4th Grade Levels of Understanding

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How is my understanding of 4th Grade OA math standards?

(Operations & Algebraic Thinking)

4.OA.2: Multiply or divide to solve word problems involving multiplicative comparisons by using drawings and equations with a symbol for the unknown number to represent the problem, distinguish multiplicative comparisons from additive comparisons.

I am a level 3 when I can do the following on my own:

- ❑ Multiply or divide to solve word problems involving multiplicative comparisons by using drawings and equations with a symbol for the unknown number to represent the problem, distinguish multiplicative comparisons from additive comparisons.

I am a level 2 progressing toward grade level when I:

- ❑ Interpret products and quotients using whole numbers.
- ❑ Compare numbers in an additive sense
- ❑ Fluently recall multiplication facts.
- ❑ Fluently multiply and divide within 100.

4.OA.3: Solve multistep word problems with whole numbers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a litter for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.

I am a level 3 when I can do the following on my own:

- ❑ Solve multistep word problems with whole numbers using the four operations, including problems in which remainders must be interpreted.
- ❑ Understand the use of parentheses in equations and write equations using variables to represent the unknown value for multi-step word problems.
- ❑ Interpret remainders as leftovers/extras (the answer), discards (don't use), or add one to the answer (rounding up).

I am a level 2 progressing toward grade level when I:

- ❑ Understand how to describe the inverse relationship between multiplication and division and addition and subtraction.
- ❑ Understand that a variable represents an unknown quantity and that the equal sign means "the same as".
- ❑ Write equations to represent single step story problems.
- ❑ Fluently add, subtract, multiply, and divide with multi-digit whole numbers.
- ❑ Fluently recall basic multiplication facts.

4.OA.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 1-digit number. Determine whether a given whole number in the range 1-100 is prime or composite.

I am a level 3 when I can do the following on my own:

- ❑ Find every factor pair of numbers in the range 1-50.
- ❑ Recognize that a whole number is a multiple of each of its factors.
- ❑ Determine whether a given whole number in the range 1-50 is a multiple of a given one-digit number.
- ❑ Determine whether a given whole number in the range 1-50 is prime or composite.

I am a level 2 progressing toward grade level when I:

- ❑ Describe the inverse operation between multiplication and division.
- ❑ Understand that a factor is a number that is multiplied with another number to get a product.
- ❑ Understand that a product is an answer to a multiplication problem.
- ❑ Understand that the words multiple and product are interchangeable.
- ❑ Understand that division can be used to find an unknown factor.
- ❑ Fluently multiply and divide within 100.
- ❑ Recognize or recall vocabulary: composite, prime, factor, multiple, product, quotient, dividend, divisor, whole number, inverse operation.

How is my understanding of 4th Grade NBT math standards?

(Numbers and Operations in Base Ten)

4.NBT.2: The student is able to read and write multi-digit numbers using base-ten numeral, 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.

I am a level 3 when I can do the following on my own:

- ❑ Read and write multi-digit numbers using base-ten numerals, number names, and expanded form. (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. (NBT.2)

I am a level 2 progressing toward grade level when I:

- ❑ Recognize or recall specific vocabulary such as digit, place, value, whole number, expanded form, word form, standard form, base-ten numerals.
- ❑ Identify place value names to millions.
- ❑ Identify the place and value of a given digit.
- ❑ Multiply by multiples of ten.
- ❑ Compare two numbers, up to three digits.

4.NBT.3: Use place value understanding to round multi-digit whole numbers to any place.

I am a level 3 when I can do the following on my own:

- ❑ Use place value to round multi-digit whole numbers to any place.

I am a level 2 progressing toward grade level when I:

- ❑ Understand that numbers increase towards the right of the number line and numbers decrease towards the left.
- ❑ Identify the value of digits represented by the places in the place value system up to thousands.
- ❑ Understand that rounding generates numbers that a number is closest to that has no ones, no tens, etc…
- ❑ Round numbers to the nearest 10 and 100.

4.NBT.4: Fluently add and subtract (including subtracting across zero) multi-digit whole numbers using the standard algorithm.

I am a level 3 when I can do the following on my own:

- ❑ Fluently find the sum in multi-digit whole numbers using the standard algorithm.
- ❑ Fluently find the difference (including subtracting across zero) of multi-digit whole numbers using the standard algorithm.

I am a level 2 progressing toward grade level when I:

- ❑ Check answers using the inverse operation.
- ❑ Add & subtract three-digit numbers with and without regrouping.
- ❑ Model addition and subtraction using a place value chart and base ten blocks.
- ❑ Write equations to solve addition and subtraction story problems.

4.NBT.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 such as the are model, partial products, and the distributive property.

I am a level 3 when I can do the following on my own:

- ❑ Multiply a whole number of up to four digits by a one-digit whole number using strategies based on place value such as the area model, partial products, and the distributive property.
- ❑ Multiply two two-digit whole numbers using strategies based on place value such as the area model, partial products, and the distributive property.

I am a level 2 progressing toward grade level when I:

- ❑ Multiply by multiples of 10.
- ❑ Use and draw rectangular arrays.
- ❑ Compose and decompose numbers based on place value.
- ❑ Understand that multiplication means adding equal sized rows and columns.
- ❑ Fluently recall multiplication facts.
- ❑ How to fluently multiply and divide up to 100s.
- ❑ Understand multiplication as repeated addition.

4.NBT.6: Find whole number quotients and remainders with up to four-digit dividends and one-digit divisors using strategies based on place value such as the area model and partial products.

I am a level 3 when I can do the following on my own:

- ❑ Find whole number quotients and remainders with up to four-digit dividends and one-digit divisors using strategies based on place value

I am a level 2 progressing toward grade level when I:

- ❑ Recognize or recall specific vocabulary such as: partial products, quotient, divisor, dividend, decompose, area model, & distributive property
- ❑ Multiply by multiples of 10.
- ❑ Use and draw rectangular arrays.
- ❑ Compose and decompose numbers based on place value.
- ❑ Identify the value of places in the place value system up to thousands.
- ❑ Understand that division and multiplication is an inverse relationship.
- ❑ Understand that division can be used for three purposes: equal sharing, measurement, and finding unknown factors.
- ❑ Understand division is repeated subtraction.
- ❑ Each place is ten times the value of the place to it's right.

How is my understanding of 4th Grade MD math standards?

(Mesurement & Data)

4.MD.3: Apply the area and perimeter formulas for rectangles in real world and mathematical problems.

I am a level 3 when I can do the following on my own:

- ❑ Apply the area and perimeter formulas for rectangles in real world and mathematical problems.

I am a level 2 progressing toward grade level when I:

- ❑ Recognize or recall specific vocabulary such as: area, perimeter, factor, sum, square unit, and product.
- ❑ Understand how to find the perimeter of figures by adding all side lengths together.
- ❑ Understand that perimeter is measured in units of length.
- ❑ Understand how to find the area of quadrilaterals by using the formula A = l x w.
- ❑ Understand that area is measured in square units.
- ❑ Understand that area is the amount of space contained within a 2-D shape. (rectangular)
- ❑ Understand that opposite sides of a rectangle are equal.
- ❑ Multiply whole numbers.
- ❑ Fluently recall basic multiplication facts.

4.MD.5:Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand the concepts of angle measurements.

I am a level 3 when I can do the following on my own:

- ❑ Understand angles are measured with reference to a 360°circle, with its center at the common endpoint of the rays.
- ❑ Understand an angle that turns through n one-degree angles is said to have an angle measurement of n degrees.

I am a level 2 progressing toward grade level when I:

- ❑ Recognize or recall specific vocabulary such as: Angle, Acute Angle, Obtuse Angle, Straight Angle, Right Angle, Vertex, Ray.
- ❑ Understand that a right angle has a measurement of 90°, Acute Angles measure less than 90°, and obtuse angles measure greater than 90° but less than 180°.
- ❑ Understand that the size of an angle is the amount of rotation between the two rays that form the angle.
- ❑ Understand that an angle is created with the intersection of two rays.
- ❑ Understand fractions represents a part of a whole.

4.MD.6: Measure angles in whole-number degrees using a protractor. Sketch angles of specific measure.

I am a level 3 when I can do the following on my own:

- ❑ Use a protractor to measure angles in whole-number degrees and sketch angles of a specific measure.

I am a level 2 progressing toward grade level when I:

- ❑ Recognize or recall specific vocabulary such as: Ray, Angle, Acute Angle, Right Angle, Obtuse Angle, Straight Angle, Angle Arm, Vertex, Inner Scale, Outer Scale, Protractor.
- ❑ Identify right angle having a measurement of 90°, Acute Angles measure less than 90°, and obtuse angles measure greater than 90° but less than 180°.
- ❑ Recognize a ray as a part of a line with one endpoint and extends without end in one direction.
- ❑ Understand the size of an angle is the amount of rotation between the two rays that form the angle.
- ❑ Know an angle is created with the intersection of two rays.

4.MD.7: Recognize angle measures 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 part. Solve addition and subtraction problems to find unknown angles on a diagram in real-world and mathematical problems.

I am a level 3 when I can do the following on my own:

- ❑ 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.
- ❑ Write an equation that could be used to find the unknown angle measure.

I am a level 2 progressing toward grade level when I:

- ❑ Recognize or recall specific vocabulary such as: angle, acute, obtuse, right, degree, intersect, benchmark angles, straight angle.
- ❑ Identify angles as: acute, obtuse, right, or straight by using benchmark angles.
- ❑ Identify a circle has 360 degrees and angles are measured with reference to a circle.
- ❑ Recognize the size of an angle is the amount of rotation between the two rays that form the angle.
- ❑ Understand an angle is named using three points in which the middle point labels the vertex.

How is my understanding of 4th Grade NF math standards?

(Numbers and Operations - Fractions)

4.NF.1:Recognize that the value of "n" cannot be 0, explain why a fraction a/b is equivalent to a fraction nxa/nxb 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.

I am a level 3 when I can do the following on my own:

- ❑ Recognize and explain why multiplying a numerator and denominator by the same number does not change the value of a fraction by using visual fraction models.
- ❑ Create equivalent fractions.

I am a level 2 progressing toward grade level when I:

- ❑ Recognize or recall specific vocabulary such as: numerator, denominator, equivalent fraction, fraction, whole number, mixed numbers, multiples, and factors.
- ❑ Represent fractions in visual models.
- ❑ Identify equivalent fractions by comparing their representations using a model.
- ❑ Generate equivalent fractions by grouping portions of a model or diagrams
- ❑ Demonstrate fluency with multiplication facts.

4.NF.2:Compare two fractions with different numerators and different denominators, by creating common denominators or numerators, or by comparing to a benchmark fraction such as ½. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record results of comparisons with >, =, or < and justify the conclusions by using a visual fraction model.

I am a level 3 when I can do the following on my own:

- ❑ Compare fractions using the >,<, = symbols and justify comparison by using models, finding common numerators through cross-multiplication or by comparing to a benchmark fraction.

I am a level 2 progressing toward grade level when I:

- ❑ Recognize or recall specific vocabulary such as: numerator, denominator, benchmark fractions, equivalent fractions, fractions, whole numbers, mixed numbers, factors, and multiples.
- ❑ Understand benchmark fractions and fractions equivalent to these benchmark fractions.
- ❑ Understand fractions with the same numerator can be compared by looking at the size of the denominator.
- ❑ Understand that as the denominator increases, the size of the units will decrease in size.
- ❑ Understand that if I have the same size units (same denominator) I can compare the amount of pieces shaded
- ❑ Understand that fractions can only be compared with the same size whole (bars are the same size).
- ❑ Fluently recall basic multiplication facts.

4.NF.3: Understand a fraction $\frac{a}{b}$ (with $\frac{a}{b}$ > 1) as a sum of unit fractions $\frac{1}{b}$.

I am a level 3 when I can do the following on my own:

- ❑ Understand addition and subtraction of fractions as the joining and separating of parts referring to the same whole.
- ❑ Decompose a fraction into a sum of fractions with the same denominator in more than one way.
- ❑ Add and subtract mixed numbers with like denominators by creating equivalent fractions for the mixed numbers.
- ❑ Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators.

I am a level 2 progressing toward grade level when I:

- ❑ Recognize or recall specific vocabulary such as: sum, difference, unit fraction, decompose, compose, numerator, denominator, improper fraction, mixed number, fraction, whole, etc…
- ❑ Understand how to represent a whole number as an equivalent fraction.
- ❑ Understand how to write a fraction as a whole number.
- ❑ Understand that fractions with the same denominator have the same size pieces.
- ❑ Understand what the numerator and denominator represent in a fraction.
- ❑ Understand adding means joining and subtraction means separating.

4.NF.4:Apply and extend previous understandings of multiplication to multiply a fraction by a whole number. a) Understand a fraction a/b as a multiple of 1/b.
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. c) Solve word problems involving multiplication of a fraction by a whole number by using visual fraction models and equations to represent the problem.

I am a level 3 when I can do the following on my own:

- ❑ Apply previous knowledge of multiplication to multiply a fraction by a whole number.
- ❑ Understand a fraction ($\frac{3}{4}$) is a multiple of a unit fraction ($\frac{1}{4}$).
- ❑ I can solve word problems involving multiplication of a fraction by a whole number.

I am a level 2 progressing toward grade level when I:

- ❑ Recognize or recall specific vocabulary such as: Recognize or recall specific vocabulary such as: repeated addition, multiplication, multiple, factor, product, improper fractions, mixed numbers, and decompose.
- ❑ Convert between improper fractions and mixed numbers.
- ❑ Recognize repeated addition can be represented as multiplication
- ❑ Recognize the repeated addition and multiplication is the joining of equal sized groups.

4.NF.5:Express a fraction with a denominator of 10 as an equivalent fraction with a denominator of 100 and use this technique to add two fractions with denominators of 10 and 100.

I am a level 3 when I can do the following on my own:

- ❑ Express a fraction with a denominator of 10 as an equivalent fraction with a denominator of 100 and use this technique to add two fractions with denominators of 10 and 100.

I am a level 2 progressing toward grade level when I:

- ❑ Recognize or recall specific vocabulary such as: fraction, denominator, numerator, equivalent fraction, and sum.
- ❑ Understand how to create an equivalent fraction.
- ❑ Understand multiplying the numerator and denominator by the same number creates a fraction with smaller equal pieces.
- ❑ Understand that equivalent fractions represent the same value but look differently.
- ❑ Fluently recall basic multiplication facts.

4.NF.6: Read and write fractions in decimal notation with denominators of 10 and 100 and locate their value on a number line.

I am a level 3 when I can do the following on my own:

- ❑ Write a fraction with a denominator of 10 or 100 as a decimal and write a fraction from a number in decimal notation and locate the values on a number line.

I am a level 2 progressing toward grade level when I:

- ❑ Recognize or recall specific vocabulary such as: fraction, numerator, denominator, place, value, tenths, hundredths place, equivalent fraction, whole number, and mixed number.
- ❑ Identify where the hundredths place is located
- ❑ Identify tenths' place location
- ❑ Identify where the decimal point is located
- ❑ Identify the ones' place location
- ❑ Model hundredths using shaded units
- ❑ Model tenths using shaded bars
- ❑ Identify whole numbers on a number line

4.NF.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 with the >, < or = symbol.

I am a level 3 when I can do the following on my own:

- ❑ 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 with the >, < or = symbol.

I am a level 2 progressing toward grade level when I:

- ❑ Recognize or recall specific vocabulary such as: fraction, denominator, numerator, equivalent fraction, tenths, hundredths
- ❑ Understand when placing decimals on a number line, the one on the left has a lesser value and the one on the right has a greater value
- ❑ Understand decimals can be written as fractions
- ❑ Understand decimals represents part of a whole
- ❑ Understand how to read a decimal number

How is my understanding of 4th Grade G math standards?

(Geometry)

4.G.1:Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.

I am a level 3 when I can do the following on my own:

- ❑ Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.

I am a level 2 progressing toward grade level when I:

- ❑ Recognize or recall specific vocabulary such as: point, line, line segment, ray, angle, acute, obtuse, right, straight, parallel lines, perpendicular lines, intersecting lines, vertical, horizontal, diagonal, and polygon.
- ❑ Understand that polygons have attributes.
- ❑ Understand that polygons are made up of points, lines, and line segments.
- ❑ Understand that polygons are closed shapes with at least three straight sides and angles.
- ❑ Understand that a two-dimensional figure lies flat.

4.G.2:Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or angles of a specified size. Recognize right triangles as a category, and identify right triangles.

I am a level 3 when I can do the following on my own:

- ❑ Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or angles of a specified size. Recognize right triangles as a category, and identify right triangles.

I am a level 2 progressing toward grade level when I:

- ❑ Recognize or recall specific vocabulary such as: right triangle, isosceles, scalene, angle, vertex, acute, obtuse, right, straight, parallel line, and perpendicular lines.
- ❑ Understand how to categorize and classify quadrilaterals based on similar attributes.
- ❑ Understand how to classify shapes based on attributes.
- ❑ Understand that defining attributes are geometrical characteristics such as number of vertices, angles, angle size, etc..
- ❑ Understand how to identify attributes of a 2-D figure.
- ❑ Understand that polygons are closed shapes with at least three straight sides and angles.
- ❑ Understand that an angle is formed when two rays have a common endpoint. The endpoint is called the vertex of the angle.
- ❑ Understand that a two-dimensional figure lies flat.