Lesson 129

Objective
Students will divide fractions.

Preparation
For each student: Fraction Pieces I – III *(masters on pages M20 – M22).*

Lesson Plan
Write the following on the board:

$2 \div 1/4$

Ask students how this statement is read. (How many fourths are there in 2?) Have them determine the answer by modeling the problem with their pieces.

Next, explain that they will not always be able to draw pictures or have pieces to manipulate. Therefore, they will have to learn a new process to compute their answers. Write the following on the board:

$$2 \div \frac{1}{4} = 2 \times \frac{4}{1} = \frac{2}{1} \times \frac{4}{1} = \frac{8}{1} = 8$$

The process can be explained in the following steps:

$$2 \div \frac{1}{4} = \underbrace{\frac{2}{\frac{1}{4}}}_{\text{Step 1}} = \underbrace{\frac{\frac{2}{1}}{\frac{1}{4}}}_{\text{Step 2}} = \underbrace{\frac{\frac{2}{1} \times \frac{4}{1}}{\frac{1}{4} \times \frac{4}{1}}}_{\text{Step 3}} = \underbrace{\frac{\frac{8}{1}}{\frac{4}{4}}}_{\text{Step 4}} = \frac{8}{1} = 8$$

STEP 1 - Any division problem can be written as a fraction.

STEP 2 - Any whole number can be written as a fraction by making 1 the denominator.

STEP 3 - By multiplying the numerator and the denominator of a fraction by the same number, the value of the fraction will not change. In the example, the numerator and the denominator are multiplied by 4/1.

STEP 4 - By simplifying the numerator and the denominator of the product, 8/1 = 8 and 4/4 = 1.

Point out that the divisor (1/4) was inverted and multiplied by the original dividend. Not all students will understand this concept immediately, but the rationale behind the process will be discussed again in sixth grade.

If the students forget the process, they should write a simpler problem like the one above to help them remember whether to invert the divisor or the dividend.

Repeat this process in #1 – #5.

Let your students create a story for some of these division problems, similar to the story for #1. Show them how to check their work by multiplying the answer by the divisor to get the original dividend: 8 x 1/4 = 8/4 = 2

Stretch 129
Write an equation to solve the following problem.

Brad bought 4 books at $8.73 each and 3 pens at $2.17 each. The sales tax is $2.90. What is his change from a fifty-dollar bill?

Answer: $5.67
Change = $50.00 - ((4 x $8.73) + (3 x $2.17) + $2.90)