Quarter 1

Unit	Standard Item Range	Depth of Knowledge	Standards	I Can	Item Specs	Math Framework
Prime Factorization	Low	2	7.NS.1 Find the prime factorization of whole numbers and write the results using exponents	*I can make and use factor trees to find the prime factorization of numbers. *I can write the prime factorization of a composite number using exponents.	7.NS.1	7.NS.1
Whole Numbers	Medium	2	7.NS.2 Understand the inverse relationship between squaring and finding the square root of a perfect square integer. Find square roots of perfect square integers.	*Given a perfect square whole number, I can find the square root. *I can explain the relationship between squaring and finding the square root. *I can identify when only the principal square root is appropriate to find.	7.NS.2	7.NS.2
Squares Square Roots Perfect Square	High	3	7.NS.3 Know there are rational and irrational numbers. Identify, compare, and order rational and common irrational numbers (√2, √3, √5, ?) and plot them on a number line.	*I can classify a number as rational or irrational. *I can use estimate values to compare and order two or more rational and/or irrational numbers. *I can plot rational numbers and estimates of irrational numbers on a number line.	7.NS.3	7.NS.3
Rational Numbers	Medium	3	7.C.1 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.	*I can show addition of integers on a number line. *I can explain how p + q is the number located from p, in the positive or negative direction. *I can describe situations where opposite quantities combine to make zero. *I can represent and explain how a number and its opposite have a sum of zero and are additive inverses.	7.C.1	7.C.1
Irrational Numbers	Medium	3	7.C.1 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.	*I can show addition of integers on a number line. *I can explain how p + q is the number located from p, in the positive or negative direction. *I can describe situations where opposite quantities combine to make zero. *I can represent and explain how a number and its opposite have a sum of zero and are additive inverses.	7.C.1	7.C.1
Number Line	Medium	3	7.C.2 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.	*I can show subtraction of integers on a number line. *I can explain that subtraction is equivalent to adding the additive inverse. *I can represent how the distance between two rational numbers on a number line is the absolute value of their difference. *I can subtract rational numbers in the context of a real-world problem.	7.C.2	7.C.2
Computation	Medium	3	7.C.3 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	*I can recognize and describe the rules when multiplying signed numbers. *I can apply the distributive property to multiply rational numbers.	7.C.3	7.C.3
Absolute Value	Medium	3	7.C.4 Understand that integers can be divided, provided that the divisor is not zero, and that every quotient of integers (with non-zero divisor) is a rational number. Understand that if p and q are integers, then −(p/q) = (−p)/q = p/(−q).	*I can explain the concept of dividing integers. *I can explain why integers cannot be divided when the divisor is zero. *I can recognize and describe the rules when dividing signed numbers.	7.C.4	7.C.4
Additive Inverse	Medium	3	7.C.7 Compute with rational numbers fluently using a standard algorithmic approach.	*I can add, subtract, multiply and divide with rational numbers.	7.C.7	7.C.7
Addition	High	3	7.C.8 Solve real-world problems with rational numbers by using one or two operations.	*I can solve real-world problems by adding, subtracting, multiplying, and dividing rational numbers.	7.C.8	7.C.8
Integers						
Rational Numbers						
Subtraction						
Integers						
Distance on number line						
Integers						
Multiplication Integers						
Distributive Property						
Division Integers						
Algorithmic Approach						
Real World Problems						
Operations						

Quarter 2

Unit	Standard Item Range	Depth of Knowledge	Standards	I Can	Item Specs	
Unit Rates Ratios Length Area Perimeter	High	1	7.C.5 Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units.	*I can compute a unit rate for a given ratio from information within a situational context or mathematical problem. *I can form a unit rate with fractions. *I can compute a unit rate with quantities measured in unlike units.	7.C.5	7.C.5
Properties Linear Expressions Equivalent Expression	high	2	7.AF.1 Apply the properties of operations (e.g., identity, inverse, commutative, associative, distributive properties) to create equivalent linear expressions, including situations that involve factoring (e.g., given 2x − 10, create an equivalent expression 2(x - 5)). Justify each step in the process.	*I can apply properties of operations to add, subtract, factor, and expand linear expressions with rational coefficients. *I can combine like terms to factor and expand linear expressions with rational coefficients using the distributive property. *I can use properties of operations to write equivalent expressions. *I can rewrite an expression in an equivalent form if needed. *I can justify the steps taken to form equivalent expressions.	7.AF.1	7.AF.1
Solving Equations	high	2	7.AF.2 Solve equations of the form px + q = r and p(x + q) = r fluently, where p, q, and r are specific rational numbers. Represent real-world problems using equations of these forms and solve such problems.	*I can solve two-step real-world and mathematical problems using rational numbers. *I can use variables to represent numbers in real-world or mathematical problems and make simple equations to solve problems.	7.AF.2	7.AF.2
Solving Inequalities	high	2	7.AF.3 Solve inequalities of the form px +q (> or =) r or px + q (< or =) r, where p, q, and r are specific rational numbers. Represent real-world problems using inequalities of these forms and solve such problems. Graph the solution set of the inequality and interpret it in context of the problem.	*I can use variables to represent numbers in real-world or mathematical problems and make simple inequalities to solve problems. *I can graph and interpret the solution set of an inequality in the context of a problem. *I can solve an inequality for an unknown value, without context.	7.AF.3	7.AF.3

Unit	Standard Item Range	Depth of Knowledge	Standards	I Can	Item Specs	
Slope Vertical Change Horizontal Change Rates of Change	high	2	7.AF.4 Define slope as vertical change for each unit of horizontal change and recognize that a constant rate of change or constant slope describes a linear function. Identify and describe situations with constant or varying rates of change.	*I can express slope as vertical change per unit of horizontal change. *I can classify situations as having a constant rate of change (being linear) or as having a varying rate of change (being non-linear). *I can explain the vertical change and the horizontal change in a real-world context. *I can describe situations that would have a constant rate of change. *I can describe situations that would have a varying rate of change.	7.AF.4	7.AF.4
Coordinate Plane Slope	high	2	7.AF.5 Graph a line given its slope and a point on the line. Find the slope of a line given its graph.	*I can find the slope of a line given a graph. *I can graph a line given its slope and one other point on the line.	7.AF.5	7.AF.5
Proportional Relationship Equivalent Ratios Coordinate Plane	med	3	7.AF.6 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).	*I can recognize a proportional relationship given a table by testing for equivalent ratios. *I can recognize a proportional relationship given a graph. *I can identify equivalent proportional relationships across representations.	7.AF.6	7.AF.6

Quarter 3

Unit	Standard Item Range	Depth of Knowledge	Standards	I Can	Item Specs	
Percentages and Proportions	High	3	7.C.6 Use proportional relationships to solve ratio and percent problems with multiple operations, such as the following: simple interest, tax, markups, markdowns, gratuities, commissions, fees, conversions within and across measurement systems, percent increase and decrease, and percent error.	*I can apply proportional reasoning to solve multistep ratio and percent problems. *I can calculate the percent increase or decrease in a given context. *I can convert within and across measurement systems using proportional relationships. *I can calculate markups and markdown using proportional relationships. *I can calculate simple interest in a given problem. *I can solve problems involving tax and gratuities.	7.C.6	7.C.6
Unit Rate Constant of Proportionality Direct Variation	high	3	7.AF.7 Identify the unit rate or constant of proportionality in tables, graphs, equations, and verbal descriptions of proportional relationships.	*I can compute a unit rate. *I can define the constant of proportionality as a unit rate. *I can analyze tables, graphs, equations and verbal descriptions to identify the unit rate.	7.AF.7	7.AF.7
Proportional Relationship	low	3	7.AF.8 Explain what the coordinates of a point on the graph of a proportional relationship mean in terms of the situation, with special attention to the points (0, 0) and (1, r), where r is the unit rate.	*I can explain what the points on a graph of a proportional relationship mean in terms of a specific situation. *I can recognize that (1, r) on a graph represents the unit rate, r. *I can explain the significance of the point (0, 0) on the graph of proportional relationship.	7.AF.8	7.AF.8
Direct Variation	high	3	7.AF.9 Identify real-world and other mathematical situations that involve proportional relationships. Write equations and draw graphs to represent proportional relationships and recognize that these situations are described by a linear function in the form $y = mx$, where the unit rate, m, is the slope of the line.	*I can identify real-world situations that involve proportional relationships. *I can represent proportional relationships by writing equations. *I can draw graphs that represent proportional relationships. *I can explain how the graph of a proportional relationship relates to the linear function $y = mx$. *Given an equation or graph, I can solve real-world problems involving proportional relationships. *I can see the relationship between the unit rate and the slope, m.	7.AF.9	7.AF.9
Real-World Situations Equations Graphs Proportional Relationships	Medium	2	7.GM.1:Draw triangles (freehand, with ruler and protractor, and using technology) with given conditions from three measures of angles or sides, and notice when the conditions determine a unique triangle, more than one triangle, or no triangle.	*I can recognize triangles with given conditions. *I can recognize a triangle when given three measurements. *I can determine, through exploration, whether three given side lengths (or angle measures) would form a triangle.	7.GM.1	7.GM.1
Draw Triangles Given Various Conditions Classifying Angles	Medium	3	7.GM.2: Identify and describe similarity relationships of polygons including the angle-angle criterion for similar triangles, and solve problems involving similarity.	*I can determine whether two polygons are similar polygons. *I can show two triangles are similar based on their angle measures. *I can solve for missing lengths and/or angles within similar polygons.	7.GM.2	7.GM.2
Similar Figures	High	3	7.GM.3:Solve real-world and other mathematical problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing. Create a scale drawing by using proportional reasoning.	*I can compute actual lengths and areas from a scale drawing. *I can compute the scale factor given the model length and actual length. *I can solve problems with scale drawings of geometric figures. *I can create a scale drawing using proportional reasoning.	7.GM.3	7.GM.3
Scale Drawings Scale Models	Medium	2	7.GM.4:Solve real-world and other mathematical problems that involve vertical, adjacent, complementary, and supplementary angles.	*I can use properties of supplementary, complementary, vertical, and adjacent angles in multi-step problems. *I can write and solve simple equations for an unknown angle in a figure. *I can identify types of angles in the context of a real-world problem.	7.GM.4	7.GM.4
Line and Angle Relationships						

Quarter 4

Unit	Standard Item Range	Depth of Knowledge	Standards	I Can	Item Specs	
Perimeter and Circumference Area of Circles	High	3	7.GM.5:Understand the formulas for area and circumference of a circle and use them to solve real-world and other mathematical problems; give an informal derivation of the relationship between circumference and area of a circle.	*I can identify the formulas for the area and circumference of a circle. *I can use the formulas for circumference and area of a circle to solve problems. *I can explain the relationship between the circumference and the area of a circle.	7.GM.5	7.GM.5
Area of Irregular Figures Introductions to ThreeDimensional Figures	Medium	2	7.GM.6: Solve real-world and other mathematical problems involving volume of cylinders and three-dimensional objects composed of right rectangular prisms.	*I can solve problems involving volume of cylinders. *I can solve problems involving volume of figures composed of right rectangular prisms. *I can apply the volume formulas for cylinders and figures composed of right rectangular prisms to solve real-world problems.	7.GM.6	7.GM.6
Real-World Problems with Prisms and Cylinders	Low	3	7.GM.7:Construct nets for right rectangular prisms and cylinders and use the nets to compute the surface area; apply this technique to solve real-world and other mathematical problems.	*I can use nets to find the surface area of right rectangular prisms and cylinders. *I can solve problems involving surface area of cylinders. *I can solve problems involving surface area of right rectangular prisms.	7.GM.7	7.GM.7
Surface area of prisms and cylinders using their nets.	med	2	7.DSP.1: Understand that statistics can be used to gain information about a population by examining a sample of the population and 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	*I can explain why generalizations made about a population from a sample are only valid if the sample represents that population. *I can identify when random sampling has or has not occurred. *I can verify whether a sample is representative of a given population.	7.DSP.1	7.DSP.1

Topic	Level	#	Standard	"I can" Statements	Link	Link
Populations and Random Samples	med	2	7.DSP.2:Use data from a random sample to draw inferences about a population. Generate multiple samples (or simulated samples) of the same size to gauge the variation in estimates or predictions.	*I can explain that inferences about a population can be made by examining a sample. *I can use data from a random sampling to draw conclusions about a population. *I can generate multiple samples to gauge predictions.	7.DSP.2	7.DSP.2
Inferences and Predictions of Random Samples	high	3	7.DSP.3: Find, use, and interpret measures of center (mean and median) and measures of spread (range, interquartile range, and mean absolute deviation) for numerical data from random samples to draw comparative inferences about two populations.	*I can find similarities and differences in two different data sets. *I can compare and draw conclusions from two populations based off their means, medians and/or range, interquartile range, or mean absolute deviation. *I can find, use, and interpret various measures of center. *I can find, use, and interpret various measures of spread.	7.DSP.3	7.DSP.3
Mean, Median Mode, and Range	med	3	7.DSP.4:Make observations about the degree of visual overlap of two numerical data distributions represented in line plots or box plots. Describe how data, particularly outliers, added to a data set may affect the mean and/or median.	*I can compare two data distributions represented by line plots or box plots. *I can compare two sets of data within a single data display such as a line plot or box plot. *I can identify outliers. *I can describe the affect an outlier has on the mean and/or median	7.DSP.4	7.DSP.4
Mean Absolute Deviation	high	1	7.DSP.5: Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring. Understand that a probability near 0 indicates an unlikely event, a probability around 1/2 indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event. Understand that a probability of 1 indicates an event certain to occur and a probability of 0 indicates an event impossible to occur.	*I can explain how the probability of an event ranges from 0, impossible, to 1, certain, with various levels of likelihood in between. *I can explain how an event that is equally likely or equally unlikely has a probability of about 0.5 or 1/2. *I can categorize and order the probabilities of events by their likelihood. *I can identify probabilities of events using words like impossible, very unlikely, unlikely, equally unlikely/unlikely, very likely, and certain to describe the probabilities of events.	7.DSP.5	7.DSP.5
Line Plot Box-and-Whisker Plot						
Probability						
Chance Events Relative Frequency						
Probability Models						