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NOTE TO PARENTS

Although this book has been specifically designed to be used by classroom teachers for teaching fractions, the materials are extremely helpful when used by parents and children at home.

If you have purchased this book to use at home with your child, I recommend that all of the fill-in-the-blank pages be inserted into vinyl page protectors and worked with a dry-erase overhead transparency marker. The page protectors can be washed and the page can be reused. Put all the page protectors and worksheets into a vinyl, two-pocket binder. The pen, flash cards and other materials can be kept in the binder pockets, thus creating a handy, portable math kit.

I think you will find that these methods work extremely well both at home and in the classroom. It's a book you can count on!

LESSON PLAN 1

INTRODUCTION: Although your students have probably worked with fractions in the past, spend a few minutes explaining the idea of a fraction. Here's why.

1. Some students may have completely missed fractions in the past due to changing schools or being sick.

2. Some students may have forgotten what was said earlier about fractions.

3. Some students may have done problems with fractions automatically and not understood what they were doing. When that is the case, students quickly forget which method to use with addition and which one to use with multiplication. With each year of life, students are more capable of understanding concepts, and it is important to repeat explanations from time to time.

THE IDEA OF A FRACTION: A fraction is a way of writing a number. A fraction means to divide. It shows part of an object or part of a group of objects.

Students already know several ways of writing numbers. Ask your class how many different ways they can think of to write the number one. We have the word *one*, the numeral 1, the Roman numeral *I*, and we can draw one object to represent the number one. We could do the same with the number 10, the number 5000 and so on.

Sometimes we take an object (like an apple pie) and cut it into equal pieces, and we need a way to talk about one of the pieces. It we cut it into 4 pieces, we write the fraction $^1/_4$. Show the class the fraction $^1/_4$ and tell them the 4 below the line means we cut it into 4 equal pieces, and the 1 above the line means we are talking about one of the pieces. Draw a circle on the board and divide it into fourths. Explain the fraction $^2/_4$, the fraction $^3/_4$ and the fraction $^4/_4$. Then draw another circle and demonstrate the fraction $^1/_3$, the fraction $^2/_3$ and the fraction $^3/_3$. Be sure they know the pieces must be the same size. The number above the line is called the numerator, and the number below the line is called the denominator.

RULE: A fraction is a number which shows that something has been divided. It has a numerator above the line and a denominator below the line.

PRACTICAL USES: Have students think of two or three ways that people might use fractions in their jobs or their homes. (Recipes, measuring wood for a building project, cutting fabric, sharing a candy bar, getting the right wrench to fix a bike, etc.)

LESSON PLAN 1

WALL CHART: Post the Numerator-Denominator Wall Chart A (page 13) in the classroom. Enlarge and laminate if you wish. The term *denominator* will be very important in a few days when students need to find common denominators for addition of fractions. For now, they will have a little practice in finding denominators on a worksheet.

OPTIONAL: You might want to run off a Numerator-Denominator Wall Chart for each student to take home and study or have them make their own on an index card or piece of construction paper. If so, you should also send home Parents' Note 1 (page 11). You could require students to learn to spell both terms. They are easy to learn–both are spelled phonetically:

$$\frac{\text{NU-MER-A-TOR}}{\text{DE-NOM-I-NA-TOR}}$$
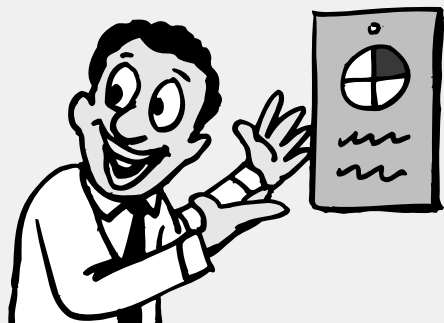
FOLDERS: Be sure each student buys or makes a folder to keep all *Math Phonics*™ materials organized. (See page 7.)

HOMEWORK: Assign Worksheet A (page 12). You may explain the Challenge section of the worksheet if you wish. However, students should be able to figure it out on their own. When you check Worksheet A, be sure to discuss what students have learned about how fractions are used by adults. Students are much more motivated to learn if they believe what they are learning is important.

NOTE: When checking Worksheet B (page 14), mention to students that 1. a. and 1. b. show $\frac{1}{3}$ and $\frac{2}{6}$. Though they are different fractions, they represent the same amount of a rectangle. They are called equivalent fractions, and we will work more with them later. Some math books refer to these fractions as **equal fractions**. If your students have been taught this as equal fractions, be sure they know both are correct.

OPTIONAL: If students need a little more time to understand the idea of a fraction, use Worksheet B. Challenge problems can be used as a regular part of the worksheet if needed. They are only slightly harder than the other problems.

WHAT IS A FRACTION?

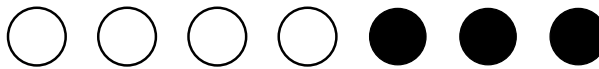**1.** Shade in the fraction that is named.

a. $1/4$
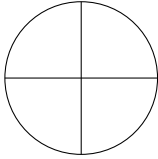
b. $2/3$
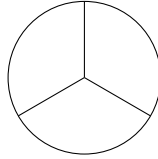
c. $6/6$
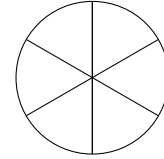
2. Circle the numerator. Draw an *X* on the denominator. $2/3$

3. Circle the fractions with the same denominator.

a. $1/2, 1/4, 3/4$

b. $9/10, 2/10, 2/5$

c. $2/3, 2/5, 1/3$

d. $1/5, 3/5, 3/4$

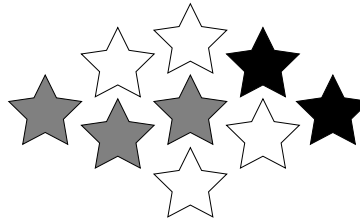4. Three of these seven marbles are black. We say $3/7$ are black. What fraction tells how many marbles are white? _____

5. Write the fraction for

a. black stars _____

b. white stars _____

c. gray stars _____

6. On the back, write at least five ways that adults use fractions at work or home. Ask your parents or other adults for ideas.

## CHALLENGE:

1. Look at the stars in 5. Write the fraction for

a. stars that are not white _____

b. stars that are not black _____

c. stars that are not gray _____

2. Your mom says that you may have $1/6$ of the pizza. Draw a picture on the back of $1/6$ of a pizza.

3. You have $1/3$ of a giant-sized candy bar. Four people want to share that third. What fractional part of the whole candy bar would each person get? _____ Draw a picture on the back to help solve this.
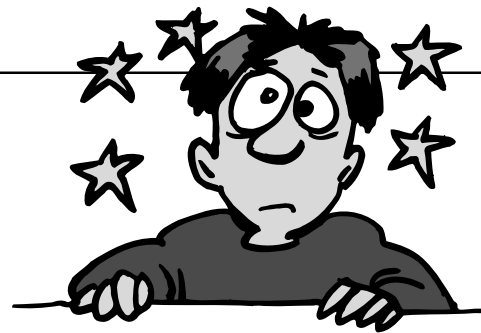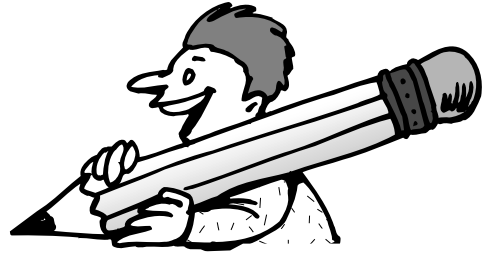
EQUIVALENT FRACTIONS

Directions: Write the multiples of these numbers.

3s: 3, 6, ___, ___, ___, ___, ___, ___, ___, ___

6s: 6, 12, ___, ___, ___, ___, ___, ___, ___, ___

7s: 7, 14, ___, ___, ___, ___, ___, ___, ___, ___

8s: 8, 16, ___, ___, ___, ___, ___, ___, ___, ___

Directions: Find the equivalent fractions.

1. $\frac{5}{6}\frac{\times 7}{\times 7}$ = ___

2. $\frac{7}{8}\frac{\times 9}{\times 9}$ = ___

3. $\frac{5}{7}\frac{\times 7}{\times 7}$ = ___

4. $\frac{8}{9}\frac{\times 9}{\times 9}$ = ___

5. $\frac{6}{7}\frac{\times 8}{\times 8}$ = ___

6. $\frac{9}{11}\frac{\times 5}{\times 5}$ = ___

Directions: Find the missing numerators.

7. $\frac{3}{4} = \frac{\ }{24}$

8. $\frac{7}{8} = \frac{\ }{56}$

9. $\frac{9}{10} = \frac{\ }{70}$

10. $\frac{5}{6} = \frac{\ }{42}$

11. $\frac{6}{7} = \frac{\ }{63}$

12. $\frac{5}{9} = \frac{\ }{54}$

Review

Watch the signs.

13. $\frac{17}{27}$
    $-\frac{9}{27}$

14. $\frac{21}{24}$
    $-\frac{7}{24}$

15. $\frac{25}{30}$
    $-\frac{18}{30}$

16. $\frac{37}{25}$
    $-\frac{19}{25}$

17. $\frac{23}{50}$
    $+\frac{8}{50}$

18. 4/15 of your class is sick. 3/15 of your class is late. The rest are in their seats. What fraction of the students are in their seats? _____

19. You have three quarters, one dime, one nickel and two pennies. What fraction of a dollar do you have? _____

CHALLENGE:

You have 4/5 of a dollar. Your friend has 75¢. Who has more money? _____ How much more? _____

Name _____

COMMON DENOMINATORS

Directions: Add. Find the common denominators. Use the larger denominator as the common denominator. Reduce if you can.

1. $\frac{1}{2} \frac{\times 2}{\times 2} = \frac{}{4}$

    $+ \frac{1}{4} = \frac{}{4}$

2. $\frac{3}{4} = $ ___

    $+ \frac{7}{8} = $ ___

3. $\frac{1}{2} = $ ___

    $+ \frac{1}{6} = $ ___

4. $\frac{2}{5} = $ ___

    $+ \frac{1}{10} = $ ___

5. $\frac{2}{3} = $ ___

    $+ \frac{1}{6} = $ ___

6. $\frac{4}{5} = $ ___

    $+ \frac{1}{10} = $ ___

7. $\frac{1}{8} = $ ___

    $+ \frac{3}{16} = $ ___

8. $\frac{3}{4} = $ ___

    $+ \frac{1}{12} = $ ___

Directions: Subtract. Use the larger denominator as the common denominator. Reduce if you can.

9. $\frac{1}{2} = $ ___

    $- \frac{1}{8} = $ ___

10. $\frac{3}{4} = $ ___

    $- \frac{3}{8} = $ ___

11. $\frac{2}{3} = $ ___

    $- \frac{1}{6} = $ ___

12. $\frac{3}{5} = $ ___

    $- \frac{1}{10} = $ ___

13. $\frac{2}{3} = $ ___

    $- \frac{1}{12} = $ ___

14. $\frac{5}{6} = $ ___

    $- \frac{1}{3} = $ ___

15. $\frac{5}{16} = $ ___

    $- \frac{1}{8} = $ ___

16. $\frac{3}{5} = $ ___

    $- \frac{2}{25} = $ ___

Directions: Add or subtract. Multiply denominators to find the common denominator. Reduce if you can.

17. $\frac{1}{3} = $ ___

    $+ \frac{1}{4} = $ ___

18. $\frac{1}{3} = $ ___

    $- \frac{1}{4} = $ ___

19. $\frac{2}{5} = $ ___

    $- \frac{1}{4} = $ ___

20. $\frac{2}{3} = $ ___

    $- \frac{1}{5} = $ ___

21. $\frac{2}{3} = $ ___

    $+ \frac{1}{2} = $ ___

22. $\frac{4}{5} = $ ___

    $- \frac{1}{4} = $ ___

23. $\frac{1}{5} = $ ___

    $+ \frac{1}{6} = $ ___

24. $\frac{1}{6} = $ ___

    $+ \frac{1}{7} = $ ___

CHALLENGE:

Your snack mix calls for ½ cup raisins, ⅔ cup nuts and ¼ cup chocolate chips. What is the total of these three items? _____