

P.S. 103 Math Family Letter

Grade 5: Unit 4 Multiplication - Decimals/Fractions & Volume



Student Learning Goals:

- I can multiply whole numbers, decimals, fractions, and mixed numbers using various strategies and math models.
- I can solve word problems involving multiplication of whole numbers, decimals, fractions, and mixed numbers.
- I understand concepts of volume.
- I can relate volume to multiplication and addition.

Website for Practice:

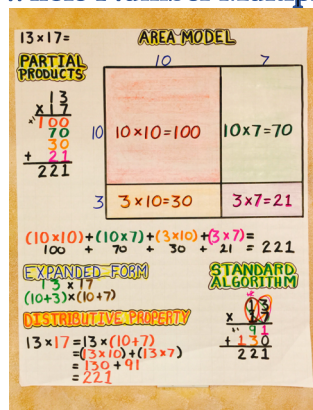
<https://www.khanacademy.org/math/arithmetic/fraction-arithmetic/arithmetic-arithmetic-review-multiply-fractions/v/multiplying-a-fraction-by-a-fraction>

Key Vocabulary:

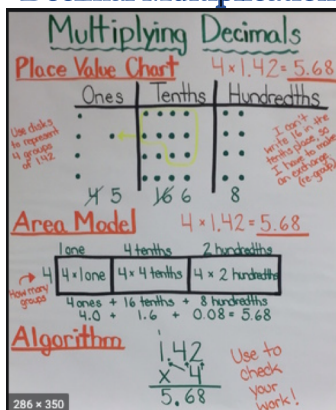
- multiplication/multiply, decimal, decimal point, tenths, hundredths, products, rectangular arrays, area models, properties (rules about how numbers work), reasoning, parentheses, brackets, braces, numerical expressions, expression
- fraction, numerator, denominator, operations, multiplication/multiply, division/divide, mixed numbers, product, quotient, partition, equal parts, equivalent, factor, unit fraction, area, side lengths, fractional sides lengths, scaling, comparing
- measurement, attribute, volume, solid figure, right rectangular prism, unit, unit cube, gap, overlap, cubic units (cubic cm, cubic in., cubic ft., nonstandard cubic units), multiplication, addition, edge lengths, height, area of base

Tools/Models/Strategies

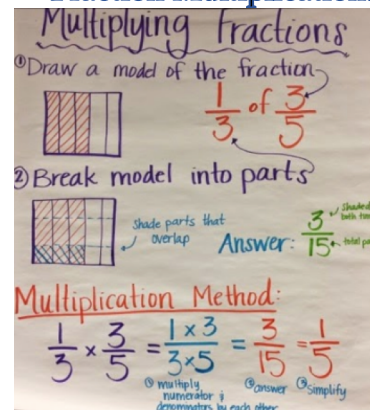
Whole Number Multiplication:



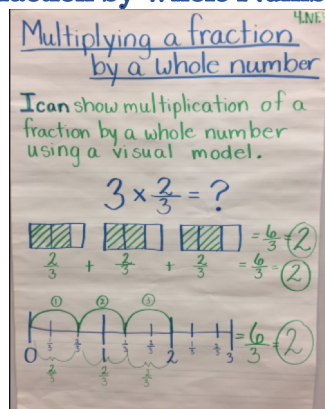
Decimal Multiplication:



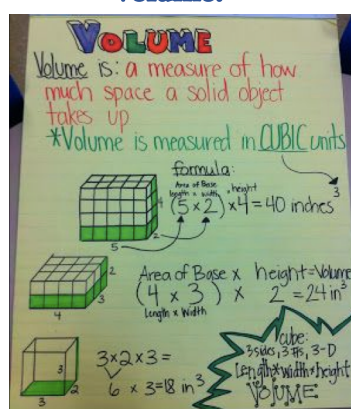
Fraction Multiplication:



Fraction by Whole Number:



Volume:

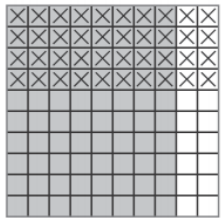
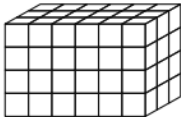
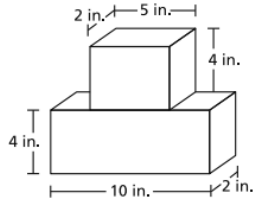


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Common NYS Testing Questions

<p>Marco bakes cookies for his class. He uses $\frac{3}{4}$ cup of butter in each batch of cookies and bakes $2\frac{1}{2}$ batches. Which equation can be used to determine the number of cups of butter Marco uses to bake cookies?</p> <p>A $\frac{5}{2} \times \frac{3}{4} = 1\frac{7}{8}$</p> <p>B $\frac{3}{2} \times \frac{3}{4} = 1\frac{1}{8}$</p> <p>C $\frac{5}{2} \times \frac{4}{3} = 3\frac{1}{3}$</p> <p>D $\frac{3}{2} \times \frac{4}{3} = 2$</p>	<p>Diane has pizza dough for making pizzas. She separates the dough into the three portions listed below.</p> <ul style="list-style-type: none"> Portion A is 8.25 ounces. Portion B is twice as much as portion A. Portion C is twice as much as portion B. <p>What is the weight, in ounces, of portion B and the weight, in ounces, of portion C?</p> <p>Show your work.</p>
<p>Jack puts $\frac{1}{3}$ pound of birdseed into his bird feeder every time he fills it. How many times can Jack fill his bird feeder with 4 pounds of birdseed?</p> <p>A $1\frac{1}{3}$</p> <p>B $3\frac{2}{3}$</p> <p>C 11</p> <p>D 12</p>	<p>The decimal grid shown below is shaded and marked with Xs to model an expression.</p>  <p>Which expression could be modeled by this decimal grid?</p> <p>A 0.08×0.04</p> <p>B 0.08×0.40</p> <p>C 0.80×0.04</p> <p>D 0.80×0.40</p>
<p>Which expression cannot be used to determine the volume of the rectangular prism pictured below?</p>  <p>A 12×6</p> <p>B 18×4</p> <p>C $6 \times 3 \times 4$</p> <p>D $6 \times 4 \times 6$</p>	<p>Lana used the two blocks pictured in the diagram to build a tower.</p>  <p>LANA'S TOWER</p> <p>What is the total volume, in cubic inches, of the tower Lana built?</p> <p>A 27</p> <p>B 80</p> <p>C 116</p> <p>D 120</p>

Students will be assessed on their ability to comprehend visual models as a way to show their understanding of the concept. Rarely are questions asked where they just have to provide a mathematical solution. They often have to tie in what they know about the concept and think back to the strategy that best supports answering the given question. Therefore, in the classroom students get several opportunities to make their thinking visible on paper using models and algorithms together.