

3rd Grade Levels of Understanding

How is my understanding of 3rd Grade OA math standards?

(Operations & Algebraic Thinking)

3.OA.1: Interpret products of whole numbers.

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

- Interpret products of whole numbers using models or diagrams. Ex. 6×5 as the total number of objects in 6 groups of 5 objects in each.
- Identify a multiplication problem represented by a given model or diagram.
- Model multiplication problems using equal-size groups, arrays (rows/columns) number lines, repeated addition

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

- Recognize or recall specific vocabulary: product, total, arrays, columns, rows, equal groups, factors, multiplication, times, multiply.
- Relate skip counting to multiplication.
- Fluently add single-digit addition facts.
- Interpret groups, number in each group, and total in an addition model

3.OA.2: Interpret whole-number quotients of whole numbers.

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

- Interpret whole-number quotients of whole numbers using models or diagrams.
- Identify a division problem represented by a given model or diagram.
- Model division problems using equal-size groups, arrays, and repeated subtraction.
- Relate division to multiplication. Understand that division is the inverse of multiplication.

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

- Recognize or recall specific vocabulary: Divide, quotient, equal groups, arrays (rows and columns), partition, equal shares.
- Identify the components of a division problem (Groups, Number in each group, & Total)
- Recognize patterns of division
- Fluently subtract single-digit facts
- Skip count

3.OA.3: Use multiplication and division within 100 to solve word problems in situations involving equal-size groups, arrays, and measurement quantities.

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

- Use multiplication and division within 100 to solve word problems correctly.
- Represent situations using equal-size groups, arrays, and measurement quantities.
- Draw and label models to represent information in word problems.

- Identify which part of the problem is missing.
- Missing the total (multiply)
- Missing groups (divide)
- Missing number in each group (divide)
- Write an equation with a symbol for the unknown number to represent the problem.

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

- Recognize or recall specific vocabulary (for example, array, column, equal groups, factor, multiplication, multiply, product, row, times) and perform basic processes such as Identify the components of a multiplication problem (factors, multiplication symbol, and product), quotient, divide, equal shares, repeated addition, repeated subtraction
- Identify the parts of the problem Groups, Number in Each Group, Total.

3.OA.7: Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division.

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

- Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division.
- Know from memory ALL products of two-one digit numbers. (Basic multiplication facts)

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

- Skip count
- Recognize patterns in a multiplication chart.
- Understand the meaning of multiplication sign and division sign.
- Fluently add and subtract single digit facts within 20.

3.OA.8: Solve two-step word problems using the four operations. Represent these problems using equations.

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

- Solve two-step word problems using the four operations (addition, subtraction, multiplication, division)
- Represent these problems using equations.
- Draw and label models to represent information in word problems.

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

- Identify keywords
- Identify the mathematical relationships and structures between quantities.
- Identify the question being asked.
- Identify relevant quantities in the problem (things that go together)
- Know how to add, subtract, multiply, divide.
- Estimate whole numbers to determine a reasonable answer. (ABOUT)

How is my understanding of 3rd Grade NBT math standards?

(Numbers & Operations in Base Ten)

3.NBT.1: Use place value understanding to round whole numbers to the nearest 10 or 100.

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

- Use place value to round to the nearest 10
- Use place value to round to the nearest 100

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

- Recognize and recall vocabulary: whole number, place value, ones, tens, hundreds, greater than, less than, half
- Skip counting by 5's, 10's, the '50s, and 100's. Know where consecutive numbers fall on a number line, basic counting skills.

3.NBT.2: Fluently add and subtract (including subtracting across zeros) within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.

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

- Fluently add and subtract within 1,000
- Fluently add and subtract within 1,000 across zeros

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

- Recognize and recall vocabulary: sum, difference, add, subtract, regrouping, base-ten blocks(units, rods, flats)
- Fluently add and subtract within 20
- Know from memory all the sums of two one-digit numbers
- Read and write numbers within 1000
- Fluently add and subtract within 100
- Understand place value up to 1,000
- Recognize symbols for addition and subtraction

How is my understanding of 3rd Grade NF math standards?

(Numbers & Operations- Fractions)

3.NF.1: Understand a fraction $1/b$ as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction a/b as the quantity formed by a parts of size $1/b$.

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

- Represent unit fractions using models or diagrams.
- Represent fractions with a numerator greater than one using models or diagrams.
- Identify a fraction from models or diagrams.
- Identify a fraction from a set of objects

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

- Recognize or recall specific vocabulary: area, numerator, denominator, equal parts, fraction, unit fraction, whole, region, polygon, square, rectangle, circle, set.
- Determine whether a whole has been partitioned into equal parts.
- Partition a shape into specific parts.
- Explain that a unit fraction represents one part of the whole.
- Identify numerator and denominator.
- Understand the relationship between part and whole.

3.NF.2: Understand a fraction as a number on the number line; represent fractions on a number line.

3.NF.2a: Represent a fraction $1/b$ on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into b equal parts. Recognize that each part has $1/b$ and that the endpoint of the part based at 0 locates the number $1/b$ on the number line.

3.NF.2b: Represent a fraction a/b on a number line diagram by marking off lengths $1/b$ from 0. Recognize that the resulting interval has size a/b and that its endpoints locates the number a/b on the number line.

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

- Locate and model fractions on a number line.
- Determine the distance, in unit fractions, from one point on the number line to another.
- Partition a number line into equal parts (intervals) and label the fractions in consecutive order.

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

- Recognize and recall specific vocabulary: denominator, equal parts, fraction, number line, numerator, unit fraction, whole, intervals
- Interpret numerator and denominator
- Explain that a fraction is a number that can be represented on a number line.
- Represent whole numbers on a number line.
- Explain that 0 to 1 on a number line represents 1 whole.
- Represent the unit fraction on a number line.

3.NF.3: Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size. Limited to denominators 2,3,4,6, 8.

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

- A. Understand two fractions as equivalent if they are the same size, or the same point on a number line.
- B. Recognize and generate simple equivalent fractions.
- C. Express whole numbers as fractions and recognize fractions that are equivalent to a whole number. Explain when the numerator and denominator are the same, it is the same as selecting the entire whole.
 $4/4 = 1$ whole
- Explain that a fraction with a denominator of 1 represents a whole number.
 $2/1 = 2$ wholes $3/1 = 3$ wholes $4/1 = 4$ wholes
- Determine the portions necessary to compose a whole number.

- Explain when the numerator can be evenly divided by the denominator it represents a whole number.
- D. Compare two fractions with the same numerator or the same denominator by reasoning about their size and record the results using $<$, $>$, or $=$. Know that the larger the denominator the smaller the pieces.
- Recognize that comparisons are valid only when the two fractions refer to the same whole.

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

- Recognize and recall specific vocabulary: Equivalent, equal, numerator, denominator, whole, unit fraction
Know symbols: $>$ (greater than), $<$ (less than), $=$ (equal)
- Represent a given fraction using a model or diagram.
- Locate a given fraction on a number line.

How is my understanding of 3rd Grade MD math standards?

(Measurement & Data)

3.MD.1: Tell and Write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes.

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

- Tell and Write time to the nearest minute
- Measure time intervals in minutes
- Solve word problems of time intervals

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

- Recognize and recall specific vocabulary: minute, hour, a.m., p.m., elapsed time, intervals, number line, analog, digital, quarter past, half-past, quarter til, midnight, noon, minute hand, hour hand, minute mark
- add and subtract
- tell time using 5 minute intervals
- understand that 60 minutes equals an hour
- use a number line as a tool to represent time and find elapsed time
- convert between periods of time in minutes and periods of time represented in both hours and minutes

3.MD.2 Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (L). ADD, SUBTRACT, MULTIPLY or DIVIDE to solve one-step word problems (involving masses or volumes that are given in the same units).

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

- Measure and estimate liquid volumes and masses of objects using grams, kilograms, and liters.
- Measure liquid volumes in beakers.
- Add and subtract to solve one-step word problems

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

- Recognize and recall vocabulary: grams, kilograms, liters, volume, mass, sum, & difference
- Count by 5's, 10's and 20's, 50's, 100's
- Fluently add and subtract within 20
- Fluently add and subtract within 100

3.MD.3: Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one and two-step "how many more" and "how many less" problems using information presented in scaled bar graphs.

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

- Draw a scaled picture graph/pictograph
- Interpret information from the picture graph
- Draw a scaled bar graph
- Interpret information from the bar graph
- Solve one and two-step word problems using information presented in the bar graphs.

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

- Recognize and recall vocabulary: bar graph, picture graph, data, interval, number scale, key, tally marks
- Draw a picture graph and bar graph with up to 4 categories with single unit scales.
- Explain that each picture in a picture graph or unit in a bar graph may be used to represent more than a single count of the categories represented in the graph.
- Skip count - 2s, 5s, 10s, 20s, 100s
- Answer single-step word problems from the information in the graphs

3.MD.4: Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show data by making a line plot, where the horizontal scale is marked off in appropriate units -whole numbers, halves, and quarters.

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

- Measure items with a ruler to the nearest whole, half and fourth
- Make a line plot to show measurements taken
- Identify halves and fourths on a ruler

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

- Recognize and recall specific vocabulary: halves, fourths, line plot, horizontal, vertical
- Understand whole inch measurements

3.MD.5: Recognize area as an attribute of plane figures and understand concepts of area measurement.

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

- Recognize area as an attribute of plane figures.
- Use unit squares to determine the area of a plane figure.

- ❑ Measure the area by counting unit squares. (square cm, square m, square in, and square ft)

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

- ❑ Recognize and recall vocabulary: plane figure, area, square unit
- ❑ Skip count the number of square units in either the rows or the columns

3.MD.7: Relate area to the operations of multiplication and addition.

A. Find the area of a rectangle with whole-number side lengths by tiling it and show that the area is the same as would be found by multiplying the side lengths.

B. Multiply side lengths to find areas of rectangles with whole-number side lengths (where factors can be between 1 and 10 inclusively) in the context of solving real-world and mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning.

C. Use tiling to show in a concrete case that the area of a rectangle with whole-number side lengths a and $b + c$ is the sum of an $a \times b$ and an $a \times c$. Use area models to represent the distributive property of mathematical reasoning.

D. Find areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real-world problems. Recognize area as additive.

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

- ❑ Find the area of a rectangle by tiling it.
- ❑ Multiply side lengths to determine the area of a rectangle. (AREA = Length \times Width)
- ❑ Multiply side lengths to find the area of rectangles involving real-world and mathematical problems. (Factors between 1 and 10)
- ❑ Use area models to represent the distributive property in mathematical reasoning.
- ❑ Find the area of rectilinear figures by decomposing them into two smaller rectangles and adding the areas together.

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

- ❑ Recognize and recall vocabulary: area, square unit, length, width, rectangle, distributive property, rectilinear figures, tiling, rows, and columns
- ❑ Multiply, count, partition rectangle into rows and columns.
- ❑ Draw and label the side lengths of a rectangle.
- ❑ Break apart the rectangle into two separate rectangles. Label the side lengths of both smaller rectangles.
 - ❑ Recognize where to separate the rectilinear figure into two rectangles. Label the length and width of each rectangle.

3.MD.8: Solve real-world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters.

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

- Determine the perimeter of a polygon.
- Find the unknown side lengths of a polygon.
- Create rectangles with the same perimeter and different areas or the same areas with different perimeters.

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

- Recognize and recall vocabulary: Area, perimeter, polygon, length, width, rectangle
- Use addition, multiplication, division, subtraction to help solve
- Explain that the opposite sides of a rectangle are equal lengths.
- Understand the difference between area and perimeter