Year at a Glance: Math - Gr. 6 Student Learning Objectives Clustered by Unit

DOCUMENT KEY: WALT (That) ... indicates a concept. WALT (To) ... indicates a skill.

Key
Focus - Explicit Instruction and Assessment
Revisited and Reinforced
Not Addressed in the Unit

			Unit 1		Unit 2		Unit 3			Unit 4	
			Quotients of Fractions, Ratio and Rate Reasoning		Introductory Statistics		Expressions, Equations, and Geometry			Integers in the Number System	
NJSLS	**SLO**	**Units**	**1A**	**1B**	**2A**	**2B**	**3A**	**3B**	**3C**	**4A**	**4B**
Ratios and Proportional Relationships											
6.RP.A.1. 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."	WALT explain the concept of a ratio through definition.	1									
	WALT use ratio language to describe a relationship between two quantities	1									
6.RP.A.2 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.*	WALT construct a unit rate (a/b) from a given ratio (a:b)	1									
	WALT explain a unit rate (a/b) associated with a ratio (a:b)	1									
	WALT express a ratio relationship using rate language	1									
6.RP.A.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. a. 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. b. 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?* c. 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. d. Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.	WALT represent and solve rate and ratio real-world and mathematical problems by using tables, tape diagrams, double number line diagrams, and equations	1									
	WALT create tables of equivalent ratios and find missing values with whole number measurements	1									
	WALT plot pairs of values, in the coordinate plane, from a ratio table to compare ratios	1									
	WALT solve unit rate problems, including unit pricing and constant speed	1									
	WALT find the part, whole, and percent of a quantity in real-world problems	1									
	WALT unit ratios can be used to manipulate and transform units accurately	1									
	WALT convert measurement units utilizing ratio reasoning	1									

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The Number System											
6.NS.A.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. *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?*	WALT compute quotients of fractions	1									
	WALT interpret quotients of fractions	1									
	WALT solve word problems involving division of fractions by fractions using visual models and equations	1									
6.NS.B.2. Fluently divide multi-digit numbers using the standard algorithm.	WALT divide multi-digit numbers using the standard algorithm working towards accuracy and efficiency	1									
6.NS.B.3 Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm	WALT add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation, working towards accuracy and efficiency	1									
6.NS.B.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. For example, express 36 + 8 as 4 (9 + 2).	WALT find the greatest common factor of two whole numbers that are less than or equal to 100	3									
	WALT find the least common multiple of two whole numbers that are less than or equal to 12	3									
	WALT use the distributive property to factor the greatest common factor from a sum of two whole numbers in the range 1 to 100	3									

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6.NS.C.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.	WALT the signs of an ordered pair indicate its quadrant location in the coordinate plane	4									
	WALT ordered pairs that differ only by signs are reflections across one or both axes	4									
6.NS.C.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. a. 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. b. 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. c. Find and position integers and other rational umbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane.	WALT locate numbers with opposite signs as points on opposite sides of zero on the number line	4									
	WALT the opposite of an opposite of a number is the number itself and that zero is its own opposite	4									
	WALT find and position integers and other rational numbers on a horizontal or vertical number line	4									
	WALT find and plot pairs of integers and other rational numbers on the coordinate plane	4									
	WALT the signs of an ordered pair indicate its quadrant location in the coordinate plane	4									
	WALT ordered pairs that differ only by signs are reflections across one or both axes	4									
6.NS.C.7 Understand ordering and absolute value of rational numbers. a. 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.	WALT represent the relative position of two numbers on a number line diagram using inequality statements	4									
	WALT write and interpret statements of order using rational numbers to explain real-world problems	4									

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b. 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. c. 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 realworld situation. For example, for an account balance of –30 dollars, write |–30| = 30 to describe the size of the debt in dollars. d. 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.	WALT absolute value of a rational number is its distance from zero on the number line	4									
	WALT express the magnitude of a positive or negative quantity in a real-world situation using absolute value	4									
	WALT statements about order are used to distinguish comparisons of absolute value	4									
6.NS.C.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.	WALT use coordinates and absolute value to find distances between points, with the same first coordinates or same second coordinates, in the four quadrants to solve real-world and mathematical problems	4									
Expressions and Equations											
6.EE.A.1. Write and evaluate numerical expressions involving whole-number exponents.	WALT write a numerical expression using whole-number exponents	3									
	WALT evaluate numerical expressions involving whole number exponents	3									
6.EE.A.2 Write, read, and evaluate expressions in which letters stand for numbers a. 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. b. 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.	WALT write an algebraic expression from a verbal description that includes operations, numbers, and variables	3									
	WALT identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, coefficient)	3									
	WALT view one or more parts of an expression as a single entity	3									

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c. 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). *For example, use the formulas $V = s^3$ and $A = 6s^2$ to find the volume and surface area of a cube with sides of length $s = ½$.*	WALT evaluate expressions, including formulas, for specific values of the variables	3									
	WALT perform arithmetic operations, utilizing the Order of Operations, that include whole number exponents and no parentheses	3									
6.EE.A.3 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.	WALT generate equivalent expressions using the properties of operations	3									
6.EE.A.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). For example, the expressions y + y + y and 3y are equivalent because they name the same number regardless of which number y stands for.	WALT two expressions are equivalent when they name the same number regardless of which value is substituted into them	3									
	WALT identify when two expressions are equivalent	3									
6.EE.B.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.	WALT determine if a given number from a specified set is a solution to an equation or an inequality using substitution	3									
6.EE.B.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.	WALT variables are used to represent unknown numbers, including any number in a specified set	3									
	WALT write expressions using variables to represent real-world or mathematical situations	3									
6.EE.B.7	WALT write and solve equations of the form x + p = q and px = q, where p, q,	3									
6.EE.B.8 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; represent solutions of such inequalities on number line diagrams.	WALT represent a constraint or condition in a real-world or mathematical	4									
	WALT inequalities of the form x > c or x < c have infinitely many solutions	4									
	WALT represent the infinitely many solutions to the inequalities x > c or x < c	4									

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6.EE.C.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. *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.*	WALT two quantities which change in relationship to one another are expressed as independent and dependent variables	3									
	WALT write an equation using two quantities, an independent and a dependent variable, to represent a real-world problem	3									
	WALT analyze the relationship between the dependent and independent variables using graphs and tables and relate them to the equation	3									
Geometry											
6.G.A.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	WALT find the area of right triangles and other triangles by composing into	3									
	WALT find the area of special quadrilaterals and polygons by composing into	3									
	WALT apply the techniques of finding area of polygons by composition or	3									
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	WALT we can find the volume of a right rectangular prism with fractional edge	3									
	WALT show that volume of a right rectangular prism is the same when	3									
	WALT find volumes of right rectangular prisms with fractional edge lengths	3									
6.G.A.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.	WALT draw polygons in the coordinate plane given coordinates of the vertices	4									
	WALT find the length of a side of a polygon using coordinates with the same	4									
	WALT apply the technique of finding the length of a side of a polygon to solve	4									
6.G.A.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.	WALT represent three-dimensional figures made up of rectangles and triangles	3									
	WALT use the net to find the surface area of three-dimensional figures made up of rectangles and triangles	3									
	WALT solve real-world and mathematical problems by using nets to find surface	3									
Statistics and Probability											
6.SP.A.1 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*	WALT a statistical question is one that anticipates variability in the data related to the question and accounts for it in the answers	2									

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anticipates variability in students' ages.	WALT recognize statistical questions	2									
6.SP.A.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.	WALT a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape	2									
6.SP.A.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.	WALT a measure of center (mean and median) for a numerical data set summarizes all of its values with a single number	2									
	WALT a measure of variation (interquartile range and mean absolute deviation) describes how its values vary with a single number	2									
6.SP.B.4 Display numerical data in plots on a number line, including dot plots, histograms, and box plots.	WALT display numerical data in plots on a number line, including dot plots, histograms, and box plots	2									
6.SP.B.5 Summarize numerical data sets in relation to their context, such as by: a. Reporting the number of observations. b. Describing the nature of the attribute under investigation, including how it was measured and its units of measurement. c. 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. d. 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.	WALT summarize numerical data sets in relation to their context, such as by reporting the number of observations and describing how it was measured and the units for the measurement	2									
	WALT describe overall patterns and any striking deviations from a data set by giving the measures of center (median and/or mean) and variability (interquartile range and/or mean absolute deviation) with reference to the context with which the data was collected	2									
	WALT the shape of the data distribution and the context in which the data were gathered can be related to the choice of measures of center and variability	2									