

Seas, Trees, and Economies

Lesson 8: Eco-Cents

Author

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

Standards and Benchmarks (see page 8.12)

Lesson Description

Students discover ways that businesses have reduced the impact of their production and products on the environment. They consider the role of consumer sovereignty in bringing about these changes. Working in teams, students are challenged to come up with their own ideas for new products or services and make a marketing presentation to the class.

Grade Level

6-8

Economic Concepts

Consumer sovereignty
Costs of production
Entrepreneur
Natural resources
Product
Profit
Revenue
Waste

Objectives

Students will be able to

- define product, natural resources, waste, profit, revenue, costs of production, consumer sovereignty, and entrepreneur;
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- explain ways in which businesses have reduced the impact of their production and products on the environment; and
 - explain how and why businesses respond to consumer wants.
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Compelling Question

Why do businesses seek to use environmentally friendly production methods and to make environmentally friendly products?

Time Required

130 minutes over 3 days

Day 1: 15-20 minutes

Day 2: 50 minutes

Day 3: 60 minutes

Materials

- A copy of Handouts 8-1, 8-2, and 8-3 for each student
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Procedure

Day 1

1. Explain that production is the process of using resources to make products. **Products** are goods or services. Some resources used to produce goods and services are natural resources. **Natural resources** are things that occur naturally in and on the earth that are used to produce goods and services.
 2. Explain that when goods and services are produced and consumed, waste occurs. **Waste** is the unavoidable material that remains after something has been consumed or produced. Some waste produced may be recycled to produce more goods and services, while other waste is put back into the environment in either the ground (landfill), our waterways, or the air (incineration). This waste can have harmful impacts on the environment.
 3. Ask students why businesses produce goods and services. (*Answers will vary.*) Explain that businesses produce goods and services to earn profit. **Profit** is the difference between revenue and the costs of production. Profit is income for entrepreneurs. **Revenue** is the payment producers receive when consumers buy a product. **Costs of production** are the amount producers pay for the resources used to produce a product.
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4. Remind students that businesses want to earn profit. Ask them what would happen if a business produced a product that consumers did not want to buy. (*The business wouldn't sell the product and, therefore, wouldn't earn a profit. It would go out of business.*)
5. Explain that because businesses want to earn profit, they must produce products that consumers want the most and are willing and able to buy while keeping their costs of production as low as possible.
6. Explain that over time, people have become more aware that the production and consumption of goods and services result in waste that is put back into the environment. As a result, people have begun to ask both businesses and government for more environmentally friendly products.
7. Ask students what they think an environmentally friendly product is. (*One with a limited amount of packaging, one made from recycled materials, one that is reusable, one that uses less energy, one that uses fewer natural resources, one that produces less waste*)
8. Summarize that an environmentally friendly product is one whose consumption and production have only a small impact on the environment.
9. Tell students they are going to participate in an “environmentally friendly” scavenger hunt. Distribute a copy of *Handout 8-1: Eco-Search* to each student. Make certain that students understand the 10 categories listed on the handout by providing the following descriptions:
 - **Environmentally friendly or “causes no harm to the environment”:** Some products announce or advertise they are safe for or cause no harm to the environment. Many cleaning solutions that no longer contain phosphates announce this on their labels.
 - **Energy saving or energy efficient:** Advertisements for new kitchen appliances often indicate the appliances use less electricity or water to operate than do older appliances.
 - **Produced with recycled materials:** Often paper products will include a note telling the consumer the product was made with recycled materials.
 - **Secondhand or used:** Perhaps you or one of your family members has purchased an item someone else used first—for example, from a garage or rummage sale.
 - **Lighter or smaller, using less material to produce the product now than before:** Cars are made with lighter materials than they used to be.
 - **Can be recycled:** Many products have a recycle symbol or a note on the label indicating the container/wrapper for the product can be recycled.
 - **Used in or with the natural environment:** Think about things you use to help you enjoy outdoor activities. For example, using water skis requires a lake.

- **Uses solar energy:** Sometimes the power to operate a product comes from solar energy. For example, some calculators, outdoor lights, and flashlights are solar powered.
 - **Effect of waste on the environment has been reduced:** Sometimes waste that is created when a product is made can be treated or cleaned so that it does less harm to the environment. For example, if dirty water from a factory is filtered before it is dumped into a river, it does less harm to the environment.
 - **Helps educate:** There are magazines, programs, books, and other materials helping people learn about ways to protect the natural environment.
10. Challenge students to find at least one example of each of the items listed using the internet, magazines, store ads, stores, and other sources. Tell them they have two days to complete this task.

Day 2

11. Discuss the scavenger hunt results as follows:
- Name some products that “cause no harm to the environment.” (*Biodegradable cleaning solutions and non-aerosol dispensers*)
 - How have businesses changed their production processes so that these goods aren’t harmful to the environment? (*They may use chemicals that aren’t harmful or use pump dispensers instead of aerosol sprays to prevent harming the ozone layer.*)
 - How does this benefit the environment? (*Less waste or less-harmful waste is put into the environment.*)
 - Name some products that are energy saving or energy efficient. (*A new home, new appliances, a new water heater, and energy-efficient light bulbs*)
 - How have businesses changed their production process to make these products more energy efficient? (*They’ve produced additional insulation in homes, better seals and more-efficient motors in appliances, dishwashers and washing machines that require less water, and light bulbs that use less energy.*)
 - How does this benefit the environment? (*Fewer natural resources are used to operate appliances, and fewer natural resources are needed to heat and cool homes.*)
 - Name some products that are produced with recycled materials. (*Aluminum cans, some plastic containers, glass containers, some paper towels, and other paper products*)
 - How have producers changed their production processes to make these products? (*They buy used aluminum cans, plastic bottles, glass, and paper to create raw materials instead of using natural resources.*)
 - How does this benefit the environment? (*Fewer new resources are used and less waste is put into the environment because some resources are reused.*)

- Name some products offered for sale that have already been used. (*Used cars, used clothing, and used tools and equipment*)
 - How does this benefit the environment? (*New resources aren't used to produce these items, and no additional waste is created.*)
 - Name some products that are lighter or smaller than they used to be. (*Automobiles, trucks, computers, irons, calculators, and lawn mowers*)
 - How have producers changed their production processes to make these products? (*They have redesigned the product and/or product packaging.*)
 - How does this benefit the environment? (*A lighter car uses less fuel, and lighter products require less fuel to transport.*)
 - Name some products that are used in or with the natural environment. (*Backpacks, binoculars, cross-country skis, roller blades, hiking boots, fishing pools, and tents*)
 - What are some products that operate using solar energy? (*Satellites, solar calculators, solar panels for heating homes and water, communication equipment that measures water levels in flash flood areas, railroad communications, and call boxes along the highway*)
 - How does this benefit the environment? (*Fossil fuels aren't used, and less waste is produced.*)
 - Name some products for which producers have reduced the harmful effects of the waste created during production. (*Electricity, fertilizer, and bus services*)
 - How did producers change their production processes to reduce the harmful effects of waste created during production? (*Electricity: added scrubbers to smoke stacks and switched from high-sulphur to low-sulphur coal or to natural gas; fertilizer: return cleaner water used in production to the river; bus services: use natural gas or electricity instead of gasoline or diesel to run buses*)
 - How does this benefit the environment? (*These changes reduce the amount of waste in the air and water.*)
 - Name some products that help educate people about ways to protect the environment. (*Documentaries about the environment; public service announcements on radio and television; and local, state, and federal environmental organizations*)
12. Point out that the scavenger hunt shows that businesses have responded to consumer desires for more environmentally friendly products. Discuss the following:
- How have businesses responded? (*By producing goods with recycled materials, producing products that can be recycled, reducing the amount of waste created, treating/removing waste so that it doesn't get into the environment, producing goods that are more energy efficient, producing goods that are lighter, and so on*)

- Why do businesses respond to consumer desires (wants)? (*Consumers won't buy products that they don't want.*)
 - What happens to a business if it produces products that consumers don't want? (*The business will earn little or no profit.*)
 - If consumers want businesses to produce goods and services that are more environmentally friendly, what can they do? (*They can refuse to buy less environmentally friendly products, write to companies and request that they change production so their products are more environmentally friendly, and encourage other consumers to take similar actions.*)
13. Explain that consumers have **consumer sovereignty**—the ability to influence what is produced and consumed in the economy through their consumption activities. Consumers have power because they determine the types and quantities of goods and services that are produced. If consumers won't buy a good, producers won't want to produce it. If consumers want to buy a good, producers will want to produce it to earn a profit.
 14. Tell students that they are going to participate in a role-play activity. In this activity, students will work in groups and act as entrepreneurs. An **entrepreneur** is a person who is willing to take risks in order to develop new products and start new businesses.
 15. Divide the class into groups of two to four students. Explain that the task for each group is to think of a new product or service or a way of improving an existing product or service. The new or improved product that the group devises must fit into at least one of the 10 categories on Handout 8-1.
 16. Explain that once members of a group decide on a new or improved product, they must develop a five-minute presentation for the rest of the class.
 17. Point out that during the presentation, each group must explain why its product would be profitable for the company to produce and why the product is environmentally friendly.
 18. Distribute a copy of *Handout 8-2: Production Presentation* to each student. Explain that this is a guide for developing the presentation and review the information with the students. Encourage them to prepare visual aids that complement their oral presentations.
 19. Allow at least one week for students to prepare their presentations.

Day 3

20. Have the teams make their presentations.

 21. Point out that new, environmentally friendly products can be developed and that existing products can be improved to be more environmentally friendly. Businesses, however, will only develop these new or improved products if consumers are willing and able to buy them. As a result, consumers have a lot of say about what gets produced. They have consumer sovereignty.
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Closure

22. Review the key points of the lesson by asking the following questions:
 - What is production? *(The process of using resources to make products)*
 - What are natural resources? *(Things that occur naturally in and on the earth that are used to make goods and services)*
 - What is waste? *(The unavoidable material that remains after something has been consumed or produced)*
 - Why do businesses produce and sell goods and services? *(To earn profit)*
 - What is profit? *(The difference between the revenue a business receives and its costs of production)*
 - What is revenue? *(The payment producers receive when consumers buy their product)*
 - What are costs of production? *(The amount producers pay for the resources used to produce a product)*
 - What does consumer sovereignty mean? *(Consumers have power to influence what goods and services are produced.)*
 - What does environmentally friendly mean? *(When a product is produced and consumed, it has only a little impact on the environment.)*
 - What is an entrepreneur? *(A person who is willing to take risks in order to develop new products and start new businesses)*

Assessment

23. Distribute a copy of *Handout 8-3: Assessment* to each student. Review the instructions and tell students to complete the work. Use the information below to check students' answers.
1. *Revenue minus costs of production*
 2. *Willing and able to buy*
 3. *Consumer sovereignty*
 4. *Entrepreneur*
 5. *Waste*
 6. *Payment*
 7. *Natural resources*
 8. *Environmentally friendly*

Handout 8-1: Eco-Search

You are going on a scavenger hunt! You are looking for information about environmentally friendly products (goods or services). Your goal is to find a specific example of each of the products described below. Write the name of the product, the company that produces it, and the source of your information (internet site, product label, and so on).

Product description	Product and company name	Source
1. A product that is described as environmentally friendly or "causes no harm to the environment" (or something similar)		
2. A product described as energy saving or energy efficient		
3. A product made with mostly recycled materials		
4. A product offered for sale that has already been used (secondhand)		
5. A lighter or smaller product made using less material than was used in the past		
6. A product that, in large part, can be recycled		
7. A product that people use in or with the natural environment		
8. A product that operates using solar energy		
9. A product for which producers have reduced the harmful effects of waste created when the product is made		
10. A product that helps educate about ways to protect the natural environment		

Handout 8-2: Product Presentation

Your group's product presentation is limited to five minutes. The presentation should include answers to the following questions:

1. What is your product and what is its name? Describe, demonstrate, and/or show a sample of your product.
2. What want does the product satisfy?
3. Is this a new product or have you improved an existing product?
4. In what ways is this product environmentally friendly or more environmentally friendly than other products like it?
5. How is this product produced; what natural resources, workers, tools, and machines are needed?
6. Why do you think people would be willing and able to buy this product?

Handout 8-3: Assessment

Use the Word Bank below to complete the following sentences.

1. Profit is _____ minus _____.
2. To earn profit, businesses must produce a product that consumers are _____.
3. Consumers influence what types of goods and services are produced. This is called _____.
4. A person who has an idea for a good or service that he or she thinks many people will like and who risks time and money to produce it is called a(n) _____.
5. _____ is the unavoidable material that remains after production and consumption.
6. Revenue is the _____ a business receives from selling a product.
7. Things that occur in nature or the natural environment are called _____.
8. _____ means that the production or consumption of a product has only a little impact on the environment.

Word Bank

Environmentally friendly

Willing and able to buy

Revenue

Natural resources

Consumer sovereignty

Entrepreneur

Waste

Costs of production

Payment

Standards and Benchmarks

Voluntary National Content Standards in Economics

Standard 7: Markets and Prices

- **Benchmark: Grade 8**

1. Market prices are determined through the buying and selling decisions made by buyers and sellers.

Standard 14: Entrepreneurship

- **Benchmarks: Grade 8**

3. Entrepreneurs (as well as other sellers) earn profits when the revenues they receive from selling the products they sell are greater than the costs of production.
4. Entrepreneurs (as well as other sellers) incur losses when the revenues they receive from selling the products they sell do not cover the costs of production.