Unit 3a-Apply Understanding Of Multiplication To Multiply Fractions

Content Area: **Math**
Course(s): **Math 5**
Time Period: **Marking Period 3**
Length: **MP3 Topic 8 8-1 to 8-9**
Status: **Published**

Essential Questions

- What does it mean to multiply whole numbers and fractions?
- How can multiplication with whole numbers and fractions be shown using models and symbols?

Big Ideas

- **Multiply Fractions:** Students will use models to develop conceptual understanding of multiplying a whole number by a fraction and a fraction by a whole number. These lessons lay the foundation for using symbolic computations to multiply fractions and whole numbers. Students will use models to develop conceptual understanding of multiplying two fractions, which is developed symbolically and extended to find area.
- **Multiply of Mixed Numbers:** The understanding of multiplication with fractions is extended to multiplying with mixed numbers. Students will change mixed numbers to fractions, and see that finding the product is the same as multiplying two fractions.
- **Scaling:** Students will explore the effects of multiplying a given number by a number less than 1 as opposed to a number greater than 1. Students will incorporate the understanding about fraction multiplication.
- **Problems Involving Fractions and Mixed Numbers:** Students apply their knowledge of fraction multiplication to solve problems.

CRLLKS- Career Education

9.2.5.CAP.1: Evaluate personal likes and dislikes and identify careers that might be suited to personal likes.

9.2.5.CAP.3: Identify qualifications needed to pursue traditional and non-traditional careers and occupations.

9.2.5.CAP.4: Explain the reasons why some jobs and careers require specific training, skills, and certification (e.g., life guards, child care, medicine, education) and examples of these requirements.

Connection:
Create problems with fractions such as an accountant dividing up paperwork. During the debrief of the problem ask questions about why the students think he/she used the situations presented.

Diversity Integration

Race and Ethnicity

Objective: Students will be able to modify recipes from different countries by multiplying fractions.

Description of Activity: Students will pick one recipe from their heritage. They will halve and double their recipes. Then, students will compare the new recipes to the original recipe. To determine what happens to the values of each ingredient when they are multiplied by a fraction and a whole number.

Diversity Integration

Objective:

Students will be able to multiply whole numbers by fractions to provide them with clues about the Civil Rights movement.

Procedure:

1. Students will review multiplying whole numbers by decimals in a mini-lesson.
2. Students will work on the person, place, or thing worksheets. As the students answer the math problems clues will be revealed for different Civil Rights Movements.
3. Students will share a fact that they learned about the Civil Rights Movement.

Enduring Understandings

Number and Operations—Fractions

5.NF.B.4 [M] Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.

5.NF.B.4a[M] Interpret the product (a/b) × q as a parts of a partition of q into b equal parts; equivalently, as the result of a sequence of operations a × q ÷ b. For example, use a visual fraction model to show (⅔) X 4 = 8/3, and create a story context for this equation. Do the same with (⅔) X (⅘) = 8/15. (In general, (a/b) X (c/d)

= (ab/cd).

5.NF.B.4b[M] Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths, and show that the area is the same as would be found by multiplying the side lengths. Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas.

5.NF.B.5 [M] Interpret multiplication as scaling (resizing)

5.NF.B.5a[M] Comparing the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication.

5.NF.B.5b[M] Explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number (recognizing multiplication by whole numbers greater than 1 as a familiar case); explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number; and relating the principle of fraction equivalence a/b = (n × a)/(n × b) to the effect of multiplying a/b by 1.

5.NF.B.6[M] Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem.

Mathematical Practices Focus

1. Make sense of problems and persevere in solving them.