

Lesson 140

Objective

Students will add and subtract simple fractions and will show their addition and subtraction on a number line.

Preparation

For each student: copy of Fraction Pieces I and II, Number Line in Fractional Increments (*masters on pages M8 - M9 and M28*), scissors

For the class: half-sheet of paper labeled One Half

Lesson Plan

Group students in threes and have them cut out the fractional pieces. The three different ways the fractional pieces are labeled will help them understand the different ways fractions can be described. Each “whole” is the same size so the fractions can be compared.

Hold up your piece of paper, with “One Half” written on it. Ask the class how your paper labeled “One Half” compares to theirs. (*Yours is larger.*)

Ask them how both pieces can be labeled “One Half” even though they are different in size. (*Fractional parts have meaning in relation to the whole of which they are a part. For the problems the students will have, they can assume that the wholes are the same size.*)

The progression of the problems is to help the students move from the concrete representation to the more abstract.

As you go through #1 - #14, have the students model the problems with their

pieces. Have the students mark the top number line in $\frac{1}{4}$ -inch increments from 0 to 3, they can see that $2 = \frac{8}{4}$.

Show them how to represent #1 on the top number line using arrows, where the first arrow begins at 0 and ends at point B. The second arrow begins at point B and ends at the answer (2 or $\frac{8}{8}$).

Next have the students mark the middle number line in $\frac{1}{2}$ inch increments from 0 to $\frac{9}{2}$. Show them how to use arrows to show $\frac{6}{2} - \frac{1}{2} = \frac{5}{2}$.

Then have them use the same number line to represent #3 and the bottom number line to represent #9.

Stretch 140

Imagine 3 children want to cross a stream. Their raft can only carry 80 pounds. The children weigh 40, 80 and 40 pounds. How can they get across the stream?

Answer: The two who each weigh 40 pounds go across together. One of them returns and then the one weighing 80 pounds crosses. The other one who weighs 40 pounds goes back to the starting point. The other one who weighs 40 pounds hops on and they go back across together.