Grade 4 Math Performance Rubric

Math Content Areas

Operations and Algebraic Thinking

Numbers and Operations in Base Ten

Numbers and Operations – Fractions

Measurement and Data

Geometry

Operations and Algebraic Thinking
Interpret and apply multiplicative comparisons to solve problems (4.OA.1 & 4.OA.2)

Trimester	1: Needs Improvement	2: Progressing	3: Meets	4: Excels
1 2 3	**With significant teacher support, limited progress or is unable** to perform at a Progressing or Meets level.	**The student will recognize and recall specific vocabulary, such as:** • Variable, equation, comparison, multiplication, division, factor, product, commutative property, sum, addend, quotient, divisor, dividend, interpret **The student will have partial success** at a Meets level independently. OR **With teacher prompting and support** the student will have success at a Meets level.	**The student will independently:** • Interpret a multiplication equation as a comparison (e.g., interpret $35 = 5 \times 7$ as a statement that 35 is 5 times as many as 7 and 7 times as many as 5) (**4.OA.1**) • Represent verbal statements of multiplicative comparisons as multiplication equations (**4.OA.1**) • Multiply or divide to solve word problems involving multiplicative comparison (e.g., using drawings and equations with a symbol for the unknown number to represent the problem) (**4.OA.2**) • Distinguish a multiplicative comparison from additive comparison (**4.OA.2**)	**Independently and consistently** able to demonstrate all criteria for a "Meets" **AND** extends cognitively beyond. For example: • **You could ask,** "How might someone use a multiplicative comparison in their career?"

Operations and Algebraic Thinking
Solves problems with whole numbers using the four operations (4.OA.3)

Trimester	1: Needs Improvement	2: Progressing	3: Meets	4: Excels
1 2 3	**With significant teacher support, limited progress or is unable** to perform at a Progressing or Meets level.	**The student will recognize and recall specific vocabulary, such as:** • Variable, equation, addition, subtraction, multiplication, division, factor, product, sum, addend, quotient, divisor, dividend, difference, estimate, round, remainder, interpret, reasonable, mental computation **The student will have partial success** at a Meets level independently. OR **With teacher prompting and support** the student will have success at a Meets level.	**The student will independently:** • Solve multi-step word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted (**4.OA.3**) • Represent multi-step word problems using equations with a letter standing for the unknown quantity (**4.OA.3**) • Assess the reasonableness of answers using mental computation and estimation strategies including rounding (**4.OA.3**)	**Independently and consistently** able to demonstrate all criteria for a "Meets" **AND** extends cognitively beyond. For example: •**Creates** their own multi-step word problem including a variable.

Operations and Algebraic Thinking
Identifies and determines factors and multiples (4.OA.4)

Trimester	1: Needs Improvement	2: Progressing	3: Meets	4: Excels
1 2 3	**With significant teacher support, limited progress or is unable** to perform at a Progressing or Meets level.	**The student will recognize and recall specific vocabulary, such as:** • Factors, multiples, product, prime, composite **The student will have partial success** at a Meets level independently. OR **With teacher prompting and support** the student will have success at a Meets level.	**The student will independently:** •Find all factor pairs for a whole number in the range 1-100. **(4.OA.4)** •Recognize that a whole number is a multiple of each of its factors. **(4.OA.4)** •Determine whether a given whole number in the range 1-100 is a multiple of a given one-digit number. **(4.OA.4)** •Determine whether a given whole number in the range 1-100 is prime or composite. **(4.OA.4)**	**Independently and consistently** able to demonstrate all criteria for a "Meets" **AND** extends cognitively beyond. For example: •**You could ask,** "How could you determine whether a 3-digit number was a multiple of a 1-digit number without making a list?"

Operations and Algebraic Thinking
Generates and analyzes patterns (4.OA.5)

Trimester	1: Needs Improvement	2: Progressing	3: Meets	4: Excels
1				
2 **3**	**With significant teacher support, limited progress or is unable** to perform at a Progressing or Meets level.	**The student will recognize and recall specific vocabulary, such as:** • Generate, pattern, rule, features, sequence, odd, even **The student will have partial success** at a Meets level independently. OR **With teacher prompting and support** the student will have success at a Meets level.	**The student will independently:** •Generate a number or shape pattern that follows a given rule. **(4.OA.5)** •Identify apparent features of the pattern that were not explicit in the rule itself. **(4.OA.5)** •Explain informally why the numbers will continue to alternate in this way.**(4.OA.5)**	**Independently and consistently** able to demonstrate all criteria for a "Meets" **AND extends cognitively beyond.** For example: •**Creates** an original pattern, using a multi-step rule and determine features of the pattern.

Numbers and Operations in Base Ten
Generalizes place value understanding for multi-digit whole numbers (4.NBT.1, 4.NBT.2 & 4.NBT.3)

Trimester	1: Needs Improvement	2: Progressing	3: Meets	4: Excels
1 2 3	**With significant teacher support, limited progress or is unable** to perform at a Progressing or Meets level.	**The student will recognize and recall specific vocabulary, such as:** • Represents, base-ten numerals, number name, expanded form, compare, greater than, less, than, equal to, record, results, place value, digit, value, rounding **The student will have partial success** at a Meets level independently. OR **With teacher prompting and support** the student will have success at a Meets level.	**The student will independently:** •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. **(4.NBT.1)** •Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. **(4.NBT.2)** •Compare two multi-digit numbers based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons.**(4.NBT.2)** •Use place value understanding to round multi-digit whole numbers to any place.**(4.NBT.3)**	**Independently and consistently** able to demonstrate all criteria for a "Meets" **AND extends cognitively beyond.** For example: •**Explain how** expanded form **relates** to number names and how it can be used to compare and round numbers.

Numbers and Operations in Base Ten
Uses place value understanding and properties of operations to perform multi-digit arithmetic (4.NBT.4, 4.NBT.5 & 4.NBT.6)

Trimester	1: Needs Improvement	2: Progressing	3: Meets	4: Excels
1 2 3	**With significant teacher support, limited progress or is unable** to perform at a Progressing or Meets level.	**The student will recognize and recall specific vocabulary, such as:** • Add, subtract, addends, sum, difference, algorithm, multiply, factor, product, digit, place value, operations, illustrate, place value, calculation, equations, rectangular array, area, area model, quotient, remainder, dividend, divisor, multiplication, division **The student will have partial success** at a Meets level independently. OR **With teacher prompting and support** the student will have success at a Meets level.	**The student will independently:** •Fluently add and subtract multi-digit whole numbers using the standard algorithm. **(4.NBT.4)** •Multiply a whole number of up to four digits by a one-digit whole number. **(4.NBT.5)** •Multiply two two-digit numbers, using strategies based on place value and the properties of operations.**(4.NBT.5)** •Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.**(4.NBT.5)** •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. **(4.NBT.6)** •Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.**(4.NBT.6)**	**Independently and consistently** able to demonstrate all criteria for a "Meets" **AND** extends cognitively beyond. For example: •**Creates** their own word problem including a variable.

Numbers and Operations – Fractions
Extends understanding of fraction equivalence and ordering (4.NF.1 & 4.NF.2)

Trimester	1: Needs Improvement	2: Progressing	3: Meets	4: Excels
1 2				
3	**With significant teacher support, limited progress or is unable** to perform at a Progressing or Meets level.	**The student will recognize and recall specific vocabulary, such as:** • fraction, equivalent, fraction models, recognize, generate, equivalent, compare, numerator, denominator, record, justify **The student will have partial success** at a Meets level independently. OR **With teacher prompting and support** the student will have success at a Meets level.	**The student will independently:** •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. **(4.NF.1)** •Use this principle to recognize and generate equivalent fractions. **(4.NF.1)** •Compare two fractions with different numerators and different denominators (e.g., create common denominators or numerators, or compare to a benchmark fraction) **(4.NF.2)** •Recognize that comparisons are valid only when the two fractions refer to the same whole. **(4.NF.2)** •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. **(4.NBT.1)** •Record the results of comparisons with symbols >, =, or < **(4.NF.2)** •Justify the comparisons by using a visual fraction model **(4.NF.2)**	**Independently and consistently** able to demonstrate all criteria for a "Meets" **AND** extends cognitively beyond. For example: •**Explain why** 2/5 is NOT equivalent to 3/7. Why might someone think they are equivalent?

Numbers and Operations – Fractions
Adds and subtracts fractions from unit fractions (4.NF.3 & 4.NF.4)

Trimester	1: Needs Improvement	2: Progressing	3: Meets	4: Excels
1 2				
3	**With significant teacher support, limited progress or is unable** to perform at a Progressing or Meets level.	**The student will recognize and recall specific vocabulary, such as:** • Addition, subtraction, addends, sum, difference, whole, decompose, composing, equation, justify, fraction model, mixed number, represent, multiple, multiply **The student will have partial success** at a Meets level independently. OR **With teacher prompting and support** the student will have success at a Meets level.	**The student will independently:** •Understand addition and subtraction of fractions as joining and separating parts referring to the same whole.**(4.NF.3)** •Decompose a fraction into a sum of fractions with the same denominator in more than one way **(4.NF.3)** •Record each decomposition by an equation. **(4.NF.3)** •Justify decompositions, e.g., by using a visual fraction model. **(4.NF.3)** •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)**(4.NF.3)** •Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators**(4.NF.3)** •Use visual fraction models and equations to represent the problem.**(4.NF.3)** •Understand a fraction a/b as a multiple of 1/b. (e.g., 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).**(4.NF.3)** •Understand a multiple of a/b as a multiple of 1/b, and use this understanding to multiply a fraction by a whole number. **(4.NF.3)** •Solve word problems involving multiplication of a fraction by a whole number, by using visual fraction models and equations to represent the problem. (e.g., know between what two whole numbers the answer lies)**(4.NF.3)**	**Independently and consistently** able to demonstrate all criteria for a "Meets" **AND** extends cognitively beyond. For example: •**Rewrites** fractions with unlike denominators in order to add and subtract them.

Numbers and Operations – Fractions
Understands decimal notation for fractions and compares decimals (4.NF.5, 4.NF.6 &4.NF.7)

Trimester	1: Needs Improvement	2: Progressing	3: Meets	4: Excels
1				
2				
3	**With significant teacher support, limited progress or is unable** to perform at a Progressing or Meets level.	**The student will recognize and recall specific vocabulary, such as:** • Fraction, denominator, equivalent, add, sum, decimal notation, compare, decimals, greater than, less than , equal to, number line, reasoning, justify **The student will have partial success** at a Meets level independently. OR **With teacher prompting and support** the student will have success at a Meets level.	**The student will independently:** •Express a fraction with denominator 10 as an equivalent fraction with denominator 100. **(4.NF.5)** •Use this technique to add two fractions with respective denominators 10 and 100. **(4.NF.5)** •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. **(4.NF.6)** •Compare two decimals to hundredths by reasoning about their size. **(4.NF.7)** •Recognize that comparisons are valid only when the two decimals refer to the same whole. **(4.NF.7)** •Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual model. **(4.NF.7)**	**Independently and consistently** able to demonstrate all criteria for a "Meets" **AND extends cognitively beyond.** For example: •**Generate** decimals for fractions that aren't tenths or hundredths.

Measurement and Data
Solves problems involving measurement and conversion of measurements (4.MD.1, 4.MD.2 & 4.MD.3)

Trimester	1: Needs Improvement	2: Progressing	3: Meets	4: Excels
1				
2 **3**	**With significant teacher support, limited progress or is unable** to perform at a Progressing or Meets level.	**The student will recognize and recall specific vocabulary, such as:** • Measurement units, kilometer, centimeter, meter, kilogram, gram, pound, ounce, liter, milliliter, hour, minute, second, equivalent, table, conversion, number pairs, feet, inch, add, subtract, multiply, divide, sum, difference, product, quotient, time, volume, distance, interval, volume, fractions, decimals, area, perimeter **The student will have partial success** at a Meets level independently. OR **With teacher prompting and support** the student will have success at a Meets level.	**The student will independently:** •Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. **(4.MD.1)** •Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. **(4.MD.1)** •Record measurement equivalents in a two-column table. **(4.MD.1)** •Generate a conversion table for feet and inches listing the number pairs (1, 12), (2, 24), (3, 36), … **(4.MD.1)** •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. **(4.MD.2)** •Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale. **(4.MD.2)** •Apply the area and perimeter formulas for rectangles in real world and mathematical problems. **(4.MD.3)**	**Independently and consistently** able to demonstrate all criteria for a "Meets" **AND** extends cognitively beyond. For example: •**Creates** their own multi-step word problem including a variable.

Measurement and Data			
Represents and interprets data using line plots (4.MD.4)			
Trimester	**1: Needs Improvement**	**2: Progressing**	**3: Meets**	**4: Excels**
1				
2				
3	**With significant teacher support, limited progress or is unable** to perform at a Progressing or Meets level.	**The student will recognize and recall specific vocabulary, such as:** • Line plot, measurement, fraction, unit, addition, subtraction, sum, difference, addend, line plot, data **The student will have partial success** at a Meets level independently. OR **With teacher prompting and support** the student will have success at a Meets level.	**The student will independently:** •Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). **(4.MD.4)** •Solve problems involving addition and subtraction of fractions by using information presented in line plots. **(4.MD.4)**	**Independently and consistently** able to demonstrate all criteria for a "Meets" **AND** extends cognitively beyond. For example: •**Compile** data over a period of time then display the data on a line plot. •**Generate** questions that could be answered from the line plot.

Measurement and Data
Understands concepts of angles and can measure angles accurately (4.MD.5, 4.MD.6 & 4.MD.7)

Trimester	1: Needs Improvement	2: Progressing	3: Meets	4: Excels
1				
2				
3	**With significant teacher support, limited progress or is unable** to perform at a Progressing or Meets level.	**The student will recognize and recall specific vocabulary, such as:** • Rays, endpoint, circle, intersect, circle, angle, unit angle, one-degree angle, protractor, supplementary angles, complementary angles, add, subtract, sum, difference, addends, equation **The student will have partial success** at a Meets level independently. OR **With teacher prompting and support** the student will have success at a Meets level.	**The student will independently:** •Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint. **(4.MD.5)** •Understand concepts of angle measurement: 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. **(4.MD.5)** •An angle that turns through 1/360 of a circle is called a "one-degree angle," and can be used to measure angles. **(4.MD.5)** •An angle that turns through n one-degree angles is said to have an angle measure of n degrees. **(4.MD.5)** •Measure angles in whole-number degrees using a protractor. **(4.MD.6)** •Sketch angles of specified measure. **(4.MD.6)** •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. **(4.MD.7)** •Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems by using an equation with a symbol for the unknown angle measure. **(4.MD.7)**	**Independently and consistently** able to demonstrate all criteria for a "Meets" **AND** extends cognitively beyond. For example: •**You may ask,** "How could someone determine the total angle measure of a pentagon?"

Geometry
Draws and identifies lines and angles, and classifies shapes by properties of their lines and angles (4.G.1, 4.G.2 & 4.G.3)

Trimester	1: Needs Improvement	2: Progressing	3: Meets	4: Excels
1				
2				
3	**With significant teacher support, limited progress or is unable** to perform at a Progressing or Meets level.	**The student will recognize and recall specific vocabulary, such as:** • Points, lines, line segments, rays, angles, perpendicular lines, parallel lines, two-dimensional figures, symmetry, equivalent **The student will have partial success** at a Meets level independently. OR **With teacher prompting and support** the student will have success at a Meets level.	**The student will independently:** •Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. **(4.G.1)** •Identify these in two-dimensional figures. **(4.G.1)** •Classify 2D figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. **(4.G.2)** •Recognize right triangles as a category, and identify right triangles. **(4.G.2)** •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. **(4.G.3)** •Identify line-symmetric figures and draw lines of symmetry. **(4.G.3)**	**Independently and consistently** able to demonstrate all criteria for a "Meets" **AND extends cognitively beyond.** For example: •**Creates** a concept map that someone could use to classify polygons