Year at a Glance: Math - Gr. 4 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 Place Value and Operations with Whole Number		Unit 2 Multi-digit Multiplication and Division & Fraction Equivalence		Unit 3 Building Fractions & Decimal Notation		Unit 4 Geometry and Measurement	
NJSLS	**SLO**	**Units**	**1A**	**1B**	**2A**	**2B**	**3A**	**3B**	**4A**	**4B**
OPERATIONS and ALGEBRAIC THINKING										
4.OA.A.1 A. Use the four operations with whole numbers to solve problems. 1. Interpret a multiplication equation as a comparison, e.g., interpret 35 = 5 × 7 as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations.	WALT interpret multiplication equations as a comparison statement	1								
	WALT represent verbal comparison statements as multiplication equations	1								
4.OA.A.2 A. Use the four operations with whole numbers to solve problems. 2. Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.	WALT distinguish multiplicative comparison from additive comparison	1								
	WALT multiply and divide to solve word problems involving multiplicative comparisons, using drawings and equations containing a variable to represent the problem	1								
4.OA.A.3 A. Use the four operations with whole numbers to solve problems. 3. Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.	WALT solve multi-step whole number word problems that have whole number answers, including problems in which remainders must be interpreted	1, 2, 3, 4								
	WALT represent these problems using equations with a letter standing for the unknown quantity	1, 2, 3, 4								
	WALT assess the reasonableness of answers using mental computation, estimation strategies, and rounding	1, 2, 3, 4								
4.OA.B.4 B. Gain familiarity with factors and multiples. 4. Find all factor pairs for a whole number in the range 1–100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1–100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1–100 is prime or composite.	WALT find all factors pairs for a whole number in the range 1 through 100	1								
	WALT ecognize that a whole number is a multiple of each of its factors	1								
	WALT determine whether a given whole number is a multiple of a given one-digit number in the range 1 through 100	1								
	WALT determine whether a given whole number is prime or composite in the range 1 through 100	1								
4.OA.C.5 C. Generate and analyze patterns. 5. Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. For example, given the rule "Add 3" and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers. Explain informally why the numbers will continue to alternate in this way.	WALT generate a number or shape pattern that follows a given rule	1								
	WALT identify the features of a pattern that are not explicit in the rule	1								
NUMBERS and OPERATIONS in BASE TEN										

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4.NBT.A.1 A. Generalize place value understanding for multi-digit whole numbers. 1. Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right. For example, recognize that 700 ÷ 70 = 10 by applying concepts of place value and division.	WALT recognize that a digit represents 10 times the value of what it represents in the place value to its right	1								
4.NBT.A.2 A. Generalize place value understanding for multi-digit whole numbers. 2. Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons.	WALT read and write multi digit whole numbers in base-ten numerals, word, and expanded form	1								
	WALT compare two multi digit numbers based on place value using <,>, =, to record the results of the comparison	1								
4.NBT.A.3 A. Generalize place value understanding for multi-digit whole numbers. 3. Use place value understanding to round multi-digit whole numbers to any place.	WALT round multi-digit numbers to any place using place value understanding	1								
4.NBT.B.4 B. Use place value understanding and properties of operations to perform multi-digit arithmetic. 4. Fluently add and subtract multi-digit whole numbers using the standard algorithm.	WALT add multi-digit whole numbers using the standard algorithm working towards accuracy and efficiency	1,2,3,4								
	WALT subtract multi-digit whole numbers using the standard algorithm working towards accuracy and efficiency	1,2,3,4								
B. Use place value understanding and properties of operations to perform multi-digit arithmetic. 5. Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the	WALT multiply up to four-digit by one digit numbers using strategies based on	2								
	WALT multiply two two-digit numbers using strategies based on place value and	2								
	WALT illustrate and explain the multiplication calculation by using equations,	2								
4.NBT.B.6 B. Use place value understanding and properties of operations to perform multi-digit arithmetic. 6. Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.	WALT find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors using strategies based on place value	2								
	WALT illustrate and explain the division calculation by using equations, rectangular arrays, and/or area models	2								
	WALT find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors using strategies based properties of operations and/or the relationship between multiplication and division	2								
NUMBER and OPERATIONS - FRACTIONS										
4.NF.A.1 A. Extend understanding of fraction equivalence and ordering. 1. Explain why a fraction a/b is equivalent to a fraction (n × a)/(n × b) by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.	WALT explain why a fraction a/b is equivalent to a fraction (n × a)/ (n × b) by using visual fraction models	2								
	WALT understand that the number and size of the parts of equivalent fractions differ even though the two fractions are the same size	2								
	WALT recognize and generate equivalent fractions	2								

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4.NF.A.2 A. Extend understanding of fraction equivalence and ordering. 2. Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as 1/2. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model.	WALT recognize that, when comparing two fractions, they must refer to the same whole	2								
	WALT record the results of comparison with symbols >, =, or <,	2								
	WALT compare two fractions with different numerators and different denominators by comparing to benchmark fraction such as ½	2								
	WALT compare two fractions with different numerators and different denominators by creating common denominators and numerators	2								
4.NF.B.3.a B. Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers. 3. Understand a fraction *a/b* with *a > 1* as a sum of fractions *1/b*. a. Understand addition and subtraction of fractions as joining and separating parts referring to the same whole.	WALT addition of fractions can be thought of as joining parts that refer to the same whole	2								
	WALT subtraction of fractions can be thought of as separating parts that refer to the same whole	2								
4.NF.B.3.b B. Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers. 3. Understand a fraction *a/b* with *a > 1* as a sum of fractions *1/b*. b. Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions, e.g., by using a visual fraction model. *Examples: 3/8 = 1/8 + 1/8 + 1/8 ; 3/8 = 1/8 + 2/8 ; 2 1/8 = 1 + 1 + 1/8 = 8/8 + 8/8 + 1/8.*	WALT decompose a fraction, in multiple ways, into a sum of fractions that have the same denominator	2								
	WALT record each decomposition by an equation	2								
	WALT justify decompositions using visual fraction models	2								
4.NF.B.3.c B. Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers. 3. Understand a fraction *a/b* with *a > 1* as a sum of fractions *1/b*. c. Add and subtract mixed numbers with like denominators, e.g., by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction.	WALT add and subtract mixed numbers with like denominators	3								
4.NF.B.3.d B. Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers. 3. Understand a fraction *a/b* with a > 1 as a sum of fractions 1/b. d. Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using visual fraction models and equations to represent the problem.	4WALT solve word problems involving addition and subtraction of fractions that refer to the same whole and have like denominators using visual fraction models	3								
	WALT solve word problems involving addition and subtraction of fractions that refer to the same whole and have like denominators using equations to represent the problem	3								

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4.NF.B.4.a B. Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers. a. Understand a fraction *a/b* as a multiple of *1/b*. For example, use a visual fraction model to represent 5/4 as the product 5 × (1/4), recording the conclusion by the equation 5/4 = 5 × (1/4).	WALT a fraction *a/b* is a multiple of *1/b*	3								
4.NF.B.4.b B. Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers. b. Understand a multiple of *a/b* as a multiple of *1/b*, and use this understanding to multiply a fraction by a whole number. *For example, use a visual fraction model to express 3 × (2/5) as 6 × (1/5), recognizing this product as 6/5. (In general, n × (a/b) = (n × a) /b.)*	WALT a multiple of *a/b* is also a multiple of *1/b* using a visual fraction model	3								
	WALT multiply a fraction by a whole number by using the idea that *a/b* is a multiple of *1/b* **	3								
4.NF.B.4.c B. Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers. c. Solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem. For example, if each person at a party will eat 3/8 of a pound of roast beef, and there will be 5 people at the party, how many pounds of roast beef will be needed? Between what two whole numbers does your answer lie?	WALT solve word problems involving multiplication of a fraction by a whole number, using fraction models and equations to represent the problem	3								
4.NF.C.5 C. Understand decimal notation for fractions, and compare decimal fractions. 5. Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100.4 *For example, express 3/10 as 30/100, and add 3/10 + 4/100 = 34/100.*	WALT express a fraction with denominator of 10 as an equivalent fraction that has a denominator of 100	3								
	WALT add two fractions, one with a denominator of 10 and one with a denominator of 100, by writing each fraction as a fraction with denominator 100**	3								
4.NF.C.6 C. Understand decimal notation for fractions, and compare decimal fractions. 6. Use decimal notation for fractions with denominators 10 or 100. For example, rewrite 0.62 as 62/100; describe a length as 0.62 meters; locate 0.62 on a number line diagram.	WALT use decimal notation for fractions with denominators 10 or 100 **	3								
4.NF.C.7 C. Understand decimal notation for fractions, and compare decimal fractions. 7. Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual model.	WALT compare two decimals to hundredths by reasoning about their size.	3								
	WALT recognize that comparisons are valid only when the two decimals refer to the same whole and to record the results of comparisons with the symbols >, =, or <	3								

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MEASUREMENT and DATA										
4.MD.A.1 A. Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit. 1. Know relative sizes of measurement units within one system of units including km, m, cm. mm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two column table. For example, know that 1 ft is 12 times as long as 1 in. Express the length of a 4 ft snake as 48 in. Generate a conversion table for feet and inches listing the number pairs (1, 12), (2, 24), (3, 36), ...	WALT know relative sizes of measurement units within one system of units including km, m, cm. mm; kg, g; lb, oz.; l, ml; hr, min, sec.	3						3B		
	WALT express measurements in larger units in terms of a smaller unit within a single system of measurement	3						3B		
	WALT record measurement equivalents in a two-column table**	3						3B		
4.MD.A.2 A. Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit. 2. Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.	WALT solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, using the four operations	3						3B		
	WALT solve word problems involving measurement that includes simple fractions or decimals, using the four operations	3						3B		
	WALT solve word problems that require expressing measurements given in a larger unit in terms of a smaller unit, using the four operations	3						3B		
	WALT represent measurement quantities using diagrams such as number line	3						3B		
4.MD.A.3 A. Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit. 3. Apply the area and perimeter formulas for rectangles in real world and mathematical problems. *For example, find the width of a rectangular room given the area of the flooring and the length, by viewing the area formula as a multiplication equation with an unknown factor.*	WALT apply the area formula for rectangles in real world and mathematical problems	2			2A					
	WALT apply perimeter formulas for rectangles in real world and mathematical problems	2			2A					
4.MD.B.4 B. Represent and interpret data. 4. Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Solve problems involving addition and subtraction of fractions by using information presented in line plots. *For example, from a line plot find and interpret the difference in length between the longest and shortest specimens in an insect collection.*	WALT make a line plot to display a data set of measurements using unit fractions (½, ¼, ⅛)	3					3A			
	WALT use data presented in line plots to solve problems involving addition and subtraction of fractions.	3					3A			
4.MD.C.5.a C. Geometric measurement: understand concepts of angle and measure angles. 5. Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement: a. An angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle. An angle that turns through 1/360 of a circle is called a "one-degree angle," and can be used to measure angles.	WALT recognize angles as geometric shapes that are formed wherever two rays share a common endpoint	4								4B
	WALT angles are measured in degrees	4								4B
	WALT an angle is measured by considering the fraction of the circular arc that is between the two points where the two rays intersect the circle	4								4B
	WALT a "one degree angle" is defined as 1/360 of the entire circle	4								4B

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			Place Value and Operations with Whole Number		Multi-digit Multiplication and Division & Fraction Equivalence		Building Fractions & Decimal Notation		Geometry and Measurement	
NJSLS	**SLO**	**Units**	**1A**	**1B**	**2A**	**2B**	**3A**	**3B**	**4A**	**4B**
4.MD.C.5.b C. Geometric measurement: understand concepts of angle and measure angles. 5. Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement: b. An angle that turns through n one-degree angles is said to have an angle measure of n degrees.	WALT one degree angles can be used to measure angles	4								
4.MD.C.6 C. Geometric measurement: understand concepts of angle and measure angles. 6. Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.	WALT measure angles in whole-number degrees using a protractor	4								
	WALT sketch angles that have a specified measure	4								
4.MD.C.7 C. Geometric measurement: understand concepts of angle and measure angles. 7. Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems, e.g., by using an equation with a symbol for the unknown angle measure.	WALT angle measure as additive	4								
	WALT when an angle is decomposed into non-overlapping parts, the angle measurement of the whole equals the sum of the angle measures of its parts	4								
	WALT solve addition and subtraction problems to find unknown angle measures on a diagram in real world and mathematical problems	4								
GEOMETRY										
4.G.A.1 A. Draw and identify lines and angles, and classify shapes by properties of their lines and angles. 1. Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.	WALT draw points, lines, line segments, rays, right angles, acute angles, obtuse angles, perpendicular lines and parallel lines	4								
	WALT identify points, lines, line segments, rays, right angles, acute angles, obtuse angles, perpendicular lines and parallel lines in two-dimensional figures	4								
4.G.A.2 A. Draw and identify lines and angles, and classify shapes by properties of their lines and angles. 2. Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles.	WALT classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines	4								
	WALT classify two-dimensional figures based on the presence or absence of angles of a specified size	4								
	WALT identify right triangles and recognize right triangles as a category	4								
4.G.A.3 A. Draw and identify lines and angles, and classify shapes by properties of their lines and angles. 3. Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry.	WALT a line of symmetry is a line across the figure that divides the figure into matching parts	4								
	WALT recognize a line of symmetry	4								
	WALT identify line-symmetric figures and draw lines of symmetry	4								

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