## Overview

Students look at the numerical relationship between the numerators and denominators of fractions equal to 1/2. They use this number pattern to determine if a given fraction is less than or equal to 1/2.

## Materials

- Fraction Circles for students and teacher
- Student Page A
- Student Pages A and B from Lesson 11

## Teaching Actions

1. Ask students to take out the fraction circles and find several equivalences for 1/2 (use the black circle as unit).

2. Record them on chart.

Fractions equal to $\frac{1}{2}$ :

$\frac{2}{4}$ $\frac{3}{6}$ $\frac{4}{8}$ $\frac{5}{10}$ $\frac{6}{12}$

3. Tell students that you can add to the list without using circles:

$\frac{7}{14}$ $\frac{8}{16}$ $\frac{9}{18}$ $\frac{10}{20}$ $\frac{25}{50}$ $\frac{50}{100}$ $\frac{150}{300}$

4. Tell students to look at the numerator and denominator of each fraction equal to 1/2 and ask them if they can see any pattern or relationship between numerator and denominator that's the same for each fraction.

## Comments

1. Students with a quantitative sense of fractions use 1/2 as a reference point to estimate fraction sums and differences.

Ex: $\frac{3}{6} + \frac{1}{3}$

"3/6 equals 1/2, and 1/3 is less than 1/2, so the sum is greater than 1/2 but less than 1."

Notice the role of fraction equivalence for 1/2 in estimation as well as in the same numerator but different denominator strategy [Lessons 6 & 7].

2. At this point we won't look at examples like:

$$\frac{2\frac{1}{2}}{5}$$

This will be done in Level 2.

## Teaching Actions

5. Help students verbalize that in each case, the denominator is double (twice) the numerator.

6. Give students these fractions with parts missing and have them make them into fractions equal to 1/2:

$\frac{\square}{24}$ $\frac{11}{\square}$ $\frac{\square}{30}$ $\frac{\square}{28}$ $\frac{100}{\square}$

7. Tell students to show these fractions with their circular pieces.

$\frac{1}{4}$ $\frac{2}{6}$ $\frac{3}{8}$ $\frac{4}{10}$ $\frac{5}{12}$

Ask if they are greater or less than 1/2. Have them tell you how far away from 1/2 each amount is.

8. without using the pieces, ask them to tell you numerators that would make each fraction greater than 1/2.

9. Present these fractions to students. Ask them if they are >1/2, <1/2, or =1/2. Use fraction circles if needed. Have them verbalize their reasoning.

$\frac{3}{10}$ $\frac{5}{12}$ $\frac{4}{6}$ $\frac{6}{10}$ $\frac{9}{20}$ $\frac{15}{18}$ $\frac{1}{4}$

10. Student Page A provides practice. You may want to use Student Pages A and B from Lesson 11 again. Now have students see if they can solve problems using number patters for 1/2.

11. Tell students that they will be using their understanding of fractions equal to 1/2 when they learn about fraction addition and subtraction.

## Comments

Name: _____



# Comparing to 1-half

1. Margo and Jose shared a couple of large pizzas. Margo ate 5/8 of a pizza. Jose ate 6/16 of a pizza. Who ate more? Explain how you know.

2. Imagine that you shared your bag of mini doughnuts with your sister. You ate 3/5 of the bag while your sister ate 4/10 of the bag. Who ate more? Explain how you know.

3. Chou-Mei ran 2 and 7/8 miles. Her sister ran 2 and 3/10 miles. Who ran the shorter distance? Explain how you know.

4. Circle the larger fraction in each pair.

a) $\frac{2}{3}$ $\frac{1}{5}$ b) $\frac{9}{12}$ $\frac{6}{15}$ c) $\frac{5}{9}$ $\frac{3}{7}$

d) $\frac{1}{2}$ $\frac{3}{4}$ e) $\frac{3}{5}$ $\frac{4}{9}$ f) $\frac{11}{17}$ $\frac{3}{9}$

g) $\frac{10}{22}$ $\frac{4}{5}$ f) $\frac{3}{6}$ $\frac{2}{9}$ i) $\frac{8}{13}$ $\frac{6}{16}$