationship.</i></p> <p>Level II AA Students will: EE8.F.5. When given three possible options, choose which statement best describes the relationship illustrated by a linear graph. <i>Ex.</i></p> <p>Level I AA Students will: EE8.F.5. Use the words “increase” or “decrease” to describe the relationship illustrated by a linear graph. <i>Ex.</i></p>
<p>Geometry</p>		
<p>Understand congruence and similarity using physical models, transparencies, or geometry software.</p> <p>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.</p>	<p>EE8.G.1. Understand rotation, reflection, and translation in objects and shapes containing angles.</p>	<p>Level IV AA Students will: EE8.G.1. Manipulate shapes containing angles to demonstrate rotation, reflection, and translation <i>Ex.</i></p> <p>Level III AA Students will: EE8.G.1. When given a shape containing angles, identify whether a comparison shape is a rotation, reflection, or translation. <i>Ex.</i></p>

<p>c. Parallel lines are taken to parallel lines.</p>		<p>Level II AA Students will: EE8.G.1. When given a shape containing angles, identify whether a comparison shape is a rotation or translation. <i>Ex.</i></p> <p>Level I AA Students will: EE8.G.1.. When given a shape containing angles, identify whether a comparison shape is a rotation. <i>Ex.</i></p>
<p>Understand congruence and similarity using physical models, transparencies, or geometry software.</p> <p>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.</p>	<p>EE8.G.2. Understand the principles of congruency.</p>	<p>Level IV AA Students will: EE8.G.2. Create a two-dimensional figure that is congruent to a figure provided by the teacher. <i>Ex.</i></p> <p>Level III AA Students will: EE8.G.2. When provided with a two-dimensional figure, identify all of the congruent figures from a group of fivetwo-dimensional figures. <i>Ex.</i></p> <p>Level II AA Students will: EE8.G.2. When provided with a two-dimensional figure, identify the congruent figure from a group of twotwo-dimensional figures. <i>Ex.</i></p> <p>Level I AA Students will: EE8.G.2. When provided with a two-dimensional figure, trace the congruent figures. <i>Ex.</i></p>
<p>Understand congruence and similarity using physical models, transparencies, or geometry software.</p> <p>8.G.3. Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates.</p>	<p>EE8.G.3. Understand dilation in objects and shapes containing angles.</p>	<p>Level IV AA Students will: EE8.G.3. Given coordinates, create a two-dimensional figure and demonstrate dilation. <i>Ex.</i></p> <p>Level III AA Students will: EE8.G.3. Manipulate shapes containing angles to demonstrate dilation. <i>Ex.</i></p> <p>Level II AA Students will: EE8.G.3. When provided with a two-dimensional figure and a dilation, provide an explanation of how the figure is dilated. <i>Ex.</i></p> <p>Level I AA Students will: EE8.G.3. When given a shape containing angles, identify whether a comparison shape is a dilation.</p>

<p>Understand congruence and similarity using physical models, transparencies, or geometry software. 8.G.4.</p>	<p>EE8.G.4. Embedded in 8.G.1, 8.G.2, and 8.G.3</p>	
<p>Understand congruence and similarity using physical models, transparencies, or geometry software.</p> <p>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>For example, arrange three copies of the same triangle so that the sum of the three angles appears to form a line, and give an argument in terms of transversals why this is so.</i></p>	<p>EE8.G.5. Understand the relationship among angles within a right triangle, and understand that the angles within any triangle add up to 180°.</p>	<p>Level IV AA Students will: EE8.G.5. When given the measurements for two angles within a triangle, find the measurement of the third angle. <i>Ex.</i></p> <p>Level III AA Students will: EE8.G.5. Understand that all angles of a triangle add up to 180°. <i>Ex. Given three angle measurements and a right triangle, with a right degree symbol at the right angle, have the student place the angles in their appropriate location.</i></p> <p>Level II AA Students will: EE8.G.5. When shown a right triangle, determine which angle is a right angle and apply the right angle symbol.</p> <p>Level I AA Students will: EE8.G.5. When shown a selection of three triangles, identify the right triangle. <i>Ex.</i></p>
<p>Understand and apply the Pythagorean Theorem. 8.G.6</p>	<p>EE8.G.6. Not applicable.</p>	
<p>Understand and apply the Pythagorean Theorem.</p> <p>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.</p>	<p>EE8.G.7. Understand basic principles of right triangles.</p>	<p>Level IV AA Students will: EE8.G.7. When given the formula $a^2 + b^2 = c^2$, the lengths of a and b, the squares of a and b, and the right angle find the hypotenuse. <i>Ex.</i></p> <p>Level III AA Students will: EE8.G.7. Identify sides a, b, and c of a right triangle, and understand that side c is the hypotenuse. <i>Ex.</i></p> <p>Level II AA Students will: EE8.G.7. Identify a right triangle, and understand that the longest side is the hypotenuse. <i>Ex.</i></p> <p>Level I AA Students will: EE8.G.7. When shown a right triangle, determine which angle is a right angle. <i>Ex.</i></p>

<p>Understand and apply the Pythagorean Theorem. 8.G.8.</p>	<p>EE8.G.8. Not applicable</p>	
<p>Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres.</p> <p>8.G.9. Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.</p>	<p>EE8.G.9. Understand the concept of volume as it relates to cylinders, cones, and spheres.</p>	<p>Level IV AA Students will: EE8.G.9. When given the formulas for the volumes of cones, cylinders, and spheres, calculate the volume for a given shape (when given the unit of measure).</p> <p>Level III AA Students will: EE8.G.9. Understand common units used to measure volume, and describe the concept of volume. .</p> <p>Level II AA Students will: EE8.G.9. Distinguish among cones, cylinders and spheres, and predict which shape has the greatest volume when provided with two shapes of equivalent bases</p> <p>Level I AA Students will: EE8.G.9. Demonstrate the volume of cones, cylinders and spheres. <i>Ex. Point to the empty container. Now point to full container. Which one holds more?</i></p>
<p>Statistics and Probability</p>		

COMMON CORE ELEMENTS AND ACHIEVEMENT DESCRIPTORS FOR HIGH SCHOOL

High School Mathematics Standards

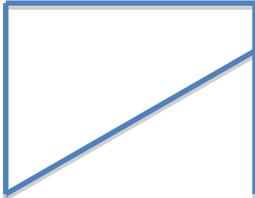
CCSS Grade-Level Clusters	Common Core EE	Instructional Achievement Level Descriptor
Number and Quantity - The Real Number System		
<p>Extend the properties of exponents to rational exponents.</p> <p>N-RN.1. Explain how the definition of the meaning of rational exponents follows from extending the properties of integer exponents to those values, allowing for a notation for radicals in terms of rational exponents.</p> <p><i>For example, we define $5^{1/3}$ to be the cube root of 5 because we want $(5^{1/3})^3 = 5(1/3)^3$ to hold, so $(5^{1/3})^3$ must equal 5.</i></p>	<p>EEN-RN.1. Solve division problems with remainders using concrete objects.</p>	<p>Level IV AA Students will: EEN-RN.1. Illustrate concept of remainders using objects and numerical representations. <i>Ex.</i> A group of six students sits down to have a snack. You have 25 cookies. How many cookies does each student get? Are there any leftover? (e.g., Write number sentence $25/6 = 4 \text{ r } 1$). <i>Ex.</i> If a pack of gum costs \$0.49 and there are five sticks per pack, how much does each stick cost? Use real objects (gum and coins) to show division (e.g., $49/5 = 9 \text{ r } 4$).</p> <p>Level III AA Students will: EEN-RN.1. Solve division problems with remainders using concrete objects. <i>Ex.</i> A group of six students sits down to have a snack. You have 15 cookies. How many cookies does each student get? Are there any leftover? <i>Ex.</i> A student has five quarters and wants to buy a soda that costs \$1.00. How much money is left over?</p> <p>Level II AA Students will: EEN-RN.1. Identify the difference between equal and not equal groups. <i>Ex.</i> Using drawings of or groups of objects, determine if the groups are equal or not equal. <i>Ex.</i> When passing out 10 pencils to nine people, do you have one for each person? Are there some left over? <i>Ex.</i> Are two nickels equal to \$0.11?</p> <p>Level I AA Students will: EEN-RN.1. Recognize that a whole can be divided into parts. <i>Ex.</i> Use models to represent quantities as parts of a whole. <i>Ex.</i> Given two sets of objects with one set divided into smaller groups, point to the quantities that have been divided when prompted.</p>
N-RN.2.	EEN-RN.2. N/A	***There are no real world applications for this standard that we feel are appropriate for this population and/or they have been covered in other standards. (See EEF-GMD.1-4)
N-RN.3. Use properties of rational and irrational numbers.	EEN-RN.3. N/A	***There are no real world applications for this standard that we feel are appropriate for this population and/or they have been covered in other standards. (See EEN-CN.2)
Number and Quantity - Quantities		
<p>Reason quantitatively and use units to solve problems.</p> <p>N-Q.1. Use units as a way to understand problems</p>	<p>EEN-Q.1-3. Express quantities to the appropriate precision of measurement.</p>	<p>Level IV AA Students will: EEN-Q.1-3. Choose solutions to problems using the appropriate precision of measurements. <i>Ex.</i> Using a measuring tape, determine if a large object would fit into a smaller space. <i>Ex.</i> If it takes 30 minutes to get home, will I be home by 6:00 p.m. if I leave at 5:45 p.m.?</p>

<p>and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.</p> <p>N-Q.2. Define appropriate quantities for the purpose of descriptive modeling.</p> <p>N-Q.3. Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.</p>		<p>Level III AA Students will: EEN-Q.1-3. Express quantities to the appropriate precision of measurement. <i>Ex.</i> Measure the length of an object to the nearest half and quarter of an inch. <i>Ex.</i> Measure time in quarter hour increments (i.e. How much time do I have with my friends after I eat lunch). <i>Ex.</i> Measure ingredients for a recipe accurately.</p> <p>Level II AA Students will: EEN-Q.1-3. Select the appropriate type of unit as a measurement tool. <i>Ex.</i> Which measurement would you use to measure the length of a book? (Inches, yards, or feet)? <i>Ex.</i> What unit of measure would you use to measure the length of the room? (Length, weight, volume). <i>Ex.</i> Which is best to describe your weight – pounds or inches? <i>Ex.</i> Which is best to measure a glass of lemonade (inch, liter or pound)? <i>Ex.</i> Record the daily temperature for a week using degrees. <i>Ex.</i> Match a thermometer to two non-standard units of measurement.</p> <p>Level I AA Students will: EEN-Q.1-3. Identify measurement tools. Identify the attribute to be measured (weight, length, and temperature). <i>Ex.</i> Of these items, which is a measurement tool for length? (pencil, ruler, can) <i>Ex.</i> Match units of measurement to measurement tools (days and hours measure time, inches and feet measure length).</p>
<p>Number and Quantity - The Complex Number System</p>		
<p>Perform arithmetic operations with complex numbers. N-CN.1.</p>	<p>EEN-CN.1. N/A</p>	<p>***There are no real world applications for this standard that we feel are appropriate for this population.</p>
<p>N-CN.2. Use the relation $i^2 = -1$ and the commutative, associative, and distributive properties to add, subtract, and multiply complex numbers.</p>	<p>EEN-CN.2. Use the operations of addition, subtraction, and multiplication with decimals (decimal value x whole number) in real world situations using money as the standard units (\$20, \$10, \$5, \$1, \$0.25, \$0.10, \$0.05, and \$0.01).</p>	<p>Level IV AA Students will: EEN-CN.2. Apply the operations of addition, subtraction, and multiplication in real world situations using money as the standard units (\$50, \$20, \$10, \$5, \$1, \$0.25, \$0.10, \$0.05, and \$0.01). <i>Ex.</i> Using a checkbook register: $\\$55.55 - 10.10 = \underline{\hspace{1cm}}$. <i>Ex.</i> Your bill at the restaurant is \$20.25 and you want to leave a 15% tip. How much would the tip be? : $20.25 \times .15 = \underline{\hspace{1cm}}$. <i>Ex.</i> Calculate the cost of six movie tickets that are \$7.50 each. <i>Ex.</i> If I have \$4.20 and I buy an item for \$3.50, how much change will I get?</p> <p>Level III AA Students will: EEN-CN.2. Use the operations of addition, subtraction, and multiplication with decimals (decimal value x whole number) in real-world situations using money as the standard units (\$20, \$10, \$5, \$1, \$0.25, \$0.10, \$0.05, and \$0.01). <i>Ex.</i> Using a checkbook register: Add $\\$6.50 + \\3 (e.g., If you have \$6.50 in your bank account and you receive a gift for \$3.00, how much money do you have in your bank account?)</p>

		<p>Ex. Calculate the cost of two movie tickets that are \$6.50 each.</p> <p>Level II AA Students will: EEN-CN.2. Show the operations of addition, subtraction, and multiplication up to the tenths place with decimals. Ex. If I have a nickel and two dimes, how much money do I have? Ex. If I have \$3.50 and I spend \$2.50, how much money do I have?</p> <p>Level I AA Students will: EEN-CN.2. Select the operations of addition, subtraction, and multiplication with whole numbers less than 20. Ex. If Sam bought three cats and they each cost \$2, how much did he pay for all three cats ($3 \times \\$2 = \\6). Ex. $4 + 36 = \underline{\quad}$. Ex. $67 - 33 = \underline{\quad}$. Ex. $20 \times 3 = \underline{\quad}$. Ex. Mary received \$2 from her uncle and \$5 from her sister for her birthday. How much money did she receive?</p>
Use complex numbers in polynomial identities and equations. N-CN.7.	EEN-CN.7. N/A	***There are no real world applications for this standard that we feel are appropriate for this population.
Algebra - Seeing Structure in Expressions		
<p>Interpret the structure of expressions. A-SSE.1. Interpret expressions that represent a quantity in terms of its context</p> <ul style="list-style-type: none"> Interpret parts of an expression, such as terms, factors, and coefficients. Interpret complicated expressions by viewing one or more of their parts as a single entity. <p><i>For example, interpret $P(1+r)^n$ as the product of P and a factor not depending on P.</i></p>	EEA-SSE.1. Match or write an algebraic expression involving one or more operations to represent a given expression with illustrations.	<p>Level IV AA Students will: EEA-SSE.1. Write an algebraic expression involving one or more operations to represent a given expression with illustrations. Ex. In a classroom there are 3 tables of girls and 2 tables of boys. Which expression represents this classroom? $b + g$, $3g + 2b$, or $5bg$. Ex. Match 2 dimes, 3 nickels and 4 pennies to an expression when d represents dimes, n represents nickels and p represents pennies.</p> <p>Level III AA Students will: EEA-SSE.1. Match an algebraic expression involving one or more operations to represent a given expression with illustrations. Ex. Shown a picture of three hamburgers at \$4 each, match an expression to the picture given two expressions when asked, "Which is the correct way to express the cost of three hamburgers if each hamburger is \$4.00 (three hamburgers \times \$4)?" Ex. Shown two drinks for \$2 each, plus three slices of pizza for \$3 each, match an expression to the picture given two expressions when asked, "Which one shows the cost of two drinks plus three slices of pizza if d represents drinks and p represents pizza?" Ex. Match two dimes and three nickels to an expression where d represents dimes and n represents nickels.</p>

		<p>Level II AA Students will: EEA-SSE.1. Identify the operation used for word expressions as indicated by an illustration. <i>Ex.</i> Jose has three times as many baseball cards as his brother. What operation (addition or multiplication) do you use to find how many baseball cards Jose has as indicated by an illustration? <i>Ex.</i> One box has six books in it and another box only has two. What operation (addition or multiplication) do you use to find how many how many books there are all together?</p> <p>Level I AA Students will: EEA-SSE.1. Recognize the symbol for an operation. <i>Ex.</i> Match words (and, more, take away, times, sum, difference) to (addition, subtraction, multiplication).</p>
<p>A-SSE.2. Use the structure of an expression to identify ways to rewrite it.</p> <p><i>For example, see $x^4 - y^4$ as $(x^2)^2 - (y^2)^2$, thus recognizing it as a difference of squares that can be factored as $(x^2 - y^2)(x^2 + y^2)$.</i></p>	<p>EEA-SSE.2. Calculate equivalent expressions.</p>	<p>Level IV AA Students will: EEA-SSE.2. Calculate equivalent equations involving variables. <i>Ex.</i> Calculate what $r + r$ is equivalent to ($2r$, 2, rr or r).</p> <p>Level III AA Students will: EEA-SSE.2. Calculate equivalent equations using 3 or more real numbers. <i>Ex.</i> Determine if $4 + 2 + 3 = 3 + 2 + 4$ <i>Ex.</i> Determine if $3 \times 5 \times 2 = 2 \times 5 \times 3$.</p> <p>Level II AA Students will: EEA-SSE.2. Calculate equivalent equations using fewer than 3 real numbers. <i>Ex.</i> Determine if $4 + 2 = 2 + 4$ <i>Ex.</i> Determine if $3 \times 5 = 5 \times 3$.</p> <p>Level I AA Students will: EEA-SSE.2. Match equivalent groups. <i>Ex.</i> Given piles of 5 red chips, 3 blue chips and 5 yellow chips, match/indicate the equivalent piles.</p>
<p>Write expressions in equivalent forms to solve problems. A-SSE.3. Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression. a. Factor a quadratic expression to reveal the zeros of the function it defines. b. Complete the square in a quadratic expression to reveal the maximum or minimum value of the function it defines. c. Use the properties of exponents to transform expressions for exponential functions.</p> <p><i>For example the expression $1.15t$ can be rewritten</i></p>	<p>EEA-SSE.3. Solve simple one-step equations (multiplication and division) with a variable.</p>	<p>Level IV AA Students will: EEA-SSE.3. Solve one-step equations (multiplication and division of two digits) with a variable. <i>Ex.</i> Solve the equation $x \div 16 = 2$ (If I buy two cakes and they were \$16 each, how much money did I spend?). <i>Ex.</i> Solve the equation $\\$11.00 \times \underline{\quad} = 33$ (If a ticket to the movies costs \$11, how many tickets did I buy if I spent 33 dollars?). <i>Ex.</i> Solve the equation $15 \times \underline{\quad} = 45$ (If I have 15 rows of desks and 45 desks total – how many desks are in each row?).</p> <p>Level III AA Students will: EEA-SSE.3. Solve simple one-step equations (multiplication and division) with a variable. <i>Ex.</i> Solve the equation $x \div 8 = 2$ (If there are 8 people and only 2 cars, how many people can ride in each car?) <i>Ex.</i> $2 \times p = 16$ (If there are 16 apples and each person gets 2 apples, how many people are there?)</p>

<p>as $(1.151/12)^{12t} \approx 1.01212t$ to reveal the approximate equivalent monthly interest rate if the annual rate is 15%.</p>		<p>Level II AA Students will: EEA-SSE.3. Solve basic equations. Ex. $4 + 3 = N$ (If I have four cups and I get three more, I will have N cups). Ex. Use a number line to show how seven is made of many different combinations: $5 + 2$, $6 + 1$, etc. Ex. Solve picture problems: 2 balloons (picture) + 2 balloons. Ex. If you have \$10 and spend \$4, what will your change be?</p> <p>Level I AA Students will: EEA-SSE.3. Identify quantity and match to the number up to 100. Ex. Match number of objects to correct numerals. Ex. Count objects (e.g., up to 100) and match the numerals. Ex. Match five \$1 bills to the number 5. Ex. Count three tallies and match to the number 3.</p>
<p>Algebra - Arithmetic with Polynomials and Rational Expressions</p>		
<p>Perform arithmetic operations on polynomials. A-APR.1.</p>	<p>EEA-APR.1 N/A</p>	<p>***There are no real world applications for this standard that we feel are appropriate for this population.</p>
<p>Algebra - Creating Equations</p>		
<p>Create equations that describe numbers or relationships.</p> <p>A-CED.1. Create equations and inequalities in one variable and use them to solve problems.</p> <p><i>Include equations arising from linear and quadratic functions, and simple rational and exponential functions.</i></p>	<p>EEA-CED.1. Solve an algebraic expression using one variable.</p>	<p>Level IV AA Students will: EEA-CED.1. Create and solve an algebraic expression with one variable. Ex. If I have two bills, one of them is a \$5 and one of them is a \$1, how much money do I need to have \$10 all together? $5 + 1 + N = 10$ Ex. If I have some money in my pocket and I still need \$3 more to buy the bird that cost \$10. How much money is in my pocket? $N + 3 = 10$</p> <p>Level III AA Students will: EEA-SSE.3. Solve an algebraic expression with one variable. Ex. If I need \$10 and I have \$5, how much more money do I need? $5 + N = 10$ Ex. If I have two bills, one of them is a \$5 and one of them is unknown. What is the value of the unknown bill if I have \$10 total?</p> <p>Level II AA Students will: EEA-SSE.3. Solve simple equations with unknown/missing values (without variables). Ex. If I have three dogs and one ran away, how many dogs are left? Ex. I walked to the store to buy a book. I gave the cashier \$10 and she gives me back \$7. How much was the book? Ex. If I have two pens in my backpack when I get to school and I left home with five pens, how many pens were given away on the trip from home to school? $5 - [\] = 2$.</p> <p>Level I AA Students will: EEA-SSE.3. Identify what is unknown.</p>

		Ex. John has three cats and some dogs. Do we know the number of cats John has? Do we know the number of dogs John has?
Algebra - Reasoning with Equations and Inequalities		
Understand solving equations as a process of reasoning and explain the reasoning. A-REI.1. A-REI.2.	EEA-REI.1-2. N/A	***There are no real world applications for the proof segments of this standard that we feel are appropriate for this population. Other segments are covered throughout this document in multiple areas. (See EEA-REI.10-12, EEA-CED.1, EES-ID.3, etc.)
Solve equations and inequalities in one variable. A-REI.3. A-REI.4.	EEA-REI.3-4 N/A	*** (See EEA-CED.1-2.)
Solve systems of equations. A-REI.5.	EEA-REI.5. N/A	*** (See EEA- CED.2-4.)
A-REI.6. A-REI.7.	EEA-REI.6-7. N/A	***. (See EEA- REI.10-12.)
A-REI.12. Graph the solutions to a linear inequality in two variables as a half-plane (excluding the boundary in the case of a strict inequality), and graph the solution set to a system of linear inequalities in two variables as the intersection of the corresponding half-planes.	EEA-REI.10. -12. Represent/solve equations graphically.	<p>Level IV AA Students will: EEA-REI.10-12. Make predictions and represent equations graphically. Ex. Given the graph of a linear function based on cost per pizza and the number of pizzas bought [e.g., if pizza is \$5, then the total cost ($y$) = 5 x the number bought (x)], use this information to make predictions (e.g., if you bought 6 pizza what would the cost be?).</p> <p>Level III AA Students will: EEA-REI.10-12. Represent/solve equations graphically. Ex. Follow the line on the graph to determine information at a given point (e.g. the cost of pizza and how many pizzas were bought.).</p> <p>Level II AA Students will: A-REI.10-12. Identify points on a graph to answer a real-world problem. Ex. Locate a point on a map with pictorial cues using two coordinates.</p> <p>Level I AA Students will: A-REI.10-12. Recognize information shown on a graph. Ex. Point to the numbers that tell me how many items I bought. Ex. Trace the line with your finger – show where the line would go if it continued.</p>
Functions - Interpreting Functions		
Understand the concept of a function and use function notation. F-IF.1. 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. If f is a function and x is an element of its domain, then $f(x)$ denotes the output of f corresponding to the input x . The graph of f is the graph of the equation $y = f(x)$.	EEF-IF.1-3. Use the concept of function to solve problems.	<p>Level IV AA Students will: Use the concept of functions to identify how the two variables are affected. Ex. Given a graph showing the growth of a plant over a period of one month, what happens to the plant height as the number of days increase</p> <div style="text-align: center;">  <p>Number of Days</p> <p>Plant Height</p> </div>

F-IF.2. Use function notations, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context.

F-IF.3. Recognize that sequences are functions, sometimes defined recursively, whose domain is a subset of the integers. *For example, the Fibonacci sequence is defined recursively by $f(0) = f(1) = 1$, $f(n+1) = f(n) + f(n-1)$ for $n \geq 1$.*

Ex. Given a graph that shows the amount of paint in can and the area painted, what happens to the amount of paint in the can as the area is painted?

Amount of Paint in the can



Area Painted

Ex. Using a store scenario, one store charges students \$2 more than another store for the same item. Tom purchases a caramel apple for \$5. What should Becky expect to pay for an identical apple at the more expensive store?

Level III AA Students will:

EEF-IF.1-3. Use the concept of function to solve problems.

Ex. Look at a graph to identify relationship between two variables (distance - time, cost - product, etc.) If every item cost \$1 at a store, how much would five items cost?

Ex. Determine the total distance traveled in 20 minutes using a table if you are traveling at a constant speed of one mile every 10 minutes.

Level II AA Students will: EEF-IF.1-3. Use the concept of function to solve problems using a table that shows basic relationships (may not involve a true function).

Ex. Look at a weather chart to identify relationships between the day of the week and the temperature.

Ex. Determine the number of shoes worn by four people using a graph that incorporates picture representations.

Ex. From a given table displaying the cost of movie tickets, determine the cost of one ticket, two tickets, and three tickets.

Ex. From a five-day weather forecast, identify the weather for Wednesday.

Level I AA Students will: EEF-IF.1-3. Identify basic information located on graphs.

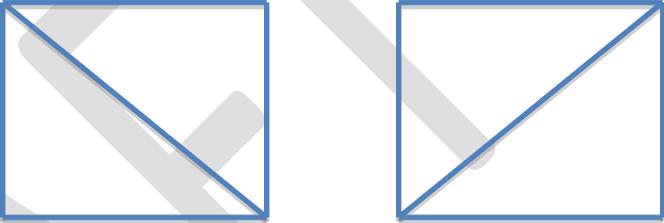
Ex. Tell the day of the week on a graph/point to the activity on the graph.

Ex. Identify a line on a line graph.

Ex. Identify the highest bar on a bar graph.

Ex. Recognize different types of graphs.

<p>Interpret functions that arise in applications in terms of the context.</p> <p>F-IF.4. For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. <i>Key features include intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity.</i></p> <p>F-IF.5. Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes. <i>For example, if the function $h(n)$ gives the number of person-hours it takes to assemble n engines in a factory, then the positive integers would be an appropriate domain for the function.</i></p> <p>F-IF.6. Calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Estimate the rate of change from a graph.</p>	<p>EEF-IF.4-6. Interpret rate of change (e.g., higher/lower, faster/slower).</p>	<p>Level IV AA Students will: EEF-IF.4-6. Evaluate key features of a graph (e.g. increasing, decreasing, constant.). <i>Ex. Determine parts of graph illustrating an increase or decrease in speed on a time/distance graph.</i> <i>Ex. Using a graph illustrating change in temperature over a day, indicate times when the temperature increased, decreased, or stayed the same.</i></p> <p>Level III AA Students will: EEF-IF.4-6. Interpret rate of change (e.g. higher/lower, faster/slower). <i>Ex. Compare two graphs with different slopes to determine faster/slower rate</i> <i>Ex. Compare the temperature in two cities over a week. Which city had the greatest change in temperature?</i></p> <p>Level II AA Students will: EEF-IF.4-6. Graph a simple linear equation represented by a table of values. <i>Ex. Match the graph to its corresponding story.</i> <i>Ex. Plot the points from a table of values less than 10.</i></p> <p>Level I AA Students will: EEF-IF.4-6. Read a table. <i>Ex. From a given table, find information.</i> <i>Ex. Given a daily schedule, determine the time of lunch during the school day.</i></p>
<p>Analyze functions using different representations. F-IF.7.</p>	<p>EEF-IF.7. N/A (See EEF-IF.1-3)</p>	<p>*** (See EEF-IF.1-3)</p>
<p>F-IF.8.</p>	<p>EEF-IF.8. N/A</p>	<p>***There are no real world applications for this standard that we feel are appropriate for this population.</p>
<p>F-IF.9.</p>	<p>EEF-IF.9. N/A</p>	<p>***There are no real world applications for this standard that we feel are appropriate for this population and/or they have been covered in previous standards. (See EEF-IF.4-6)</p>
<p>Functions - Building Functions</p>		
<p>Build a function that models a relationship between two quantities.</p> <p>F-BF.1. Write a function that describes a relationship between two quantities.</p> <p>Determine an explicit expression, a recursive process, or steps for calculation from a context.</p>	<p>EEF-BF.1. Select the appropriate graphical representation (first quadrant) given a situation involving constant rate of change.</p>	<p>Level IV AA Students will: EEF.BF.1. Complete the appropriate graphical representation (first quadrant) given a situation involving constant rate of change. <i>Ex. Given this scenario and a graphical representation with missing information: If I mow one lawn and I make \$25 and if I mow three lawns and I make \$75, how much will I make if I mow two lawns?</i> <i>Ex. Given this scenario and a graphical representation with missing information: If hamburgers are four for \$1 and I buy four, it will cost \$1; if I buy 12, it will cost \$3 – complete the graph for eight hamburgers.</i></p> <p>Level III AA Students will: EEF.BF.1. Select the appropriate graphical representation (first quadrant)</p>

<p>Combine standard function types using arithmetic operations. <i>For example, build a function that models the temperature of a cooling body by adding a constant function to a decaying exponential, and relate these functions to the model.</i></p>		<p>given a situation involving constant rate of change. <i>Ex. Given this scenario and a graphical representation with missing information: If I mow one lawn and I make \$25 and if I mow three lawns and I make \$75, how much will I make if I mow two lawns?</i> <i>Ex. Given this scenario and a graphical representation with missing information: If hamburgers are four for \$1 and I buy four, it will cost \$1; if I buy 12, it will cost \$3 – complete the graph for eight hamburgers.</i></p> <p>Level II AA Students will: EEF-BF.1. Select the appropriate graphical representation (first quadrant) given a situation involving constant rate of change where the difference is very clear. <i>Ex. A dog has four bones and eats one each day. Given the following graphs, pick the graph that would represent this concept.</i></p> <div style="text-align: center;">  </div> <p>Level I AA Students will: EEF-BF.1. Identify the terms in a sequence. <i>Ex. Identify an ABABABABAB pattern out of two different pattern sets of colored blocks using black (B) and white (W) and one set is BWBWBWBWBW and the other pattern set is BBWBBWBBWBBW.</i></p>
<p>F-BF.2. Write arithmetic and geometric sequences both recursively and with an explicit formula, use them to model situations, and translate between the two forms.</p>	<p>EEF-BF.2. Build an arithmetic sequence when provided a linear pattern with whole numbers.</p>	<p>Level IV AA Students will: EEF-BF.2. Build an arithmetic sequence when provided a linear pattern with decreasing terms, decimals, or fractions. <i>Ex. Starting at 100, subtract five each time to build a sequence.</i> <i>Ex. Starting at \$5.50, add/subtract \$0.50 each time to build a sequence.</i></p> <p>Level III AA Students will: EEF-FB.2. Build an arithmetic sequence when provided a linear pattern with whole numbers. <i>Ex. Starting at four, add four each time to build a sequence (e.g., If one dog has four legs, how many will two dogs have, three dogs, etc.).</i> <i>Ex. Starting at five, add seven each time to build a sequence (e.g., If I have \$5 and I earn \$7 each hour – how much money will I have in four hours?).</i></p> <p>Level II AA Students will: EEF-BF.2. Identify a term in a sequence. <i>Ex. Given a clear sequence (2, 4, 6, 8, . . .), identify the next number in the set.</i></p> <p>Level I AA Students will: EEF-BF.2. Recognize a sequence.</p>

		<p>Ex. Given two lists of numbers or a set of manipulatives, identify the sequence in 5, 4, 3, 2, 1.</p> <p>Ex. Given two lists of numbers or a set of manipulatives, identify the sequence in 2, 4, 6, 8. =</p>
<p>Build new functions from existing functions. F-BF.3. F-BF.4.</p>	<p>EEF-BF.3-4. N/A</p>	<p>***There are no real world applications for this standard that we feel are appropriate for this population.</p>
<p>Standards: Functions - Linear, Quadratic, and Exponential Models</p>		
<p>Construct and compare linear, quadratic, and exponential models and solve problems.</p> <p>F-LE.1. Distinguish between situations that can be modeled with linear functions and with exponential functions.</p> <ul style="list-style-type: none"> • Prove that linear functions grow by equal differences over equal intervals, and that exponential functions grow by equal factors over equal intervals. • Recognize situations in which one quantity changes at a constant rate per unit interval. • Recognize situations in which a quantity grows or decays by a constant percent rate per unit interval relative to another. <p>F-LE.2. Construct linear and exponential functions, including arithmetic and geometric sequences, given a graph, a description of a relationship, or two input-output pairs (include reading these from a table)</p> <p>F-LE.3. Observe using graphs and tables that a quantity increasing exponentially eventually exceeds a quantity increasing linearly, quadratically, or (more generally) as a polynomial function.</p> <p>F-LE.4. For exponential models, express as a logarithm the solution to $abct = d$ where a, c, and d are numbers and the base b is 2, 10, or e; evaluate the logarithm using technology</p>	<p>EEF-LE.1-4. Interpret a simple linear function such as $y=mx$ to show functions grow by equal factors over equal intervals.</p>	<p>Level IV AA Students will: EEF-LE.1-4. Plot points in first quadrant on a graph using whole numbers and explain how y increases/decreases as x changes. <i>Ex.</i> If you go to the store where every item is one dollar, students should state $y = x$ (the number of items I buy will tell me the cost). Students will then plot this on the graph and determine if y is increasing or decreasing. <i>Ex.</i> If I get two apples for every orange I buy, students should state that $y = 2x$, or for every orange I buy (x), I will get two apples (y), therefore x times two tells me the number of apples each time. Students should then plot this on the graph and determine if y is increasing or decreasing.</p> <p>Level III AA Student will: EEF-LE.1-4. Interpret a simple linear function such as $y = mx$ to show functions grow by equal factors over equal intervals. <i>Ex.</i> Determine a simple relationship of y to x by looking at the first quadrant of a graph. <i>Ex.</i> Look at a graph that shows a constant ratio of boys to girls and state the relationship between x and y. <i>Ex.</i> Given data points in the first quadrant, identify the named point and state the two pieces of information that one dot provides.</p> <p>Level II AA Students will: EEF-LE.1-4. Identify a specific data point in the first quadrant and explain the meaning behind it. <i>Ex.</i> Identify the cost per item on a simple graph where every item in the store cost the same amount and state the relationship between x and y. <i>Ex.</i> When given a simple graph that shows the total cost of items purchased at a store where every item is \$1, tell the cost of four items, the cost of two items, etc.</p> <p>Level I AA Students will: EEF-LE.1-4. Describe a graph with linear functions. <i>Ex.</i> When shown two lines on a graph, tell which one is rising faster. <i>Ex.</i> When shown a graph of distance driven and gas left in tank, recognize that the further one drives the less gas one has left.</p>
<p>Interpret expressions for functions in terms of</p>	<p>EEF-LE.5. Indicate the boundaries of a function.</p>	<p>Level IV AA Students will: EEF-LE.5. Calculate the boundaries of a function</p>

<p>the situation they model.</p> <p>F-LE.5. Interpret the parameters in a linear or exponential function in terms of a context.</p>		<p><i>Ex.</i> Given a car holding 20 gallons of gas that can travel 30 miles per gallon. What is the farthest you can travel before running out of gas?</p> <p>Level III AA Student will: EEF-LE.5. Indicate the boundaries of a function. <i>Ex.</i> What is the least and the most amount of gas that can be in a tank that holds up to 20 gallons?</p> <p>Level II AA Students will: EEF-LE.5. Describe one of the boundaries of a graph. <i>Ex.</i> Using a graph have the student describe what happens at the end (e.g. Can you go 600 miles on this tank of gas?)</p> <p>Level I AA Students will: EEF-LE.5. Recognize that the graph has boundaries. <i>Ex.</i> Point to where the car runs out of gas.</p>
<p>Functions - Trigonometric Functions</p>		
<p>Extend the domain of trigonometric functions using the unit circle. F-TF.1.. & F-TF.2.</p>	<p>EEF-TF.1-2. N/A</p>	<p>***There are no real world applications for this standard that we feel are appropriate for this population.</p>
<p>Model periodic phenomena with trigonometric functions. F-TF.5.</p>	<p>EEF-TF.5. N/A</p>	<p>***There are no real world applications for this standard that we feel are appropriate for this population.</p>
<p>Prove and apply trigonometric identities. F-TF.8.</p>	<p>EEF-TF.8. N/A</p>	<p>***There are no real world applications for this standard that we feel are appropriate for this population.</p>
<p>Geometry - Congruence</p>		
<p>Experiment with transformations in the plane.</p> <p>G.CO.1. Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.</p>	<p>EEG-CO.1. Recognize the attributes of perpendicular lines, parallel lines, and line segments, angles, and circles.</p>	<p>Level IV AA Students will: EEG-CO.1. Compare attributes of perpendicular lines, parallel lines, line segments, angles, and circles. <i>Ex.</i> Draw examples of perpendicular lines, parallel lines, and line segments, angles, and circles. <i>Ex.</i> How are lines and line segments different? <i>Ex.</i> How are lines and circles similar? <i>Ex.</i> How are parallel and perpendicular lines similar? How are they different?</p> <p>Level III AA Students will: EEG-CO.1. Describe the attributes of perpendicular lines, parallel lines, and line segments, angles, and circles. <i>Ex.</i> Draw examples of ____? <i>Ex.</i> Which is perpendicular? \perp \circ <i>Ex.</i> Given a grid on a floor with masking tape, identify parallel lines. <i>Ex.</i> Given a map, identify a road that runs somewhat perpendicular to another road.</p>

		<p>Level II AA Students will: EEG-CO.1. Recognize the attributes of lines, circles, and angles with equivalent measure. <i>Ex.</i> Recognize line, circle, and angles – circles are round. <i>Ex.</i> Put two objects next to each other and determine which is longer. <i>Ex.</i> Draw a line, circle, or angle.</p> <p>Level I AA Students will: EEG-CO.1. Manipulate lines and shapes (i.e. circle, square, triangle). <i>Ex.</i> Point to a line. <i>Ex.</i> Align two objects side-by-side. <i>Ex.</i> Move an object in a straight line. <i>Ex.</i> Sort shapes into groups by name. <i>Ex.</i> Find objects in the environment that represent/model circles, squares, or triangles.</p>
G-CO.2.	EEG-CO.2. N/A	***There are no real world applications for this standard that we feel are appropriate for this population and/or they have been covered in previous standards. (See EEF-CO.4-5)
G-CO.3.	EEG-CO.3. N/A	***There are no real world applications for this standard that we feel are appropriate for this population and/or they have been covered in previous standards. (See EEF-CO.4-5)
<p>G-CO.4. Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments.</p> <p>G-CO.5. 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.</p>	<p>EEG-CO.4-5. Identify rotations (spin), reflections (flip), and translations (slides).</p>	<p>Level IV AA Students will: EEG-CO.4-5. Demonstrate what happens when a figure is transformed. <i>Ex.</i> Show a rotation (spin) using an object. <i>Ex.</i> Using an object, show a translation (slide). <i>Ex.</i> Create a picture where multiple shapes may need to be rotated (spun) to produce the given picture.</p> <p>Level III AA Students will: EEG-CO.4-5. Identify rotations (spins), reflections (flips), and translations (slides). <i>Ex.</i> Use pattern blocks or other manipulatives to produce or copy a design in which each shape is clearly identifiable. <i>Ex.</i> Given two pictures, determine if an object is rotated (spun) (arrow up, arrow right). <i>Ex.</i> Given two pictures, pick correct reflection (flip), translation (slide), or rotation (spin).</p> <p>Level II AA Students will: EE.G-CO.4-5. Recognize rotation (spin), reflection (flip), or translation (slide) (key terms, vocabulary, and movement). <i>Ex.</i> Use body to engage in activity to show rotation (spin) or translation (slide) (silhouette). <i>Ex.</i> Use objects to, rotate (spin), reflect (flip), or translation (slide).</p> <p>Level I AA Students will: EEG-CO.4-5. Attend to movement demonstrating rotations (spins), reflections (flips), and translations</p>

		(slides). Ex. Teacher slides or translates an object, follow with eyes.
<p>Understand congruence in terms of rigid motions.</p> <p>G-CO.6. Use geometric descriptions of rigid motions 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.</p> <p>G-CO.7. Use the definition of congruence in terms of rigid motions to show that two triangles are congruent if and only if corresponding pairs of sides and corresponding pairs of angles are congruent.</p> <p>G-CO.8. Explain how the criteria for triangle congruence (ASA, SAS, and SSS) follow from the definition of congruence in terms of rigid motions.</p>	<p>EEG-CO.6-8. Identify corresponding congruent (the same) parts of shapes.</p>	<p>Level IV AA Students will: EEG-CO.6-8. Demonstrate why shapes are similar or congruent. Ex. Communicate why two given shapes are congruent. Ex. Given two non-congruent shapes, communicate why the shapes are not congruent. Ex. Given two shapes that are not congruent but are similar, identify the similar parts.</p> <p>Level III AA Students will: EEG-CO.6-8. Identify corresponding congruent (the same) parts of shapes. Ex. Given two congruent triangles, identify the corresponding sides. Ex. Given two congruent items (stars, squares, etc.) identify the corresponding parts.</p> <p>Level II AA Students will: EEG-CO.6-8. Recognize congruent parts (angles and sides). Ex. Identify the congruent parts of a rectangle. Ex. Identify the congruent angles of an isosceles triangle.</p> <p>Level I AA Students will: EEG-CO.6-8. Match shapes that are congruent. Ex. Given a shape, match a congruent shape. Ex. Given three shapes, pick the two that are congruent.</p>
<p>Prove geometric theorems G-CO.9. & G-CO.10 & G-CO.11.</p>	<p>EEG-CO.9-11.N/A</p>	<p>***There are no real world applications for this standard that we feel are appropriate for this population.</p>
<p>Make geometric constructions.</p> <p>G-CO.12. Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.). <i>Copying a segment; copying an angle; bisecting a segment; bisecting an angle; constructing perpendicular lines, including the perpendicular bisector of a line segment; and constructing a line parallel to a given line through a point not on the line.</i></p> <p>G-CO.13. Construct an equilateral triangle, a square, and a regular hexagon inscribed in a circle.</p>	<p>EEG-CO.12-13. Create geometric figures.</p>	<p>Level IV AA Students will: EEG-CO.12-13. Create specific geometric figures using mathematical tools (e.g. ruler, compass, protractor) Ex. Create an isosceles triangle, equilateral triangle, etc...</p> <p>Level III AA Students will: EEG-CO.12-13. Create geometric figures using mathematical tools (e.g. string, ruler, compass) Ex. Draw a circle. Ex. Create a rectangle.</p> <p>Level II AA Students will: EEG-CO.612-13. Reproduce given geometric figures using tools. Ex. Find a shape and trace it on paper. Ex. Draw a shape similar to a presented shape.</p> <p>Level I AA Students will:</p>

		<p>EEG-CO.12-13. Trace geometric figures using tools. <i>Ex.</i> Use finger to trace over a specific shape. <i>Ex.</i> Use a pencil to trace a shape on paper.</p>
Geometry - Similarity, Right Triangles, and Trigonometry		
<p>Understand similarity in transformations. G-SRT.1. & G-SRT.2.. & G-SRT.3.</p>	<p>EEG-SRT.1-3. N/A</p>	<p>***There are no real world applications for this standard that we feel are appropriate for this population and/or they have been covered in previous standards. (See EEG-CO.4-5 & EEG-CO.6-8.)</p>
<p>Prove theorems involving similarity.</p> <p>G-SRT.4. Prove theorems about triangles. <i>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.</i></p> <p>G-SRT.5. Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.</p>	<p>EEG-SRT.4-5. Describe the properties of regular polygons and/or symmetry.</p>	<p>Level IV AA Students will: EEG-SRT.4-5. Describe the properties of regular polygons and their lines of symmetry. <i>Ex.</i> Given a picture of a pentagon, find lines of symmetry and describe the resultant shapes.</p> <p>Level III AA Students will: EEG-SRT.4-5. Describe the properties of regular polygons and/or their lines of symmetry. <i>Ex.</i> Demonstrate the similarities of equilateral triangles using 2D shapes. <i>Ex.</i> Demonstrate the similarities of equilateral squares using 2D shapes.</p> <p>Level II AA Students will: EEG-SRT.4-5. Identify congruence in figures. <i>Ex.</i> Identify which given figure is divided into halves by the line. (e.g. a rectangle with corner to corner line versus a square with a line off-center.) <i>Ex.</i> Identify the appropriate shapes to place onto a moderately difficult tangram puzzle (e.g. shapes to make a swan).</p> <p>Level I AA Students will: EEG-SRT.4-5. Identify right angles in the environment. <i>Ex.</i> Point to the corner of an object (e.g. paper, room, book, etc.) <i>Ex.</i> Place the appropriate shape onto a given easy tangram puzzle (e.g. two triangles make a square).</p>
Geometry - Circles		
<p>Understand and apply theorems about circles.</p> <p>G-C.1. Prove that all circles are similar.</p> <p>G-C.2. Identify and describe relationships among inscribed angles, radii, and chords. <i>Include the relationship between central, inscribed, and circumscribed angles; inscribed angles on a</i></p>	<p>EEG-C.1-3. Understand representations of properties of circles.</p>	<p>Level IV AA Students will: EEG-C.1-3. Construct a model to demonstrate similarities in circles. <i>Ex.</i> Construct a circle and show that the radius is the same length at all points on its circumference.</p> <p>Level III AA Students will: EEG-C.1-3. Demonstrate similarities in circles. <i>Ex.</i> Given a circle, demonstrate that the distance from the center of a circle (radius) to any point on its</p>

<p><i>diameter are right angles; the radius of a circle is perpendicular to the tangent where the radius intersects the circle.</i></p> <p>G-C.3. Construct the inscribed and circumscribed circles of a triangle, and prove properties of angles for a quadrilateral inscribed in a circle</p>		<p>circumference is the same length (e.g. given a length of string and a picture of a circle).</p> <p>Level II AA Students will: EEG-C.1-3. Select appropriate representations of properties in circles. <i>Ex.</i> Given pictures of two circles with chords, select which chord divides the circle equally. <i>Ex.</i> Match/identify the names of parts of a circle to a provided diagram.</p> <p>Level I AA Students will: EEG-C.1-3. Identify shapes or objects that are circular. <i>Ex.</i> Identify shapes in the room that are circles. <i>Ex.</i> Identify shapes/objects that have a circular base.</p>
<p>Find arc lengths and areas of sectors of circles. G-C.5.</p>	EEG-C.5. N/A	***There are no real world applications for this standard that we feel are appropriate for this population.
<p>Geometry - Expressing Geometric Properties with Equations</p>		
<p>Translate between the geometric description and the equation for a conic section. G-GPE.1.</p>	EEG-GPE.1. N/A	***There are no real world applications for this standard that we feel are appropriate for this population.
<p>G-GPE.2. Derive the equation of a parabola given a focus and directrix.</p>	EEG-GPE.2-4. N/A	***There are no real world applications for this standard that we feel are appropriate for this population.
<p>Use coordinates to prove simple geometric theorems algebraically. G-GPE.4.</p>	EEG-GPE.4. N/A	***There are no real world applications for this standard that we feel are appropriate for this population.
<p>G-GPE.5.</p>	EEG-GPE.5-6. N/A	***There are no real world applications for this standard that we feel are appropriate for this population and/or they have been covered in previous standards. (See EEG.CO.1)
<p>G-GPE.7. Use coordinates to compute perimeters of polygons and areas of triangles and rectangles, e.g., using the distance formula.</p>	EEG-GPE.7. Calculate perimeter and area of squares and rectangles to solve real world problems.	<p>Level IV AA Students will: EEG-GPE.7. Use formulas to calculate perimeter and area of squares and rectangles to solve real-world problems. <i>Ex.</i> Calculate the perimeter of 3 given shapes using appropriate formulas (e.g. rectangle, triangle, circles) <i>Ex.</i> Find the area of the classroom floor using Area = length x width.</p> <p>Level III AA Students will: EEG-GPE.7. Calculate the perimeter and/or area of squares and rectangles to solve real-world problems. <i>Ex.</i> Find the perimeter by adding the length of the sides to determine how much fence you will need to go around your garden. <i>Ex.</i> Find the area of a room on a grid to decide how many tiles (one grid each) you will need to cover the area of your room. <i>Ex.</i> Determine the number of one foot squared sections needed to make a tabletop garden that is four feet by four feet square.</p>

		<p>Level II AA Students will: EEG-GPE.7. Find perimeter or area by counting on a grid. <i>Ex.</i> Find the perimeter of a small room on a grid. <i>Ex.</i> Draw a shape on a grid and find the perimeter.</p> <p>Level I AA Students will: EEG-CPE.7. Identify inside, around, and/or outside of a closed figure. <i>Ex.</i> Identify position of a dog as inside or outside the fenced yard. <i>Ex.</i> Choose the term (inside, around, or outside) to describe position.</p>
Geometry - Geometric Measurement and Dimension		
<p>Explain volume formulas and use them to solve problems. G-GMD.1. Give an informal argument for the formulas for the circumference of a circle, area of a circle, volume of a cylinder, pyramid, and cone. <i>Use dissection arguments, Cavalieri's principle, and informal limit arguments.</i></p> <p>G-GMD.3. Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems.</p>	<p>EEG-GMD.1-3. Make a prediction based on knowledge of volume to identify volume of common containers (cups, pints, gallons, etc.).</p>	<p>Level IV AA Students will: EEG-GMD.1-3. Apply knowledge of volume to make appropriate volumetric estimates. <i>Ex.</i> Select appropriate tool to fill a pitcher and estimate the number of proportions needed to fill a five-gallon bucket (teaspoon, cup, bucket). <i>Ex.</i> Select appropriate tool to measure vanilla for a cake – teaspoon or tablespoon. <i>Ex.</i> Convert – how many cups in a pint – given cups and a pint container filled with water.</p> <p>Level III AA Students will: EEG-GMD.1-3. Make a prediction based on knowledge of volume to identify volume of common containers (cups, pints, gallons, etc.). <i>Ex.</i> Which will hold more than three cups, a quart or a pint? (Objects: cup, pint, quart) <i>Ex.</i> Which is a gallon? (Objects: pint, quart, gallon) If I wanted to carry a gallon of water, would I use a bucket or a cup?</p> <p>Level II AA Students will: EEG-GMD.1-3. Describe more versus less. <i>Ex.</i> Which container can hold more shapes? <i>Ex.</i> Arrange marbles in cups from least to greatest.</p> <p>Level I AA Students will: EEG-GMD.1-3. Select/match volume. <i>Ex.</i> Point to the empty cups. <i>Ex.</i> Point to the full containers. <i>Ex.</i> Point to the largest/biggest container. <i>Ex.</i> Indicate which container will hold more water (e.g., gallon or cup).</p>
<p>Visualize relationships between two-dimensional and three-dimensional objects. G-GMD.4. Identify the shapes of two-dimensional cross-sections of three-dimensional objects, and</p>	<p>EEG-GMD.4. Distinguish between two-dimensional and three-dimensional objects to solve real-world problems.</p>	<p>Level IV AA Students will: EEG-GMD.4. Use the properties of two-dimensional and three-dimensional objects to solve real-world problems. <i>Ex.</i> Describe the difference between a highway map and a three dimensional (topographical) map. <i>Ex.</i> Use the dimensions of a shelf to determine how many boxes would fit.</p>

<p>identify three-dimensional objects generated by rotations of two-dimensional objects.</p>		<p>Level III AA Students will: EEG-GMD.4. Distinguish between two-dimensional and three-dimensional objects to solve real-world problems. <i>Ex.</i> Describe the differences between a map of the school and the school building. <i>Ex.</i> Identify height as a dimension of three-dimensional objects (e.g. the difference between a square and a cube).</p> <p>Level II AA Students will: EEG-GMD.4. Distinguish between two-dimensional and three-dimensional items. <i>Ex.</i> Sort two-dimensional and three-dimensional objects by their function. (e.g., Which of these can you use as a container, a box, or a square?). <i>Ex.</i> Given two examples, which is a cube and which is square? <i>Ex.</i> Given a cylinder, a square building, and a box, determine which three-dimensional object corresponds to a drinking glass.</p> <p>Level I AA Students will: EEG-GMD.4. Identify two-dimensional versus three-dimensional shapes. <i>Ex.</i> Have student identify which item will hold marbles. A picture of a square or a box. <i>Ex.</i> Have student identify which item will hold liquid. A picture of a pop can or an actual pop can.</p>
<p>Geometry - Modeling with Geometry</p>		
<p>Apply geometric concepts in modeling situations. G-MG.1. Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).</p> <p>G-MG.2. Apply concepts of density based on area and volume in modeling situations (e.g., persons per square mile, BTUs per cubic foot).</p> <p>G-MG.3. Apply geometric methods to solve design problems (e.g., designing an object or structure to satisfy physical constraints or minimize cost; working with typographic grid systems based on ratios).</p>	<p>EEG-MG.1-3. Apply properties of geometric shapes to describe real-life objects.</p>	<p>Level IV AA Students will: G-MG.1-3. Apply geometric methods to solve design problems. <i>Ex.</i> Identify the two-dimensional shapes that create the three-dimensional figure (e.g., I can see four triangles in a pyramid; I can see six squares on the outside of a cube). <i>Ex.</i> Determine the least number of tiles needed to cover the outside of a cubed figure- glue tiles onto a box. <i>Ex.</i> Determine the amount of materials needed to wrap a present.</p> <p>Level III AA Students will: EEG-MG.1-3. Apply properties of geometric shapes to describe real-life objects. <i>Ex.</i> Name everyday objects in terms of geometric shapes (can of soda is a cylinder, box of cereal is a rectangular prism). <i>Ex.</i> Describe the sides of a box of tissues (ends are squares, sides are rectangles). <i>Ex.</i> Describe/discuss the dimensions of a classroom (length, width, and height).</p> <p>Level II AA Students will: EEG-MG.1-3. Describe characteristics of geometric shapes. <i>Ex.</i> Given a cube, describe what real-life objects have similar characteristics to a cube.</p>

		<p>Level I AA Students will: EEG-MG.1-3. Identify geometric objects. <i>Ex.</i> Find real-life objects that have similar characteristics to a sphere.</p>
<p>Statistics and Probability - Interpreting Categorical and Quantitative Data</p>		
<p>Summarize, represent, and interpret data on a single count or measurement variable.</p> <p>S-ID.1. Represent data with plots on the real number line (dot plots, histograms, and box plots).</p> <p>S-ID.2. Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets.</p>	<p>EES-ID.1-2. Construct a simple graph with given data (table, line, pie, bar, or picture) and answer questions about the data.</p>	<p>Level IV AA Students will: EES-ID.1-2. Collect and organize data in simple graphs and use findings to draw conclusions from the data (mean and/or median). <i>Ex.</i> Ask 10 people how many hours of TV they watch a day. Put the findings into a graph and tell which person watches the most and least TV (e.g. creating graphs on wall charts, Smart Board, ipads, etc.). <i>Ex.</i> Collect data on a given topic, organize it, and tell what conclusions they can draw from the data, such as most common weather in two cities, cheapest price of jeans, etc.</p> <p>Level III AA Students will: EES-ID.1-2. Construct a simple graph with given data (table, line, pie, bar, or picture) and answer questions about the data. <i>Ex.</i> Given data about the cost of jeans at three stores, place the information on a graph (table, line, pie, bar, or picture) and answer questions about the graph. <i>Ex.</i> Given data from student surveys (e.g. favorite sport, subject, book) presented on a bar or pie graph, answer questions about the findings (most/least).</p> <p>Level II AA Students will: EES-ID.1-2. Given a graph, answer simple questions. <i>Ex.</i> Read data from a given graph showing the weather for one week and determine how many days it was rainy. <i>Ex.</i> Given a simple graph, tell what it represents (graph about the weather, cell phone plans, or gas prices).</p> <p>Level I AA Students will: EES-ID.1-2. Identify any part of a simple graph. <i>Ex.</i> Indicate part of simple graph, (such as the bar, line, title, labels on the graph). <i>Ex.</i> Point or indicate to answer, "Which is the tallest/highest bar?"</p>
<p>S-ID.3. Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers).</p>	<p>EES-ID.3. Indicate general trends on a graph or chart.</p>	<p>Level IV AA Students will: EES-ID.3. Evaluate a graph or chart to make a prediction. <i>Ex.</i> Given a graph of historical rainfall data for Seattle, WA, determine if you should pack your raincoat to visit in June. <i>Ex.</i> Shown a graph, predict which direction the line will continue and answer predictive questions. (e.g. What would have to occur to change this trend?)</p> <p>Level III AA Students will: EES-ID.3. Indicate general trends on a graph or chart.</p>

		<p>Ex. Using a graph, estimate a future point when the trend of the line is clear.</p> <p>Level II AA Students will: EES-ID.3. Indicate increase and decrease over time. Ex. Is this line (slope) increasing or decreasing? Ex. When shown two graphs, determine if each graph shows increase or decrease.</p> <p>Level I AA Students will: EES-ID.3. Indicate outliers in a data set. Ex. We are charting plant growth. Should I put the length of the monkey's tail on the graph? Ex. We are counting apples. Do shoes belong on this graph?</p>
<p>S-ID.4. Use the mean and standard deviation of a data set to fit it to a normal distribution and to estimate population 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.</p>	<p>EES-ID.4. Calculate the mean of a given data set (limit data points to less than five).</p>	<p>Level IV AA Students will: EES-ID.4. Calculate the mean of a given data set (more than five data points). Ex. Calculate the mean price for 5 videos in two different stores and compare the means. Ex. Calculate the mean number of hours students spend watching TV over a week.</p> <p>Level III AA Students will: EES-ID.4. Calculate the mean of a given data set (limit data points to less than five). Ex. Given the noon temperature for four days, calculate the mean (average) temperature. Ex. Given the price of each pair, calculate the average price of four pairs of shoes.</p> <p>Level II AA Students will: EES-ID.4 Identify the average between two to three numbers. Ex. Given two or three numbers, determine the mean value. (Determine the mean value of 2 and 4 OR 2, 3 and 4.)</p> <p>Level I AA Students will: EES-ID.4. Recognize the missing number between two data points. Ex. Given two consecutive even numbers or two consecutive odd numbers, determine the number in the middle.</p>
<p>Summarize, represent, and interpret data on two categorical and quantitative variables. S-ID.5. & S-ID.6.</p>	<p>EES-ID.5-6. N/A</p>	<p>***There are no real world applications for these standards that we feel are appropriate for this population and/or they have been covered in previous standards. (See EEF-IF.1-3 and EEA-REI.10-12)</p>
<p>Interpret linear models. S-ID.7.</p>	<p>EES-ID.7. N/A</p>	<p>***There are no real world applications for this standard that we feel are appropriate for this population and/or they have been covered in previous standards. (See EEF-IF.4-6)</p>
<p>S-ID.8. Compute (using technology) and interpret the correlation coefficient of a linear fit.</p> <p>S-ID.9. Distinguish between correlation and causation.</p>	<p>EES-ID.8-9. Determine the difference between fact and opinion.</p>	<p>Level IV AA Students will: EES-ID.8-9. Explain the difference between fact and opinion. Ex. Tell whether a study of 10 dentists where 9 prefer fluoride in toothpaste is a fact or opinion, and explain your choice.</p>

		<p>Level III AA Students will: EES-ID.8-9. Determine the difference between fact and opinion. <i>Ex.</i> Give 3-5 facts and 3-5 opinions about an object/event/place. (Two truths and a lie, about the classroom, etc.)</p> <p>Level II AA Students will: EES-ID.8-9 Determine if a statement is a fact or opinion. <i>Ex.</i> Given the statement 'giraffes are tall', tell if it is a fact or an opinion.</p> <p>Level I AA Students will: EES-ID.8-9. Provide a fact about an object/event. <i>Ex.</i> Given an object/picture, ask the student to give a fact about it.</p>
Statistics and Probability - Making Inferences and Justifying Conclusions		
<p>Understand and evaluate random processes underlying statistical experiments. S-IC.1. Understand statistics as a process for making inferences about population parameters based on a random sample from that population. S-IC.2. Decide if a specified model is consistent with results from a given data generating process, e.g., using simulation. <i>For example, a model says a spinning coin falls heads up with probability 0.5. Would a result of 5 tails in a row cause you to question the model?</i></p>	<p>EES-IC.1-2. Predict the likelihood of an event occurring when the outcomes are equally likely to occur.</p>	<p>Level IV AA Students will: EES-IC.1-2. Calculate the probability of an event occurring when the outcomes are not equally likely to occur. <i>Ex.</i> You have a bag of marbles with five red, four blue, six white, and five yellow marbles. What is the probability of choosing a white marble? <i>Ex.</i> Your drawer contains seven pairs of white socks and three pairs of black socks. What is the probability of choosing <i>FIVE</i> white socks? (Not pairs)</p> <p>Level III AA Students will: EES-IC.1-2. Predict the likelihood of an event occurring when the outcomes are equally likely to occur. <i>Ex.</i> A spinner contains four colors: blue, red, green, and yellow. What is the probability of landing on red? <i>Ex.</i> A die is rolled. What is the probability of landing on a four? <i>Ex.</i> You have three blue candies, seven green candies, and four red candies in a bag. Which color are you most likely to draw out of the bag?</p> <p>Level II AA Students will: EES-IC.1-2. Identify the possible outcomes of an event occurring. <i>Ex.</i> A spinner contains four colors (blue, red, green, and yellow). List all of the possible outcomes. <i>Ex.</i> What are the possible outcomes of rolling a die? <i>Ex.</i> What are the possible outcomes when flipping a coin?</p> <p>Level I AA Students will: EES-IC.1-2. Identify one possible event or outcome of an event occurring. <i>Ex.</i> Given a spinner with four colors, identify one color as a possible outcome. <i>Ex.</i> Given a die, is five a possible outcome?</p>
Make inferences and justify conclusions from sample surveys, experiments, and	EES-IC.3-6. N/A	***There are no real world applications for this standard that we feel are appropriate for this population and/or they have been covered in previous standards. (See EEF.SID.1-2)

<p>observational studies. S-IC.3. S-IC.4.</p>		<p>Global change from these standards to this standard and visa versa as needed!!!</p>
<p>Statistics and Probability - Conditional Probability and the Rules of Probability</p>		
<p>Understand independence and conditional probability and use them to interpret data.</p> <p>S-CP.1. Describe events as subsets of a sample space (the set of outcomes) using characteristics (or categories) of the outcomes, or as unions, intersections, or complements of other events (“or,” “and,” “not”).</p> <p>S-CP.2. 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 this characterization to determine if they are independent.</p> <p>S-CP.3. Understand the conditional probability of A given B as $P(A \text{ and } B)/P(B)$, 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 the same as the probability of B.</p> <p>S-CP.4. Construct and interpret two-way frequency tables of data when two categories are associated with each object being classified. Use the two-way table as a sample space to decide if events are independent and to approximate conditional probabilities. <i>For example, collect data from a random sample of students in your school on their favorite subject among math, science, and English. Estimate the probability that a randomly selected student from your school will favor science given that the student is in tenth grade. Do the same for other subjects and compare the results.</i></p>	<p>EES-CP.1-5. Compare/identify when events are independent or dependent.</p>	<p>Level IV AA Students will: EES-CP.1-5. Find the probability of an event after another event has occurred. <i>Ex.</i> Find the probability of the next coin flip after a succession of coin flips (e.g., If Joe flipped a coin four times in row and got heads each time, what is the probability of getting heads on the next flip?). <i>Ex.</i> Find the probability of drawing a particular color after a succession of draws with replacement (e.g., If Sam had three die in a bag - one red, one blue, and one green, what is the probability of drawing a blue?). <i>Ex.</i> Find the probability of drawing a particular color after the color has been withdrawn, without replacement (e.g., A bag contains four blue, three red, two yellow, and one black balls. Wes randomly selected the black ball. What is the probability he will select a yellow ball next if the black ball is not replaced in the bag?).</p> <p>Level III AA Students will: EES-CP.1-5. Compare/identify when events are independent or dependent. <i>Ex.</i> Given a bag with a red marble, a green marble and a blue marble, you withdraw the green marble. Explain the difference in the probability of drawing a red marble next if you replace the green marble versus if you do not replace the green marble.</p> <p>Level II AA Students will: EES-CP.1-5. Recognize the outcomes of an event. <i>Ex.</i> When asked whether catching the bus depends upon whether you get up on time, reply yes. <i>Ex.</i> When asked if winning the lottery depends on the weather, reply no. <i>Ex.</i> When asked if the basketball game is likely to be canceled if it rains, reply no. <i>Ex.</i> What could happen when an egg falls off the table?</p> <p>Level I AA Students will: EES-CP.1-5. Identify which event is most likely to occur. <i>Ex.</i> Which is put on first - socks or shoes? <i>Ex.</i> Using a daily schedule, what activity would come next?</p>

<p>S-CP.5. Recognize and explain the concepts of conditional probability and independence in everyday language and everyday situations. <i>For example, compare the chance of having lung cancer if you are a smoker with the chance of being a smoker if you have lung cancer.</i></p>		
<p>Use the rules of probability to compute probabilities of compound events in a uniform probability model. S-CP.6. & S-CP.7.</p>	<p>EES-CP.6-7. N/A</p>	<p>***There are no real world applications for this standard that we feel are appropriate for this population and/or they have been covered in previous standards. (See EEG-IC.1-2 & EEG-CP.1-5.)</p>

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