

Mathematics in this Lesson

Lesson 2: Changing Two Quantities

Lesson Description

Kate and Christopher use the Races applet to figure out how to make two cars go the same speed when the cars travel different amounts of distance and time.

Math Content

CCSS.M.6.RP.A.1: *Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities.*

In this lesson, students create a family of distance and time values that all represent the same speed. They begin using language such as “10 miles for 4 minutes” and “every 5 miles, it is 2 minutes” to represent speed as a relationship between two quantities. They make and test conjectures about patterns that will result in two cars going the same speed (such as doubling, halving, and multiplying the time and distance values for one car by a constant).

Math Practices

CCSS.MATH.PRACTICE.MP8: *Look for and express regularity in repeated reasoning.*

In this lesson, Kate and Christopher make a table of time and distance values that result in the red car going the same speed as the blue car, which travels 10 miles in 4 seconds. As stated in the Common Core’s description of Math Practice 8, they “*continually evaluate the reasonableness of their intermediate results.*” First they use the Races applet to check their guesses. Then they notice and test a pattern of doubling both distance and time values **[1:00 in Episode 3]**. Kate and Christopher use and adapt this pattern as they look “*for general methods and for shortcuts*” to make the red car go the same speed as the blue car. For example, at **1:19 in Episode 4**, Kate and Christopher create a shortcut of dividing both the number of miles and the number of minutes by the same number. In later lessons, Kate and Christopher determine why this general method works.

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