Focus Topic: RP – Ration & Proportional Relationships

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Objective(s)	Common Core Alignment	Essential Questions	Understandings	Suggested Assessments
• TSW understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. (*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 three votes.")*	6.NBT.1	What kinds of problems can be solved using ratios?	Ratios can be represented as fractions or as decimals.	Ongoing observation & questioning during class discussions
• TSW understand the concept of a unit rate a/b associated with a ratio a:b with b ≠ 0, and use rate language in the context of a ratio relationship. (*For example, "This recipe has a ratio of 3 cups of flour to 4 cups of sugar, so there is 3/4 cup of flour for each cup of sugar." "We paid $75 for 15 hamburgers, which is a rate of $5 per hamburger."*)	6.NBT.2	How can we use unit rates and percents in real-life situations?	The cross-product property can be used to solve proportions.	Performance tasks
• TSW use ratio and rate reasoning to solve real-world and mathematical problems, *(For example: by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations)*	6.NBT.3	How are ratios, percents, and proportions similar and different?	The use of scale can result in an enlargement or a reduction.	Short Constructed Response
• TSW 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	6.NBT.3	How can an accurate scale drawing be made?	The ability to use fractions, decimals, and percents interchangeably is important.	Extended Constructed Response
• TSW use tables to compare ratios	6.NBT.3			Self-Assessment
• TSW solve unit rate problems including those involving unit pricing and constant speed. (*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?*)	6.NBT.3			Multiple Choice
• TSW find a percent of a quantity as a rate per 100 (*For example: 30% of a quantity means 30/100 times the quantity); solve problems involving finding the whole, given a part and the percent)*	6.NBT.3			Literature Connections

• TSW use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities	6.NBT.3			

Focus Topic: G –Geometry

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Objective(s)	Common Core Alignment	Essential Questions	Understandings	Suggested Assessments
• TSW find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes	6.G.1	What makes one angle different from another?	Angles are classified by their measure in degrees.	Ongoing observation & questioning during class discussions
• TSW apply these techniques in the context of solving real-world and mathematical problems	6.G.1	What attributes are used to classify triangles?	Some figures have line symmetry.	Performance tasks
• TSW 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	6.G.2	What makes shapes similar or congruent?	Figures can be similar or congruent.	Short Constructed Response
• TSW apply the formulas $V = l\ w\ h$ and $V = b\ h$ to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems	6.G.2	What determines if a shape is symmetrical?	Regular polygons have equal side lengths and equal angle measurements.	Extended Constructed Response
• TSW draw polygons in the coordinate plane given coordinates for the vertices	6.G.3		Many quadrilaterals can be classified in more than one way.	Self-Assessment
• TSW use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate	6.G.3			Multiple Choice
• TSW apply these techniques in the context of solving real-world and mathematical problems	6.G.3			Literature Connections
• TSW represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures	6.G.4			
• TSW apply these techniques in the context of solving real-world and mathematical problems	6.G.4			

Focus Topic: NS –The Number System

TSW = The Student Will

Objective(s)	Common Core Alignment	Essential Questions	Understandings	Suggested Assessments
• TSW 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. (*For example, create a story context for (2/3) ÷ (3/4) and use a visual fraction model to show the quotient; use the relationship between multiplication and division to explain that (2/3) ÷ (3/4) = 8/9 because 3/4 of 8/9 is 2/3. (In general, (a/b) ÷ (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? Compute fluently with multi-digit numbers and find common factors and multiples)*	6.NS.1	How do operations with decimals compare to those with whole numbers?	Multiplication does not always result in a larger product.	Ongoing observation & questioning during class discussions
• TSW fluently divide multi-digit numbers using the standard algorithm	6.NS.2	How does the placement of the decimal point affect the value of the product or quotient?	Division does not always result in a smaller quotient.	Performance tasks
• TSW fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation	6.NS.3	How and why do we use estimation?	Conversions within the metric system are determined by the placement of the decimal point.	Short Constructed Response
• TSW 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	6.NS.4	Why is problem solving useful?	Numbers can be represented in different ways.	Extended Constructed Response
• TSW 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. (*For example, express 36 + 8 as 4 (9 + 2). Apply and extend previous understandings of numbers to the system of rational number)*	6.NS.4	Why are mathematical rules necessary?	Different skills can be used to solve problems effectively.	Self-Assessment

• TSW understand that positive and negative numbers are used together to describe quantities having opposite directions or values (*For example: temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge)*	6.NS.5	How are variables used?	Math has specific vocabulary and rules.	Multiple Choice
• TSW use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation	6.NS.5			Literature Connections
• TSW understand a rational number as a point on the number line	6.NS.6			
• TSW 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	6.NS.6			
• TSW recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line	6.NS.6			
• TSW 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	6.NS.6			
• TSW understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane	6.NS.6			
• TSW recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes	6.NS.6			
• TSW find and position integers and other rational numbers on a horizontal or vertical number line diagram	6.NS.6			
• TSW find and position pairs of integers and other rational numbers on a coordinate plane	6.NS.6			
• TSW understand ordering and absolute value of rational numbers	6.NS.7			
• TSW interpret statements of inequality as statements about the relative position of two numbers on a number line diagram. (*For example, interpret –3 > –7 as a statement that –3 is located to the right of –7 on a number line oriented from left to right)*	6.NS.7			

• TSW write, interpret, and explain statements of order for rational numbers in real-world contexts. (*For example, write –3 ^{o}C > –7 ^{o}C to express the fact that –3 ^{o}C is warmer than –7 ^{o}C.)*	6.NS.7			
• TSW understand the absolute value of a rational number as its distance from 0 on the number line	6.NS.7			
• TSW interpret absolute value as magnitude for a positive or negative quantity in a real-world situation. (*For example, for an account balance of –30 dollars, write |–30| = 30 to describe the size of the debt in dollars)*	6.NS.7			
• TSW distinguish comparisons of absolute value from statements about order. (*For example, recognize that an account balance less than –30 dollars represents a debt greater than 30 dollars)*	6.NS.7			
• TSW solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane`	6.NS.7			
• TSW include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate	6.NS.7			

Focus Topic: EE –Expressions & Equations

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Objective(s)	Common Core Alignment	Essential Questions	Understandings	Suggested Assessments
• TSW write and evaluate numerical expressions involving whole-number exponents	6.EE.1	Why are equations useful?	A number value can be represented as a constant or as a variable.	Ongoing observation & questioning during class discussions
• TSW write, read, and evaluate expressions in which letters stand for numbers	6.EE.2	Why use variables?	Equations are written representations of real life problems.	Performance tasks
• TSW write expressions that record operations with numbers and with letters standing for numbers. (*For example, express the calculation "Subtract y from 5" as 5 – y)*	6.EE.2	Why are mathematical rules necessary?		Short Constructed Response

• TSW 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 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)*	6.EE.2	How are variables used in math and in life?		Extended Constructed Response
• TSW evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems	6.EE.2			Self-Assessment
• TSW 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 $A = 6 s^2$ to find the volume and surface area of a cube with sides of length s = ½)*	6.EE.2			Multiple Choice
• TSW 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)*	6.EE.3			Literature Connections
• TSW identify when two expressions are equivalent *(For example: when the two expressions name the same number regardless of which value is substituted into them …the expressions y + y + y and 3y are equivalent because they name the same number regardless of which number y stands for)*	6.EE.4			
• TSW reason about and solve one-variable equations and inequalities	6.EE.4			
• TSW 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?	6.EE.5			

• TSW use substitution to determine whether a given number in a specified set makes an equation or inequality true	6.EE.5			
• TSW use variables to represent numbers and write expressions when solving a real-world or mathematical problem	6.EE.6			
• TSW understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set	6.EE.6			
• TSW solve real-world and mathematical problems by writing and solving equations of the form $x + p = q$ and $px = q$ for cases in which p, q and x are all nonnegative rational numbers	6.EE.7			
• TSW write an inequality of the form $x > c$ or $x < c$ to represent a constraint or condition in a real-world or mathematical problem	6.EE.8			
• TSW recognize that inequalities of the form $x > c$ or $x <$ c have infinitely many solutions; represent solutions of such inequalities on number line diagrams	6.EE.8			
• TSW use variables to represent two quantities in a real-world problem that change in relationship to one another	6.EE.9			
• TSW write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable	6.EE.9			
• TSW analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation *(For example, in a problem involving motion at constant speed, list and graph ordered pairs of distances and times, and write the equation d = 65t to represent the relationship between distance and time)*	6.EE.9			

Focus Topic: SP – Statistics & Probability

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Objective(s)	Common Core Alignment	Essential Questions	Understandings	Suggested Assessments
• TSW recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers. (*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)*	6.SP.1	What are the different ways that data can be represented?	Predictions can be made about the possible results of a trial.	Ongoing observation & questioning during class discussions
• TSW 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	6.SP.2	How can a statistic be biased?	Data can be presented in a misleading way.	Performance tasks
• TSW recognize that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation describes how its values vary with a single number	6.SP.3			Short Constructed Response
• TSW display numerical data in plots on a number line, including dot plots, histograms, and box plots	6.SP.4			Extended Constructed Response
• TSW summarize numerical data sets in relation to their context, such as by: - Reporting the number of observations - Describing the nature of the attribute under investigation, including how it was measured and its units of measurement - 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 - 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	6.SP.5			Self-Assessment Multiple Choice Literature Connections

Focus Topic: Mathematical Practices

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Objective(s)
• TSW make sense of problems and persevere in solving them.
• TSW reason abstractly and quantitatively.
• TSW construct viable arguments and critique the reasoning of others.
• TSW model with mathematics.
• TSW use appropriate tools strategically.
• TSW attend to precision.
• TSW look for and make use of structure
• TSW look for and express regularity in repeated reasoning.