

MULTIPLICATION OF FRACTIONS BY FRACTIONS

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Subject

Mathematics

Prepared By

[Instructor Name]

Grade Level

5

Overview

This lesson plan covers teaching content for;

1. Solving problems involving multiplication of fractions by fractions.

Objectives

Students should be able to;

1. Understand some of the concepts associated with multiplying fractions
2. Interpret the product of fractions and a fraction.
3. Solve problems involving multiplication of fractions by fractions.

Activity Starter/Instruction

1. Tell pupils that there are three simple steps they need to follow when learning how to multiply fractions.
 - i. Multiply the numerators (top numbers)
 - ii. Multiply the denominators (bottom numbers)
 - iii. If needed, simplify or reduce the fraction
2. Tell pupils that unlike adding fractions, you can multiply two fractions with different denominators.
3. $2/6 \times 9/16$

Step 1. Multiply the top numbers:
 $2/6 \times 9/16 = 2 \times 9 = 18$

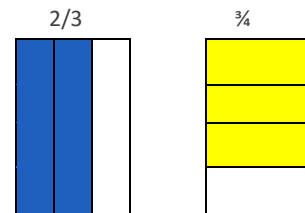
Step 2. Multiply the bottom numbers:
 $2/6 \times 9/16 = 2 \times 9 = 18$
 $6 \times 16 = 96$

Step 3. Simplify the fraction:
 $18/96 = 6/32 = 3/16$

Teacher Guide

Day 1/ Lesson 1: 15 Mins

1. The area model effectively illustrates what one fraction times (or "of") another looks like.
2. Draw the fractions you're multiplying in separate boxes, each using a different color.
3. Combine the drawings into one box, using a new color for the parts that overlap
4. To write the product, ask yourself two questions:
 - i. How many boxes have both colors? This will be your numerator.
 - ii. How many boxes are there in total? This will be your denominator.
5. Teacher illustrates with $2/3 \times 3/4$



Combine the drawings

Materials Required

- Deck of fraction cards
- White board
- Marker (different shade)
- Sheet of paper
- Deck of card

Additional Resources

- <https://lessonplanspage.com/mathmultiplyingfraction.htm/>
- <https://www.moneyinstructor.com/lesson/multiplyingfractions/>
- <https://betterlesson.com/lesson/resource/2493515/niginius-fractions-brownie-pan-problem-docx>
- https://prezi.com/r7nt4fdsi_5z/lesson-plan-multiplying-fractions/
- https://mathsolutions.com/ms_classroom_lessons/introduction-to-multiplication-of-fractions/

Additional Notes

Guided Practice

Day 2/ Lesson 2: 15Mins

1. Split pupils into groups of four. Next, they'll divide themselves in teams of two, one being Player A and the other Player B.
2. Give each group a deck of shuffled cards (aces = 1, jacks = 10, queens = 11, and kings = 12).
3. Each pupil will draw a numerator card (above a pencil) and a denominator card (below the pencil).
4. Both Player A's will rewrite and multiply the fractions on paper, then simplify the product if possible.
5. Once they've answered, Player B's will do the exact same thing.
6. Have pupils hand in their answer sheets after the activity for you to mark, or go through 10+ questions together as a class.

Guided Practice

Day 3/ Lesson 3: 20Mins

1. Engage your pupils in a card game "War".
Sitting side by side, each pupil will have half a deck of fraction cards.
2. With their pile of cards facedown, each student will draw a card at the same time.
3. The pupil who multiplies the two fractions correctly adds those cards to their deck.
4. A student wins if they end up with the entire deck of fraction cards in their hand, or they have majority of cards at the end.
5. Alternatively, teacher can run a version of this game allowing everyone to play against you.
6. Split your class into five groups. Go to the first group and have a one-question face off, before moving to the next group. The point of this version is not to answer before your pupils, but to help boost their mental math abilities.



6. Teacher ask pupils how many boxes have both colors? 6
How many boxes are there altogether? 12
7. $2/3 \times 3/4 = 6/12$ which can also be simplified to $1/2$

Guided Practice

Day 4/ Lesson 4: 15mins

1. Cut out ribbon- or triangle-shaped sheets of paper for each pupil. At the top, write "I can multiply..."
2. Below that, include: An area model illustrating the fractions they're multiplying.
3. The multiplication problem itself (with space to show their work)
4. A space at the bottom that reads "My product reduces to..."
5. Once every pupil has completed and decorated their fraction multiplication pennant, glue or tape them to a string!
6. Not only will this activity help enforce how to multiply fractions, but it'll give the pupils a confidence boost. It's their work up on the wall, a problem they solved, and everyone can see it.

Summary

1. Ask for volunteers to share their answers to the activities.
 2. As the problems are solved in front of the class, have the students check their answers for corrections.
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Assessment Activity

Assess if pupils can:

1. Multiply fractions by fractions correctly.
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3.

Assessment Activity

Pupils need to know that in multiplication of fractions, the denominators can be multiplied.
