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Lesson 1: Fractions of the whole

I. Prerequisite Knowledge and Skills

Students have had fractions in the past, but have limited knowledge of them. Students have worked in pairs.

II. New Learning

Students will use cuisenaire rods to learn how to combine different fractions to create the same whole.

III. Rationale

According to NCTM's 1989 standards, students need to "develop and use order relations for whole numbers and fractions." (p. 91) This lesson introduces students to relationships between fractions both with manipulatives and symbolically.

IV. Goals

a. Performance Objective: The student will use fraction journal to explain her/his discoveries about the relationships of fractions to each other and to the whole.

V. Materials

1. One set of cuisenaire rods for every two to three students.
2. Overhead projector.
3. Phileas Frog Fraction journals
 - * To make journals: Copy several copies of the fraction journal page for each student. Fold in half. Fold a construction paper cover around pages and staple along folded edge. Have students decorate the front of the journal.
4. Phileas Frog's Train ride

VI. Procedure

a. Opener

1. Divide students into pairs and pass out one set of rods per pair.
2. Ask students working in pairs to place a brown rod on the desk. If a brown rod is one, which color rod is one half the size of the brown rod (purple). Ask students how they know this. Record answers on overhead both verbally and symbolically.

Phileas' Pizza Fraction Game

Phileas has landed himself in trouble yet again. After spending the day viewing Michelangelo's statue of *David* and climbing the steps of the Duomo in Florence, Italy, Phileas worked up an appetite. Mystical Mavis found him enjoying some yummy fly filled ravioli. She quickly took a piece of spaghetti and wrapped up Phileas up like a frog mummy.

You find the following note from Mavis in your attempts to free Phileas from the enchanted spaghetti:

I HAVE FOILED PHILEAS FROG AGAIN! THE ENCHANTED SPAGHETTI WILL HOLD HIM UNTIL PIZZAS ARE MADE!

- MARIS *

Game Directions:

- Object: To be the first player to complete a whole pizza.
- Take turns rolling the fraction dice.
- Choose which fraction you want and place the marked piece in your pizza.
- Write the equation to make a whole in your fraction journal. Each time you add a piece add it to the equation as well.
- If a piece rolled is too large to fit in pizza, your turn is lost.
- The player to complete the whole first gets one point and everyone starts over with new equation.



Multiplication of Fractions

How-To:

1. Multiply the numerator by the numerator.
2. Multiply the denominator by the denominator.
3. Simplify.

Example:

- $1/3 \times 3/4 =$
-
-
-

Directions: Solve each problem below.

1. $1/4 \times 2/3 =$	2. $2/3 \times 1/6 =$	3. $3/4 \times 1/2 =$
4. $5/6 \times 1/2 =$	5. $1/3 \times 6/8 =$	6. $1/4 \times 3/2 =$
7. $5/8 \times 1/4 =$	8. $2/3 \times 1/8 =$	9. $4/3 \times 1/2 =$