Chapter 7
Lesson 1

Recognizing and Creating Equivalent Fractions

You will need
- square pieces of paper
- pencil crayons
- counters
- pattern blocks
- a ruler

GOAL

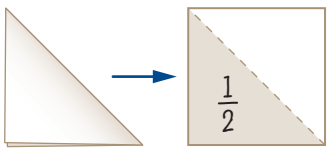
Recognize and create fractions that describe the same amount.

Some sandwiches and juice were left over after René's party.

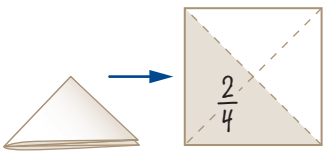
What fractions of the sandwiches and juice are left over?

René's Fractions

I left $\frac{1}{2}$ of a sandwich. Granddad left $\frac{2}{4}$ of a sandwich. I can model the leftovers. I'll fold a square piece of paper in half and shade $\frac{1}{2}$ for the leftover part of my sandwich. I'll fold another square piece of paper to make fourths and shade $\frac{2}{4}$ for the leftover part of Granddad's sandwich.



my sandwich



Grandad's sandwich

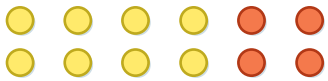
$\frac{1}{2}$ and $\frac{2}{4}$ represent the same amount of sandwich.
They are **equivalent fractions**.

$$\frac{1}{2} = \frac{2}{4}$$

Cara's Fractions

The juice pitcher holds 12 glasses of juice. We drank 8 glasses, so there is enough juice left for 4 glasses. This means that $\frac{4}{12}$ of the juice is left. René says that it looks like $\frac{1}{3}$ of the juice is left.

I'll model the juice glasses with 12 counters. I'll use red counters for the leftover juice. $\frac{4}{12}$ of the counters are red. I'll group the 12 counters to show that $\frac{1}{3}$ are red.

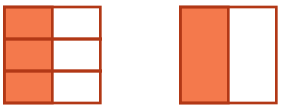


$\frac{4}{12}$

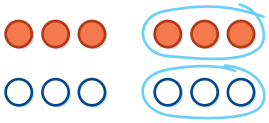
$\frac{1}{3}$

equivalent fractions

Fractions that represent the same part of a whole or the same part of a set



$\frac{3}{6}$ is equivalent to $\frac{1}{2}$



$\frac{3}{6} = \frac{1}{2}$

Reflecting

A. What do you notice about the relationships among the **numerators** and **denominators** of the two fractions that represent the sandwiches?

B. What do you notice about the relationships among the numerators and denominators of the two fractions that represent the juice?

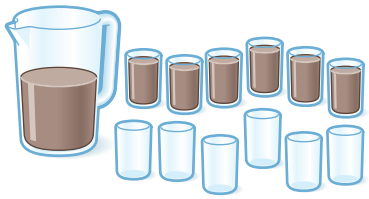
C. How can you use models to show other fractions that are equivalent to $\frac{2}{4}$ and $\frac{4}{12}$?

Checking

1. Write two equivalent fractions for each picture to describe the amount that is left in the container.

a)

b)



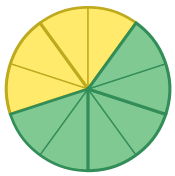
2. Fold a square or rectangular piece of paper to show that $\frac{1}{3}$ is equivalent to $\frac{2}{6}$. Sketch your work.

Practising

3. Write two equivalent fractions to describe the yellow part of each shape.

a)

b)



4. a) Model $\frac{3}{6}$ using two colours of counters. Arrange the counters to show an equivalent fraction. Sketch your model. Record both fractions.

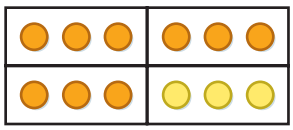
b) Repeat part a) using the fraction $\frac{4}{10}$.

5. Which of these fractions are equivalent? Use models to help you decide.

$\frac{6}{9}$ $\frac{2}{8}$ $\frac{2}{3}$ $\frac{3}{9}$

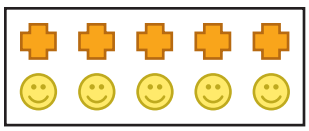
6. Write two equivalent fractions to describe the orange part of each picture.

a)



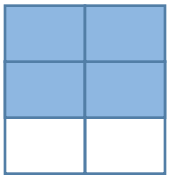
b)

c)



d)

7. Write two equivalent fractions to describe the blue part of each shape.

a) 

b) 

8. Model each fraction by folding and then colouring a square or rectangular piece of paper. Fold the piece of paper again to create an equivalent fraction. Write the equivalent fraction.

a) $\frac{1}{4}$ **b)** $\frac{2}{3}$

9. Oriana uses pattern blocks to show that $\frac{1}{2}$ of a hexagon is equivalent to $\frac{3}{6}$ of a hexagon.

Use pattern blocks to show that $\frac{2}{3}$ of a hexagon is equivalent to $\frac{4}{6}$ of a hexagon. Sketch your model.

Reading Strategy

Activating Knowledge

What do you know about fractions that can help you solve this problem?

10. David has 15 books. $\frac{10}{15}$ of the books are adventure books.

a) How many thirds of David's books are adventure books? Use a sketch, and write the fraction.

b) What fraction of David's books are not adventure books? Write an equivalent fraction.

11. Jill read three chapters of a book. This is $\frac{1}{2}$ of the chapters in the book. How many chapters are in the book? How do you know?

12. How can you use the picture below to show that $\frac{4}{6}$ is equivalent to $\frac{2}{3}$?