

Role of Prices: How Does the Price of Sugar Affect Carrots?

Lesson Authors

Jamie Wagner, PhD, University of Nebraska at Omaha

Gloria Guzman, MBA, Federal Reserve Bank of Atlanta–Miami Branch

Standards and Benchmarks (see page 16)

Lesson Description

In this lesson, students participate in an activity that demonstrates how the price of one good affects the price of another. Students will learn how inputs, complements, and substitutes are interrelated. Markets may seem disconnected from one another, but this lesson will require students to make specific connections between markets. Students should have a basic knowledge of what markets are. The lesson concludes with an assessment focusing on the Boston Tea Party and the effect the destruction of tea and the subsequent price increase for tea had on other goods and services. The assessment lends itself to be easily substituted with other historical events covered in any middle school social studies course.

Grade Level

6-8

Concepts

Complements

Input

Market

Price

Substitutes

Objectives

Students will be able to

- define input goods, complementary goods, and substitute goods;
 - give examples of input goods, complementary goods, and substitute goods;
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- explain the interrelationship among different goods by identifying input goods, complementary goods, and substitute goods; and
 - predict how a change in the price of one good will affect the price of other goods.
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Compelling Question

How does a change in the price of one good affect the price of other goods?

Time Required

45-60 minutes

Materials

- PowerPoint slide deck
 - Visual, one copy for the teacher
 - Handout 1, one copy cut apart
 - Handout 2, enough copies cut apart to provide one arrow per student
 - Handout 3, one copy for each student
 - Handout 3 Answer Key, one copy for the teacher
 - Ribbon or yarn, enough to cut into 11 pieces approximately 3 feet long
 - Pen or pencil for each student
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Preparation

Before class, cut the ribbon or yarn into 11 pieces: You'll use 6 pieces to make lanyard-style cards and 5 pieces as connections between students during the activity.

Cut apart the cards from *Handout 1: Goods Cards*. Punch two holes in the top of each card and put ribbon through them to create long necklaces/lanyards. You could use cardstock or laminate the cards to use for multiple years. Cut apart the cards from *Handout 2: Arrow Cards*. There are 4 cards per sheet; make enough copies of Handout 2 so that each student gets one arrow card.

Procedure

1. Start the lesson by telling students that **price** is the amount of money that a buyer must pay to acquire a good, service, or resource. Point out that price is also the amount of money that a seller receives in exchange for a good, service, or resource. Tell students that both consumers (people who buy the good) and producers (people who sell the good) can affect the price of a good.
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2. Display slide 2 and discuss the following:
 - When more people want to buy something (higher demand), the price usually goes up.
 - When fewer people want to buy something (lower demand), the price usually goes down.
 - When more of a product is available (higher supply), the price usually goes down.
 - When less of a product is available (lower supply), the price usually goes up.
3. Display slide 3. Ask students if there is a relationship between sugar and carrots. Students will likely be confused. Some might provide a far-fetched explanation.
4. Display slide 4. Remind students that **markets** are places where buyers and sellers come together to exchange goods, services, and/or resources. Explain that markets are related and that an event in one market can affect another market.
5. Distribute one arrow card to each student. Then, ask for a volunteer. Give this student the “Sugar” card to put around their neck. Give them one piece of ribbon.
6. Display slide 5 and read the news headline, “Hurricane Gloria Hits Florida and Destroys Majority of Sugarcane Crops.” Discuss the following:
 - What effect would this have on the supply of sugar? (*It would decrease the supply of sugar.*)
 - Hold up your arrow cards to show the change in the price of sugar. (*Sugar prices would increase, so students should show the arrow pointing up.*)
 - Why has the price of sugar increased? (*There is less sugar available, and people still want to use sugar in cooking and baking.*) NOTE: Throughout the lesson, pause to check the arrow cards to ensure students are answering correctly.
7. Ask for another volunteer. Give the student the “Cupcakes” card to put around their neck. Instruct the student to stand to the left of the “Sugar” student. Instruct this student to grab the other end of the ribbon so that “Sugar” and “Cupcakes” are connected. NOTE: Student volunteers will remain connected with the ribbon throughout the lesson’s activity (15-20 minutes, depending on how quickly your students go through the examples and questions) to show the interdependence and connections between markets. See *Visual: Market Connections* for a guide to how the students are to line up.
8. Display slide 6 and discuss the following:
 - Hold up your arrow cards to indicate how an increase in the price of sugar affects the price of cupcakes. (*Price of cupcakes will increase. Arrow cards should point up.*)
 - Why do you think the price of cupcakes will increase? (*Answers will vary but may include that sugar is an ingredient or input in cupcakes. It costs more to make cupcakes, so sellers will charge a higher price for cupcakes.*)

9. Explain that sugar is an **input** in cupcakes. Define inputs as materials and resources used to produce goods and services. Discuss the following:
 - What is an example of another good for which sugar is an input? (*Answers will vary but may include cookies, BBQ sauce, yogurt, ice cream, candy, or cereal.*)
 - What is another input used to produce cupcakes? (*Flour, eggs, butter, milk, cupcake pans, etc.*)
10. Ask for another volunteer. Give the student the “Potato Chips” card to put around their neck. Instruct this student to stand to the left of the “Cupcakes” student. Give the student a ribbon to connect “Potato Chips” and “Cupcakes.”
11. Display slides 7-8 and discuss the following:
 - You are hungry and looking for a snack at the store. The price of cupcakes, your favorite snack, has increased. They are now more expensive than potato chips, your second favorite snack, and you have limited money. Are you going to choose cupcakes or potato chips? (*Students will likely say they will buy the potato chips.*)
 - You and many other people will probably start buying the less-expensive snack. When more people start buying a good, the demand for that good increases.
 - Use your arrow cards to show what you think will happen to the price of potato chips if more students start buying them instead of the cupcakes. (*Students will point their arrow cards upward.*)
12. Display slides 9-10 and discuss the following:
 - In this example, you chose to buy potato chips in place of cupcakes; things that we buy in place of others are called **substitutes**. We define substitutes as similar goods or goods that serve a similar purpose. In this case, potato chips and cupcakes are similar in purpose in that both are snacks. With substitutes, a change in the price of one and the demand for the other tend to move in the same direction.
 - For example, pencils and pens are substitutes. If the price of pens goes up, what will happen to the demand for pencils? (*People will demand more pencils.*)
 - If the demand for pencils increases, meaning that buyers want to purchase more of them, what happens to the price? (*The price will increase.*)
 - What are examples of other substitutes you might buy in place of cupcakes? (*Answers will vary but may include donuts, fruit snacks, or other snacks.*)
 - What are examples of other substitutes you might buy in place of chips? (*Answers will vary but may include goldfish, pretzels, or other snacks.*)
13. Display slide 11 and discuss the following:
 - When you have chips what else do you like to eat with those chips? (*Answers will vary but may include sandwiches, hot dogs, or salsa.*) Explain to students that sometimes there are goods that you buy to use together, and these goods are called **complements**.

- Tell students that other examples of complements are milk and cookies, and socks and shoes. One example of a complement to chips is dip.
14. Ask for another volunteer. Give the student the “Dip” card to put around their neck. Instruct this student to stand to the left of the “Potato Chips” student. Give the student a ribbon to connect “Potato Chips” and “Dip.”
 15. Display slide 12. Explain to students that now that people are buying more potato chips, the price of potato chips has increased. With complements, a change in the price of one and the demand for the other tend to move in the opposite direction. Discuss the following:
 - If you buy chips and dip together and the price of chips goes up, will you buy more dip or less? (*Less dip*)
 - If you and many other people buy less dip, what will happen to the price of dip? (*It decreases; students will show the down-arrow card.*)
 16. Ask for another volunteer. Give the student the “Hummus” card to put around their neck. Instruct this student to stand to the left of the “Dip” student. Give the student a ribbon to connect “Hummus” and “Dip.” Display slide 13 and discuss the following:
 - How are dip and hummus related? (*Answers will vary but may include that the goods are substitutes or that hummus could be used instead of dip.*)
 - If the price of dip increases and people buy more hummus, a substitute for dip, what will happen? (*The price of hummus will increase. Students will point their arrow cards upward.*)
 17. Ask for another volunteer. Give the student the “Carrots” card to put around their neck. Instruct this student to stand to the left of the “Hummus” student. Give the student a ribbon to connect “Hummus” and “Carrots.”
 18. Display slide 14 and discuss the following:
 - How are hummus and carrots related? (*They are complementary goods.*)
 - If the price of hummus increases, will people buy more hummus or less? (*Less*)
 - If the price of hummus increases and people buy less hummus, will people buy more or fewer carrots? (*Fewer*)
 - If the price of hummus decreases, will people buy more hummus or less? (*More*)
 - If the price of hummus decreases and people buy more hummus, will people buy more or fewer carrots? (*More*)
 - As people are buying more carrots, show with your arrow cards what you think will happen to the price of carrots. (*The price of carrots increases. Students will point their arrow cards upward.*)

19. Display the visual or slide 15. Now that all the student volunteers are connected, discuss how the price of sugar can affect the price of carrots. Display slides 16 and 17. Explain to students that while markets may not seem to connect, the price of one good changes people's buying decisions regarding other, related, goods and services. Markets and goods are related, and prices serve as signals. Discuss the following:
- If goods are complements, an increase in the price of one leads consumers to buy less of that good and less of complementary goods, resulting in a decrease in the price of the complement.
 - If goods are complements, a decrease in the price of one leads consumers to more of that good and more complementary goods, resulting in an increase in the price of the complement.
 - If goods are substitutes, an increase in the price of one causes consumers to buy less of that good and more of any substitutes, resulting in an increase in the price of the substitute.
 - If goods are substitutes, a decrease in the price of one causes consumers to buy more of that good and less of any substitutes, resulting in a decrease in the price of the substitute.
20. Debrief the activity by instructing student volunteers to raise or lower their arms with the ribbon to show an increase or decrease in price. Refer to slide 17 and discuss the following:
- What happened to the price of sugar when Hurricane Gloria destroyed the sugarcane crop? *(The price increased; the "Sugar" student should raise their arm with the ribbon.) Why? (There was a decrease in the amount of sugar produced, or a decrease in supply.)*
 - What happened to the price of cupcakes because the price of sugar increased? *(The price increased; the "Cupcakes" student should raise both arms with the ribbons.) Why? (Sugar is an ingredient or input in cupcakes. It costs more to make cupcakes, so sellers will charge a higher price for cupcakes.)*
 - What happened to the price of potato chips because the price of cupcakes increased? *(The price increased; the "Potato Chips" student should raise both arms with the ribbons.) Why? (People will buy potato chips because they are a substitute snack for cupcakes.)*
 - What happened to the price of dip because the price of potato chips increased? *(The price decreased; the "Dip" student should lower both arms with the ribbons.) Why? (If you buy chips and dip together because they are complements and the price of chips goes up, you will buy less dip and so the price will decrease.)*
 - What happened to the price of hummus because the price of dip decreased? *(The price decreased; the "Hummus" student should lower both arms with the ribbons.) Why? (If the price of dip decreases then people buy less hummus, a substitute for dip, and so the price of hummus will decrease.)*
 - What happened to the price of carrots because the price of hummus decreased? *(The price increased; the "Carrots" student should raise their arm with the ribbon.) Why? (Because people eat carrots and hummus together, they are complementary goods, so people will buy more carrots.)*

- How does a change in the price of one good affect the price of other goods? (*A change in the price of one good can lead to changes in the price of many other goods when they are inputs, complementary goods, or substitute goods.*)

Closure

21. Instruct student volunteers to return to their seats. Display slides 18-20 and discuss the following:

- What are inputs? (*Inputs are materials and resources used to produce goods and services.*)
- Which of the goods from the activity is an input good? (*Sugar*)
- What are input goods for potato chips? (*Potatoes, oil, salt, seasoning, workers to make the chips, etc.*)
- What are substitutes? (*Things that we buy in place of others: They are similar goods or goods that serve a similar purpose.*)
- Which of the goods from the activity are substitutes? (*Cupcakes and potato chips; dip and hummus*)
- Give examples of other goods that are substitutes for one another. (*Apples and bananas, different gaming systems, tennis shoes and sandals, etc.*)
- What are complements? (*Goods that you use together*)
- Which of the goods from the activity are complements? (*Potato chips and dip; carrots and hummus*)
- Give examples of other goods that are complements to one another. (*Socks and shoes, snow boots and skis, milk and cookies, hotdogs and mustard, etc.*)
- Are there any other goods from the activity that could be complements? (*Yes, hummus and chips are complements.*)

22. Display slides 21-22 and discuss the following:

- Name some examples of goods that are complements to cupcakes and explain how a change in the price of one affects the other. (*Answers will vary but may include milk, ice cream, or forks. If the price of cupcakes were to increase, the demand for complementary goods decreases and the price decreases.*)
- Name some examples of goods that are substitutes for carrots and explain how a change in the price of one affects the other. (*Answers will vary but may include celery, broccoli, pretzels, or potato chips. If the price of carrots were to increase, the demand for a substitute good increases and the price increases.*)

Assessment

23. Distribute a copy of *Handout 3: Assessment* to each student. Display slide 23 and read the headline, “Group of Colonists Destroyed a Large British Tea Shipment in Boston Harbor.” Read the directions to the students and instruct them to fill in the chart. Allow 15-20 minutes for students to complete the handout. Review the answers using the *Handout 3: Assessment—Answer Key*.

NOTE: This assessment is based on the Boston Tea Party. You may use other historical examples instead, depending on the class and time period students are studying. Examples include the following:

- Cotton during the Civil War
- Amazon deforestation in Brazil for lumber or palm oil
- Tariffs on a good
- A natural disaster affecting crops
- Any other example where a good gets more or less expensive and there are other related goods that were affected

Visual: Market Connections



Handout 1: Goods Cards (page 1 of 3)



Sugar



Cupcakes

Handout 1: Goods Cards (page 2 of 3)



**Potato
Chips**



Dip

Handout 1: Goods Cards (page 3 of 3)



Hummus



Carrots

Handout 2: Arrow Cards



Handout 3: Assessment

Group of Colonists Destroy Large British Tea Shipment in Boston Harbor

December 16, 1773

1. How does this affect the price of tea?
2. Think about three goods or services that might be affected by the destruction of tea. In the chart below, list one complementary good, one substitute good, and one good for which tea is an input.
3. Circle an arrow below each box to indicate whether you think the price of that good/service will increase or decrease.
4. In the space below each arrow, explain why the good/service is a complement, a substitute, or an input good for tea and why its price will increase or decrease.



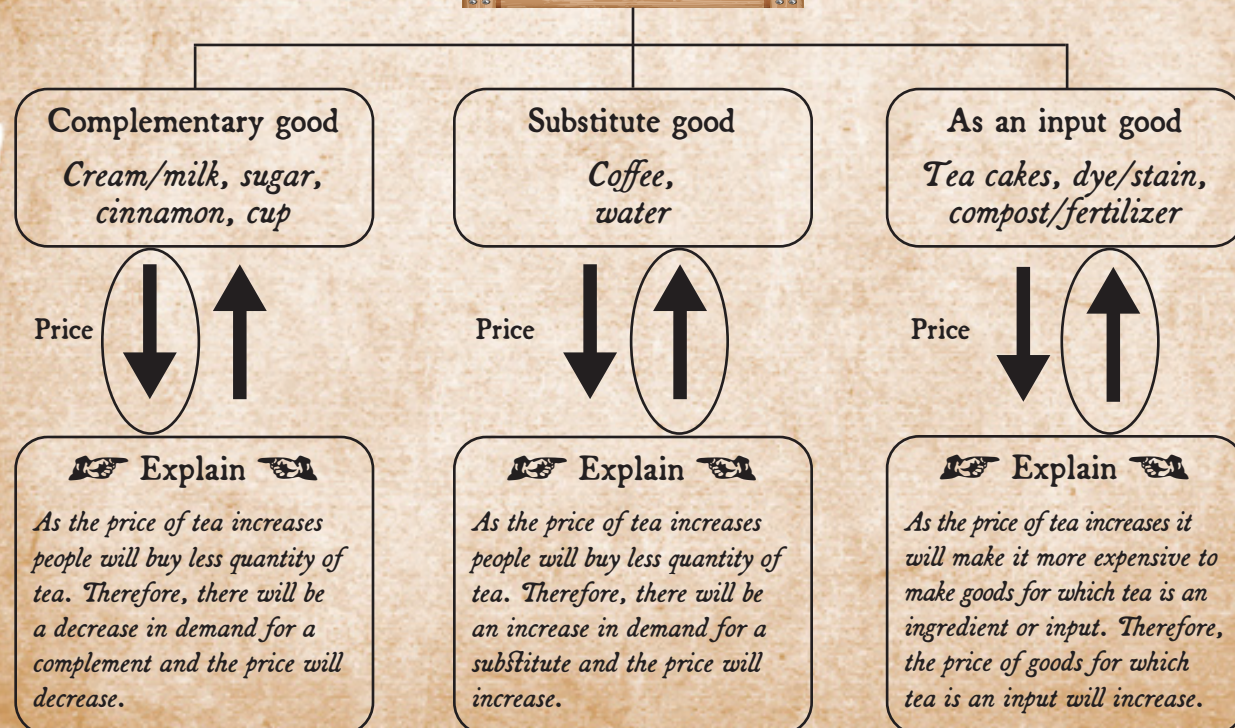
Complementary good	Substitute good	As an input good
Price	Price	Price
Explain	Explain	Explain

Handout 3: Assessment—Answer Key

Group of Colonists Destroy Large British Tea Shipment in Boston Harbor

December 16, 1773

- How does this affect the price of tea?
It increases price because the quantity of tea available decreased; there's a decrease in the supply of tea relative to demand.
- Think about three goods or services that might be affected by the destruction of tea. In the chart below, list one complementary good, one substitute good, and one good for which tea is an input.
- Circle an arrow below each box to indicate whether you think the price of that good/service will increase or decrease.
- In the space below each arrow, explain why the good/service is a complement, a substitute, or an input good for tea and why its price will increase or decrease.



Standards and Benchmarks

Voluntary National Content Standards in Economics

Standard 8: Role of Prices

Prices send signals and provide incentives to buyers and sellers. When supply or demand changes, market prices adjust, affecting incentives.

- **Benchmarks: Grade 8**
 3. Markets are interrelated; changes in the price of one good or service can lead to changes in prices of many other goods and services.