Mathematics in this Lesson
Lesson 7: Making Multiplicative Comparisons

Lesson Description

Kate and Christopher use an applet called Making Pink Paint to solve proportional reasoning problems. They choose amounts of red and white paint to make two batches of paint that are the same shade of pink. In the process, they form ratios by comparing amounts of white paint to red paint multiplicatively.

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*

As this lesson progresses, the students form ratios by multiplicatively comparing amounts of two different quantities: the amount of red paint to the amount of white paint in one batch of pink paint. The ratio represents "pinkness." The students use a ratio representing "pinkness" of a first batch of paint to find the amount of white paint they must to add to a certain amount of red paint to make a second batch of paint that is the same shade of pink as a first batch of paint.

Math Practices

CCSS.MATH.PRACTICE.MP1: *Make sense of problems and persevere in solving them*

Common Core Practice 1 states that proficient students will *"analyze givens, constraints, relationships, and goals," "make conjectures…and plan a solution pathway"* In this lesson, Kate and Christopher consider a different kind of proportional reasoning problem: mixing amounts of red and white paint to make two batches of paint that are the same shade of pink. As they attempt to make two batches of paint with the same "pinkness," they first use a solution path from previous lessons. They double, quadruple, and halve both the amount of red paint and white paint of a given batch of pink paint to create a second batch that is the same shade of pink. When the students are asked how much white paint to add to 2 ounces of red paint to make a batch with the "pinkness" of a batch with 1.5 ounces of red paint and 4.5 ounces of white paint, they struggle. The students persist by creating a diagram that, in the end, multiplicatively compares the amount of red paint to the amount of white paint in the given batch **[2:14 in Episode 3].** Once they have persevered to form this new solution path, the students solve a series of similar pink paint problems using the strategy of creating equal ratios of amounts of red and white paint for both batches of paint.