What Percent Means

Three tiles, about 7 minutes each with its Let me try a few, then the exit ticket. Students learn that cent means hundred, read and shade a hundred-square grid, move between percent, fraction, and decimal, and use the four benchmark percents.

TIME	25 minutes: three tiles at about 7 minutes each, then the exit ticket
WHO	7th grade, about age 12. Opens Unit 2, Percent. Follows Unit 1, Lesson 8.
MATERIALS	The Deep Dive 5 lesson hub and its three tiles, the worksheet (PDF), pencil.
PRIOR KNOWLEDGE	Unit rates and proportional relationships (Unit 1); fractions and decimals (6th grade).
STANDARDS	NC.7.RP.3, NC.7.EE.3.
KEEP OUT	A percent formula to memorize. Simple and compound interest. Percent error.

Learning goals

1. Say that cent means hundred and percent means per hundred.
2. Read a shaded hundred-square grid as a percent and shade one to show a percent.
3. Write one amount as a percent, a fraction, and a decimal, including 7.5%, 0.5%, and 150%.
4. Find 10 percent and 1 percent by moving the decimal point, and build other percents from them.

Vocabulary: say both, every time

The rule for the whole lesson: whenever the adult or the student says a math word, they follow it with the plain-English version. Proper term first, plain English second, until the student does it without being asked.

TERM	LOOKS LIKE	PLAIN ENGLISH
Percent	30%	Out of 100.
Decimal form	0.30	Divide by 100.
Fraction form	30 over 100	Over 100, then simplify.
Benchmark percent	50, 25, 10, 1	The easy ones to build from.

> THE ONE SENTENCE TO SAY OUT LOUD
>
> Percent means out of 100.

Lesson timeline (25 minutes)

0:00 to 0:07	Tile 1, Per Cent Means Per Hundred. Finn's hook, the root word card, the 30-shaded grid. Let the student shade 45, 100, and 1 on the tap grid. Let me try a few: 5 problems.
0:07 to 0:14	Tile 2, Three Ways to Write It. Percent, fraction, decimal. The decimal step for 3/8. Elle's card on 7.5%, 0.5%, and 150%. Fill in the table together. Let me try a few.
0:14 to 0:21	Tile 3, Benchmark Percents. The four benchmarks, building 30%, 5%, 15%, 35% from 10%. Elle's card ties it to Unit 1: a percent is a unit rate for 100. Let me try a few.
0:21 to 0:25	Exit ticket. Back on the hub. Success looks like 0.6 and 60 percent with the division step shown.

Misconceptions to listen for

- **Moving the decimal point the wrong way.** Percent to decimal: divide by 100, two places left.
- **7.5% is 0.75.** It is 0.075; the zero has to be written in.
- **Over 100 percent is impossible.** 150 percent is the whole and half again.
- **A fraction is already a percent.** Only if it is out of 100. 3/8 goes through 0.375 first.

Support and stretch

Support

Keep the hundred-square grid on screen. Every percent in the lesson can be shaded on it, and shading makes out of 100 physical.

Stretch

Ask for 0.1 percent as a decimal and as a fraction. Ask how 10 percent and 1 percent could build 13 percent, then 1.3 percent.

Where this goes next

Lesson 2: part, whole, and percent. Every percent problem has three pieces, and one is missing.

> THE HABIT TO BUILD
>
> Say out of 100 every time you say percent.