"Solving Unit Rate Problems" Classroom Activities

Short description: Learn a strategy for solving unit rate problems in this Math Shorts video.

Long description: In this video, learn a strategy for solving unit rate problems. In the accompanying classroom activity, students watch the video then use grocery store ads to calculate unit rates and compare prices. They share solution strategies and consider ways that unit rates can facilitate making comparisons. To get the most from the activity, students should be comfortable finding equivalent fractions and have had some exposure to the concepts of ratio and unit rate.

Activity Text

Learning Outcomes
Students will be able to
- solve real-world problems involving finding and comparing unit rates
- define the mathematical terms below

Common Core State Standards: 6.RP.A.2, 6.RP.A.3

Vocabulary: Ratios, unit rates

Materials: Per pair: ads described below, calculator, pencils, paper

Preparation: Gather grocery store ads with pricing given as a ratio; for instance, 4 apples for $3. Each pair needs two or three such ads for one type of product (e.g., three ads for apples). If possible, provide a variety so that not all pairs use the same ads.

Procedure
 1. Introduction (5 minutes, whole group)
 Distribute paper and pencils and pose the following problem for pairs to discuss:
- Store A sells notebooks at 2 for $5. Store B sells the same ones at 3 for $6. Which price is a better deal? How do you know?

 After a moment, gather and record students' solution strategies. If no one suggests setting the problem up as a comparison of *ratios,* do so yourself:

$$\frac{\$5}{2} = \frac{\$2.5}{1} \qquad \frac{\$6}{3} = \frac{\$2}{1}$$

 Ask students for examples of other *unit rates*. Prompt for a variety of contexts (e.g., pay per hour, distance per minute).

2. Watching the Video (10 minutes, whole group)
Pause the video at 00:30 (30 seconds). Ask pairs to talk over the solution to the problem posed and jot down their solution strategies.

After a few minutes, resume the video. When it is over, ask students:
● Did anyone solve the problem as in the video?
● What other ways did you find to solve the problem?

Record students' solution strategies or invite them to come up and do so. Emphasize the variety of possible approaches.

3. Unit Rate in Ads (10 minutes, pairs)
Distribute the ads. Ask pairs to determine which of their ads offers the best unit price, and record their calculations.

As pairs finish up, pose the following question (tailored to the particular ads):
● If you're going to buy [apples], which unit rate would you find more useful: price per [apple] or number of [apples] you can buy per [$1]? Why?

Encourage students to consider which kinds of unit rate calculations might be helpful, which might be less helpful, and why.

4. Conclusion (5 minutes, whole group)
Ask for volunteers who worked with different ads to share their solution strategies. Highlight the variety of possible strategies. If no one offers the approach demonstrated in the video, do so yourself.

Return to the problem in the video and ask:
● How could you use unit rate to figure out how many pies Carl and Kate could each eat in 3 minutes? In 5 minutes?

Then, have students consider whether it would have been just as easy to determine how many in 3 and 5 minutes if they had used original rates from the video, rather than the unit rate.

Activity Extension: Have students look through a wide variety of ads with pricing given as a ratio (e.g., 3 games for $49.99). They should then choose items that they would like to purchase (realistic or not) and determine what unit price they'd pay.

This activity is based on work developed at TERC.