

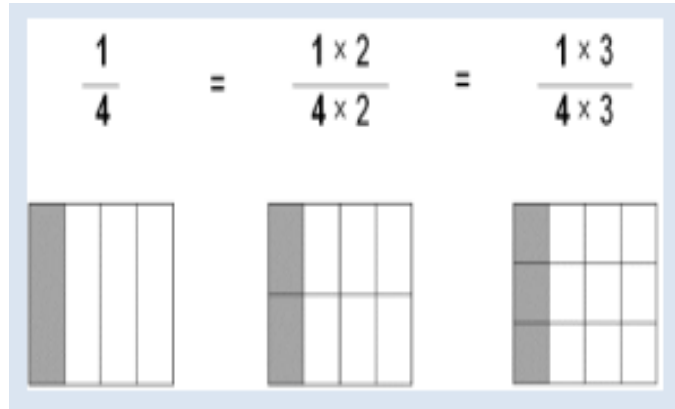
Grade 4 Math: Instructional Focus and Fluency

Transitioning to the NYS Next Generation Math Learning Standards for Grades K-8, Effective September 2022

Instructional Focus	Developmental Focus	Instructional Consideration (via Standards)
Develop <u>understanding and fluency</u> with multi-digit multiplication, and developing understanding of dividing to find quotients involving multi-digit dividends.	<ul style="list-style-type: none"> ▶ Develop fluency with efficient procedures for multiplying whole numbers in problem solving ▶ Generalize methods to compute products of multi-digit whole numbers using models (equal-sized groups, arrays, area models, place value, and properties of operations) ▶ Generalize procedures to find quotients involving multi-digit dividends (place value, properties of operations, the relationship of division to multiplication) <i>Students should be taught to use equations, rectangular arrays, and area models; however, when illustrating and explaining any calculation, students can choose any strategy.</i> 	<p>NY-4.NBT.1 Interpret a multiplication equation as a comparison. Represent verbal statements of multiplicative comparisons as multiplication equations.</p> <p>NY-4.NBT.5 Multiply a whole number of up to four digits by a one-digit whole number, and multiply two digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.</p> <p>NY-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, 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.</p>

Develop an understanding of fraction equivalence, addition and subtraction of fractions with like denominators, and multiplication of fractions by whole numbers. (Grade 4 expectations are limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100).

► Develop methods for generating and recognizing equivalent fractions



► Compose fractions from unit fractions, decompose fractions into unit fractions

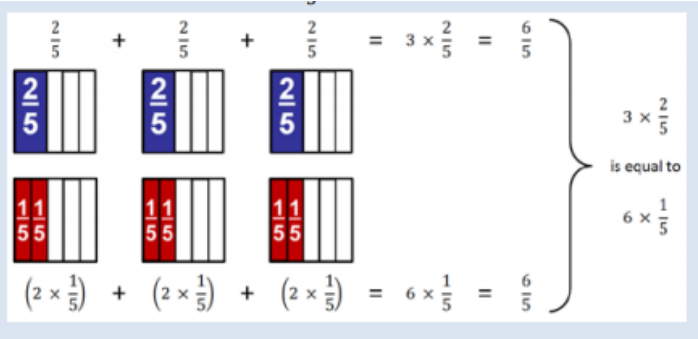
$$\frac{3}{8} = \frac{1}{8} + \frac{1}{8} + \frac{1}{8}$$

$$\frac{3}{8} = \frac{1}{8} + \frac{2}{8}$$

$$2\frac{1}{8} = 1 + 1 + \frac{1}{8} = \frac{8}{8} + \frac{8}{8} + \frac{1}{8}$$

NY-4.NF.1 Explain why a fraction $\frac{a}{b}$ is equivalent to a fraction $\frac{a \times n}{b \times n}$ 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.

NY-4.NF.3b 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.

<p>Develop an understanding of fraction equivalence, addition and subtraction of fractions with like denominators, and multiplication of fractions by whole numbers continued...</p>	<p>► Multiply a fraction by a whole number n groups of a fraction (where n is a whole number), e.g., 4 groups of $1/3$; which lends itself to being thought about as repeated addition</p> 	<p>NY-4.NF.4 Apply and extend previous understandings of multiplication to multiply a whole number by a fraction.</p>
<p>Understand that geometric figures can be analyzed and classified based on their properties, such as having parallel sides, perpendicular sides, particular angle measures, and symmetry.</p>	<p>► Know properties of two-dimensional shapes (angles, parallelism, and symmetry)</p> <p><i>Students will need to focus on verbal, written and pictorial representations of vocabulary.</i></p> <p>http://p1232.nysed.gov/assessment/nysaa/2011-12/manual-12/framework/math-glossary.pdf</p> <p>https://www.graniteschools.org/mathvocabulary/vocabulary-cards/ (available in English, Spanish, Chinese, and French)</p>	<p>NY-4.G.1 Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.</p> <p>NY-4.MD.2a (POST-TEST)* Identify and name triangles based on angle size (right, obtuse, acute).</p> <p>NY-4.MD.2b (POST-TEST)* Identify and name all quadrilaterals with 2 pairs of parallel sides as parallelograms.</p> <p>NY-4.MD.2c (POST-TEST)* Identify and name all quadrilaterals with four right angles as rectangles.</p>

<i>Understand that geometric figures can be analyzed and classified based on their properties continued...</i>		NY-4.MD.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.
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Fluency	Fluency development	Fluency Standard
Fluently add and subtract multi-digit whole numbers using a standard algorithm (<i>procedural fluency</i>).	► Developing fluency requires understanding why and how a procedure works. Understanding makes learning procedures easier, less susceptible to common errors, less prone to forgetting, and easier to apply in new situations.	NY-4.NBT.4 Fluently add and subtract multi-digit whole numbers using a standard algorithm

(POST-TEST) refers to standards content that is taught **after the NYS grade 3-8 assessment. This time typically occurs late April - June.*