**2015-2016 Standards Pacing Guide – Sixth Grade**

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| **Standard** | | **Struggling** | **Progressing** | **Meets** | **Advanced** |
| 6.RP.1 | Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. |  |  | Identifies a ratio and uses correct language to describe the relationship |  |
| 6.RP.2 | Understand the concept of a unit rate a/b associated with a ratio a:b with b does not equal 0, and use rate language in the context of a ratio relationship. |  |  | Identifies a unit rate and uses correct language in a ratio relationship |  |
| 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. |  |  | Uses ratio and rate to solve real-word and math problems correctly |  |
| 6.RP.3a | 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. |  |  | Identifies equivalent ratios with whole numbers, finds missing values and plots coordinate pairs |  |
| 6.RP.3b | Solve unit rate problems including those involving unit pricing and constant speed. |  |  | Solves unit rate problems with pricing and speed |  |
| 6.RP.3c | 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. |  |  | Solves problems finding percent (rate of 100) and the whole, given a part and percent |  |
| 6.RP.3d | Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities. |  |  | Converts measurement units and transforms units appropriately when multiplying or dividing |  |
| 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. |  |  | Computes quotients of fractions, and solves word problems with division |  |
| 6.NS.2 | Fluently divide multi-digit numbers using the standard algorithm. |  |  | Divides multi-digit numbers using the standard algorithm |  |
| 6.NS.3 | Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation. |  |  | Adds, subtracts, multiplies and divides multi-digit decimals |  |
| 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. |  |  | Finds the GCF and LCM of two whole numbers less than or equal to 100. |  |
| 6.NS.5 | Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge); use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation. |  |  | Uses positive and negative numbers to represent quantities in real-world contexts and explain the meaning of 0 |  |
| 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. |  |  | Identify and represents rational numbers on a number line, including negative numbers |  |
| 6.NS.6a | 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. |  |  | Identifies opposite numbers on a number line (negative to positive) and that 0 is its own opposite |  |
| 6.NS.6b | 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. |  |  | Identifies that signs of numbers in ordered pairs represent location and can be a reflection across an axis |  |
| 6.NS.6c | 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. |  |  | Find and position integers and rational numbers of number lines or coordinate plane |  |
| 6.NS.7 | Understand ordering and absolute value of rational numbers. |  |  | Orders absolute values and rational numbers |  |
| 6.NS.7a | Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram. |  |  | Identifies inequalities between two numbers on a number line |  |
| 6.NS.7b | Write, interpret, and explain statements of order for rational numbers in real-world contexts. |  |  | Writes, interprets, and explains statements of order for rational numbers in real-world contexts. |  |
| 6.NS.7c | Understand the absolute value of a rational number as its distance from 0 on the number line; interpret absolute value as magnitude for a positive or negative quantity in a real-world situation. |  |  | Understands absolute value as a distance from 0 and interprets AV as positive or negative in real-world situations |  |
| 6.NS.7d | Distinguish comparisons of absolute value from statements about order. |  |  | Distinguishes comparisons of absolute value from statements about order |  |
| 6.NS.8 | Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate. |  |  | Solves real-world and mathematical problems with coordinates and absolute value in all 4 quadrants including same first and second coordinate |  |
| 6.EE.1 | Write and evaluate numerical expressions involving whole-number exponents. |  |  | Writes and evaluates numerical expressions involving whole-number exponents. |  |
| 6.EE.2 | Write, read, and evaluate expressions in which letters stand for numbers. |  |  | Writes, reads, and evaluates expressions in which letters stand for numbers |  |
| 6.EE.2a | Write expressions that record operations with numbers and with letters standing for numbers. |  |  | Writes expressions that record operations with numbers and with letters standing for numbers |  |
| 6.EE.2b | 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. |  |  | Identify parts of an expression using mathematical terms |  |
| 6.EE.2c | 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). |  |  | Evaluate expressions using order of operations in real-world problems involving exponents |  |
| 6.EE.3 | Apply the properties of operations to generate equivalent expressions. |  |  | Applies properties of operations to create equivalent expressions |  |
| 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). |  |  | Identifies when two expressions are equivalent |  |
| 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. |  |  | Solves an equation or inequality using substitution to determine whether it makes it true |  |
| 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. |  |  | Uses/writes variables to represent numbers and solve real-world or mathematical problems |  |
| 6.EE.7 | 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. |  |  | Solves real-world and mathematical problems when all numbers are non-negative and rational |  |
| 6.EE.8 | Write an inequality of the form x c or x to represent a constraint or condition in a real-world or mathematical problem. Recognize that inequalities of the form x c or x have infinitely many solutions; represent solutions of such inequalities on number line diagrams. |  |  | Write and solve problems with constraints or conditions in real-world or mathematical problems and represent infinite solutions on a number line |  |
| 6.EE.9 | Use variables to represent two quantities in a real-world problem that change in relationship to one another; 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. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation. |  |  | Uses variables to represent different quantities as dependent and independent variables and analyzes their relationship using graphs and tables |  |
| 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. |  |  | Find the area of shapes by composing or decomposing shapes in real-world or mathematical problems |  |
| 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 = 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. |  |  | Finds the volume of a right rectangular prisms using formulas as well as manipulatives in real-world and mathematical problems |  |
| 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. |  |  | Draws and identifies lengths of sides in a coordinate plane based on vertices in real-world and mathematical problems |  |
| 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. |  |  | Represent and solve for the surface area of figures using nets in real-world and mathematical problems |  |
| 6.SP.1 | Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers. |  |  |  |  |
| 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. |  |  | Describes a set of data’s center, spread, and overall shape |  |
| 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. |  |  | Recognizes the difference between a set of data’s center and variation |  |
| 6.SP.4 | Display numerical data in plots on a number line, including dot plots, histograms, and box plots. |  |  | Displays numerical data on a number line, dot plots, histograms and box plots |  |
| 6.SP.5 | Summarize numerical data sets in relation to their context, such as by: |  |  |  |  |
| 6.SP.5a | Reporting the number of observations. |  |  |  |  |
| 6.SP.5b | Describing the nature of the attribute under investigation, including how it was measured and its units of measurement. |  |  |  |  |
| 6.SP.5c | 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. |  |  |  |  |
| 6.SP.5d | 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. |  |  |  |  |