ORGANIZING THEME/TOPIC	FOCUS STANDARDS & SKILLS
Cluster 1: Draw, construct, and describe geometrical figures and describe the relationships between them.	(7.G.2) Draw (freehand, with a 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.
Cluster 2: Solve real-life and mathematical problems involving angle measure, area, surface area, and volume.	(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.
Cluster 1: Use properties of operations to generate equivalent expressions.	(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. (For example, a + 0.05a = 1.05a means that “increase by 5%” is the same as “multiply by 1.05”).

Cluster 2: Solve real-life and mathematical problems using numerical and algebraic expressions and equations.	□ (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. □ (7.EE.4a)-Solve word problems leading to equations of the form px + q = r and p(x + q) = r, where p, q, 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. (For example, the perimeter of a rectangle is 54cm. Its length is 6 cm. What is its width?) □ (7.EE.4b)-Solve word problems leading to inequalities of the form px + q > r or px + q < r, where p, q, r are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem. (For example: As a salesperson, you are paid $50 per week plus $3 per sale. This week you want your pay to be at $100. Write an inequality for the number of sales you need to make, and describe the solutions).
Cluster 1: Analyze proportional relationships and use them to solve real-world and mathematical problems.	□ (7.RP.2)- Recognize and represent proportional relationships between quantities. (7.RP.2a)-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).* (7.RP.2b)-Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.

Cluster 1: Analyze proportional relationships and use them to solve real-world and mathematical problems.	□ (7.RP.3) Use proportional relationships to solve multi-step ratio and percent problems. (*Examples*: *simple interest, tax, markups, and markdowns, gratuities and commissions, fee, percent increase and decrease, percent error).*
Cluster 1: Draw, construct, and describe geometrical figures and describe the relationships between them.	□ (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.
Cluster 1: Draw, construct, and describe geometrical figures and describe the relationships between them.	□ (7.G.2) Draw (freehand, with a 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.
Cluster 1: 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. (Computation with rational numbers extend the rules for manipulation fractions to complex fractions).
Cluster 1: Use properties of operations to generate equivalent expressions.	□ (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.

Cluster 1: Analyze proportional relationships and use them to solve real-world and mathematical problems.	□ (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. (For example, if a person walks ½ mile in each ¼ hour, compute the unit rate as the complex fraction (1/2)/(1/4) miles per hour, equivalently 2 miles per hour).
Cluster 1: Analyze proportional relationships and use them to solve real-world and mathematical problems.	□ (7.RP.2)- Recognize and represent proportional relationships between quantities. (7.RP.2a)-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).* (7.RP.2b)-Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships. (7.RP.2c)-Represent proportional relationships by equations, (*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).* (7.RP.2d)-Explain what a point (x, y) on a graph of a proportional relationship means in terms of the situation, with special.
Cluster 1: Analyze proportional relationships and use them to solve real-world and mathematical problems.	□ (7.RP.3) Use proportional relationships to solve multi-step ratio and percent problems. (*Examples*: *simple interest, tax, markups, and markdowns, gratuities and commissions, fee, percent increase and decrease, percent error).*

Cluster 1: Use properties of operations to generate equivalent expressions.	□ (7.EE.1) Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.
Cluster 1: Use properties of operations to generate equivalent expressions.	□ (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. (For example, a + 0.05a = 1.05a means that "increase by 5%" is the same as "multiply by 1.05").
Cluster 1: Use properties of operations to generate equivalent expressions.	□ (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. (*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 ¾ inches long in the center of a door that is 27 ½ 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).*

Cluster 1: Use properties of operations to generate equivalent expressions.	□ (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. □ (7.EE.4a)-Solve word problems leading to equations of the form px + q = r and p(x + q) = r, where p, q, 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. (For example, the perimeter of a rectangle is 54cm. Its length is 6 cm. What is its width?) (7.EE.4b)-Solve word problems leading to inequalities of the form px + q > r or px + q < r, where p, q, r are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem. (For example: As a salesperson, you are paid $50 per week plus $3 per sale. This week you want your pay to be at $100. Write an inequality for the number of sales you need to make, and describe the solutions).
Cluster 1: Analyze proportional relationships and use them to solve real-world and mathematical problems.	(7.RP.2b)-Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships. (7.RP.2c)-Represent proportional relationships by equations, (*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).* (7.RP.2d)-Explain what a point (x, y) on a graph of a proportional relationship means in terms of the situation, with special.

Cluster 1: Use properties of operations to generate equivalent expressions.	□ (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. (*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 ¾ inches long in the center of a door that is 27 ½ 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).*
Cluster 1: Analyze proportional relationships and use them to solve real-world and mathematical problems.	□ (7.RP.3) Use proportional relationships to solve multi-step ratio and percent problems. (*Examples*: *simple interest, tax, markups, and markdowns, gratuities and commissions, fee, percent increase and decrease, percent error).*
Cluster 3: Investigate chance processes and develop, use, and evaluate probability models.	□ (7.SP.5) Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring. Larger numbers indicate greater likelihood. A probability near 0 indicates an unlikely event, a probability around ½ indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event.

Cluster 3: Investigate chance processes and develop, use, and evaluate probability models.	□ (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. *(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).*
Cluster 3: Investigate chance processes and develop, use, and evaluate probability models.	□ (7.SP.7) Develop a probability model and use it to find probabilities of events. Compare probabilities from a model to observed frequencies; if the agreement is not good, explain possible sources of the discrepancy. □ (7.SP.7a)-Develop a uniform probability model by assigning equal probability to all outcomes, and use the model to determine probabilities of events. *(For example, if a student is selected at random from a class, find the probability that Jane will be selected and the probability that a girl will be selected).* □ (7.SP.7b)-Develop a probability model (which may not be uniform) by observing frequencies in data generated from a chance process. *(For example, find the approximate probability that a spinning penny will land heads up or that a tossed paper cup will land open-end down. Do the outcomes for the spinning penny appear to be equally likely based on the observed frequencies?)*

Cluster 3: Investigate chance processes and develop, use, and evaluate probability models.	□ (7.SP.8) Find the probabilities of compound events using organized lists, tables, tree diagrams, and simulation. □ (7.SP.8a)-Understand that, just as with simple events, the probability of a compound event is the fraction of outcomes in the sample space for which the compound event occurs. □ (7.SP.8b)-Represent sample spaces for compound events using methods such as organized lists, tables, and tree diagrams. For an event described in everyday languages (*e.g., "rolling double sixes"),* identify the outcomes in the sample space which compose the event. □ (7.SP.8c)-Design and use a simulation to generate frequencies for compound events. *(For example, use random digits as a simulation tool to approximate the answer to the questions: If 40% of donors have type A blood, what is the probability that it will take at least 4 donors to find one with type A blood?)*
Cluster 1: Understand congruence and similarity using physical models, transparencies, or geometry software.	□ (8.G.1)Verify experimentally the properties of rotations, reflections, and translations: □ (8.G.1a)-Lines are taken to lines, and line segments to line segments of the same length. □ (8.G.1b)-Angles are taken to angles of the same measure. □ (8.G.1c)-Parallel lines are taken to parallel lines.
Cluster 1: Understand congruence and similarity using physical models, transparencies, or geometry software.	□ (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.

Cluster 1: Understand congruence and similarity using physical models, transparencies, or geometry software.	□ (8.G.3) Describe the effect of dilations, translations, rotations, and reflections on two dimensional figures using coordinates.
Cluster 1: Understand congruence and similarity using physical models, transparencies, or geometry software.	□ (8.G.4) Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations, given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them.
Cluster 1: Understand congruence and similarity using physical models, transparencies, or geometry software.	□ (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. *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.*
Cluster 2: Understand the connections between proportional relationships, lines, and linear equations.	□ (8.EE.6) Use similar triangles to explain why the slope *m* is the same between any two distinct points on a non-vertical line in the coordinate plane; derive the equation y = mx for a line through the origin and the equation y = mx + b for a line intercepting the vertical axis at *b*.
Cluster 1: 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. (Computation with rational numbers extend the rules for manipulation fractions to complex fractions).
Cluster 1: Draw, construct, and describe geometrical figures and describe the relationships between them.	□ (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, which includes cylinders, cones and spheres.

Cluster 2: Solve real-life and mathematical problems involving angle measure, area, surface area, and volume.	□ (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.
Cluster 3: Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres.	□ (8.G.9) Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems**.** (7th grade may discuss & develop these formulas...it's up for discussion. "7.G. 3 & 7.G.6 can include Cylinders, Cones and Spheres...will need to discover these formulas in 7th grade because they are needed in 8th grade"). Math coaches will discuss for pacing.
Cluster 2: Draw informal comparative inferences about two populations.	□ (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. (*For example, the mean height of players on the basketball team is 10 cm greater than the mean height of 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).*
Cluster 2: Draw informal comparative inferences about two populations.	□ (7.SP.4) Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations. (For example, decide whether the words in a chapter of a seventh-grade science book are generally longer than the words in a chapter of a fourth-grade science book).
Cluster 1: Use random sampling to draw inferences about a population.	□ (7SP.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.

Cluster 1: Use random sampling to draw inferences about a population.	□ (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. *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.*