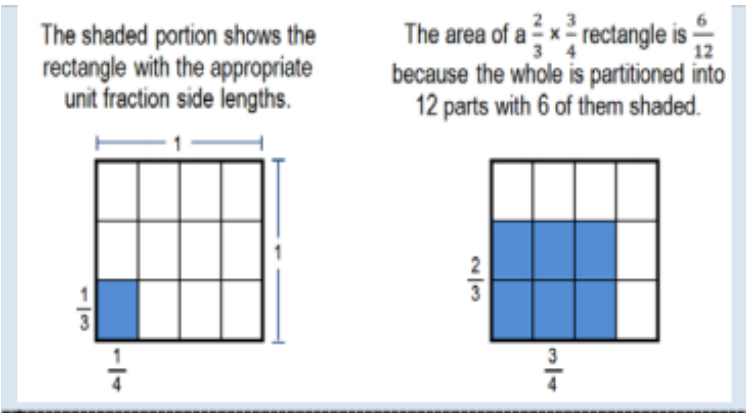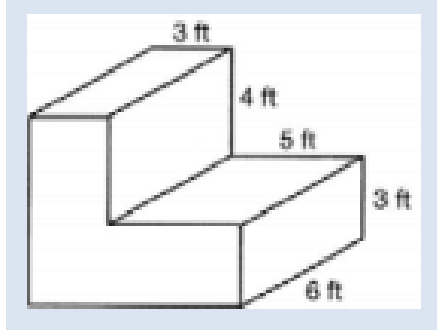# Grade 5 Math: Instructional Focus and Fluency

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 *fluency* (*procedural*) with addition and subtraction of fractions; develop understanding of the multiplication of fractions and of division of fractions in limited cases (unit fractions divided by whole numbers and whole numbers divided by unit fractions).	► Represent addition and subtraction of fractions w/unlike denominators as equivalent calculations with like denominators ➤ include word problems ► Understand and explain why the procedures for multiplying and dividing fractions make sense The shaded portion shows the rectangle with the appropriate unit fraction side lengths. The area of a $\frac{2}{3} \times \frac{3}{4}$ rectangle is $\frac{6}{12}$ because the whole is partitioned into 12 parts with 6 of them shaded. *Use the relationship between multiplication and division to explain that* $\frac{1}{3} \div 4 = \frac{1}{12}$ *because* $\frac{1}{12} \times 4 = \frac{1}{3}$ *and* $4 \div \frac{1}{5} = 20$ *because* $20 \times \frac{1}{5} = 4.$ ➤ include word problems	**NY-5.NF.1** Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators. **NY-5.NF.5** Interpret a fraction as division of the numerator by the denominator (includes word problems). **NY-5.NF.4** Apply and extend previous understandings of multiplication to multiply a fraction by a whole number or a fraction. **NY-5.NF.7** Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions. (Division of a fraction by a fraction is not a requirement until grade 6 (NY-6.NS.1)).

Extend division to 2-digit divisors, integrating decimals into the place value system and develop understanding of operations with decimals to hundredths, develop _fluency_ (_procedural_) with whole number and decimal operations.	➤ Develop _fluency_ with decimal computations to hundredths
	  ➢ when solving any problem, students can choose to use a concrete model or a drawing. Their strategy must be based on place value, properties of operations, or the relationship between operations (this includes word problems)
	  ➢ include word problems
	
	➤ Understand and explain why the procedures for multiplying and dividing finite decimals make sense
	  ➢division problems are limited to those that allow for the use of concrete models or drawings, strategies based on properties of operations, and/or the relationship between operations (e.g., 0.25 ÷ 0.05); problems should not be so complex as to require the use of an algorithm (e.g., 0.37 ÷ 0.05)
		NY-5.NF.7 Using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between operations:
		
		  • add and subtract decimals to hundredths;
		  • multiply and divide decimals to hundredths.
		
		Relate the strategy to a written method and explain the reasoning used.

Develop understanding of volume.	➤ Recognize volume as an attribute of three-dimensional space ➤ Understand that volume can be measured by finding the total number of same-size units of volume required to fill the space ➤ Know a 1-unit by 1-unit by 1-unit cube is the standard unit for measuring volume	**NY-5.MD.3** Recognize volume as an attribute of solid figures and understand concepts of volume measurement. **NY-5.MD.4** Measure volumes by counting unit cubes, using cubic cm, cubic in., cubic ft., and improvised units.

| *Develop understanding of volume continued…* | ➤ Find volumes of right rectangular prisms by viewing them as decomposed into layers of arrays of cubes in problem solving

3 ft / 4 ft / 5 ft / 3 ft / 6 ft

➤ apply the formulas $V = l \times w \times h$ and $V = B \times h$ in the context of solving real world and mathematical problems. | **NY-5.MD.5** Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume.

NY-5.MD.2c Identify and name all quadrilaterals with four right angles as rectangles.

NY-5.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. |

Fluency	Fluency development	Fluency Standard
Fluently (*procedural*) multiply multi-digit whole numbers using a standard algorithm.	➤ Understand how and why an algorithm works ➤ Students will need practice on selected problems to establish procedural fluency.	**NY-5.NBT.5** Fluently multiply multi-digit whole numbers using a standard algorithm.