



# FOURTH GRADE MATHEMATICS – Unit 3

Dear Parents,

During Unit 3, your children will extend their understanding of fraction equivalence and ordering. They will use visual fraction models to explore how the number and size of the parts differ between two fractions even though they are equivalent. Your children will recognize and generate equivalent fractions. They will compare two fractions with different numerators and different denominators by creating common denominators or numerators, or by comparing them to a benchmark fraction such as  $\frac{1}{2}$  or 1 whole. Your children will use the symbols  $>$ ,  $=$ , and  $<$  to record their comparison and use visual fraction models to justify their conclusions. They will extend their understanding of addition as putting together when they see the way fractions are built from unit fractions. Your children will decompose and compose fractions with the same denominator, and add and subtract fractions with the same denominator. They will convert an improper fraction to a mixed number by decomposing the fraction into a sum of a whole number and a number less than 1.

## DECOMPOSING AND COMPOSING FRACTIONS/ FRACTION EQUIVALENCE AND COMPARISON

### Students need to:

- Understand a fraction  $a/b$  with  $a > 1$  as a sum of fractions  $1/b$ .
- Understand addition and subtraction of fractions as joining and separating parts referring to the same whole.
- 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, e.g., by using a visual fraction model. Examples:  $3/8 = 1/8 + 1/8 + 1/8$ ;  $3/8 = 1/8 + 2/8$ ;  $2 1/8 = 1 + 1 + 1/8 = 8/8 + 8/8 + 1/8$ .
- Explain why a fraction  $a/b$  is equivalent to a fraction  $(n \times a)/(n \times b)$  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.
- Compare two fractions with different numerators and different denominators, e.g. by creating common denominators or numerators, or by comparing to a benchmark fraction such as  $\frac{1}{2}$ . Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols  $>$ ,  $=$ , or  $<$  and justify the conclusions, e.g. by using a visual fraction model.

### KEY VOCABULARY

Compare	Halves	Sixths
Denominator	Improper fraction	Tenths
Eighths	Interval	Thirds
Equivalent	Mixed number	Unit fraction
Fourths	Numerator	Unit interval
Fraction		

## WAYS PARENTS CAN HELP

- Fold a piece of paper into halves, and then into halves again with your child. Open it up to show the division of fourths. Fold the paper again into fourths then make another fold to show eighths. Shade in portions of the paper and talk about the different (equivalent) fractions that can be named by the shaded and not shaded portions of the paper. For example, you shade  $4/8$ , which is also  $2/4$  and  $\frac{1}{2}$ . This can also be done by folding fractions other than eighths.
- Involve your child in cooking activities. Have them select the appropriate measuring spoons and cups for the recipe. If ingredients need to be doubled or halved, ask them to figure out what the new quantity would be for the recipe.
- Also experiment with decomposing a measurement fraction by using the unit fraction multiple times to get the needed amount. For example, if  $\frac{3}{4}$  of a cup is needed measure  $\frac{1}{4}$  of a cup three times and talk with your child about the equation that would match the decomposition  $\frac{3}{4} = \frac{1}{4} + \frac{1}{4} + \frac{1}{4}$ .

## BACKGROUND INFORMATION AND EXAMPLES FOR PARENTS

Carroll County Public Schools' Strategy Videos for Parents

<http://video.carrollk12.org/ElementaryMath/Grade4>

Explain why a fraction  $a/b$  is equivalent to a fraction  $(n \times a)/(n \times b)$  by using visual fraction models...

<http://video.carrollk12.org/view/MIKSAFRACTIONSNUMBERLINE>

<http://video.carrollk12.org/view/DORSEYSHOWINGEQUIVFRACTIONSWITHDRAWINGS>

<http://video.carrollk12.org/view/PICATAGGIUSINGVISUALMODELSTOSHOWEQUIVFRACTIONS>

Unit Fractions

<http://video.carrollk12.org/view/UNITFRACTIONSONANUMBERLINE>

<http://video.carrollk12.org/view/DORSEYINTROTOUNITFRACTIONS>