# Lesson 6: Should we Subsidize Energy?

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## Description of the lesson

In this lesson, students will participate in a market simulation that demonstrates how the forces of supply and demand determine price. Students are divided into buyers and sellers in the market for solar panels. They spend three rounds buying and selling solar panels. In the first round, there are no government interventions in the market. In round two, the government incentivizes consumers to buy more solar panels. In the third round, the government incentivizes producers.

## Economics

In a market economy, prices allocate goods and services to the uses that buyers and sellers value most. Most modern market economies involve some government intervention to help prevent possible market failures. One type of market failure is called an externality.

An externality is a cost or benefit to a third party arising from a transaction between two parties unrelated to the third party. Externalities are sometimes called spillover costs or benefits. Many people would view solar panels as resulting in positive externalities. Meaning that the purchase of solar panels by some people creates spillover benefits for society as a whole–even those who don't buy or sell solar panels benefit. That is, the social value of the transaction is greater than the private value of the transaction. This is because the use of solar panels can reduce, or offset, society's reliance on non-renewable or "dirty" energy. Because the social value exceeds the private value of solar panel transactions, the optimal quantity of solar panels in the market is greater than the equilibrium quantity. In this situation, government can subsidize the production of solar panels so that society experiences more of the positive externality (spillover benefits).

A subsidy is a transfer of money from the government to either businesses or consumers. Subsidies are sometimes referred to as a reverse tax, because the government gives money to consumers. Subsidies for consumers reduce the price of the good, causing an increase in quantity demanded for the product. This reduction in price paid by consumers moves consumers along the demand curve to a new quantity demanded where social value would

equal the value to individuals plus the external benefit. Subsidies to producers reduce their costs of production shifting the supply curve to the right which reduces the price causing consumers to purchase a larger quantity.

## Objectives:

After completing this lesson students will be able to:

- Define market, price, externalities and subsidy.
- Describe how prices are determined..
- Explain how subsidies incentivize buyers and sellers in a market.
- Explain the role of the government in correcting externalities.

## Standards

- Standard 7: Markets and Prices
    - A market exists when buyers and sellers interact. This interaction determines market prices and thereby allocate scarce goods and services.

- Standard 8: Role of Prices
    - Prices send signals and provide incentives to buyers and sellers. When supply and demand changes, market prices adjust, affecting incentives.

- Standard 16: Role of Government and Market Failure
    - There is an economic role for the government in a market economy whenever the benefits of a government policy outweigh its costs. Governments often provide for national defense, address environmental concerns, define and protect property rights, and attempt to make markets more competitive. Most government policies also have direct or indirect effects on peoples' incomes.

## Concepts

Markets, prices, externality, subsidy

## Time Required

60 minutes

## Materials Needed

- Pencils, one per student
- Copies of Activity 6.1: Buyer Purchase Record Sheet, one for half of your students.
- Copies of Activity 6.2: Seller Sales Record Sheet, one for half of your students.
- Copies of Activity 6.3: Class Tally Sheet, one per class.

- Copies of Activity 6.4: Buy cards, cut along the dotted line. Best if printed on a different color paper than Sell cards (26 total).
- Copies of Activity 6.5: Sell cards, cut along the dotted line. Best if printed on a different color than Buy cards (26 total).
- Copies of Assessment 6.1, one per student.
- Slide presentation "Should we Subsidize Energy?"

## Preparation

Print and cut out your Buy and Sell cards on two different colors of paper to make them easier to sort. If possible laminate the cards before cutting them apart to allow for repeated use. Before starting the simulation, mix up the Buy cards so that buyers select randomly and mix up the Sell cards so that sellers select randomly. NOTE: Do NOT mix the buy and sell cards together, keep Buy and Sell cards separate. .

Create two stacks: one of Buy cards and one of Sell cards. The cards in these stacks will be used to distribute cards during the simulation. This simulation moves quickly. It may be difficult to distribute additional cards and record prices. Identify one or two students in each class who can help pass out cards during each round.

Clear a large section of the class to allow space for the market simulation.

## Procedure

1. Display slide 2. Explain that today students will participate in a market simulation. Ask students what a market is. (Answers will vary.) Explain that a **market** is any place where, or mechanism by which, buyers and sellers interact to trade goods, services, or resources. Ask students for examples of markets in which they participate. (Answers will vary but might include online shopping markets, brick and mortar stores, or specific stores.) In this simulation, half of the class will be buyers and half of the class will be sellers. They will be buying or selling a good–solar panels.

2. Tell students that **prices** are the amount of money that a buyer gives to a seller in exchange for a good or a service. Ask students who decide what prices will be in markets. (Answers will vary but some students may say that sellers determine prices or that the government determines prices.) Explain that this simulation will help students better understand how prices are determined in a market. Display slide 3.

3. Explain that this simulation has three rounds. Buyers remain buyers throughout each round. Sellers remain sellers throughout each round. In each round, buyers and sellers will negotiate with each other to determine the price of a solar panel. Display slide 4.

4. Walk students through the process of buying and selling a solar panel AND how they will each need to get new cards after they have made a transaction. It would be helpful to model this with two students for the whole class to see prior to starting your market.

5. Explain that buyers will start with a “Buy card” and a copy of Activity 6.1: Buyer Purchase Record Sheet. Display slide 5.

6. Explain that Buy cards say “You want to BUY one solar panel, paying as little as possible. If you spend more than _____, you will lose money.”

7. Explain that sellers will start with a “Sell card” and a copy of Activity 6.2: Seller Sales Record Sheet. Display slide 6.

8. Explain that Sell cards say “You want to SELL one solar panel, charging as much as possible. If you sell for less than _____, you will lose money.” Display slide 7.
   **Note:** It might be good to check with students to ensure they understand the process. Perhaps ask buyers what kind of prices they want, students with buy cards should reply “low.” Ask sellers what kind of prices they want, students with sell cards should reply “high.”

9. Remind students that both buyers and sellers will need to record each transaction on their record sheet.

10. Point out that the Purchase and Sales Record Sheets have a place for them to record the price on their Buy or Sell card and a place for them to record the price for which they either sold or bought their solar panel.

11. Walk the students through the process of filling out a row in a Sales Record Sheet before starting the first round.
    **Note**: Expect round 1 to be a little slower than the next two rounds. It may take students a little practice to get the hang of the simulation. It might be a good idea to have a student volunteer to go through the procedure with you to demonstrate the process for the entire class.

12. Explain that at the end of each round they must find the difference between the price written on their card and the price at which they either sold or bought their solar panel. For buyers, if they paid a higher price than the price on their card, they have a loss. If they paid a lower price than the price on their card, they have a gain. For sellers, if they sold for a higher price than the price on their card, they earned a profit. If they sold for a lower price than the price on their card, they had a loss. Point out that both buyers and sellers may have to take a loss if they get a bad card during any round. They want to conduct as many trades as possible in order to have gains or profits.

**Note**: Tell students that they will have a better chance to earn a profit or make gains if they conduct as many trades as possible.

13. Explain that once they have a card, buyers and sellers must find one another in order to make trades. They each need to record their transaction on their Purchase or Sales Record Sheet.

14. Explain that after a trade, buyers and sellers must report their sale price to you. They must also turn in their buy or sell cards and get new ones from the student distributing cards. Point out where they discard used cars and from which student they secure new cards. Remind them that sellers remain sellers and buyers remain buyers throughout each round.

15. Distribute a buy card and a copy of *Activity 6.1: Buyer Purchase Record Sheet* to each buyer (half of the class) and a sell card and a copy of *Activity 6.2: Seller Sales Record Sheet* to each seller (the other half of the class).

16. Tell students that you  will keep track of  prices on Activity 6.3: Class Tally Sheet. Explain that you will display the class tally sheet so that students can see the prices at which solar panels are trading.
    **Note:** You will want to have a document camera or a projector to keep track of the prices in real time throughout each round.

17. Tell students that each round of this simulation will last 5 minutes. Use the timer on slide 8 for round 1 and begin the first round of trading solar panels.

18. After the first round is finished, have students look at the Class Tally Sheet projected on the screen.  Ask them to identify the price at which most solar panels were traded in the first round. Ask students how prices were determined in this round? (Answer: Through market interactions of buyers and sellers).
    **Note**: This price may fluctuate a bit, especially in early rounds when students are working through the process of buying and selling solar panels.

19. Give students a few moments to record their gains/profits or losses for round one. Remind the student distributing the cards to restack the buyer and seller cards.

20. Ask students who benefits when people use solar panels. (Answers will vary but may include that the environment benefits.) Explain that other people–really society as a whole benefits—when people use solar panels because solar panels are a form of green energy that is less harmful to the environment than other forms of energy.

21. Explain that when the use of a good or service provides benefits to others not involved in its use, we say it provides a positive externality or spillover benefit. An **externality** is a cost or benefit to a third party arising from a transaction between two

parties unrelated to the third party. In this case, the buyers and sellers of solar panels engage in transactions that benefit a third party–society as a whole. That is, because of the external benefits, the social benefits of the transactions are greater than the private benefits. Discuss the following:

- As a society, do you think we want more transactions like this–that have external benefits? Why? (Answer: More because we want more positive externalities for society)
- In this case, how could we promote more sales/purchases of solar panels? (Answers will vary but may include, require people to buy them or have the government intervene.)

22. Explain that the government could provide incentives to encourage the use of solar panels. In this round of the simulation, the government is going to give each buyer a $100 tax credit for each solar panel they purchase. This means that consumers will be able to deduct $100 from the amount they owe in taxes at the end of the year. This $100 represents a government **subsidy**. A subsidy is money provided by the government to individuals or businesses to reduce the price of buying or costs of producing a good or service**.**The government is paying part of the cost of purchasing a solar panel for individuals.

23. Ask students how they think this will affect buying and selling of solar panels. (Answers will vary but may include that consumers will want to buy more solar panels.) Display Slide 9.

24. Tell buyers they will record this $100 subsidy in their gain calculation for round 2. For each solar panel they purchase they receive $100. Display slide 10.

25. Remind buyers that they remain buyers in round 2 and sellers that they remain sellers in round 2. Distribute a new buy card to each buyer and a new sell card to each seller. Remind students that they must record information on their purchase/sales record sheets, they must report transaction prices to you, and then they can turn in their cards and receive new cards to continue the simulation.

26. Display slide 12. Ask students “Why would the government give a subsidy for solar panels?” Answers may vary, but students should identify that the government would view solar panels as a positive externality. This means they believe solar panels provide additional benefits to society and are trying to offset the cost borne by consumers.

27. Tell students they will now have 5 minutes to trade in round 2.Use the timer on slide 12 of the slide deck for round 2.

28. Continue recording transaction prices on the  Class Tally Sheet for round 2 as they are reported.

29. After round 2 is finished, ask your buyers if the subsidy allowed them to buy more solar panels than they were able to buy in round 1. (Students should be able to buy more with the subsidy)

30. Discuss the following:
    a. What is the  price at which most solar panels were traded in the second round? (Answers will vary, but should be reflected in your Class Tally Sheet.)
    b. Was the price higher or lower in round 2 (Answer: The price SHOULD be lower in round 2)
    c. Why do you think this is the case? (Answer: The subsidy should have lowered the price for consumers, which would increase the quantity demanded)

31. Explain that the subsidy was used to encourage more sales of solar panels because the government wanted to encourage positive externalities. Remind students that an externality is a cost or benefit to a third party arising from a transaction between two parties unrelated to the third. This means that the social value of the transaction–the benefit to society–is greater than the private value of the transaction–the price paid for the solar panel. Markets fail to account for externalities. If the government wants more of this social benefit, they can encourage people to buy solar panels by providing a subsidy. This increases the private value of the transaction—that is–it makes the price of the solar panels lower for the consumer and thus the gains to the consumer and society higher.

32. Have the students handling the cards collect all buy and sell cards and sort them into buy and sell stacks. Give students a few moments to record their profits or gains.When students are finished, ask them:
    a. What happened to their profits or gains? (Answer: Students should have increased their profits/gains)
    b. Did anyone make a higher profit or gain? (Answer: Consumers should have had higher gains because of the $100 subsidy for each purchase. Producers should have had greater profits because they were able to either: sell at higher prices if buyers used their subsidy to offset price increases, or sellers were able to sell more solar panels due to their subsidy offsetting costs.)
    c. Did anyone make less profit? (Students should have made more profit)

33. Explain that another way for the government to encourage more use of solar panels is through producers. In round 3, the government wants to encourage sellers to produce more solar panels. To do so, they are going to give producers a $100 subsidy for each solar panel they sell. This subsidy offsets the costs of producing solar panels for the sellers.  Display slide 13.
    **Note:** Remind students assisting you to sort and stack buyer and seller cards. Remind students that buyers are still receiving their $100 dollar subsidy in round 3.

34. Display slide 14. Tell sellers they can either pass their savings on to the buyers (in which case, it would be reflected in a lower price) or sellers can keep it themselves (sellers would record it in their profit).

35. Display slide 15. Ask students “What might be a benefit of producers keeping their subsidy rather than passing their savings on to consumers?” (Possible answer: Sellers keeping the subsidy could reinvest the money into better technology for producing solar panels which could reduce costs of production and drive down prices.) Ask students “What might be a benefit of producers passing their subsidy on to buyers rather than keeping it? (Possible answer: passing on the subsidy to buyers could encourage more people to purchase solar panels which could increase profits for sellers.)

36. Remind buyers that they remain buyers in round 3 and sellers that they remain sellers in round 3. Distribute a new buy card to each buyer and a new sell card to each seller. Remind students that they must record information on their purchase/sales record sheets, they must still report transaction prices to you, and then they can turn in their cards and receive new cards to continue the simulation.

37. Use the timer on slide 16 of the slide deck for round 3.

38. After round 3 is finished, ask sellers if the subsidy allowed them to sell more solar panels than they were able to sell in the earlier rounds. (Sales of solar panels should increase in this round and price should remain close to what it was in round 2 if not reduced. The price might depend on whether sellers choose to keep the subsidy or pass it on to buyers)

39. Give students a few moments to record their profits or gains. Discuss the following:
    a. At which price were the most solar panels traded in round 3? (Answers will vary, but should reflect the impact subsidies for producers played in the market.)
    b. Was the price higher or lower than the price in round 2? (Answers will vary depending on how producers chose to use their subsidies. This could provide an opening for teachers to ask how students feel producers should use subsidies if they are provided from the government.)
    c. Why do you think this happened? (Answers will vary, but should focus on the impact of introducing subsidies to producers.)
    d. What caused the changes in price between round 1 and round 2?(Answer: The introduction of subsidies for buyers of solar panels)
    e. What caused the changes in price between round 2 and round 3? (Answer: The introduction of subsidies for producers of solar panels.)

f. Ask the sellers whether they kept their subsidy as profit in round 3 or reduced the price for consumers or split the tax credit with the buyers? (Answers will vary.)
g. Which round do you think was more successful in benefiting society as a whole/correcting the externality? Why? (Answers will vary, but might include the argument that subsidies for buyers were more efficient because they offset the price more effectively and avoided the pitfalls of sellers capturing the subsidy and not offsetting the price for buyers.)

## Closure

40. Review the key concepts from the lesson with the following questions
    a. What is a market? (Answer: Anyplace where, or mechanism by which, buyers and sellers interact to trade goods, services, or resources.)
    b. What is a price? (Answer: Price is the amount of money that a buyer gives to a seller in exchange for a good or service.)
    c. What is an externality? (Answer: An externality is a cost or benefit to a third party arising from a transaction between two parties unrelated to the third party)
    d. What is a positive externality? (Answer: a benefit to a third party arising from a transaction between two parties unrelated to the third party)
    e. What is a subsidy? (Answer: A subsidy is a transfer of money from the government to either businesses or consumers.)
    f. How can a subsidy for consumers result in greater positive externalities for society? (Answer: Subsidies for consumers reduce the price of the good, resulting in a greater quantity demanded. Consumers buy more solar panels and the social value would equal the value to individuals plus the external benefit.)
    g. How can a subsidy for producers result in greater positive externalities for society? (Subsidies for producers can reduce their cost of production which would increase the supply of the product, reducing the price and increasing the equilibrium quantity).
    h. Who provides subsidies? (The government)
    i. Why might the government provide subsidies? (To correct for externalities)

# Assessment

41. Distribute copies of Assessment 6.1 to students. Use the answer key below to review student responses.

1. Which of the following scenarios  does NOT describe a positive externality.
    a. A better educated society has been shown to increase productivity and reduce crime rates.
    b. Research and development by private businesses can increase profits, but also increases the general level of knowledge for a society.
    c. A person who rides a bike to school reduces the amount of traffic on the road, decreasing the likelihood of traffic jams and pollution.
    **d. A business that increases profits by dumping its waste into the local water source, allowing it to reduce its costs and prices for consumers.**

2. Which of the following determines price in a market economy?
    **a. Interactions between buyers and sellers.**
    b. Sellers insuring the price covers their costs of production.
    c. Buyers insuring the price is acceptable to them.
    d. The government engaging in price controls.

3. What is a subsidy?
    a. Taxes paid to the local government by citizens to pay for public works projects.
    **b. Money provided by the government to individuals or businesses to reduce the price  of buying or costs of producing a good or service.**
    c. Taxes paid to the state government by citizens to help pay for local projects.
    d. Money provided to individuals by businesses to help offset the cost of producing and transporting goods or services.

Why might the government provide subsidies to producers of vaccines? *Answers will vary, but students should mention that vaccines provide external benefits. A subsidy lowers the price for buyers, which should increase the quantity of vaccines demanded and benefit individual consumers but also increase external benefits to society as a whole.*

Why might the government provide subsidies to buyers of electric vehicles? *Answers will vary, but students should mention that electric vehicles provide external benefits. A subsidy would reduce the cost of production for sellers, increase the overall supply of electric vehicles, which should then reduce the overall price while increasing the overall quantity of electric vehicles. This increases the benefits to society as a whole.*

## Extension

1. Play a fourth round. Increase the subsidies for buyers to $500 to help students see the greater impact subsidies may have on buyers.
2. Play a fifth round. Increase the subsidies for sellers to $500 to help students see the greater impact subsidies may have
3. Have students read this short article from Reuters detailing how Tesla responded to the U.S. government increasing the subsidy provided to people who buy electric vehicles. Tesla raises Model Y prices by $1,000 after U.S. relaxes tax credit terms | Reuters
4. Ask students what impact they think Tesla's actions had on the sales of their Model Y in the United States. (Student answers may vary, but should include discussion of the popularity of Teslas in the auto market. While Tesla's lack of passing on the subsidy to consumers might increase the price, if demand is high it might not negatively affect Tesla sales)
5. Have students research sales of Tesla's Model Y from 2023 to see if/how the increase in price impacted sales. (Model Y was the best selling car in 2023 according to automotive sales research, with 1.23M sales: Tesla Model Y to be crowned world's best-selling vehicle of 2023 - JATO)
6. Have students discuss whether the price increase helped to internalize the positive externality as discussed in slide 9. (Answer: increasing the price would not internalize the positive externality and would create deadweight loss. For a brief summary of how this would work see this video from the Federal Reserve Bank of St. Louis Economic Lowdown for greater detail: Externalities - Economic Lowdown )

## References


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# Activity 6.1: Buyer Purchase Record Sheet

Name:

| Transaction | Price on card | Purchase price | Gain | Loss |
|---|---|---|---|---|
| 1 | | | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |
| 6 | | | | |
| Subtotal for round 1: gain - loss = | | | | |

| Transaction | Price on card | Purchase price | Gain | Loss |
|---|---|---|---|---|
| 1 | | | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |
| 6 | | | | |
| Subtotal for round 2: gain - loss = | | | | |

| Transaction | Price on card | Sales price | Gain | Loss |
|---|---|---|---|---|
| 1 | | | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |
| 6 | | | | |
| Subtotal for round 3: gain - loss = | | | | |

# Activity 6.2: Seller Sales Record Sheet

Name:

| Transaction | Price on card | Sales price | Profit | Loss |
|---|---|---|---|---|
| 1 | | | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |
| 6 | | | | |
| Subtotal for round 1: profit - loss = | | | | |

| Transaction | Price on card | Sales price | Profit | Loss |
|---|---|---|---|---|
| 1 | | | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |
| 6 | | | | |
| Subtotal for round 2: profit - loss = | | | | |

| Transaction | Price on card | Sales price | Profit | Loss |
|---|---|---|---|---|
| 1 | | | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |
| 6 | | | | |
| Subtotal for round 3: profit - loss = | | | | |

Activity 6.3: Class Tally Sheet

| Transaction price | Round 1 | Round 2 | Round 3 |
|---|---|---|---|
| $100 | | | |
| $200 | | | |
| $300 | | | |
| $400 | | | |
| $500 | | | |
| $600 | | | |
| $700 | | | |
| $800 | | | |
| $900 | | | |
| $1,000 | | | |

Activity 6.4: Buy Cards

| | | |
|---|---|---|
| You are authorized to **BUY** a solar panel, paying as little as possible. If you spend more than **$100** you will lose money | You are authorized to **BUY** a solar panel, paying as little as possible. If you spend more than **$100** you will lose money | You are authorized to **BUY** a solar panel, paying as little as possible. If you spend more than **$100** you will lose money |
| You are authorized to **BUY** a solar panel, paying as little as possible. If you spend more than **$100** you will lose money | You are authorized to **BUY** a solar panel, paying as little as possible. If you spend more than **$200** you will lose money | You are authorized to **BUY** a solar panel, paying as little as possible. If you spend more than **$200** you will lose money |
| You are authorized to **BUY** a solar panel, paying as little as possible. If you spend more than **$200** you will lose money | You are authorized to **BUY** a solar panel, paying as little as possible. If you spend more than **$200** you will lose money | You are authorized to **BUY** a solar panel, paying as little as possible. If you spend more than **$300** you will lose money |

Activity 6.4: Buy Cards

| | | |
|---|---|---|
| You are authorized to **BUY** a solar panel, paying as little as possible. If you spend more than **$300** you will lose money | You are authorized to **BUY** a solar panel, paying as little as possible. If you spend more than **$300** you will lose money | You are authorized to **BUY** a solar panel, paying as little as possible. If you spend more than **$300** you will lose money |
| You are authorized to **BUY** a solar panel, paying as little as possible. If you spend more than **$400** you will lose money | You are authorized to **BUY** a solar panel, paying as little as possible. If you spend more than **$400** you will lose money | You are authorized to **BUY** a solar panel, paying as little as possible. If you spend more than **$500** you will lose money |
| You are authorized to **BUY** a solar panel, paying as little as possible. If you spend more than **$500** you will lose money | You are authorized to **BUY** a solar panel, paying as little as possible. If you spend more than **$600** you will lose money | You are authorized to **BUY** a solar panel, paying as little as possible. If you spend more than **$600** you will lose money |

Activity 6.4: Buy Cards

| | | |
|---|---|---|
| You are authorized to **BUY** a solar panel, paying as little as possible. If you spend more than **$700** you will lose money | You are authorized to **BUY** a solar panel, paying as little as possible. If you spend more than **$700** you will lose money | You are authorized to **BUY** a solar panel, paying as little as possible. If you spend more than **$800** you will lose money |
| You are authorized to **BUY** a solar panel, paying as little as possible. If you spend more than **$800** you will lose money | You are authorized to **BUY** a solar panel, paying as little as possible. If you spend more than **$900** you will lose money | You are authorized to **BUY** a solar panel, paying as little as possible. If you spend more than **$900** you will lose money |
| You are authorized to **BUY** a solar panel, paying as little as possible. If you spend more than **$1,000** you will lose money | You are authorized to **BUY** a solar panel, paying as little as possible. If you spend more than **$1,000** you will lose money | |

Activity 6.5: Sell Cards

| | | |
|---|---|---|
| You are authorized to **SELL** a solar panel for as much as possible. IF you sell for less than **$200** you will lose money | You are authorized to **SELL** a solar panel for as much as possible. IF you sell for less than **$200** you will lose money | You are authorized to **SELL** a solar panel for as much as possible. IF you sell for less than **$300** you will lose money |
| You are authorized to **SELL** a solar panel for as much as possible. IF you sell for less than **$300** you will lose money | You are authorized to **SELL** a solar panel for as much as possible. IF you sell for less than **$400** you will lose money | You are authorized to **SELL** a solar panel for as much as possible. IF you sell for less than **$400** you will lose money |
| You are authorized to **SELL** a solar panel for as much as possible. IF you sell for less than **$500** you will lose money | You are authorized to **SELL** a solar panel for as much as possible. IF you sell for less than **$500** you will lose money | You are authorized to **SELL** a solar panel for as much as possible. IF you sell for less than **$600** you will lose money |

Activity 6.5: Sell Cards

| | | |
|---|---|---|
| You are authorized to **SELL** a solar panel for as much as possible. IF you sell for less than **$600** you will lose money | You are authorized to **SELL** a solar panel for as much as possible. IF you sell for less than **$700** you will lose money | You are authorized to **SELL** a solar panel for as much as possible. IF you sell for less than **$700** you will lose money |
| You are authorized to **SELL** a solar panel for as much as possible. IF you sell for less than **$700** you will lose money | You are authorized to **SELL** a solar panel for as much as possible. IF you sell for less than **$700** you will lose money | You are authorized to **SELL** a solar panel for as much as possible. IF you sell for less than **$800** you will lose money |
| You are authorized to **SELL** a solar panel for as much as possible. IF you sell for less than **$800** you will lose money | You are authorized to **SELL** a solar panel for as much as possible. IF you sell for less than **$800** you will lose money | You are authorized to **SELL** a solar panel for as much as possible. IF you sell for less than **$800** you will lose money |

Activity 6.5: Sell Cards

| | | |
|---|---|---|
| You are authorized to **SELL** a solar panel for as much as possible. IF you sell for less than **$900** you will lose money | You are authorized to **SELL** a solar panel for as much as possible. IF you sell for less than **$900** you will lose money | You are authorized to **SELL** a solar panel for as much as possible. IF you sell for less than **$900** you will lose money |
| You are authorized to **SELL** a solar panel for as much as possible. IF you sell for less than **$900** you will lose money | You are authorized to **SELL** a solar panel for as much as possible. IF you sell for less than **$1,000** you will lose money | You are authorized to **SELL** a solar panel for as much as possible. IF you sell for less than **$1,000** you will lose money |
| You are authorized to **SELL** a solar panel for as much as possible. IF you sell for less than **$1,000** you will lose money | You are authorized to **SELL** a solar panel for as much as possible. IF you sell for less than **$1,000** you will lose money | |

# Assessment 6.1

1. Which of the following scenarios  does NOT describe a positive externality.
    a. A better educated society has been shown to increase productivity and reduce crime rates.
    b. Research and development by private businesses can increase profits, but also increases the general level of knowledge for a society.
    c. A person who rides a bike to school reduces the amount of traffic on the road, decreasing the likelihood of traffic jams and pollution.
    d. A business that increases profits by dumping its waste into the local water source, allowing it to reduce its costs and prices for consumers.

2. Which of the following determines prices in a market economy?
    a. Interactions between buyers and sellers.
    b. Sellers insuring the price covers their costs of production.
    c. Buyers insuring the price is what is desirable to them.
    d. The government engaging in price controls.

3. What is a subsidy?
    a. Taxes paid to the local government by citizens to pay for public works projects.
    b. Money provided by the government to individuals or businesses to reduce the costs of buying or producing a good or service.
    c. Taxes paid to the state government by citizens to help pay for local projects.
    d. Money provided to individuals by businesses to help offset the cost of transporting goods or services.

4. Why might the government provide subsidies to producers of vaccines?

5. Why might the government provide subsidies to buyers of electric vehicles?