Grade 4 Math Rubric

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Operations and Algebraic Thinking

Trimesters	Needs Support (NS)	Approaching Standards (AS)	Meets Standards (MS)
	With significant teacher support	**With prompting and support**	**Consistently and independently**
Interprets a multiplication equation as a comparison (4.OA.A.1) Unit 1, Unit 3			
1	**Shows limited progress or is unable to** ● read and interpret multiplicative comparison situations.	● reads and interprets multiplicative comparison situations, identifying which quantity is being multiplied and which factor is telling how many times. ● identifies equations or statements for multiplicative comparisons.	● reads and interprets multiplicative comparison situations, identifying which quantity is being multiplied and which factor is telling how many times. ● writes and identifies equations and statements for multiplicative comparisons. ● recognizes different language that describe multiplicative comparisons. (ex: interpret 35 = 5 x 7 as a statement that 35 is 5 times as many as 7 and 7 times as many as 5.
2,3	*Not explicitly taught. Ongoing instruction provided to work towards mastery.*		
Multiplies or divides to solve word problems involving multiplicative comparison (4.OA.A.2) Unit 1, Unit 3, Unit 7			
1 and 3	**Shows limited progress or is unable to** ● identify problems involving multiplicative comparisons.	● solves problems involving multiplicative comparisons. ● writes equations to represent the mathematics of the situation.	● solves problems involving multiplicative comparisons. ● identifies the information in the problem and how it relates to models. ● writes equations to represent the mathematics of the situation with a symbol or letter as the unknown.
2	*Not explicitly taught. Ongoing instruction provided to work towards mastery.*		
Solves multi-step word problems with whole numbers and having whole-number answers using the four operations. (4.OA.A.3) Unit 5, Unit 7, Unit 8			

1 and 3	**Shows limited progress or is unable to** ● accurately identifies one operation needed to solve multi-step problems with all four operations using models, pictures, or numbers ● identify a remainder	● solves multi-step problems with all four operations. ● identifies the remainder	● solves multi-step problems with all four operations and **assess the reasonableness of their answer** ● identifies and **interprets** what to do with the remainder based on the context of the word problem.
2	*Not explicitly taught. Ongoing instruction provided to work towards mastery.*		
Gains familiarity with factors and multiples (4.OA.B.4) Unit 1			
1	**shows limited progress or is unable to** ● identify all of the factors of a given number. ● identify multiples of a given number ● identify prime and composite numbers	● determines or identifies the factors of a given number. ● lists multiples of a given number using skip counting or other strategies. ● identifies a number as prime or composite.	● determines the factors of a given number through a variety of activities. ● discusses patterns they discover as they factor a number. (ex: all even numbers have 2 as a factor. Numbers that end in 0 or 5 have 5 as a factor.) ● lists multiples of a given number using skip counting **and** other strategies. ● identifies and **describes** prime numbers as numbers that have exactly two factors. ● identifies and **describes** composite numbers as numbers that have more than two factors.
2,3	*Not explicitly taught. Ongoing instruction provided to work towards mastery.*		
Generates and analyzes patterns that follow a given rule (4.OA.C.5) Unit 8			
1			
2			
3	**shows limited progress or is unable to** ● recognize patterns in all of their mathematical work.	● identifies patterns in some of their mathematical work. ● extends **or** describes patterns they find.	● identifies patterns in all of their mathematical work. ● extends **and** describes patterns they find. ● make generalizations about patterns.

Numbers and Operations in Base Ten

Trimesters	Needs Support (NS)	Approaching Standards (AS)	Moving Meets Standards (MS)
	With significant teacher support	**With prompting and support**	**Consistently and independently**
Understands that the value of any digit in a multi-digit number is ten times its place to the right (4.NBT.A.1) Unit 5			
1	**shows limited progress or is unable to** ● identify patterns that involve moving digits place in a given numeral ● understand what is happening to the value of a digit as it appears within various places in a numeral	● identifies patterns that involve moving digits place in a given numeral ● understands what is happening to the value of a digit as it appears within various places in a numeral ● recognizes the relationship between place values that are 10 times as large as another place for numbers up to 1,000 using visual models	● identifies **and explains** patterns that involve moving digits place in a given numeral ● **explains** what is happening to the value of a digit as it appears within various places in a numeral ● identifies the relationship among places by multiplying by 10 (moving one place to the left) and dividing by 10 (moving one place to the right)
2, 3	*Not explicitly taught. Ongoing instruction provided to work towards mastery.*		
Reads and writes multi-digit whole numbers using numerals, expanded form, and word form (4.NBT.A.2) Unit 5			
1	**shows limited progress or is unable to** ● read and write numbers from 1 to 1,000,000 based on place value understanding	● reads and writes numbers from 1 to 1,000,000 based on place value understanding	● reads and writes numbers from 1 to 1,000,000 based on place value understanding ● writes numbers using various forms of expanded notation ● compares numbers using place value and use <, >, = symbols to show the comparison
2,3	*Not explicitly taught. Ongoing instruction provided to work towards mastery.*		
Uses place value understanding to round multi-digit whole numbers to hundred thousands (4.NBT.A.3) Unit 5			
1	**shows limited progress or is unable to** ● round multi-digit numbers ● place the numbers on a number line ● Identify the two numbers between which the given number falls	● places the number on a number line ● uses knowledge of place value to round multi-digit whole numbers to hundred thousands	● places the number on a number line ● uses knowledge of place value to round multi-digit whole numbers to hundred thousands and **explain** their reasoning

2,3	*Not explicitly taught. Ongoing instruction provided to work towards mastery.*		
Fluently adds and subtracts multi-digit whole numbers using the standard algorithm (4.NBT.B.4) Unit 5			
1	**shows limited progress or is unable to** ● add and subtract multi-digit whole numbers	● accurately adds and subtracts multi-digit whole numbers	● accurately **and fluently** adds and subtracts multi-digit whole numbers using the standard algorithm. ● explains their thinking as they employ procedural steps to add or subtract, including composing and decomposing place values to demonstrate understanding of procedural steps
2,3	*Not explicitly taught. Ongoing instruction provided to work towards mastery.*		

Multiply whole numbers using strategies based on place value and the properties of operations (4.NBT.B.5) Units 1, 3, 4, 7			
1, 2, 3	**shows limited progress or is unable to** ● multiply a multi-digit whole number times a one-digit factor	● accurately multiplies multi-digit whole numbers times a one-digit factor ● explains their reasoning using pictures, numbers and words	● multiplies multi-digit whole numbers times a one-digit factor accurately **and efficiently** using various strategies ● explains their reasoning using pictures, numbers and words ● extends this work to multiplication of 2 two-digit factors using pictures, words, and numbers

Find whole-number quotients and remainders using various strategies (4.NBT.B.6) Units 3, 4, 7			
1, 2, 3	**shows limited progress or is unable to** ● 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.	● finds 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. ● illustrates the calculations by using equations, arrays or area models	● finds 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. ● illustrates **and explains** the calculations by using equations, arrays, or area models

Fractions

Trimesters	Needs Support (NS)	Approaching Standards (AS)	Meets Standards (MS)
	With significant teacher support	**With prompting and support**	**Consistently and independently**
Explain and generate equivalent fractions (4.NF.A.1) Unit 6			
1			
2	**shows limited progress or is unable to** ● connect visual representation of equivalent fractions to numerical representations ● recognize, explain, and/or generate equivalent fractions	● connects visual representations of equivalent fractions to numerical representations ● uses pictures, words, and numbers to explain why fractions are equivalent ● generates a rule for finding equivalent fractions and applies that rule ● recognizes equivalent fractions	● connects visual representations of equivalent fractions to numerical representations ● uses pictures, words, and numbers to explain why fractions are equivalent ● generates a rule for finding equivalent fractions and apply that rule ● recognizes equivalent fractions
3	*Not explicitly taught. Ongoing instruction provided to work towards mastery.*		
Compares two fractions with different numerators and denominators (4.NF.A.2) Unit 6			
1			
2	**shows limited progress or is unable to** ● compare two fractions with different numerators and different denominators	● uses a representation to compare fractions including concrete models, benchmarks, and common denominators/numerators ● determines which method makes the most sense for a given situation and justify their thinking	● uses a **variety of** representations to compare fractions including concrete models, benchmarks, and common denominators/numerators ● determines which method makes the most sense for a given situation and justify their thinking

3	*Not explicitly taught. Ongoing instruction provided to work towards mastery.*		
Decomposes fractions into unit fractions in order to add and subtract fractions with like denominators (4.NF.B.3a, 4.NF.B.3b) Unit 6			
1			
2	**shows limited progress or is unable to** ● use a variety of materials to model and describe various situations that require adding and subtracting fractions ● explain their reasoning using visual models and/or equations	● uses a variety of materials to model and describe various problem situations that require adding and subtracting fractions ● decomposes fractions less than 1 and greater than 1 into fractional parts with the same denominator using models, pictures, words, and numbers ● decomposes mixed numbers into fractional parts with the same denominator using models, pictures, words, and numbers	● uses a variety of materials to model and describe various problem situations that require adding and subtracting fractions ● decomposes fractions less than 1 and greater than 1 into fractional parts with the same denominator using models, pictures, words, and numbers ● decomposes mixed numbers into fractional parts with the same denominator using models, pictures, words, and numbers ● **explains** their reasoning using visual models and/or equations
3	*Not explicitly taught. Ongoing instruction provided to work towards mastery.*		

Adds and subtracts mixed numbers with like denominators (4.NF.B.3c) Unit 6			
1			
2	**shows limited progress or is unable to** ● add and subtract mixed numbers with like denominators	● adds and subtracts mixed numbers with like denominators ● uses properties of operations and the relationship between addition and subtraction	● adds and subtracts mixed numbers with like denominators ● uses properties of operations and the relationship between addition and subtraction
3	*Not explicitly taught. Ongoing instruction provided to work towards mastery.*		

Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators (4.NF.B.3d) Unit 6			
1			
2	**shows limited progress or is unable to** ● solve word problems involving addition and subtraction of fractions and mixed numbers ● explain their thinking using models, pictures, numbers, **or** words	● uses concrete materials and pictures to solve a variety of problems involving addition and subtraction of fractions and mixed numbers ● connects visual models to addition and subtraction equations ● explains their thinking using models, pictures, numbers, **or** words	● uses concrete materials and pictures to solve a variety of problems involving addition and subtraction of fractions and mixed numbers ● connects visual models to addition and subtraction equations ● explains their thinking using models, pictures, numbers, **and** words
3	*Not explicitly taught. Ongoing instruction provided to work towards mastery.*		

Multiply a fraction by a whole number and solve related word problems (4.NF.B.4) Unit 6			
1			
2	**shows limited progress or is unable to** ● solve problems involving multiplication of fraction by a whole number using models (ex: area models, fraction strips, number lines) ● explain their thinking/reasoning using pictures, words, **or** numbers	● solves problems involving multiplication of fraction by a whole number using models (ex: ● explains their thinking/reasoning using pictures, words, **or** numbers ● uses models to solve a variety of problem situations involving multiplying a whole number times a fraction/mixed number ● identifies any patterns when multiplying a fraction or mixed number times a whole number in relation to the meaning of the whole number as the number of groups, the numerator and denominator of the fraction, and the meaning of multiplication	● solves problems involving multiplication of fraction by a whole number using models (ex: area models, fraction strips, number lines) ● explains their thinking/reasoning using pictures, words, **and** numbers ● uses models to solve a variety of problem situations involving multiplying a whole number times a fraction/mixed number ● identifies any patterns when multiplying a fraction or mixed number times a whole number in relation to the meaning of the whole number as the number of groups, the numerator and denominator of the fraction, and the meaning of multiplication
3	*Not explicitly taught. Ongoing instruction provided to work towards mastery.*		

Create equivalent fractions with like denominators to add tenths and hundredths (4.NF.C.5) Unit 6			
1			
2	**shows limited progress or is unable to** ● construct fractions of tenths to equivalent fractions of hundredths using visual models	● constructs fractions of tenths to equivalent fractions of hundredths using visual models ● explains their thinking using models, words, **and/or** numbers ● identifies patterns and make generalizations about equivalent fractions that are tenths and hundredths ● adds and subtracts tenths plus hundredths using models **and/or** verbal explanations	● constructs fractions of tenths to equivalent fractions of hundredths using visual models ● explain their thinking using models, words, **and** numbers ● identifies patterns and make generalizations about equivalent fractions that are tenths and hundredths ● adds and subtracts tenths plus hundredths using models **and** verbal explanations
3	*Not explicitly taught. Ongoing instruction provided to work towards mastery.*		

Represent tenths and hundredths using decimal notation and fraction notation (4.NF.C.6) Unit 6			
1			
2	**shows limited progress or is unable to** ● represent tenths and hundredths using decimal notation and fraction notation ● understand that fractions and decimals are different representations for the same number and these representations are equivalent (ex: 0.8, 8/10 and 80/100)	● models fractions with denominators of 10 using base-ten blocks and grid paper models ● accurately represents fractions in decimal notation ● models, reads, and writes decimal numbers in the tenths place using base-ten blocks, extended place value charts, grids, and number lines ● models fractions with denominators of 100 using base-ten blocks and grid paper models ● models, reads, and writes decimal numbers to the hundredths place, using base-ten blocks, extended place value charts, grids, and number lines ● demonstrates understanding that 1/100 is one of 100 equal pieces in one whole or 1 of ten equal parts of a tenth ● connects understandings to relevant real life situations that use decimal notation	● models fractions with denominators of 10 using base-ten blocks and grid paper models ● accurately represents fractions in decimal notation ● models, reads, and writes decimal numbers in the tenths place using base-ten blocks, extended place value charts, grids, and number lines ● models fractions with denominators of 100 using base-ten blocks and grid paper models ● models, reads, and writes decimal numbers to the hundredths place, using base-ten blocks, extended place value charts, grids, and number lines ● demonstrates understanding that 1/100 is one of 100 equal pieces in one whole or 1 of ten equal parts of a tenth ● connects understandings to relevant real life situations that use decimal notation

3	*Not explicitly taught. Ongoing instruction provided to work towards mastery.*

Measurement and Data

Trimesters	Needs Support (NS)	Approaching Standards (AS)	Meets Standards (MS)
	With significant teacher support	**With prompting and support**	**Consistently and independently**
Convert measurements from larger units to smaller units (4.MD.A.1) Units 2, 4, 7			
1			
2, 3	**shows limited progress or is unable to** ● Visualizes and thinks abou benchmark measurements to understand relative sizes of measurement units within one system (ex: a cm is about the size of the width of a small paper clip) ● expresses measurements in a larger unit in terms of a smaller unit	● visualizes and thinks about benchmark measurements to understand relative sizes of measurement units within one system (ex: a cm is about the size of the width of a small paperclip) ● expresses measurements in a larger unit in terms of a smaller unit by recording measurement equivalents in a two-column table	● visualizes and thinks about benchmark measurements to understand relative sizes of measurement units within one system (ex: a cm is about the size of the width of a small paperclip) ● expresses measurements in a larger unit in terms of a smaller unit by recording measurement equivalents in a two-column table ● uses both metric and standard measurement vocabulary.
Use the four operations to solve word problems involving distance, time, liquid volume, mass, and money (4.MD.A.2) Units 2, 4, 5, 6, 7			
1, 2, 3	**shows limited progress or is unable to** ● use the four operations to solve word problems involving distance, time, liquid volume, mass, and money	● solves measurement word problems including the operations of addition, subtraction, multiplication, and division. ● represents measurement quantities using diagrams such as number line diagrams that feature a measurement scale	● solves measurement word problems including the operations of addition, subtraction, multiplication, and division ● explains their thinking and demonstrates how they solved the problem. ● represents measurement quantities using diagrams such as number line diagrams that feature a measurement scale
Apply the area and perimeter formulas for rectangles in real world and mathematical problems (4.MD.A.3) Unit 4			
1			

2	**shows limited progress or is unable to** ● apply the area and perimeter formulas with both real-world and mathematical problems	● applies the area and perimeter formulas with both real-world and mathematical problems ● finds the width of a rectangular room given the area of the flooring and length by using an area formula as a multiplication equation with an unknown factor ● uses **some** vocabulary for the concepts of perimeter and area	● applies the area and perimeter formulas with both real-world and mathematical problems. ● finds the width of a rectangular room given the area of the flooring and length by using an area formula as a multiplication equation with an unknown factor ● uses **appropriate** vocabulary for the concepts of perimeter and area
3	*Not explicitly taught. Ongoing instruction provided to work towards mastery.*		
Represent and interpret data using line plots (4.MD.B.4) Units 2			
1			
2			
3	**shows limited progress or is unable to** ● represent and interpret data using line plots	● creates line plots to show a data set of objects with fractional measurements of ½ , ¼, and ⅛ ● solves simple word problems involving addition and subtraction of the fractions found in their line plots ● uses **some** vocabulary when working with line plots and fractional measurements	● creates line plots to show a data set of objects with fractional measurements of ½, ¼, and ⅛ ● solves simple word problems involving addition and subtraction of the fractions found in their line plots. ● uses **appropriate** vocabulary when working with line plots and fractional measurements

Understand the concept of angles and angle measurement (4.MD.C) Unit 4			
1			
2	**shows limited progress or is unable to** ● recognize angles as geometric shapes that are formed whenever two rays share a common endpoint ● understand concepts of angle measurement ● identify what an acute, obtuse, and right angle is	● recognizes angles as geometric shapes that are formed whenever two rays share a common endpoint ● understands concepts of angle measurement ● identifies and demonstrates what an acute, obtuse, and right angle is ● Solves addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems ● **begins** to use **correct** vocabulary when	● recognizes angles as geometric shapes that are formed whenever two rays share a common endpoint ● understands concepts of angle measurement ● identifies and demonstrates what an acute, obtuse, and right angle is ● solves addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems ● uses **correct** vocabulary when describing

		describing angles	angles
3	*Not explicitly taught. Ongoing instruction provided to work towards mastery.*		

Geometry

Trimesters	**Needs Support (NS)**	**Approaching Standards (AS)**	**Meets Standards (MS)**
	With significant teacher support	**With prompting and support**	**Consistently and independently**
Draw and identify lines and angles in shapes and identify them as two-dimensional figures (4.G.A.1) Unit 4			
1			
2	**shows limited progress or is unable to** ● draw or identify **a few** of the following: lines, points, line segments, rays, and perpendicular and parallel lines	● draws or identifies points, lines, line segments, rays, and perpendicular and parallel lines ● draws or identifies angles inducing right, acute, and obtuse angles ● uses the correct geometric terminology when drawing shapes	● draws and identifies points, lines, line segments, rays, and perpendicular and parallel lines. ● draws and identifies angles including right, acute, and obtuse angles. ● uses the correct geometric terminology when drawing shapes.
3	*Not explicitly taught. Ongoing instruction provided to work towards mastery.*		
Classify two-dimensional shapes based on lines and angles (4.G.A.2) Unit 4			
1			
2	**shows limited progress or is unable to** ● classify or describe two-dimensional shapes	● classifies **or** describes 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. ● discusses the relationship among various	● classifies **and** describes 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. ● discusses the relationship among various

		quadrilaterals on the number of sides, opposite side, side lengths, and angle measurement. ● uses some geometrical terminology as they talk about, classify, and sort shapes.	quadrilaterals on the number of sides, opposite side, side lengths, and angle measurement. ● uses geometrical terminology as they talk about, classify, and sort shapes.
3	*Not explicitly taught. Ongoing instruction provided to work towards mastery.*		

Recognize a line of symmetry for a two-dimensional figure (4.G.A.3) Unit 4			
1			
2	**shows limited progress or is unable to** ● identify if lines of symmetry are accurate	● draws lines of symmetry **or** identifies if lines of symmetry are accurate ● uses **some** geometric terminology to describe the shapes used to draw lines of symmetry.	● experiments with two-dimensional shapes to discover **and** draw lines of symmetry. ● uses geometric terminology to describe the shapes used to draw lines of symmetry.
3	*Not explicitly taught. Ongoing instruction provided to work towards mastery.*		