

# Math Moments!

## Math in a 5th grade Classroom!

Fractions! Students in 5th grade tackle fractions by understanding the meaning of fractions in relation to the whole, compare, order, and make like units also known as equivalence. Once students work with fraction equivalence, they move to adding, subtracting, multiplying, and dividing fractions. When students work with these 4 operations, they use several models such has paper strips, numberlines, and a rectangular fraction model to aide in this understanding.

### Math Concept: Fractions

5th Grade

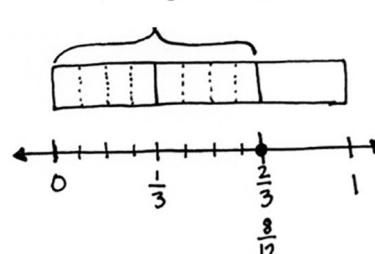
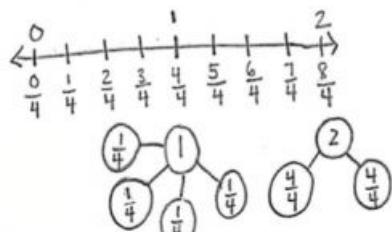
Cristina and Matt's goal is to collect a total of  $3\frac{1}{2}$  gallons of sap from the maple trees. Cristina collected  $1\frac{3}{4}$  gallons. Matt collected  $5\frac{3}{5}$  gallons. By how much did they beat their goal?

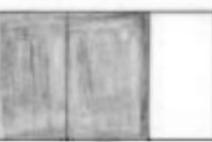
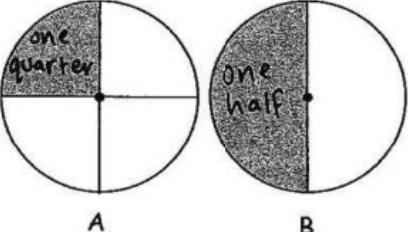
goal:  $3\frac{1}{2}$  gal ?

$$1\frac{3}{4} + 5\frac{3}{5} - 3\frac{1}{2} = 3 + \left(\frac{3 \times 5}{4 \times 5}\right) + \left(\frac{3 \times 4}{5 \times 4}\right) - \left(\frac{1 \times 10}{2 \times 10}\right)$$
$$= 3 + \frac{15}{20} + \frac{12}{20} - \frac{10}{20} = 3\frac{17}{20}$$

collected:  $1\frac{3}{4}$  gal  $5\frac{3}{5}$  gal

Cristina and Matt beat their goal by  $3\frac{17}{20}$  gallons.

Grade	Overview	Sample Problem and Answer
4th Grade	The foundational ground work in Grade 4 addresses equivalence, fractions representing the same amount of area of a rectangle and the same point on the number line. Students build on their Grade 3 work with unit fractions as they explore fraction equivalence and extend this understanding to mixed numbers. This leads to the comparison of fractions and mixed numbers by representing both in a variety of models. Students also generalize and reason about relative fraction and mixed number sizes.	$\frac{2}{3} = \frac{2 \times 4}{3 \times 4} = \frac{8}{12}$ 
3rd Grade	Students extend and deepen Grade 2 practice with equal shares to understanding fractions as equal partitions of a whole. Their knowledge becomes more formal as they work with area models and the number line. Students work with fractional units of halves, thirds, fourths, sixths, and eighths, and experience units such as fifths, ninths, and tenths.	

<p>2nd Grade</p> 	<p>As students compose and decompose shapes, they begin to develop an understanding of unit fractions as equal parts of a whole. Students decompose circles and rectangles into equal parts and describe them as halves (a half of), thirds (a third of), and fourths (a fourth of) or quarters. For example, students see that a circle can be partitioned into four quarter-circles, or parts, which can be described as fourths. They learn to describe the whole by the number of equal parts.</p>	<p>d. 2 fourths</p>  <p>e. 2 thirds</p>  <p>g. 3 fourths</p>  <p>h. 3 thirds</p> 
<p>1st Grade</p> 	<p>Students combine shapes to create a new whole: a composite shape. Students see that another shape can be added to a composite shape so that the composite shape becomes part of an even larger whole. Students relate geometric figures to equal parts and name the parts as halves and fourths (or quarters). For example, students now see that a rectangle can be partitioned into two equal triangles (whole to part) and that the same triangles can be recomposed to form the original rectangle (part to whole). Students see that as they create more parts, decomposing the shares from halves to fourths, the parts get smaller.</p>	 <p>A      B</p> <p>Which shape has been cut into more equal parts? <u>A</u></p> <p>Which shape has larger equal parts? <u>B</u></p> <p>Which shape has smaller equal parts? <u>A</u></p>
<p>Kindergarten</p> 	<p>In these primary grades, students begin their fractional work through the lens of geometry and the composition and decomposition of flat shapes. "I put two triangles together to make a square." They then decompose shapes by covering part of a larger shape with a smaller shape and analyzing the remaining space.</p>	