# Dear Family,

This week your student is exploring percents. A **percent** is a rate that shows an amount per 100. You can represent a percent as a fraction or a decimal.

Percents are often written with the percent symbol, %. This model shows 10% because 10 out of 100 equal parts are shaded. This is the same as saying $\frac{10}{100}$, or $\frac{1}{10}$, of the grid is shaded. The decimal 0.1 also represents 10%.
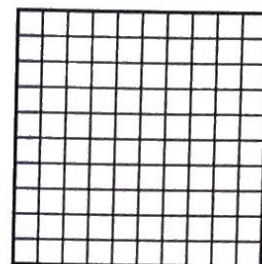
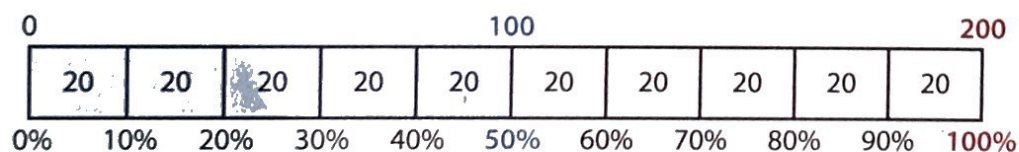This model shows 25% because 25 out of 100 equal parts are shaded. This is the same as saying $\frac{25}{100}$, or $\frac{1}{4}$, of the grid is shaded. The decimal 0.25 also represents 25%.
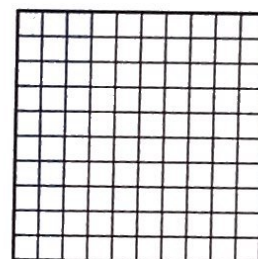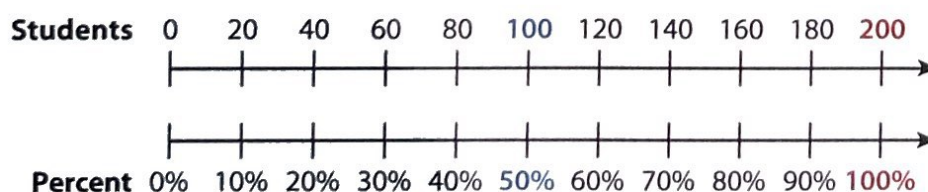
Your student will be modeling percents like the one below.

> During a field trip to the science museum, 50% of 200 students decide to see the butterfly exhibit.

➤ **ONE WAY** to model a percent is to use a bar model.

0					100				200
20	20	20	20	20	20	20	20	20	20

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

➤ **ANOTHER WAY** is to use a double number line.

Students 0 20 40 60 80 100 120 140 160 180 200

parent signature

Percent 0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

Both representations show that 50% of 200 students, or 100 students, decide to see the butterfly exhibit.

▶ Use the next page to start a conversation about percen

Activity Exploring Percents

➤ **Do this activity together to look for patterns in percents.**

Each set shows three statements about percents. What patterns do you notice in each set?

SET 1

10% of 100 is 10. 20% of 100 is 20. 30% of 100 is 30.	If each percent is out of 100 the percent and answer are the same

SET 2

50% of 100 is 50. 50% of 200 is 100. 50% of 300 is 150.	50% is always 1/2 of the value

SET 3

|	
10% of 200 is 20. →	10%: move the decimal once left
20% of 200 is 40. →	Find 10% the double (×2)
30% of 200 is 60. →	Find 10% the triple (×3)

? Do you notice any patterns between two of the sets?

Explore Percents

Model It

➤ **Complete the problems about fractions and percents.**

1 Keith and his friends mow lawns to earn money.

Keith has mowed $\frac{1}{2}$ of the lawn.

a. The model represents a lawn that Keith is mowing. So far, he has mowed $\frac{1}{2}$ of the lawn. Shade the model to show how much of the lawn Keith has mowed.
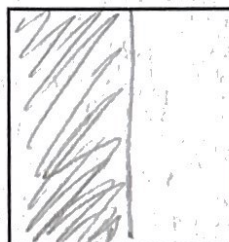
b. You can write $\frac{1}{2}$ as an equivalent fraction with different denominators. Write numerators to show three fractions that are equivalent to $\frac{1}{2}$.

$$\frac{4}{8} \qquad \frac{20}{40} \qquad \frac{50}{100}$$

2 In problem 1b, you wrote the fraction of the lawn Keith has mowed as a number of equal parts out of 100. You can use a **percent** to represent an amount *per 100*. You can think of a percent as a rate, with the whole divided into 100 equal parts.

a. The fraction $\frac{50}{100}$ means 50 parts out of 100 equal parts, or 50 parts per 100 parts.

The fraction $\frac{50}{100}$ represents ____50____ percent.

b. When you write a percent, you can use the percent symbol (%) in place of the word *percent*. Look back at problem 1. Complete this sentence that uses a percent to describe how much of the lawn Keith has mowed so far.

Keith has mowed ____50____ % of the lawn.

DISCUSS IT

Ask: How would you change your model in problem 1 to show that Keith has mowed $\frac{50}{100}$ of the lawn?

Share: I think $\frac{50}{100}$ and $\frac{1}{2}$ both represent 50% because . . .

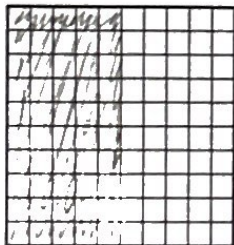**Learning Targets** SMP 2, SMP 3, SMP 7
• Understand the meaning of a percent.
• Understand how percents are related to fractions.
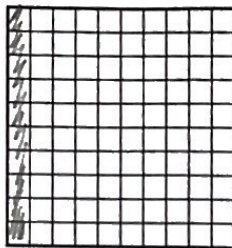• Use models to represent percents.

Model It

➤ **Complete the problems about percents.**

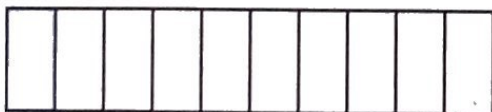**3** You can use a hundredths grid to show a percent.

a. Esteban mows 50% of a lawn.
Shade the model to show 50%.

b. Emma mows 10% of a lawn.
Shade the model to show 10%.

c. Does this model also represent the percent of the lawn Emma has mowed? Explain how you know.

Yes. One of the 10 sections are shaded

$$\frac{1}{10} = \frac{10}{100} = 10\%$$

4 Reflect How is using a model to show a percent similar to using a model to show a fraction? Use either 50% or 10% as an example in your explanation.

50% means 50 per 100, so you can show 50% by shading 50 out of 100 equal parts of a whole. This is the same as showing the fraction $\frac{50}{100}$