



# FOURTH GRADE MATHEMATICS – Unit 4

Dear Parents,

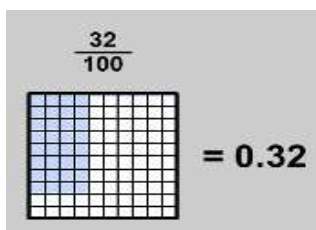
During Unit 4, your child will build upon his knowledge of fractions and the base-ten system to develop an understanding of decimals to the hundredths place. The relationship between fractions and decimals is formed using visuals including area models, grids, and number lines and is used to develop students' understanding that decimals (like fractions) can be used to name values less than 1 or values between whole numbers. Additionally, your child will utilize whole number patterns in the base-ten system and extend them to the right of the ones place with decimals.

Fourth graders will apply their understanding of equivalent fractions and decimals in order to understand relative size and to compare/order and add/subtract decimals. They will make connections between adding/subtracting fractions as they apply these concepts to word problems and line plots involving measurement data. They will add and subtract fractions with the same denominator and 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. Throughout this unit, students will build a deep number sense of fraction and decimal numbers.

## ADDITION/SUBTRACTION WITH FRACTIONS AND DECIMAL FRACTIONS

### Students need to:

- Add and subtract mixed numbers with like denominators, e.g., by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction.
- Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using visual fraction models and equations to represent the problem.
- Make a line plot to display a data set of measurements in fractions of a unit ( $1/2$ ,  $1/4$ ,  $1/8$ ). Solve problems involving addition and subtraction of fractions by using information presented in line plots.
- Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100. For example, express  $3/10$  as  $30/100$  and add  $3/10 + 4/100 = 34/100$
- Use decimal notation for fractions with denominators 10 or 100. For example, rewrite  $0.62$  as  $62/100$ ; describe a length as  $0.62$  meters; locate  $0.62$  on a number line diagram.
- Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols  $>$ ,  $=$ , or  $<$ , and justify the conclusions, e.g., by using a visual model.



## WAYS PARENTS CAN HELP

- **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.
- **Dollars and cents provide a real-world example of decimal numbers.** Have your child count a handful of coins. Relate the number of 10-cent equivalents to tenths of a dollar and the number of cents to hundredths of a dollar. Ask your child what the fraction equivalent of the coins would be ... \$0.64 can be expressed as 6 dimes and 4 pennies or  $64/100$  of a dollar.
- **Statistics in baseball, basketball, swimming, and football provide a great opportunity to discuss decimal numbers and how they relate to sports' players' performance.** Have your child get active and do math, too, by taking ten basketball shots or baseball swings and counting how many baskets or hits are made. Express the results as a fraction and a decimal. Ex. Six shots made out of ten ...  $6/10$  or  $0.6$ .

BACKGROUND INFORMATION AND EXAMPLES FOR PARENTS  
Relationships between Fractions and Decimals  
<http://video.carrollk12.org/view/DORSEYRELATIONSHIPBETWEENFRACTIONSANDDECIMALS>

Decimals  
<http://video.carrollk12.org/view/MIKSAREPRESENTINGDECIMALS>

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

Adding Fractions  
<http://video.carrollk12.org/view/KEEGANADDITIONOFFRACTIONSWITHLIKE DENOMINATORS>

<http://video.carrollk12.org/view/KEEGANADDITIONOFFRACTIONSWITHLIKE DENOMINATORSWITHOUTEQUIV>

## KEY VOCABULARY

Compare	Equivalent Fraction	Mixed number	Tenths
Decimal	Fourths	Numerator	Thirds
Denominator	Halves	Line plot	Hundredths
Eighths	Improper fraction	Sixths	Unknown Value
	Interval		