

Lesson 2:**OBJECTIVE: SWBA to**

Understand the concept of a unit rate a/b associated with a ratio $a:b$ with $b \neq 0$, and use rate language in the context of a ratio relationship. (6.RP.2)

INTRODUCTION + Vocabulary:

A **rate** is a **ratio** that compares quantities in different units, kind of a ratio. **Rates** are commonly found in everyday life. The prices in grocery stores and department stores are rates. Rates are also used in pricing gasoline, tickets to a movie or sporting event, in paying hourly wages and monthly fees. Rates are abundant in recipes for cooking!

A **unit rate** is a **rate** where the second quantity is **one unit**, such as \$34 per pound, 25 miles per hour, 0.74€ per dollar. Unit rate are also known as **unit price** or **unit cost** when it relates buying or selling a product. We used unit price to determine “best buys.”

MINI-LESSON (I DO):

In the ad on the right, examples of **rate** are:

- \$14.00/2 gallons of apple cider
- \$2.39 for 8 boxes of Juicy Juice or \$2,39/8

Notice that that the denominator in each fraction is greater than 1.

In the same ad, examples of unit rate are:

- \$7.00/gallon or \$7.00 per gallon or \$7.00 : 1 gallon
- \$7.00/128 ounces
- \$0.38/box of Juicy Juice or 38¢ per box of Juicy Juice

Notice that now, the denominator of the fraction is 1. That is why we call this, unit (1) rate!

In the ad on the right, examples of **unit price** or **unit cost** are:

- \$7.00 per gallon
- 5¢ per ounce
- 38¢ per box

Lo and behold, **unit rate** and **unit price** means the same thing! The caviar is that the unit could be anything! In this case the unit can be gallons, or ounces, or boxes. Now look, \$7.00 per gallon is equivalent to 38¢ per ounce, because there are 128 ounces in one gallon! Therefore, we can say that \$7.00 per gallon = \$7.00 per 128 ounces = 38¢ per ounce.



Summarize what you have taught them—Assess for understanding by show of thumbs up/down.

Guided Practice 1: (We do):

In this advertisement, which choice is the best buy? The unit is ounce.

Solution:

In order to answer this question, we need to determine the unit price. In order to determine the unit price, we must be given a unit. In this situation the given unit is ounces!



Apple Cider

- 1 gallon =128 ounces
- $\$7.00 / \text{gallon} = \$7.00/128 \text{ ounces} = \0.055 per ounce or 5.5¢ per ounce
- Unit price is about 6¢ per ounce

Juicy Juice

- 8 boxes in the pack, each box contain 4.23 ounces.
- $8 \times 4.23 \text{ ounces} = 33.84 \text{ ounces per pack}$
- $\$2.39/33.84 \text{ ounces} = \0.07 per ounce or 7¢ per ounce.
- Unit price is 7¢ per ounce.

Buying a gallon of apple cider is the best buy. We get more juice for the money.

Guided Practice 2 (We do):

At a ShopRite supermarket, a 1-LB-12-Oz Carolina Brown Rice sells for \$1.89. What is the unit price per ounce?
What is the unit price per pound?

Solution:

The units are ounce and pounds. Therefore, we have to come with the unit price for two different units—but remember they are equivalent!

The unit price in ounce is:

$$1 \text{ LB } 12 \text{ oz.} = 1 \text{ LB} + 12 \text{ oz.} = 16 \text{ oz.} + 12 \text{ oz.} = 28 \text{ oz.}$$

$$\$1.89 \div 28 \text{ oz.} = \$0.067 \text{ per oz. or } 6.75\text{¢ per ounce}$$

The unit price is \$0.067 per ounce

The unit price in pound is:

$$1 \text{ LB } 12 \text{ oz.} = 1 \text{ LB} + 12 \text{ oz.} = 1 \text{ LB} + 0.75 \text{ LB} = 1.75 \text{ LB}$$

$$\$1.89 \div 1.75 \text{ LB} = \mathbf{\$1.08} \text{ per pound}$$



Do you notice that \$1.08 per pound is the price of the shelf label? This is exactly how clerks (computers) determine the unit price! So next time you are in the supermarket, look for this number.

Again, summarize what you have taught them—Assess for understanding by show of thumbs up/down

Unit Rate and Unit Price- **6.RP.2**

Name: _____ Class: _____ Date: _____

Independent Practice (You Do):

1. If a car travels 390 miles in 5 hours, how far will it travel in one hour?

Show your work:

Name: _____ Class: _____ Date: _____

2. The grocery store sells beans in bulk. The grocer's sign above the beans says, "5 pounds for \$4."
At this store, you can buy any number of pounds of beans at this same rate, and all prices include tax.

Alberto said,

"The ratio of the number of dollars to the number of pounds is 4:5. That's \$0.80 per pound."

Beth said,

"The sign says the ratio of the number of pounds to the number of dollars is 5:4. That's 1.25 pounds per dollar."

Part A: Are Alberto and Beth both correct? Explain.

Part B: Claude needs two pounds of beans to make soup. Show Claude how much money he will need.

Part C: Dora has \$10 and wants to stock up on beans. Show Dora how many pounds of beans she can buy.

Part D: Do you prefer to answer parts (b) and (c) using Alberto's rate of \$0.80 per pound, using Beth's rate of 1.25 pounds per dollar, or using another strategy? Exp

Name: _____ Class: _____ Date: _____

3. Jodi's car used 12 gallons of gas to travel 456 miles. How many miles did her car travel per gallon of gas?

Show your work.

Answer _____ miles per gallon

It cost Jodi \$44.88 to buy 12 gallons of gas. What was the cost per gallon of gas?

Show your work.

Answer \$ _____

Name: _____ Class: _____ Date: _____

4. Taylor and Anya live 63 miles apart. Sometimes on a Saturday, they ride their bikes toward each other's houses and meet somewhere in between. Taylor is a very consistent rider - she finds that her speed is always very close to 12.5 miles per hour. Anya rides more slowly than Taylor, but she is working out and so she is becoming a faster rider as the weeks go by.

Part A: On a Saturday in July, the two friends set out on their bikes at 8 am. Taylor rides at 12.5 miles per hour, and Anya rides at 5.5 miles per hour. After one hour, how far apart are they?

Part B: Make a table showing how far apart the two friends are after zero hours, one hour, two hours, and three hours.

Part C: At what time will the two friends meet?

Part D: Taylor says, "If I ride at 12.5 miles per hour toward you, and you ride at 5.5 miles per hour toward me, it's the same as if you stay still and I ride at 18 miles per hour." What do you think Taylor means by this? Is she correct?

Part E: A couple of months later, on a Saturday in September, the two friends set out again on their bikes at 8 am. Taylor, as always, rides at 12.5 miles per hour. This time they meet at 11 am. How fast was Anya riding this time?

Unit Rate and Unit Price- **(6.RP.2)**

Name: _____ Class: _____ Date: _____

Final Summary

In a U-Shape:

1. Re-state the objective to assess if students learn it
2. Elicit from students what they have learned and what they want to learn more about.
3. Tie what they learn to the lesson, and upcoming lessons (Next Saturday, they will learn about proportion, a comparison of two ratios!)