

Spotlight On: Making Mistakes

Did you know you can learn by making mistakes? Some mistakes are worth celebrating! Spencer Silver tried to make a super-sticky glue when he worked for 3M laboratories in 1968, but the glue he made was actually not very sticky at all. He did not succeed in his initial goal, but many years later, his formula was used on Post-It notes!

Mistakes are a necessary part of progress. Reflecting on mistakes leads to deeper understanding. At home, pause to embrace and learn from mistakes.

The Big Picture

Growing From

Comparing Ratios

Working On

Equivalent Ratios;
Percents;
Unit Rates

Growing To

Solving Distance, Rate, and Time Problems

Need Help?

Methods & Meanings boxes are included in the Mathematician's Notebook as reference.

- 4.1.1: Equivalent Ratios
- 4.1.2: Multiplicative Identity
- 4.1.3: Representing Portions with Base Ten Blocks
- 4.1.4: Adding and Subtracting Fractions
- 4.2.1: Portions Web
- 4.3.1: Percents
- 4.3.4: Rates and Unit Rates

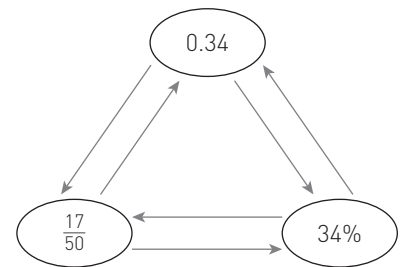
Current Topics

Ratios were introduced in Chapter 2, and students practiced writing and comparing ratios in the Reflection & Practice in Chapter 3. In this chapter, they will further investigate this topic, and expand their thinking to include equivalent ratios, percents, and unit rates. Students will use a variety of visual representations to convert, compare, and calculate with ratios. They will continue to work with unit rates in Chapter 9, when they will use them to solve equations.

Fractions, Decimals, and Percents (Section 4.1)

Students use a Giant One and a Proportions Web to work with fractions, decimals, and percents. Students use the "Giant One" to calculate equivalent fractions as shown. Since the fraction $\frac{20}{20}$ is equivalent to 1, it is called a Giant One. Students use a Portions Web to help organize their understanding of the relationships between fractions, decimals, and percents. The Portions Web shown displays the connections between the different representations for 34%.

$$\frac{3}{5} = \frac{3}{5} \cdot \frac{20}{20} = \frac{60}{100} = 60\%$$



Percents (Section 4.2)

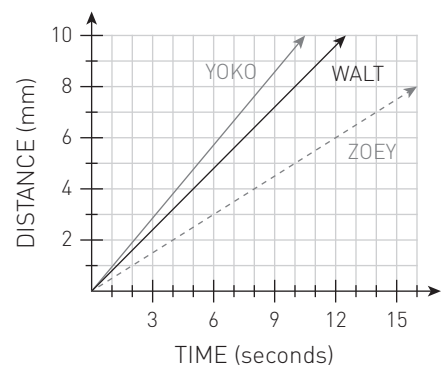
Tape diagrams, ratio tables, and double number lines are tools students use to model situations involving ratios and percents. The tape diagram shown could be used by students to answer the question, *If 280 grams is 40% of the weight of a loaf of bread, what is the weight of the entire loaf?*

WEIGHT (grams)	280	
PERCENT		100%

40%

Unit Rates in Tables and Graphs (Section 4.3)

Graphs help students visualize and compare rates and identify unit rates. A unit rate is a ratio that compares a first quantity to one unit of a second quantity. Students can use the graph shown to conclude that Yoko is traveling at the fastest rate because at any point in time, Yoko has traveled farther than the others.



Try This at Home!

Find an advertisement with a percent-off sale and ask your student to estimate the savings for a variety of items. For example, in the image shown, the sale is buy one, get one 50% off. If the item costs \$40 full price, you would save \$20 with this sale if you buy two.

