Lesson 9:
A Bad Deal for the Rain Forests

Author

Curt Anderson, Ph.D., Professor Emeritus, University of Minnesota-Duluth

Standards and Benchmarks (see page 9.11)

Lesson Description

Students are given the opportunity to buy small snacks in three different situations. The first involves a choice between two different goods that have the same price. The second involves a choice between the same good offered at two different prices. The third involves a choice in which a good has public or "shared" characteristics or private or "me-only" characteristics.

NOTE: To achieve the results described in this lesson, the class size must be larger than 10 students.

Grade Level

6-8

Economic Concepts

Free rider

Negative incentives

Private ("me-only") goods

Public (shared) goods

Objectives

Students will be able to

- define private goods, public goods, free rider, and incentive;
- explain that price and people's tastes and preferences influence what people buy;
- identify examples of public and private goods; and
- explain why people may be unwilling to pay for something to happen even though they want it to happen.

Compelling Question

Why are people unwilling to pay to protect the environment, even though they think protecting the environment is important?

Time Required

50 minutes

Materials

- Copies of Handout 9-1 cut apart to provide 10 tokens for each student
- A copy of Handouts 9-2 and 9-3 for each student
- A For Sale sign—"Chocolate-Covered Brussels Sprouts, 2 for $1.00"
- 30 small, individually wrapped snacks (candy, sticks of gum, boxes of raisins) or small items/toys (plastic rings, erasers, pencils, stickers) for each student
- Paper lunch bag for each student
- Two product signs, each advertising a different treat at a price of one token (for Round 1)
- Two product signs, each advertising the same treat—one at a price of one token, another at a price of two tokens

Procedure

1. Display the For Sale sign on the board. Discuss the following:
   - Would you be willing and able to buy chocolate-covered brussels sprouts, 2 for $1? (*Most will say no.*) Why? (*Most will say they don't like brussels sprouts, or they like brussels sprouts but don't want them dipped in chocolate.*)
   - If I open a chocolate-covered brussels sprouts business and no one buys my product, what will happen? (*You will probably have to go out of business.*)

2. Tell students that businesses producing and selling something that no one wants will soon go out of business. Take down the sign and explain that you won't be producing chocolate-covered brussels sprouts because no one was willing and able to buy them. Decisions about what goods will be produced in society depend on what people are willing and able to buy.

3. Explain that students will participate in a role-play activity as buyers. Each student will have the opportunity to role-play in three buying rounds. In each round, they will have 10 tokens and will have two choices. They may either spend all their tokens on one choice or spend some tokens on one choice and some on the other. They should choose to do whichever they think is best for them.

Round 1

4. Distribute 10 tokens from *Handout 9-1: Tokens* and one paper lunch bag to each student. Instruct each student to write his or her name on the lunch bag. Explain that after making purchases, they should place the items in the paper bag. They may not eat anything from their bags until the lesson is completed.

5. Select two desks at the front of the room. Explain that each desk represents a market. In markets, sellers make goods and services available for sale to buyers. Display the two product signs for the different items with the same price.

6. Tell students to come up one by one to make their purchases. After each purchase, ask students to announce how much they spent on each treat. Discuss the following:
   - Did everyone buy the same amount of each snack? (*No*) Why? (*Students have different tastes; they like different things.*)
   - In general, was one item chosen more than the other? (*Answers will vary.*) If so, why did this happen? (*In general, students liked it better.*)

Round 2

7. Redistribute 10 tokens to each student. On the desks (markets), display the two product signs advertising the same treat at different prices.

8. Tell students to come up one by one to make their purchases. After each purchase, ask students to announce how much they spent on each treat. Ask why many students only purchased the lower-priced item. (*They could buy more treats at the lower price, and they get more satisfaction.*) Discuss the following:
   - What influenced your purchases in the first round? (*How much I liked the treats*)
   - What influenced your purchases in the second round? (*Only the price of the goods*)

9. Tell students that these are the same factors that influence what everyone buys—how much they like it (how much satisfaction is received from it) and its price. Of course, what people buy determines what is produced.

Round 3

10. Distribute a copy of *Handout 9-2: Looking for a Good Deal* to each student. Explain that in this third round, the markets will be a little different. In Market 1, students will be able to buy one treat for one token. However, in Market 2, everyone in the class will receive a treat for every 10 tokens paid—even those students who didn't pay anything. This time, the number of treats an individual student receives depends on his or her buying decisions *and* the decisions

of the rest of the students. Ask students to read the options on Handout 9-2. Answer any questions the students may have.

NOTE: The number of treats for Market 2 is found by dividing the number of tokens by 10 and rounding down. Use the remaining treats, which may be a mix of the two different treats from Rounds 1 and 2.

11. Read the instructions on Handout 9-2 and have students complete Part A. Allow time for students to complete the work. When students have finished Part A, discuss the answers as follows:

    - How many treats would you receive in case #1? (*13 treats: 10 from Market 1 and 3 from Market 2; that is, 36 tokens/10 = 3.6 rounded down to 3*)
    - How many treats would you receive in case #2? (*9 treats: 5 from Market 1 and 4 from Market 2; that is, 41 tokens/10 = 4.1 rounded down to 4*)
    - How many treats would you receive in case #3? (*5 treats: 0 from Market 1 and 5 from Market 2; that is, 51 tokens/10 = 5.1 rounded down to 5*)
    - How many treats would you receive in case #4? (*The number of treats equals the number of students in the class. All tokens are spent in Market 2, so the total number of tokens paid equals 10 times the number of students in the class.*)

12. Remind students that in this round, the number of treats they will receive depends on what they decide and what the other students in the class decide. In this round, they can receive a treat from Market 2 whether or not they contribute tokens to Market 2.

13. Explain that this time, instead of coming to the front of the class to make choices, each student will secretly record his or her decision in Part B of Handout 9-2. Once they have recorded their decisions, they should fold the paper to hide their choices.

14. Remind students that they can spend all tokens in one market or spend some in each market, but they should do whatever they think is best for them.

15. After everyone is finished, ask students to come to the front of the class one at a time. Explain that you will give each student the number of tokens they chose to spend in Market 1 according to what they wrote in Part B of Handout 9-2. Next, each student may purchase the corresponding number of treats from Market 1. Explain that you are also collecting all tokens they chose to spend in Market 2. After everyone has had a turn, you will count the tokens in Market 2 and divide the number by 10, rounding down to determine how many treats each student will receive from the market. Distribute those treats to the class.

    NOTE: The expected and likely result here is that students will spend tokens in both markets whether or not they completely understand the incentives.

16. Discuss the following:
    - Who ended up with the most treats? (*Because everyone received the same number of treats from Market 2, it will be the student(s) who spent the most tokens in Market 1.*)
    - Does this mean that Market 1 offers a better deal? (*No*)

17. Explain that Market 2 is clearly a better deal. In Market 1, if a student spent 10 tokens, he or she could receive 10 treats. However, if everyone in the class spent their 10 tokens in Market 2, each student would receive as many treats as there are students in the class.

18. Ask students to describe the difference in the distribution of treats between Market 1 and Market 2. (*In Market 1, the treats go only to those who pay. In Market 2, the treats are shared by everyone regardless of who pays. People who didn't contribute any tokens to Market 2 still received treats.*) Explain that most markets are like Market 1—only paying customers receive the goods. These goods are called **private goods** (or "me-only" goods) because only the person who pays receives benefits (satisfaction) from the goods.

19. Ask students for examples of private or "me-only" goods. (*Toys, cars, pieces of pizza, hamburgers, shirts, shoes*)

20. Market 2 is an example of shared or public goods. **Public goods** are goods from which many people benefit at one time and from which they can benefit whether or not they pay. Many goods we get from the environment are like those in Market 2. They are "shared" or public goods. Everyone receives the same benefit from the goods whether or not they pay to use them. Use the following example to clarify:
    - If an endangered species is preserved, who benefits? (*Everyone who may have an opportunity to see or read and learn about the animal*)
    - Who benefits if the ozone layer is protected? (*Everyone benefits because we all receive the UV protection the ozone layer provides. UV protection helps prevent us from getting skin cancer.*)
    - Who benefits if rain forests are preserved? (*Everyone does. We all benefit from the oxygen that healthy rain forests produce. We also benefit because the plants in the rain forest absorb harmful gases in the air and provide homes for many animals.*)
    - Who benefits from clean air? (*All of us benefit because our lungs stay healthier.*)
    - Who benefits from clean water? (*All of us benefit because we don't become sick from dirty water.*)

21. Ask students why they think societies don't produce more of these shared environmental goods. (*Answers will vary.*) Explain that the buying activity they completed can help them understand why. In Round 3, students knew that contributing tokens to Market 2 would

result in the most treats for the whole class. The "shared" goods were a better deal; however, students also knew that even if they didn't contribute any tokens or only contributed a few tokens to Market 2, they would receive treats because other people would contribute to Market 2. In other words, they could be free riders. A **free rider** is a person who receives benefits from something for which he or she doesn't pay. So they had an incentive to contribute few or no tokens to Market 2 and use their tokens to buy treats ("me-only" goods) from Market 1. As a result, fewer shared goods were produced even though they were a better deal.

22. Point out that this response usually occurs. People respond predictably to incentives. An **incentive** is a reward or penalty that makes people better off or worse off, respectively.

23. Explain that even though everyone could benefit from protecting the rain forest (shared goods), people tend to let others use their money (tokens) to protect the environment while they use theirs to buy "me-only" goods (free ride). This is a bad deal for the rain forests, and it's the economic reason fewer environmental goods are produced than people say they want.

Closure

24. Review the key points of the lesson by asking the following questions:

    - What things determine what and how much you buy? (*The price of the good and how happy the things make me; that is, how much satisfaction I receive*)
    - What is a shared or public good? (*One that benefits [satisfies] many people at one time; one that people can use even if they don't pay for it*)
    - Name some examples of environmental goods that are public goods. (*Rain forests, air, water, UV protection from the ozone layer*)
    - Name some examples of other public goods in the community. (*Fire protection, police protection, public parks, public television*)
    - What is a "me-only" or private good? (*One that benefits [satisfies] the person who buys it; one that you can't use unless you pay for it*)
    - Name some examples of private goods. (*Bicycles, slices of pizza, hamburgers, shoes, socks, hats, baseball gloves, hockey sticks, ballet shoes*)
    - What is a free rider? (*Someone who benefits from a good for which he or she didn't pay)*

Assessment

25. Distribute a copy of *Handout 9-3: Assessment* to each student. Read the directions and answer any questions the students have. Have students complete the assignment. Use the answers below to review students' work.

1.

Private goods (underlined)	***Public goods (shared)***
Hamburger and fries	*City park*
Toothbrush	*Police protection*
Pair of shoes	*Public library*
Movie ticket	*Fire protection*
Hat	*Street lights*
Ice cream cone	*Sidewalks*
	Ozone layer
	Air
	Bald eagles

2. *Answers will vary but should include that the good can be shared by many. People can use the good even if they don't pay for it.*

3. *Answers will vary but should include that the good can be used by one person and that you can be excluded from using the good if you don't pay for it.*

4. *Even though people think it is important to protect the environment, they may be unwilling to pay to do so. Environmental resources such as air, rivers, oceans, and the ozone layer are public goods. This means that many people benefit from these resources at one time, and they benefit even if they don't pay to use or protect. People recognize this and often choose to be free riders.*

Handout 9-1: Tokens

One token	One token	One token	One token	One token
One token	One token	One token	One token	One token
One token	One token	One token	One token	One token
One token	One token	One token	One token	One token
One token	One token	One token	One token	One token
One token	One token	One token	One token	One token
One token	One token	One token	One token	One token
One token	One token	One token	One token	One token
One token	One token	One token	One token	One token
One token	One token	One token	One token	One token
One token	One token	One token	One token	One token

Handout 9-2: Looking for a Good Deal

In Round 3, you have the following two buying options:

Market 1: You receive one treat for each token you pay.

Market 2: You and everyone in the class receives one treat for every 10 tokens paid regardless of how many tokens each student pays.

Number of tokens paid	Each student receives
0-9 tokens	0 treats
10-19 tokens	1 treat
20-29 tokens	2 treats
30-39 tokens	3 treats
40-49 tokens	4 treats
50-59 tokens	5 treats
60-69 tokens	6 treats
70-79 tokens	7 treats
…and so on	…and so on

Part A: Calculate how many treats you would receive in the cases below.

1. You spend all of your tokens in Market 1, while the rest of the class spends 36 tokens in Market 2.

2. You spend 5 of your tokens in Market 1 and 5 tokens in Market 2, while the rest of the class spends 36 tokens in Market 2.

3. You spend all of your tokens in Market 2, and the rest of the class spends 41 tokens in Market 2.

4. Everyone spends all of their tokens in Market 2.

Part B: Make your choice. Write how many tokens you'll spend in Market 1 and how many you'll spend in Market 2. Remember you have only 10 tokens to spend.

_____ **Market 1** _____ **Market 2**

Handout 9-3: Assessment

1. Read the list of goods below. Circle those goods that are public (shared) goods. Underline those goods that are private ("me-only") goods.

City park	Hamburger and fries	Toothbrush
Pair of shoes	Police protection	Public library
Fire protection	Movie ticket	Ice cream cone
Sidewalks	Air	Bald eagles
Ozone layer	Street lights	Hat

2. Choose one public good from the list and explain why it is a public good.

3. Choose one private good from the list and explain why it is a private good.

4. Explain why people might be unwilling to pay to protect the environment even though they think protecting the environment is important. Use the economic vocabulary of public goods and free rider in your response.

Standards and Benchmarks

Voluntary National Content Standards in Economics

Standard 4: Incentives

- **Benchmarks: Grade 4**

  2. Penalties are negative incentives that make people worse off.
  3. Both positive and negative incentives affect people's choices and behavior.
  4. People's views of rewards and penalties differ because people have different values. Therefore, incentives can influence different individuals in different ways.

- **Benchmark: Grade 8**

  3. Incentives can be monetary or non-monetary or both.

Standard 16: Role of Government and Market Failure

- **Benchmark: Grade 8**

  1. Public goods and services provide benefits to more than one person at a time, and their use cannot be restricted to only those people who have paid to use them.