

## Module 2: Relating Quantities

### TOPIC 1: RATIOS

Students begin this topic by learning about ratios as multiplicative comparisons, contrasting them with additive comparisons. "More than" and "less than" are examples of additive comparisons, whereas "twice as many" and "one half as many" are examples of multiplicative comparisons. Students learn about quantitative relationships represented by ratios and the different ways to represent ratios. They are introduced to percent as a special ratio, namely an amount per 100. Students use their initial understandings of ratio to model and determine equivalent ratios. To generate and display equivalent ratios in real-world and mathematical problems, they use tape diagrams, double number lines, scaling up and down, tables, and graphs.

### Where have we been?

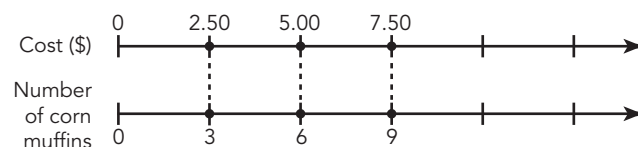
Students enter grade 6 with experience contrasting additive and multiplicative patterns and relationships. In prior grades, they wrote number sentences to represent multiplicative and additive scenarios. Students' knowledge of equivalent fractions from elementary school provides the foundation for their developing understanding of equivalent ratios.

### Where are we going?

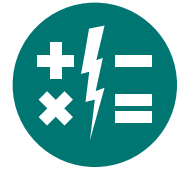
This topic provides the basis for future learning of proportional relationships and slope. Students also graph equivalent ratios on the coordinate plane, a prerequisite for the more in-depth study of proportional relationships and direct variation in grade 7.

## Using Double Number Lines to Determine Equivalent Ratios

A double number line shows two connected number lines. The number lines are connected by equivalent ratios. For example, this double number line shows that 3 corn muffins for \$2.50 is equivalent to 6 corn muffins for \$5.00.



## Myth: There is one right way to do math problems.



Employing multiple strategies to arrive at a single, correct solution is important in life. Suppose you are driving in a crowded downtown area. If one road is backed up, then you can always take a different route. If you know only one route, then you're out of luck.

Learning mathematics is no different. There may only be one right answer, but there are often multiple strategies to arrive at that solution. Everyone should get in the habit of saying: *Well, that's one way to do it. Is there another way? What are the pros and cons?* That way, you avoid falling into the trap of thinking there is only **one** right way, because that strategy might not always work or there might be a more efficient strategy.

Teaching students multiple strategies is important. This helps students understand the benefits of the more efficient method. In addition, everyone has different experiences and preferences. What works for you might not work for someone else.

**#mathmythbusted**

### Talking Points

You can further support your student's learning by asking them to take a step back and think about a different strategy when they are stuck.

### Questions to Ask

- What strategy are you using?
- What is another way to solve the problem?
- Can you draw a model?
- Can you come back to this problem after doing some other problems?

### Key Terms

#### ratio

A ratio is a comparison of two quantities by division.

#### percent

A percent is a ratio whose denominator is 100. Percent is another name for hundredths.

#### rate

A rate is a ratio that compares two quantities that are measured in different units.

#### proportion

A proportion is an equation that states that two ratios are equal.