PERCENTS MAKE SENSE

Read the following passage. Write down what you notice about the passage, and what you wonder about the passage.

A class was divided into 4 teams to play a game.

The first team won 1/6 of the rounds.

The second team won 4/15 of the rounds.

The third team won 0.15 of the rounds.

Wandering Wonders

A class was divided into 4 teams to play a game.

The first team won 1/6 of the rounds.

The second team won 4/15 of the rounds.

The third team won 0.15 of the rounds.

- What makes this situation difficult?

- What fractions and decimals will make this easier to work with?

Wandering Wonders

- Create five fractions that can all be easily converted to decimals using "mental math"—no paper or pencil!

- Be sure that you are not relying on memorized facts; other people might not have the same facts memorized!

- Write out a process that can be used to convert any of your fractions to a decimal.

- Determine what has to be true about your fractions for your process to work.

- Complete the statement below:

"If a fraction has [*characteristic that must be true about the fractions*] then you can convert it to a decimal by [*describe the process*]."

Per / Cents

Per	Cent
Consider the phrases "miles per hour," "dollars per pound," and "servings per package." What do you think **per** means?	Consider the words "century," "centimeter," and "centipede." What do you think **cent** means?

Per / Cents

Per
Consider the phrases
"miles per hour,"
"dollars per pound,"
and "servings per package."
What do you think
per means?

Cent
Consider the words
"century,"
"centimeter,"
and "centipede."
What do you think
cent means?

For each
or
For every

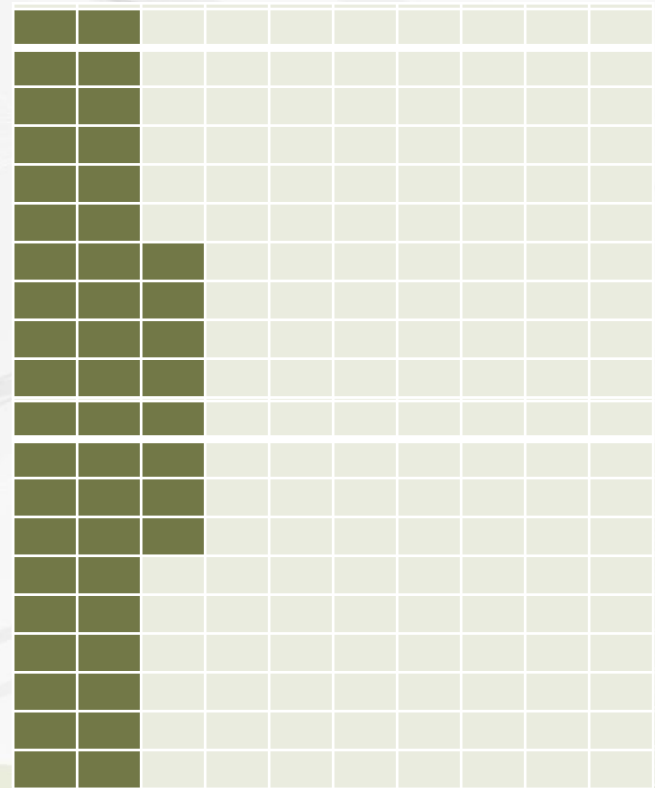One hundred

Using Representations to Find Percentages

Jamie took a test with 100 questions on it. He correctly answered 48 of them. What percent of the questions did he answer correctly?

- What is the whole?

- What part was answered correctly?

- What ratio does this represent?

- How do we make an equal ratio out of 100?

- What percentage does this represent?
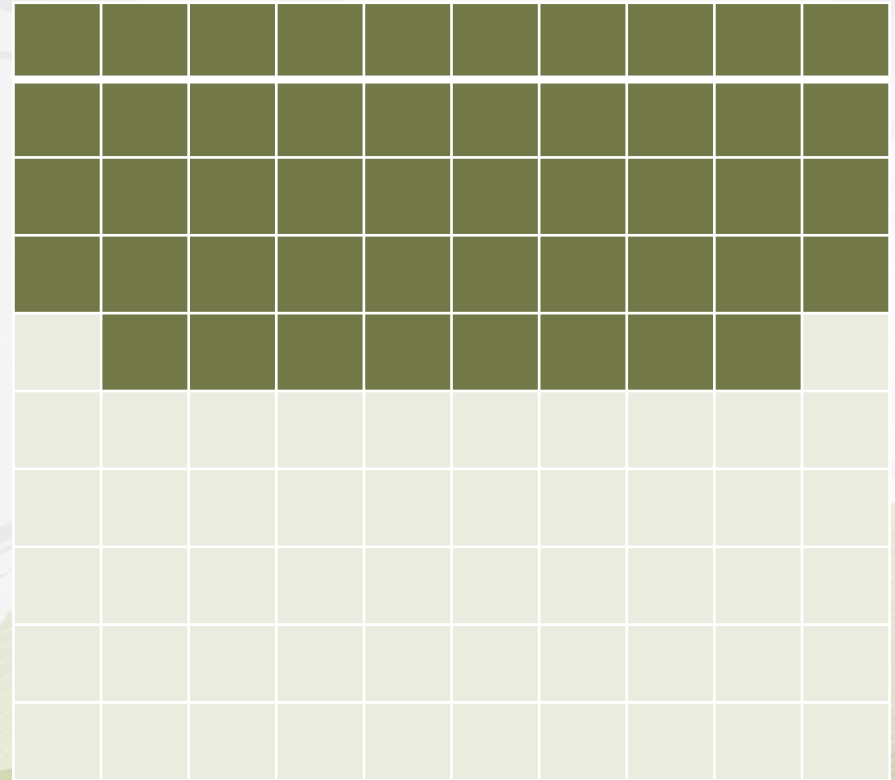
Finding Percentages with Models

- Jayne took a test with 200 questions on it. He correctly answered 48 of them. What percentage of the questions did he answer correctly?

- What is the whole?

- What part was answered correctly?

- What ratio does this represent?

- How do we make an equal ratio out of 100?

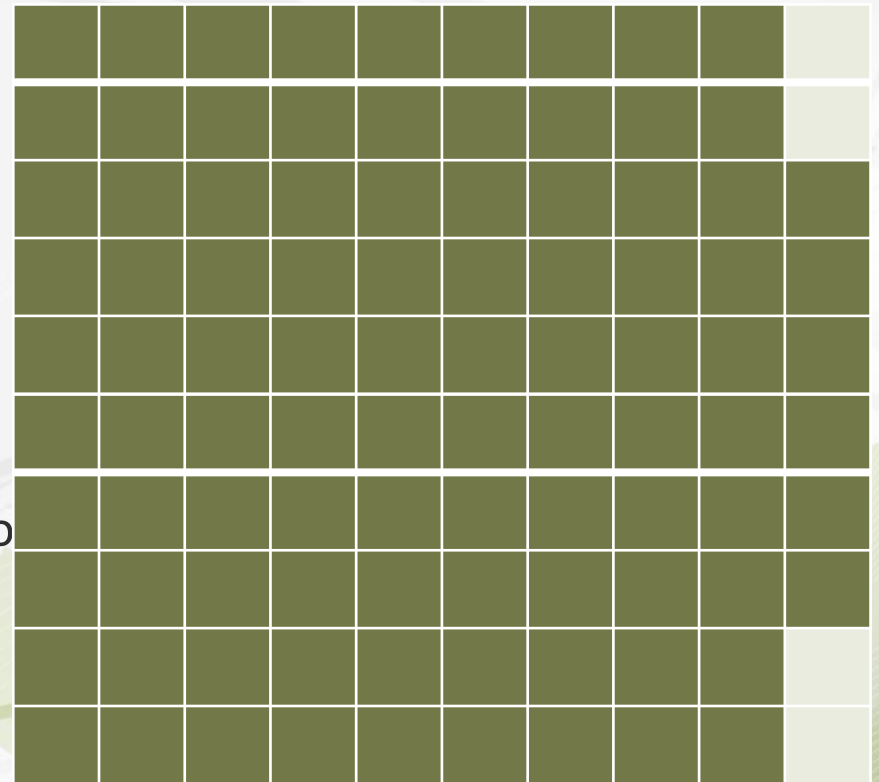- What percentage does this represent?

Finding Percentages

- Judah took a test with 50 questions on it. He correctly answered 48 of them. What percentage of the questions did he answer correctly?
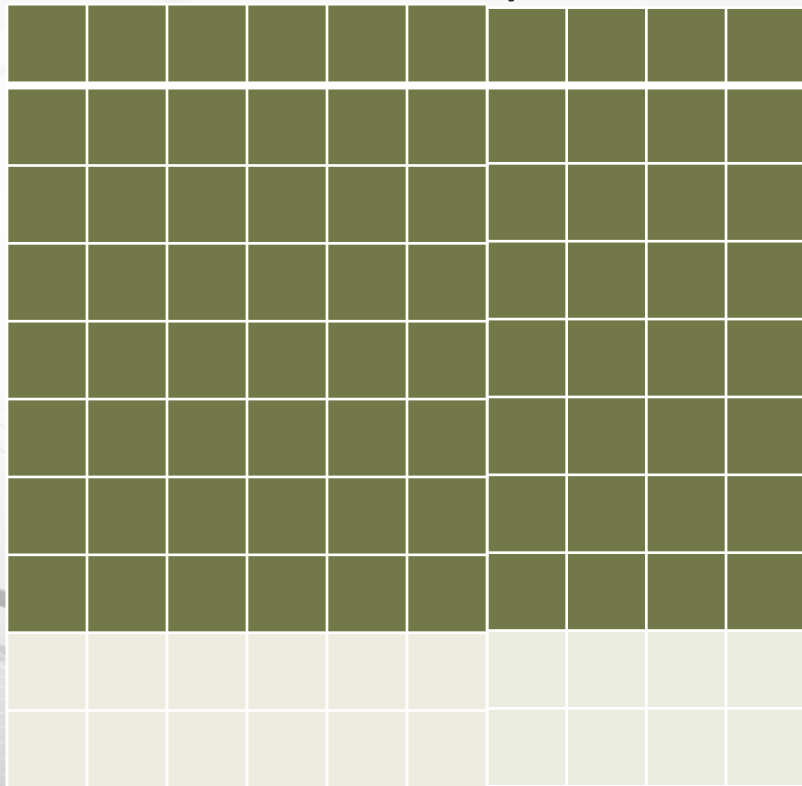
- What is the whole?

- What part was answered correctly?

- What ratio does this represent?

- How do we make an equivalent ratio out of 100?

- What percentage does this represent?

Finding Percentages

Javier took a test with 60 questions on it. He correctly answered 48 of them. What percent of the questions did he answer correctly?

- What is the whole?

- What part was answered correctly?

- What ratio does this represent?

- How do we make an equivalent ratio out of 100?

- What percentage does this represent?

The Power of Percentages

- Why is it helpful or useful to write ratios as percentages?

- Which student (Jamie, Jayne, Judah, or Javier) did the best on their test? Explain your reasoning.

The Power of Percentages

- Percentages let us compare values using different wholes.
- Example:
  - Who did the best on their test?

    Since each test was out of a different number of points, we can't just compare how many questions they answered correctly, but we can compare percentages!

    Jamie: 48%   Jayne: 24%   Judah 96%   Javier 80%

Finding Percentages Without Models

- Let's review: Draw this chart in your notebook and fill in the chart below to summarize your work:

Person	$\dfrac{number\ answered\ correctly}{total\ number}$	$\dfrac{exquivalent\ number}{100}$
Jamie		
Jayne		
Judah		
Javier		

Finding Percentages Without Models

❧ Let's review: Draw this chart in your notebook and fill in the chart below to summarize your work:

Person	$\dfrac{number\ answered\ correctly}{total\ number}$	$\dfrac{exquivalent\ number}{100}$
Jamie	$\dfrac{48}{100}$	$\dfrac{48}{100}$
Jayne	$\dfrac{48}{200}$	$\dfrac{24}{100}$
Judah	$\dfrac{48}{50}$	$\dfrac{96}{100}$
Javier	$\dfrac{48}{60}$	$\dfrac{80}{100}$

What do you notice about each pair of fractions in each row of the chart?

Percentages as Equivalent Fractions

These fractions are equivalent!

$$\frac{48}{100} = \frac{48}{100}$$

$$\frac{48}{200} = \frac{24}{100}$$

Their numerators are the percentages we found!

$$\frac{48}{50} = \frac{96}{100}$$

$$\frac{48}{60} = \frac{80}{100}$$

What do you notice about the numerators of the fractions on the right side of each equation?

Using Ratios to Find Percentages

A chocolate chip cookie weighs 20 grams. It contains 3 grams of fat.

What fraction represents this situation?

What are some equivalent fractions? Find at least three equivalent fractions.

What percentage of the cookie is fat?

Using Ratios to Find Percentages

An oatmeal cookie weighs 15 grams. It contains 2 grams of fat.

What fraction represents this situation?

What are some equivalent fractions? Find at least three equivalent fractions.

What percentage of the cookie is fat?

Using Ratios to Find Percentages

An peanut butter cookie weighs 18 grams. It contains 4.5 grams of fat.

What fraction represents this situation?

What are some equivalent fractions? Find at least three equivalent fractions.

What percentage of the cookie is fat?

Reflection

- What is a percentage?

- Why is it helpful to write ratios as percentages?

- How could you explain how to calculate a percentage to someone who didn't know?