How Many Beverages Will Consumers Buy?

Author

Mary Suiter, PhD, Federal Reserve Bank of St. Louis

Standards and Benchmarks (see page 12)

Lesson Description

In this lesson, students act as buyers with a fixed amount to spend on beverages. They identify a favorite beverage from a list of beverages offered for the same price. They then react to changes in the price of that favorite beverage. Students use the data collected from this activity to describe the relationship between price and quantity demanded. They analyze other examples and learn that the relationship between price and quantity demanded holds for most goods, and that this relationship is called the law of demand.

Grade level

3-5

Concepts

Consumers

Law of demand

Price

Objectives

Students will be able to

- define consumers and price,
- describe the relationship between price and the amount people are willing and able to buy as the law of demand, and
- analyze why the inverse relationship between price and the amount people are willing and able to buy exists.

© 2023, Federal Reserve Bank of St. Louis. Permission is granted to reprint or photocopy this lesson in its entirety for educational purposes, provided the user credits the Federal Reserve Bank of St. Louis, https://www.stlouisfed.org/education.

Compelling Question

Why do people buy more at lower prices and less at higher prices?

Time Required

45-60 minutes

Materials

- PowerPoint slide deck for "How Many Beverages Will Consumers Buy?"
- Handouts 1, 2, and 3, one copy of each for each student
- Handout 3 Answer Key, one copy for the teacher
- Blank sheet of paper, one for each student

Procedure

1. Distribute a copy of *Handout 1: Consumers, Prices, and Buying* to each student.

2. Display Slide 2 and explain that **consumers** are people who buy goods and services. Define **price** as the amount people pay to buy a good or service and the amount sellers receive when they sell goods and services.

3. Read the story on Handout 1 and then discuss the following:
   - Who are consumers? (*Consumers are people who buy goods and services.*)
     - In the story, who were the consumers of lemonade? (*People walking past the house on the way to the park*)
     - What are examples of goods and services that you consume? (*Games, toys, books, clothing, candy, food, movies*)
   - What is a price? (*A price is the amount consumers pay to buy a good or service. A price is also the amount sellers receive when they sell a good or service.*)
     - In the story, who were the sellers of lemonade? (*Cameron and Thomas*)
   - Why did Cameron and Thomas think selling lemonade was a good idea? (*They wanted to sell lemonade because it was hot and because people were walking by to get to a nearby park.*)
     - What was the first price that Cameron and Thomas charged for their lemonade? (*$5*)
   - Why did Cameron and Thomas reduce the price of their lemonade to $4 a cup? (*They hoped people would buy more lemonade at a lower price.*)
     - Why do sellers put items on sale—that is, reduce the price for items? (*So people will come to the store; so people will buy the items*)

© 2023, Federal Reserve Bank of St. Louis. Permission is granted to reprint or photocopy this lesson in its entirety for educational purposes, provided the user credits the Federal Reserve Bank of St. Louis, https://www.stlouisfed.org/education.

4. Explain that today, students are going to be consumers who want to buy beverages. They'll see how consumers/buyers react to changes in the price of a good or service so that they understand more about consumers and prices than Cameron and Thomas do.

5. Display Slide 3 and explain that students will have the option to buy four beverages—water, orange juice, chocolate milk, or apple juice. Tell students that each of them has a budget of $4 to spend on beverages. Each drink is 12 ounces, and the price for each drink is $1. Discuss the following:

   - How many beverages can you buy with $4? (*Four*)
   - Because all the beverages are the same price, what other factors might influence how many and which beverages you buy? (*How thirsty someone is; how healthy a beverage is; how much someone likes a particular beverage*)

6. Tell students that they may spend their $4 in any way they like. Distribute a sheet of paper to each student and have them write down their choices. For example, a student might list two bottles of water, a bottle of chocolate milk, and a bottle of orange juice; or a student might buy four bottles of orange juice.

7. Select one of the four beverages and ask students to hold up fingers to show how many bottles of that beverage they would buy. Have a student help you count the total number and record that under the appropriate beverage name on slide 3. Continue this process with the remaining three types of beverages.

8. Review the number of each beverage students would buy. Ask students, "Which number is the largest?" Display Slide 4 and distribute a copy of *Handout 2: Number of Beverages Students Are Willing and Able to Buy at Various Prices* to each student.

9. Using the beverage for which students indicated they would buy the largest quantity—the most-popular beverage—fill in the name of the beverage in the table title. Have students fill in the name of the beverage on their copy of Handout 2. In the column titled "Quantity," across from the price of $1, record the number of that beverage students are willing and able to buy. Tell students to fill in the information on their copies of Handout 2.

10. Announce that the price of the other beverages is still $1 but that the price of the most-popular beverage is now $2. Remind students that each of them still has only $4 to spend. Discuss the following:

    - Would any of you want to change which beverage you buy or how many beverages you buy? (*Answers will vary, but many may want to change which beverage they buy or how many beverages they buy.*)

© 2023, Federal Reserve Bank of St. Louis. Permission is granted to reprint or photocopy this lesson in its entirety for educational purposes, provided the user credits the Federal Reserve Bank of St. Louis, https://www.stlouisfed.org/education.

11. Have students hold up fingers to indicate the number of the most-popular beverage they are now willing and able to buy. Count the number and record it in the table on slide 4 in the "Quantity" column across from the price of $2.

12. Repeat steps 8 through 11 for the most-popular beverage, changing the price to $3 and then to $4 for the favorite beverage. NOTE: The price of the other beverages remains unchanged—at $1—throughout this activity.

13. Using the table on slide 4, discuss the following:
    - What happened to the quantity of the most-popular beverage students were willing and able to buy when the price of that beverage increased from $1 to $2? (*The quantity decreased.*)
    - What happened to the quantity of the most-popular beverage students were willing and able to buy when the price of that beverage increased from $2 to $3? (*The quantity decreased.*)
    - What happened to the quantity of the most-popular beverage students were willing and able to buy when the price of that beverage increased from $3 to $4? (*The quantity decreased.*)
    - Why did students buy fewer popular beverages when the price increased? (*With only $4 to spend, students couldn't buy as many bottles as the price increased. As the price of this beverage increased, students substituted one of the less-expensive [$1] beverages.*)
    - What would happen to the quantity of beverages students were willing and able to buy if the price of the most-popular beverage decreased from $4 to $3? (*The quantity would increase.*)
    - What can we conclude about students' beverage-buying behavior and the price of beverages? (*As the price of a beverage increases, the quantity students want to buy decreases. As the price of a beverage decreases, the quantity students want to buy increases.*)

14. Have students answer the questions on Handout 2 and then discuss the following:
    - With $4 to spend on beverages, what happened to the quantity of this beverage students could buy as the price increased? Why? (*Students had to buy fewer bottles of this beverage because with only $4 to spend, they couldn't afford as many bottles.*)
    - If you bought fewer bottles of this beverage, what beverage would you buy instead? Why? (*Answers will vary, but students should say that they bought more of one of the other beverages that were still $1. They substituted the less-expensive beverage for the more-expensive beverage.)*

15. Ask students to indicate what they think would happen in each of the following scenarios:
    - What would consumers do if a jar of peanut butter that sold for $4.99 now sells for $0.99? (*People would eat more peanut butter sandwiches. People might use peanut butter on their bread or toast instead of butter. People might feed their dogs peanut butter as a snack.)*
    - If a jar of peanut butter sold for $0.99, would consumers buy more or less peanut butter? (*More*)

© 2023, Federal Reserve Bank of St. Louis. Permission is granted to reprint or photocopy this lesson in its entirety for educational purposes, provided the user credits the Federal Reserve Bank of St. Louis, https://www.stlouisfed.org/education.

- What would consumers do if a gallon of water that sold for $1 now sells for $10? (*People wouldn't bathe as often. People wouldn't wash their cars or water their lawns.*)
- What would consumers do if a scoop of ice cream that sold for $1.75 now sells for $6.50? (*People would eat ice cream only on special occasions. People would eat cake and pie without ice cream.*)
- If a scoop of ice cream sold for $6.50, would consumers buy more or less ice cream? (*Less*)

16. Display Slide 5 and explain that the relationship between price and quantity students just experienced is so common that economists call it the law of demand. The **law of demand** states that for most goods, when the price of the good increases, the amount of the good people are willing and able to buy decreases; and when the price of the good decreases, the amount of the good people are willing and able to buy increases.

17. Display Slide 6 and explain that there are two main reasons people behave this way when prices change. Discuss the following:
    - With a given amount of income (like $4 for beverages) people can't buy as much when prices go up but can buy more when prices go down.
        - For example, if a person has $20 to spend on cookies for a birthday party and the price of cookies is $1 each, they can buy 20 cookies. But if the price of the cookies is $0.50 each, they can buy 40 cookies. They are able to buy more with the same amount of money because the price decreased.
    - When the price of a good increases, people will buy a less-expensive substitute. Substitutes are goods that we buy instead of or in place of one another.
        - For example, if oranges are on sale, people will buy more oranges instead of buying more-expensive fruits, such as strawberries or apples. People substitute less-expensive oranges for more-expensive fruits.

Closure

18. Have students work with an elbow buddy. Explain that you will read examples and that they should discuss each example, deciding whether the amount people buy would increase or decrease. If the amount would increase, they should give you a "thumbs up." If the amount would decrease, they should give you a "thumbs down." Work through the following:
    - If the price of milk increases from $3 a gallon to $6 a gallon, will the quantity of milk people buy increase or decrease? (*Decrease—thumbs down*)
    - If the price of a 200-page spiral notebook increases from $0.99 per notebook to $2.20 per notebook, will the quantity of notebooks people buy increase or decrease? (*Decrease—thumbs down*)
    - If the price of a box of 24 crayons decreases from $2.50 a box to $1.75 a box, will the quantity of boxes of crayons people buy increase or decrease? (*Increase—thumbs up*)

© 2023, Federal Reserve Bank of St. Louis. Permission is granted to reprint or photocopy this lesson in its entirety for educational purposes, provided the user credits the Federal Reserve Bank of St. Louis, https://www.stlouisfed.org/education.

- If the price of a 16-ounce bottle of water increases from $1.29 a bottle to $3.30 a bottle, will the quantity of bottles of water people buy increase or decrease? (*Decrease—thumbs down*)
- If the price of popcorn at the movies decreases from $4.50 for a small bag to $1.25 for a small bag, will the quantity of popcorn people buy increase or decrease? (*Increase—thumbs up*)

19. Discuss the following to review the content of the lesson:
    - Who are consumers? (*People who buy goods and services*)
    - What is a price? (*The amount consumers/buyers pay for a good or service and the amount sellers receive for a good or service*)
    - What is the law of demand? (*When the price of a product increases, consumers will buy less of it. When the price of a product decreases, people will buy more of it.*)
    - Why do people buy more at lower prices and less at higher prices? That is, why is the law of demand true for most products? (*The law of demand is true for most products because consumers with a limited amount to spend aren't able to buy as much when prices increase but are able to buy more as prices decrease. And, when prices increase, consumers will buy less of the more-expensive produce and substitute a less-expensive product.*)

Assessment

20. Distribute a copy of *Handout 3: Assessment* to each student. Allow time for students to work, then review their work using the *Handout 3: Assessment—Answer Key*.

© 2023, Federal Reserve Bank of St. Louis. Permission is granted to reprint or photocopy this lesson in its entirety for educational purposes, provided the user credits the Federal Reserve Bank of St. Louis, https://www.stlouisfed.org/education.

Handout 1: Consumers, Prices, and Buying

Directions: Read the story below and answer the questions that follow.

To get to a nearby park, people must walk right by Thomas and Cameron's house. It was a really hot summer day, so Thomas and Cameron decided it would be a good idea to sell lemonade on the sidewalk in front of their house.

Thomas said, "People will want a drink of cold lemonade as they walk to the park. When people buy our lemonade, they will be consumers."

Cameron asked, "What are consumers?"

Thomas replied, "Consumers are people who buy goods and services. Lemonade is a good. When you and I buy stuff at the store, we are consumers."

Cameron said, "Okay, that's cool. I think we can sell a lot of lemonade. How much will we charge people for a cup of lemonade?"

Cameron and Thomas talked a long time about what price to charge for their lemonade. Prices are the amounts consumers pay to buy a good or service. And prices are the amounts sellers receive when they sell a good or service.

First, they charged $5 for a cup of lemonade. They only sold 2 cups. They were surprised, but then they decided to have a sale. That means they lowered their price to $4 a cup. They sold 4 cups. That still wasn't a lot of lemonade. They thought that they would sell more.

Cameron and Thomas decided that they need to learn more about prices and how much of a good or service people are willing and able to buy at different prices. They planned to talk to their mom about it when she got home that day.

Write a sentence to answer each question below.

1. Who are consumers?

2. What is a price?

3. Why did Cameron and Thomas think selling lemonade was a good idea?

4. Why did Cameron and Thomas reduce the price of their lemonade to $4 a cup?

© 2023, Federal Reserve Bank of St. Louis. Permission is granted to reprint or photocopy this lesson in its entirety for educational purposes, provided the user credits the Federal Reserve Bank of St. Louis, https://www.stlouisfed.org/education.

Handout 2: Number of Beverages Students Are Willing and Able to Buy at Various Prices

Name: _____

Table: Prices and Quantities of _____ Students are Willing and Able to Buy

Price	Quantity
$1	
$2	
$3	
$4	

Write a sentence to answer each question below.

1. With $4 to spend on beverages, what happened to the quantity of this beverage students could buy as the price increased? Why?

2. If you bought fewer bottles of this beverage, what beverage would you buy instead? Why?

©2023, Federal Reserve Bank of St. Louis. Permission is granted to reprint or photocopy this lesson in its entirety for educational purposes, provided the user credits the Federal Reserve Bank of St. Louis, https://www.stlouisfed.org/education.

Handout 3: Assessment (page 1 of 2)

Name: _____

Directions: Use the table below to answer questions 1 and 2.

Prices and Quantities of Caramel Apples People Will Buy	
Price per apple	**Quantity of apples**
$5	10
$4	15
$3	20
$2	25
$1	35

1. What happens to the quantity of apples people will buy when the price decreases from $4 per apple to $3 per apple?

2. What happens to the quantity of apples people will buy when the price increases from $1 per apple to $2 per apple?

For each question below, write a sentence telling what you would expect consumers to do and explain why.

3. The price of a snow cone at the park was $1.75 each, but now the price is $3.50 each.

4. The price of a slice of pizza at the ballpark was $6.25 each, but now the price is $3.25 each.

©2023, Federal Reserve Bank of St. Louis. Permission is granted to reprint or photocopy this lesson in its entirety for educational purposes, provided the user credits the Federal Reserve Bank of St. Louis, https://www.stlouisfed.org/education.

Handout 3: Assessment (page 2 of 2)

Read each of the problems below and answer the question. Show your work.

5. If your allowance is $2.50 a week and the price of candy bars from a vending machine is $0.75 per bar, how many candy bars could you buy in a week?

6. If your allowance is $2.50 a week and the price of candy bars from a vending machine is $0.50 per bar, how many candy bars could you buy in a week?

7. Write a sentence explaining why you were able to buy more candy bars in a week when the price decreased.

8. If the price of one candy bar increases from $0.50 per bar to $1 per bar, but the price of other candy bars didn't increase, what could you do?

Fill in the blanks to make the following statement true.

9. The law of demand tells us that when the price of a good or service increases, consumers will buy _____ of the good or service, and when the price of a good or service decreases, consumers will buy _____ of the good or service.

© 2023, Federal Reserve Bank of St. Louis. Permission is granted to reprint or photocopy this lesson in its entirety for educational purposes, provided the user credits the Federal Reserve Bank of St. Louis, https://www.stlouisfed.org/education.

Handout 3: Assessment—Answer Key

Directions: Use the table below to answer questions 1 and 2.

Prices and Quantities of Caramel Apples People Will Buy	
Price per apple	**Quantity of apples**
$5	10
$4	15
$3	20
$2	25
$1	35

1. What happens to the quantity of apples people will buy when the price decreases from $4 per apple to $3 per apple? *The quantity of apples people will buy increases.*
2. What happens to the quantity of apples people will buy when the price increases from $1 per apple to $2 per apple? *The quantity of apples people will buy decreases.*

For each question below, write a sentence telling what you would expect consumers to do and explain why.

3. The price of a snow cone at the park was $1.75 each, but now the price is $3.50 each.
   Consumers will buy fewer snow cones because the price increased.
4. The price of a slice of pizza at the ballpark was $6.25 each, but now the price is $3.25 each.
   Consumers will buy more slices of pizza because the price decreased.

Read each of the problems below and answer the question. Show your work.

5. If your allowance is $2.50 a week and the price of candy bars from a vending machine is $0.75 per bar, how many candy bars could you buy in a week?
   $2.50/$0.75 = 3 candy bars, with $0.25 remaining
6. If your allowance is $2.50 a week and the price of candy bars from a vending machine is $0.50 per bar, how many candy bars could you buy in a week?
   $2.50/$0.50 = 5 candy bars
7. Write a sentence explaining why you were able to buy more candy bars in a week when the price decreased.
   I had only $2.50 to spend. When the price of candy bars decreased, I was able to buy more candy bars with $2.50 than I could at the higher price.
8. If the price of one candy bar increases from $0.50 per bar to $1 per bar, but the price of other candy bars didn't increase, what could you do?
   I could substitute a lower-priced candy bar for the higher-priced candy bar.

Fill in the blanks to make the following statement true.

9. The law of demand tells us that when the price of a good or service increases, consumers will buy ____*less*____ of the good or service, and when the price of a good or service decreases, consumers will buy ____*more*____ of the good or service.

© 2023, Federal Reserve Bank of St. Louis. Permission is granted to reprint or photocopy this lesson in its entirety for educational purposes, provided the user credits the Federal Reserve Bank of St. Louis, https://www.stlouisfed.org/education.

Standards and Benchmarks

Voluntary National Content Standards in Economics

Standard 7: Markets and Prices

A market exists when buyers and sellers interact. This interaction determines market prices and thereby allocates scarce goods and services.

- **Benchmarks: Grade 4**

  1. A price is what people pay when they buy a good or service, and what they receive when they sell a good or service.

- **Benchmarks: Grade 8**

  2. The term 'relative price' refers to the price of one good or service compared to the prices of other goods and services. Relative prices are the basic measures of the relative scarcity of products when prices are set by market forces (supply and demand).

© 2023, Federal Reserve Bank of St. Louis. Permission is granted to reprint or photocopy this lesson in its entirety for educational purposes, provided the user credits the Federal Reserve Bank of St. Louis, https://www.stlouisfed.org/education.