Algebra/Geometry Institute Summer 2005

Lesson Plan Three: Multiplying Fractions

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School: Melissa Manning
Grade Level: 5th

1   Teaching objective(s)

    1. The teacher will introduce the concept of multiplying fractions.
    2. The student will multiply a fraction by a fraction using arrays.

2   Instructional Activities

The teacher will introduce the lesson by reviewing fractions and passing out manipulatives needed to complete the anticipatory set. Model the example: $\frac{3}{4}x\frac{2}{3}$ Have children fold the paper (hotdog style) into 4ths. Unfold and color in 3 of the 4 sections,$(\frac{3}{4}x\frac{2}{3})$.
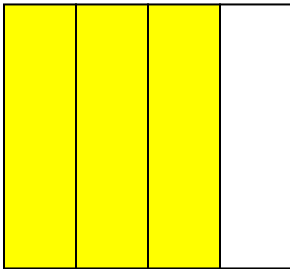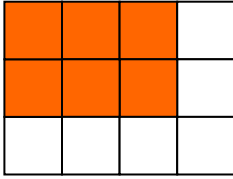

Fold the same paper the other direction (hamburger style) into 3rds. Unfold and color in (on the same side) 2 of the 3 sections, $(\frac{2}{3}rds)$.


This graphic only represents the additional folds and coloring. Because parts have already been folded and colored, the next graphic is the actual representation of your final product.

You should have a grid of 12 sections. The sections that have overlapping colors (represented by the orange squares in the graphic) are the answer to your problem. **(answer is 6/12)**

(30 min.)

Then say, "Today we will be multiplying a fraction by a fraction." Write 4x3 on the dry erase board, and have students make a 4x3 rectangle. Discuss with students that they have three rows *of* four. Repeat with 2x4, emphasizing two rows *of* four. Help them see they can use "of" for the multiplication sign. Have students look at the 4x3 rectangle they made. Tell students this will represent one pound. Marvin had 1/3 lb. of apples and ate 1/4 of what he had.
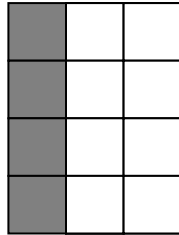
$$\frac{1}{3}$$

We want 1/4 of 1/3. Ask: How can we show this? Students respond: Shade 1/4. They do this:
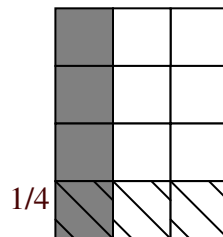
$$\frac{1}{3}$$

How many parts do we show that are the same size as the double-shaded square? (12) What is 1/4 of 1/3? Answer: 1/4x 1/3 = 1\12

Repeat with other rectangles, continuing to add to the list of results on the board. Discuss the findings and have students look for a pattern that will work for all cases. Have students write the problem and the solution by each rectangle. Help students draw the conclusion that to multiply fractions, multiply their numerators and multiply their denominators. **(20 min.)**

3   Materials and Resources

Paper
Crayons
 Dry erase board
 Dry erase markers
 Cubes
 Workbook: Addison-Wesley Publishing Company, Using Manipulatives in the Classroom: Copyright 1998
http://www.teacherlink.org/content/math/activities/
www.aaamath.com

4   Assessment

♦   As students are working, the teacher will walk around the room and observe the students. I will be looking for: students understanding the concept, and all students participating.
♦   Folded paper exercise will be taken up and evaluated based on completion of the activity.
♦   The concept covered will be on chapter test.
♦   **For additional practice, the students will go to the Computer Lab at Melissa Manning Elementary School and receive practice on Multiplying Fractions on the following site**: **(A Computer Lab teacher is in the lab at all times)** www.aaamath.com