Unit Map 2012-2013

Monroe #2 - Orleans BOCES (Regional Collaboration)

Collaboration / Math 5* / Grade 5 (Math Regional Curriculum)

Wednesday, October 31, 2012, 11:18AM

Standard/Module: Proficiency in Fractions 5.NF.6 (Week 21, 6 Weeks)

Stage 1: Desired Results

Standards Focus

- Major (70%) Connects to 5.NF.3, 5.NF.4, 5.NF.5, and 5.NF.7

5th Grade Map.pdf

Standards

NYS: CCLS:Mathematics, NYS: 5th Grade , Number & Operations—Fractions
5.NF Apply and extend previous understandings of multiplication and division to multiply and divide fractions.

- 6. Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem.

Enduring Understandings

1. The product of a whole number and a fraction can be interpreted in different ways.
2. Some problems can be solved by first finding and solving a sub-problem and then using that answer to solve the original problem.
3. In a multi-step problem, the result of one computation is used in a subsequent computation.
4. Reasonableness is vital during problem solving.

Essential Questions

1. Why do we change mixed numbers to improper fractions before multiplying?
2. What are the four steps to solving a multi-step problem?
3. How do we use the result of one computation to solve another part of a problem?
4. Why should we check our answers for reasonableness?

Critical Content

Fractions

-equivalence

-simplify

-mixed numbers/improper fractions

-multiplication/division of

-visual models

-equations

Problem Solving

-4-step process for multi-step:

Understand, Plan, Solve, Look Back

Skills	Vocabulary
1. Students must be able to multiply two fractions. 2. Students must be able to simplify fractions. 3. Students must be able to multiply mixed numbers. 4. Students must be able to convert mixed numbers to improper fractions. 5. Students must be able to solve problems with hidden questions. 6. Students must be able to write an arithmetic expression.	Tier 2- multi-step, represent, reasonableness Tier 3- equivalent, sub-problem

Stage 2: Assessment Evidence

Assessments

Multiplying Fractions in Context
Formative: Test: Written

Students solve problems that involve writing and solving multiplication of fractions and mixed numbers. Students must justify their answers with appropriate drawings or other visual models and equations.

Stage 3: Learning Plan

Learning Activities	Resources
This standard builds on all of the work done in this cluster. **Students should be given ample opportunities to use various strategies to solve word problems involving the multiplication of a fraction by a mixed number.** This standard could include fraction by a fraction, fraction by a mixed number or mixed number by a mixed number. **Example:** There are 2 ½ bus loads of students standing in the parking lot. The students are getting ready to go on a field trip. 2/5 of the students on each bus are girls. How many busses would it take to carry ***only*** the	www.illustrativemathematics.org www.illuminations.nctm.org

girls? **-Student 1** I drew 3 grids and 1 grid represents 1 bus. I cut the third grid in half and I marked out the right half of the third grid, leaving 2 ½ grids. I then cut each grid into fifths, and shaded two-fifths of each grid to represent the number of girls. When I added up the shaded pieces, 2/5 of the 1st and 2nd bus were both shaded, and 1/5 of the last bus was shaded. **-Student 2** 2 ½ x 2/5= I split the 2 ½ into 2 and ½ 2 x 2/5 = 4/5 ½ x 2/5 = 2/10 I then added 4/5 and 2/10. That equals 1 whole bus load. **Example:** Evan bought 6 roses for his mother. 2/3 of them were red. How many red roses were there? -Using a visual, a student divides the 6 roses into 3 groups and counts how many are in 2 of the 3 groups. -A student can use an equation to solve: 2/3 x 6 = 4 red roses	

Example: Mary and Joe determined that the dimensions of their school flag needed to be 1 1/3 ft. by 2 1/4 ft. What will be the area of the school flag? -A student can draw an array to find this product and can also use his or her understanding of decomposing numbers to explain the multiplication.	

Differentiation Opportunities

Encourage students to use models or drawings to multiply or divide with fractions.

Begin with students modeling multiplication and division with whole numbers. Have

them explain how they used the model or drawing to arrive at the solution.

Models to consider when multiplying or dividing fractions include, but are not limited to: area models using rectangles or squares, fraction strips/bars and sets of counters.

Use calculators or models to explain what happens to the result of multiplying a whole

number by a fraction (3 × 12 , 4 × 12 , 5 × 12 …and 4 ×12 , 4 × 13 , 4 × 14 ,…) and

when multiplying a fraction by a number greater than 1.

Present problem situations and have students use models and equations to solve the

problem. It is important for students to develop understanding of multiplication and

division of fractions through contextual situations.

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