Equivalent Fractions

Grade Level: 3-5

OVERVIEW Most students will benefit from the use of physical objects when they are introduced to the concept of equivalent fractions. This activity was designed to show the students that the notion of several names for a number is similar to the notion of several names for a person. One of them is the "given name". In the same way that we refer to "Rebecca Smith, alias Becky Smith", we can refer to " alias ".

OBJECTIVES Students will be able to:
1. Write a fraction to tell what part of a region is shaded.
2. Name the numerator and denominator of a fraction.
3. Identify equivalent fractions.

RESOURCES/MATERIALS *Teacher:* rectangular pieces of paper, chalkboard, chalk *Student:* crayons, a pencil, or chalk

ACTIVITIES AND PROCEDURES

1. Provide each student with or ask each student to bring a piece of rectangular paper. Fold the paper in half. After you have folded the paper in half, instruct the students to do the same. Explain that a fraction is a part of a whole. You have divided a whole piece of paper into two equal parts. Instruct the students to color one of the two equal parts. Ask a student to write on the board to show that one out of the two equal parts is now shaded. Introduce the vocabulary words numerator and denominator. The numerator is the number of parts shaded and the denominator is the total number of equal parts. (For those students who have difficulty remembering which is the numerator and which is the denominator, try this memory association technique----In a fraction, one number is UP above the line and one is DOWN below the line. Numerator has a "u" in it and so does up; denominator begins with "d" and so does down.)

2. Repeat the same activity with pieces of paper, demonstrating , , , , . Each time, a student should write the fraction on the board and identify the numerator and the denominator. If you prefer, project a rectangle on the overhead projector and divide the rectangle into the same fractions as those in the paper-folding demonstration.

3. Equivalent Fractions Ask students to fold a rectangular sheet of paper in half and color one of the two equal parts. Ask what fraction of the paper is colored ( ). Now have them refold the same paper and then fold it in half once again. Unfold. How many equal parts now? (4) What fraction is shaded (or) Since the amount of shading has not changed, this means that = . Tell students that and are two names for the same amount. Therefore, they are equivalent. Now have students refold the papers and then

fold in half a third time. Unfold. What new fraction have they found that is equivalent to and ? ( ). These three fractions name the same amount.

TYING IT ALL TOGETHER: Once students have a firm understanding of equivalent fractions, they will be ready to find "another name" for a fraction by multiplying or dividing the numerator and denominator by the same (nonzero) number. This emphasis on equivalent fractions will pay dividends when you begin teaching addition and subtraction of fractions with unlike denominators.

SUGGESTIONS/MODIFICATIONS

- The teacher may make one model and hold it up in front of the class if there is not enough paper to be distributed throughout.
- The teacher may use the students to represent fractions , for instance by putting one student at the front of the classroom and telling the class that that student is 1 out of the entire class (supposing the class was 50 students) then the student represents 1/50th of the class. To help explain the denominator, tell the students that even though the student is in front of the class, he is still part of the class, therefore the denominator remains 50.

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