

6.RP Ratios and Proportional Relationships	
<ul style="list-style-type: none"> <input type="checkbox"/> Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. (6.RP.A.1) <input type="checkbox"/> Understand the concept of a unit rate a/b associated with a ratio $a:b$ with $b \neq 0$. (6.RP.A.2) <input type="checkbox"/> Use rate language in the context of a ratio relationship. (6.RP.A.2) <input type="checkbox"/> Use ratio and rate reasoning to solve real-world and mathematical problems. (6.RP.A.3) 	
<p><u>Essential Questions</u></p> <p>What kinds of problems can be solved using ratios? How can we use unit rates and percents in real-life situations? How are ratios, percents, and proportions similar and different? How can an accurate scale drawing be made?</p>	<p><u>Enduring Understandings</u></p> <p>Ratios can be represented as fractions or as decimals; The cross-product property can be used to solve proportions; The use of scale can result in an enlargement or a reduction; The ability to use fractions, decimals, and percents interchangeably is important.</p>
<p><u>Suggested Activities and Resources</u> (in addition to guided reading and leveled materials)</p> <p>Provide ratio & proportion tasks in a wide variety of contexts (measurements, prices, geometric, rates, etc.) & encourage experimentation & discussion; Literature Connection: <i>If you Hopped Like a Frog</i> (Schwartz, 1999) – contains 12 situations that use proportional reasoning to determine what it would be like if people had the powers or dimensions of various familiar animals;</p>	<p><u>Suggested Assessments</u></p> <p>Students take turns, take a picture, & name the use(s) of number that are depicted. Then ask the other students to signal if they agree or disagree, or see another use depicted; Create a set of pictures showing the different uses of number (or you can use pictures already created or cut out of magazines by students).</p>

6.NS The Number System	
<ul style="list-style-type: none"> <input type="checkbox"/> Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions. (6.NS.A.1) <input type="checkbox"/> Fluently divide multi-digit numbers using the standard algorithm. (6.NS.B.2) <input type="checkbox"/> Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation. (6.NS.B.3) <input type="checkbox"/> 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.B.4) <input type="checkbox"/> 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. (6.NS.B.4) <input type="checkbox"/> Understand that positive and negative numbers are used together to describe quantities having opposite directions or values. (6.NS.C.5) <input type="checkbox"/> Use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation. (6.NS.C.5) <input type="checkbox"/> Understand a rational number as a point on the number line. (6.NS.C.6) <input type="checkbox"/> 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.C.6) <input type="checkbox"/> Understand ordering and absolute value of rational numbers. (6.NS.C.7) <input type="checkbox"/> Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. (6.NS.C.8) <input type="checkbox"/> Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate. (6.NS.C.8) 	
<p><u>Essential Questions</u></p> <p>How do operations with decimals compare to those with whole numbers? How does the placement of the decimal point affect the value of the product or quotient? How and why do we use estimation? Why is problem solving useful? Why are mathematical rules necessary?</p>	<p><u>Enduring Understandings</u></p> <p>Multiplication does not always result in a larger product; Division does not always result in a smaller quotient; Conversions within the metric system are determined by the placement of the decimal point; Numbers can be represented in different ways; Different skills can be used to solve problems effectively.</p>
<p><u>Suggested Activities and Resources</u> (in addition to guided reading and leveled materials) Challenge students to apply the same rule when using any computational method—if you use it, you must understand why it works & be able to explain what you did; Play “Say it & Press It” – display a multi-digit number using expanded notation & have students say the number then enter it on their calculators</p>	<p><u>Suggested Assessments</u></p> <p>Show students 2 sets of multi-digit whole numbers & have them determine which set is ordered correctly from highest to lowest or vice versa. Then ask them to explain their rationale using appropriate manipulatives, etc.</p>

6.EE Expressions and Equations	
<ul style="list-style-type: none"> <input type="checkbox"/> Write and evaluate numerical expressions involving whole-number exponents. (6.EE.A.1) <input type="checkbox"/> Write, read, and evaluate expressions in which letters stand for numbers. (6.EE.A.2) <input type="checkbox"/> Apply the properties of operations to generate equivalent expressions. (6.EE.B.3) <input type="checkbox"/> Identify when two expressions are equivalent (6.EE.B.4) <input type="checkbox"/> Understand solving an equation or inequality as a process of answering a question. (6.EE.B.5) <input type="checkbox"/> Use variables to represent numbers and write expressions when solving a real-world or mathematical problem (6.EE.B.6) <input type="checkbox"/> Understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set. (6.EE.B.6) <input type="checkbox"/> 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.B.7) <input type="checkbox"/> Write an inequality of the form $x > c$ or $x < c$ to represent a constraint or condition in a real-world or mathematical problem. Recognize that inequalities of the form $x > c$ or $x < c$ have infinitely many solutions. (6.EE.B.8) <input type="checkbox"/> Represent solutions of such inequalities on number line diagrams. (6.EE.B.8) <input type="checkbox"/> Use variables to represent two quantities in a real-world problem that change in relationship to one another. (6.EE.B.9) <input type="checkbox"/> Write an equation to express one quantity in terms of the other quantity. (6.EE.B.9) <input type="checkbox"/> Analyze the relationship between the dependent and independent variables using graphs and tables. (6.EE.B.9) 	
<p><u>Essential Questions</u></p> <p>Why are equations useful? Why use variables? Why are mathematical rules necessary? How are variables used in math and in life?</p>	<p><u>Enduring Understandings</u></p> <p>A number value can be represented as a constant or as a variable; Equations are written representations of real life problems.</p>
<p><u>Suggested Activities and Resources</u> (in addition to guided reading and leveled materials)</p> <p>Fraction Notation -- instead of focusing on having students memorize the terms, focus them on investigating the functions of the numerator & denominator - What does the top number in a fraction tell us? What does the bottom number in a fraction tell us? <i>(it tells what's being counted)</i></p>	<p><u>Suggested Assessments</u></p> <p>Students match the correct picture to an oral description. Example - Which picture show a half of a candy bar? Which show a whole candy bar?</p>

6.G Geometry	
<ul style="list-style-type: none"> <input type="checkbox"/> Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers. (6.G.A.1) <input type="checkbox"/> 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.G.A.2) <input type="checkbox"/> 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.G.A.3) <input type="checkbox"/> Display numerical data in plots on a number line, including dot plots, histograms, and box plots. (6.G.B.4) <input type="checkbox"/> Summarize numerical data sets in relation to their context. (6.G.B.5) 	
<p><u>Essential Questions</u></p> <p>What makes one angle different from another? What attributes are used to classify triangles? What makes shapes similar or congruent? What determines if a shape is symmetrical?</p>	<p><u>Enduring Understandings</u></p> <p>Angles are classified by their measure in degrees; Some figures have line symmetry; Figures can be similar or congruent; Regular polygons have equal side lengths and equal angle measurements; Many quadrilaterals can be classified in more than one way.</p>
<p><u>Suggested Activities and Resources</u> (in addition to guided reading and leveled materials) Pass around models of 3-D shapes. Ask students questions relative to (a) characteristics of particular types of shapes & (b) similarities & differences among shapes. Also have them find real-life examples of the various shapes; Instructional activities relative to points, lines, line segments, rays, & angles should focus on helping students develop a growing understanding of them & of geometric applications relative to them. ; Teacher Resource: <i>Creative Constructions</i> by S. Schadler</p>	<p><u>Suggested Assessments</u></p> <p>Ongoing observation, questioning, & review of student work in order to determine pupil progress relative to –identifying & describing relation-ships for 2 or more objects in space, which characteristics students can use without prompting, use of appropriate language when describing/ discussing geometric shapes/relationships</p>

<p>6.SP Statistics and Probability</p>	
<ul style="list-style-type: none"> <input type="checkbox"/> Use a pair of perpendicular number lines to define a coordinate system. (6.SP.A.1) <input type="checkbox"/> Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation. (6.SP.A.2) <input type="checkbox"/> Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category. (6.SP.A.3) <input type="checkbox"/> Classify two-dimensional figures in a hierarchy based on properties. (6.SP.A.4) 	
<p><u>Essential Questions</u></p> <p>What are the different ways that data can be represented? How can a statistic be biased?</p>	<p><u>Enduring Understandings</u></p> <p>Predictions can be made about the possible results of a trial; Data can be presented in a misleading way.</p>
<p><u>Suggested Activities and Resources</u> (in addition to guided reading and leveled materials)</p> <p>Use a leveling perspective to help students gain a better understanding of one interpretation of the “mean” – have students make cube towers of different heights to record data, then have students manipulate & level the cubes to ascertain the mean. This can then be connected to the standard averaging paper-and-pencil procedure; Ask students questions such as “Which is likely or not likely?” will enable them to hear & then use probability terminology</p>	<p><u>Suggested Assessments</u></p> <p>Ongoing observation & questioning in order to ascertain group & individual pupil progress in - understanding the data collection & analysis process, constructing meaning for terms & concepts related to data collection & analysis, constructing meaning for & applying measures that describe data (range, mode, median, mean), reading/constructing/interpreting (analyzing & drawing inferences from) data displays, formulating & testing hypotheses about data, responding to & generating questions/arguments relative to data</p>