Chapter 7
Lesson 6

Using Decimals and Fractions

You will need
- thousandths grids
- pencil crayons

GOAL

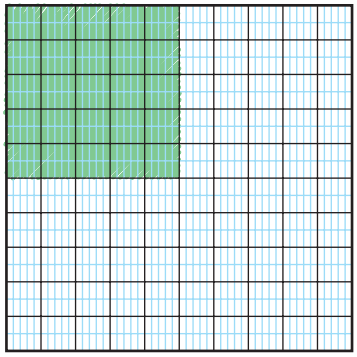
Represent and write amounts as equivalent decimals and equivalent fractions.

Cara found information on the Internet about what the world would be like if there were only 1000 people instead of over six billion people. She learned that, in a global village of 1000 people, only about 250 people would have a TV in their home.

What fractions and decimals describe the portion of people in the global village who would have a TV?

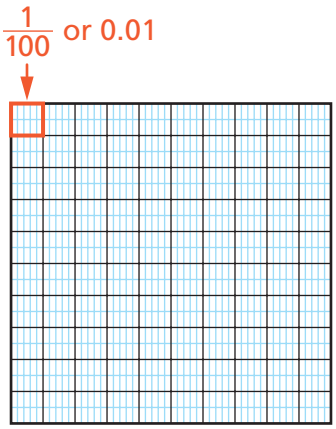
Cara's Model

Each tiny rectangle on the grid represents 1 of the 1000 people in the global village.



I'll colour 250 of the 1000 tiny rectangles to represent the number of people who would have a TV in their home.

I can write $\frac{250}{1000}$ or 0.250 to represent the portion of people in the global village who would have a TV in their home.



A. Explain why each small square on the thousandths grid represents $\frac{1}{100}$ or 0.01.

B. How many squares represent the portion of people in the global village who would have a TV in their home?

C. Determine a fraction that is equivalent to $\frac{250}{1000}$ and a decimal that is equivalent to 0.250 to represent the portion of people who would have a TV in their home.

D. How can you use Cara's grid to show that only $\frac{1}{4}$ of the people in the global village would have a TV in their home?

Reflecting

E. Why is $\frac{1}{4}$ easier to visualize than $\frac{250}{1000}$ or 0.250, even though they are equivalent?

F. How does looking at hundredths squares in the thousandths grid help you write 250 out of 1000 using equivalent fractions and decimals?

Checking

1. Write fractions and decimals that represent the portion of people in the global village who would *not* have a TV in their home. Use Cara's grid to help you.

2. Cara also read that about 200 people in a global village of 1000 people would earn less than $1 a day.

a) Colour a thousandths grid to show the portion of people in the global village who would earn less than $1 a day.

b) How does your diagram show that $\frac{1}{5}$ of the people in the global village would earn less than $1 a day?

c) Write 4 equivalent decimals and fractions to represent the coloured area of your grid. Explain what you did.

Practising

3. If the world were a village of 1000 people, about 100 people would live in South America. Write 2 equivalent fractions and 2 equivalent decimals to show the portion of people in the global village who would live in South America. Show your work.

4. Write a decimal in thousandths for each fraction. Use a thousandths grid to help you.

a) $\frac{750}{1000}$ **b)** $\frac{500}{1000}$ **c)** $\frac{40}{100}$ **d)** $\frac{2}{10}$

5. Write two decimal names for each fraction. Use a thousandths grid to help you.

a) $\frac{400}{1000}$ **b)** $\frac{30}{100}$ **c)** $\frac{5}{10}$ **d)** $\frac{20}{1000}$

6. Write two fraction names for each decimal. Show your work.

a) 0.750 **b)** 0.4 **c)** 1.00 **d)** 0.05

7. Owen said that both 0.05 and $\frac{5}{100}$ are equivalent to $\frac{500}{1000}$. Is his statement correct? Explain how you know.

8. Allison says that a nickel is worth $\frac{5}{100}$ of a dollar. Write an equivalent decimal for the value of four nickels, in dollars.

0.333	0.255
0.498	0.75

9. Name the decimal at the left that matches each description below. Use a thousandths grid to help you.

a) a bit less than $\frac{1}{2}$ **c)** equal to $\frac{3}{4}$

b) close to $\frac{1}{3}$ **d)** a bit greater than $\frac{1}{4}$

10. Raven said that 0.400 is the same as $\frac{1}{4}$. Is her statement correct? Use a thousandths grid to explain.

11. How can you tell if a decimal in thousandths is less than, equal to, or greater than $\frac{1}{2}$? Use examples to explain.

12. Why is it easy to express fractions with denominators of 10, 100, and 1000 as decimals? Use examples to explain.