

Finding Fractions

2 or more players

Calculating unit fractions

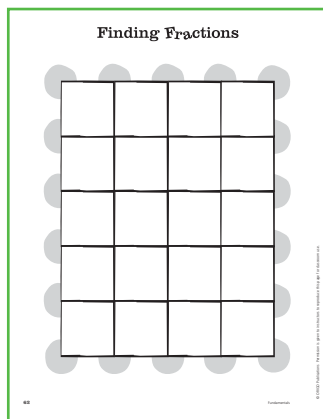
Purpose

In this game, the students find one-half, one-third, one-fourth, one-fifth, one-sixth and one-tenth of certain numbers. A set model is used to help the students calculate the parts.

Materials

Each group of players will need

- A 'Finding Fractions' game board (page 62) as shown below.
- One (1) fraction cube made from a blank wooden cube. Write $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{5}$, and $\frac{1}{10}$ on four of the cube's faces. Leave two faces blank.
- A bucket of counters.



How to Play

The aim is to collect as many counters as possible from the game board.

- Counters are placed in each of the twenty spaces on the game board.
- The first player rolls the number cube and calculates the fraction of the total number of counters.

Example: Dana rolls $\frac{1}{4}$ and she calculates that $\frac{1}{4}$ of 20 is 5.

- The player removes that number of counters from the game board and keeps them in his or her 'bank'. If a blank is rolled, the player misses a turn.
- The game board is refilled with counters.
- The other player(s) has a turn.
- The player with the greater number of counters after ten rounds is the winner. Players can use tallies to record the number of rounds.

Reading the Research

Children who use hands-on materials when learning mathematics generally achieve greater results than those who do not (Sowell, 1989; Suydam, 1986).



Before the Game

Make an overhead transparency of the game board. Call upon volunteers to show $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{5}$, and $\frac{1}{10}$ on the game board. Have the students verbalize each fraction, for example, $\frac{1}{4}$ of 20 is 5. Write each number sentence on the board.

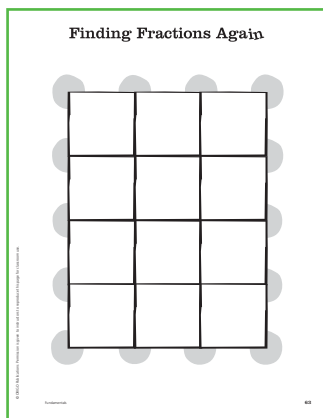
Demonstrate the rules by playing a game on the overhead transparency. It is important that the students remember to 'refill' the game board after each player removes his or her counters. This will make sure each player finds a fraction of the whole (20) rather than a fraction of the remaining counters.

During the Game

Encourage the students to share the strategies they use to find the fraction. For example, to calculate $\frac{1}{4}$ of 20, the students may think, *I know one fourth of 20 is 5 because 4 fives are twenty.* Other students may use a 'fact' they know. *One half of twenty is 10 so one fourth must be half of 10.* This discussion should help the students see the links between unit fractions, division, and multiplication, for example, $\frac{1}{4}$ of 20 = 5 because $20 \div 4 = 5$ because $4 \times 5 = 20$.

After the Game

Use the overhead projector and a transparency of the game board to play a game with the students. Ask questions such as, *What roll will allow you to take the greatest number of counters? What roll will give to the poorest results? What do you notice?* The students should see that $\frac{1}{2}$ of 20 is far greater than $\frac{1}{10}$ of 20.



Beyond the Game

- The students can play the same game using a different starting number. Give the players a copy of the 'Finding Fractions Again' game board on page 63 (illustrated). They will also need a new fraction cube. Write $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, and $\frac{1}{6}$ on four of the faces of a blank wooden cube.
- The students could make their own game board and matching fraction cube for other numbers such as 24 or 30.



Finding Fractions



Finding Fractions Again
