

SUBTRACTION

Step 1 Subtracting Fractions with Models

Purpose: Find the difference in shaded amounts using bars and number lines and write equations

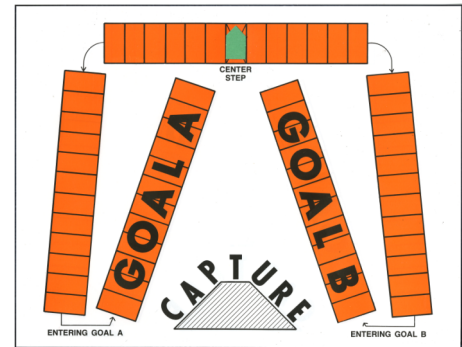
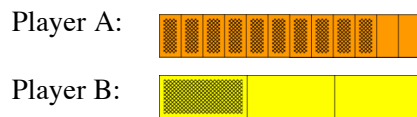
Materials: Capture mats, Fraction Bars, markers and students' "Fraction Number Line"

TEACHER MODELING/STUDENT COMMUNICATION

Activity 1 Finding the difference in shaded amounts of two bars

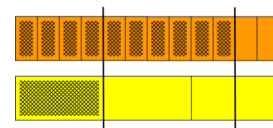
Capture mat
 Fraction Bars
 markers
 Transp #7

1. Pass out the Capture mats. Have students place one marker on the Center Step of the mat and find these two bars



- On this mat, Player A will move the marker toward GOAL A. How many steps can the marker be moved? (10) Move the marker 10 steps toward Goal A.
- Player B will move the marker back toward GOAL B. How many steps back will the marker be moved? (4) Move the marker 4 steps toward goal B.
- Which player's marker is closer to the goal and how many steps has the player gained for these two bars? (Player A's marker is closest to GOAL A and there has been a gain of 6 steps.)

Show the students they can also find the number of steps gained by comparing the shaded amounts of two bars. The bars show the difference is 6 steps.



- Turn the bars face down and each of you select one bar at the same time. Determine the number of steps for the difference in shaded amounts of your bars. (Ask for some examples and illustrate these.)

Repeat this activity and remind students to each select a bar at the same time and compare their bars to determine the difference in shaded amounts.

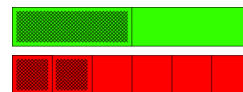
2. Optional: Students play Capture (page 103). Each pair of students will need a deck of bars, a Capture mat and a sack of markers.

Activity 2 Writing equations for differences using bars

Fraction
Bars

1. Show students and have them find these two bars.

- Which player will gain steps on the Capture mat and how many steps will be gained? (The player with the green bar will gain 2 steps)



$$\frac{1}{2} - \frac{2}{6} = \frac{1}{6}$$

Tell students the bars are a visual way to find the difference of two fractions. Write the subtraction equation for the difference of $\frac{1}{2}$ and $\frac{2}{6}$.

2. Ask students to turn their bars face down, select two bars, find the difference in shaded amounts, and write an equation for the difference of the fractions for the bars. Ask a few volunteers to describe their bars and equations. Capture mats may be helpful for finding differences. Repeat this activity as time permits.

Activity 3 Writing subtraction equations using number lines

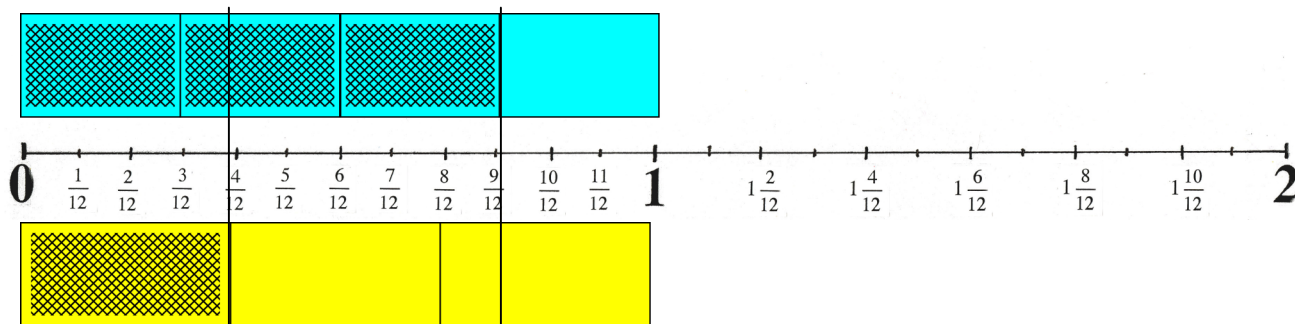
Fraction
No. Lines

bars and
markers

Transp #4

1. Pass out a deck of bars and sack of markers to each group and the students' Fraction Number Lines.

- Select two bars and place them above and below your number line from 0 to 1 to determine the difference in shaded amounts. Write a subtraction equation for the difference of your fractions. (Equation for bars shown here: $\frac{3}{4} - \frac{1}{3} = \frac{5}{12}$) Illustrate a few student examples at the overhead.



2. Optional: Students play **Subtraction Number Lines Racing** (page 104). This game is described for the Number Lines Side 1 mat and Fraction Playing Cards. For this lesson the game can be played with the bars and/or with the students' Fraction Number Lines.

INDEPENDENT PRACTICE and ASSESSMENT

Worksheets 57-58 from the *Teacher Resource Package*



fractionbars.com Set 1 **Subtraction Number Line Racing** (Moving markers on the number line for differences in shaded amounts of bars)