

Mathematics in this Lesson

Lesson 5: Forming a Unit Ratio

Lesson Description

Kate and Christopher extend their use of diagrams to form a unit ratio in a speed context.

Math Content

[CCSS.M.7.RP.A.2.b](#) *Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.*

In this lesson, the students use two strategies to identify a unit rate for a car that is traveling 10 miles in 4 minutes. First, they find the unit rate by a numerical operation. They divide both the number of miles and minutes by 4. They state that this car is going at a speed of 2.5 miles in 1 minute. Secondly, the students also create a diagram to determine the unit rate of this car. They partition the diagram representing a car going 10 miles in 4 minutes into four identical little trips of 2.5 miles in 1 minutes.

Math Practices

CCSS.MATH.PRACTICE.MP4: *Model with mathematics.*

According to the Common Core's description of Math Practice 4, mathematically proficient students "identify important quantities in a practical situation and map their relationships using such tools as diagrams." In this lesson, Kate and Christopher, use diagrams in two productive ways. First, they use a diagram to show why traveling 2.5 miles in 1 minute is the same speed as traveling 10 miles in 4 minutes by iterating identical small journeys of 2.5 miles in 1 minute to make up the larger journey of 10 miles in 4 minutes **[2:39 in Episode 2]**. Later, they identify that a journey of 10 miles in 4 minutes can be partitioned into four identical trips of 2.5 miles in 1 minute **[6:02 in Episode 3]**.

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