

## Dear Family,

The next unit in your child's mathematics class this year is ***Bits and Pieces I: Understanding Fractions, Decimals, and Percents***. It is the first of three units to develop understanding of fractions, decimals, and percents. Computation with fractions, decimals and percents will be the focus of *Bits and Pieces II and III*.

### UNIT GOALS

*Bits and Pieces I* focuses on developing a deep understanding of rational numbers. In this unit, your child will learn the meanings of fractions, decimals, and percents, and will become comfortable moving among these three representations of rational numbers. Your child will work on problems that reflect different contexts and that involve writing, comparing, and ordering fractions and decimals.

This unit makes use of models, such as fraction strips, number lines, and grids. Skill with estimating and comparing is developed through a set of benchmark fractions and their decimal equivalents. Benchmark fractions are those that occur often in real-world situations. Some examples are  $\frac{1}{4}$ ,  $\frac{1}{3}$ ,  $\frac{1}{2}$ ,  $\frac{2}{3}$ ,  $\frac{3}{4}$ , and  $1\frac{1}{2}$ .

### HELPING WITH HOMEWORK

You can help with homework and encourage sound mathematical habits as your child studies this unit by asking questions such as:

- Why do we need to consider amounts that do not represent whole numbers?
- Why can there be different fraction names for the same quantity?
- How can you tell when two fractions are equivalent?
- How can we tell which of two fractions is greater?
- In what situations is a decimal name for a fractional quantity useful?
- How can we change a fractional name to the equivalent decimal or percent name?
- Why are fractions with a denominator of 100 useful?

In your child's notebook, you can find worked-out examples from problems done in class, notes on the unit's mathematics, and descriptions of the vocabulary words.

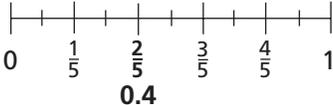
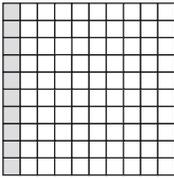
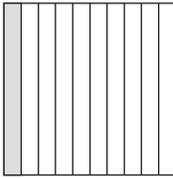
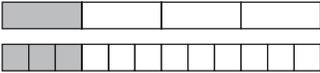
### HAVING CONVERSATIONS ABOUT THE MATHEMATICS IN *BITS AND PIECES I*

You can help your child with his or her work for this unit in several ways:

- With your child, find examples of how fractions, decimals, and percents are used in newspapers, magazines, radio, and television.
- Look over your child's homework and make sure all questions are answered and that explanations are clear.
- Have your child pick a question that was interesting to him or her and explain it to you.

A few important mathematical ideas that your child will learn in *Bits and Pieces I* are given on the back. As always, if you have any questions or concerns about this unit or your child's progress in class, please feel free to call.

Sincerely,

Important Concepts	Examples
<p><b>Fractions as Parts of a Whole</b> In the part-whole interpretation of fractions, students must:</p> <ul style="list-style-type: none"> <li>• determine what the whole is;</li> <li>• subdivide the whole into equal-size parts—not necessarily equal shape, but equal size;</li> <li>• recognize how many parts are needed to represent the situation; and</li> <li>• form the fraction by placing the parts needed over the number of parts into which the whole has been divided.</li> </ul>	<p>If there are 24 students in the class and 16 are girls, the part of the whole that is girls can be represented as <math>\frac{16}{24}</math>.</p>  <p>The shaded portion above can also be represented as <math>\frac{2}{3}</math>.</p>  <p>The <b>denominator</b> of 3 tells into how many equal-size parts the whole has been divided, and the <b>numerator</b> of 2 tells how many of the equal-size parts have been shaded.</p>
<p><b>Fractions as Measures or Quantities</b> In this interpretation, a fraction is thought of as a number.</p>	<p>A fraction can be a measurement that is “in between” two whole measures. Students meet this every day in such references as <math>2\frac{1}{2}</math> brownies, 11.5 million people, or <math>7\frac{1}{2}</math> inches.</p>
<p><b>Fractions as Indicated Divisions</b> To move with flexibility between fraction and decimal representations of rational numbers, students need to understand that fractions can be thought of as indicated divisions.</p>	<p>Sharing 36 apples among 6 people calls for division (<math>36 \div 6 = 6</math> apples each), so sharing 3 apples among 8 people calls for dividing 3 by 8 to find out how many each person receives (<math>\frac{3}{8}</math> of an apple).</p>
<p><b>Fractions as Decimals</b> Students need to understand decimals in two ways: as special fractions with denominators of 10 and powers of 10, and as a natural extension of the place-value system for representing quantities less than 1.</p>	<p>For the fraction <math>\frac{2}{5}</math>, for example, we can find the decimal representation by rewriting as the equivalent fraction <math>\frac{4}{10}</math> or by dividing 2 by 5. This uses the division interpretation of fractions to find the decimal representation of the same quantity.</p> <p><math>\frac{2}{5} = 2 \div 5 = 0.4</math></p> 
<p><b>Fractions as Percents</b> This builds the connection between and among fractions, decimals, and percents. Percents are introduced as special names for hundredths, <math>\frac{1}{100}</math>.</p>	<p>Ten percent, 10%, is simply another way to represent 0.10 or 0.1, which is another way to represent <math>\frac{10}{100}</math> or <math>\frac{1}{10}</math>.</p>  <p><math>\frac{10}{100}</math> or 0.10</p>  <p><math>\frac{1}{10}</math> or 0.1</p>
<p><b>Equivalent Fractions</b> Partitioning and then partitioning again is an important skill that contributes to understanding equivalence. Equivalent fractions have the same value.</p>	<p>If a bar is marked into fourths (the first partition) and then each fourth is marked into thirds (the second partition), each original fourth has three parts (or three-twelfths) in it. This one-fourth is equivalent to three-twelfths. <math>\frac{1}{4} = \frac{1 \times 3}{4 \times 3} = \frac{3}{12}</math></p> 

On the **CMP Parent Web Site**, you can learn more about the mathematical goals of each unit, see an illustrated vocabulary list, and examine solutions of selected ACE problems. <http://PHSchool.com/cmp2parents>