

# Tools for Teaching the Arkansas High School Economics with Personal Finance Course

## Session 4:

# Demand, Supply, and Market Equilibrium

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### Session Description

Students will construct supply and demand graphs, recognize shifts in supply and demand, and construct graphs of those shifts. They will also participate in activities that illustrate market equilibrium.

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### Standards and Benchmarks (see page 4.26)

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### Talking Points

#### Demand

1. Demand is the relationship between various prices and the quantities consumers are willing and able to buy during some time period. The demand curve is a picture of demand.
2. In general, people get less satisfaction (what economists call “utility”) from additional units of a good or service. This is due to the “law of diminishing marginal utility.” As people get more of something, they value an additional unit less and less.
3. Price is the amount of money buyers actually must pay for a good or service.
4. Buyers will buy units of a good or service as long as the amount of satisfaction the buyer gains from the purchase is greater than the price they must pay for the good or service. They will not buy when the opposite is true.
5. The demand curve reflects the law of demand: As the price of a good or service decreases, buyers buy more of it; as the price of a good or service increases, buyers buy less of it.

#### Supply

1. Cost is defined as what is given up (i.e., opportunity cost).
  2. Cost is not a single-number concept (units of a good or service will have different costs).
  3. In general, the cost society incurs from additional units of a good rises because more of other goods or services must be given up (rising opportunity cost).
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4. The cost curve shows the additional cost society incurs from each individual unit of the good or service (reading vertically up and then over).
5. Supply shows how sellers react to various prices of a good or service.
6. Sellers will produce units of a good or service when the cost of production for one more unit is less than the price they are able to charge for that unit. They will not produce when the opposite is true. The cost curve reads horizontally over and then down. It shows the amount sellers would produce and offer for sale at various prices and, thus, is also the supply curve for the good.
7. The supply curve reflects the law of supply: As the price of a good or service decreases, sellers produce less of it; as the price of a good or service increases, sellers produce more of it.

### **Market Equilibrium**

1. Price is determined in a market by the interaction of buyers and sellers (buyers trying to pay the lowest possible price and sellers trying to sell at the highest possible price).
2. When there are surpluses in a market, sellers and/or buyers will have an incentive to push the price down, moving the price to where the quantity demanded equals the quantity supplied.
3. When there are shortages in a market, sellers and/or buyers will have an incentive to push the price up, moving the price to where the quantity demanded equals the quantity supplied.
4. Price is a single-number concept—all units are sold at the equilibrium price.
5. Market equilibrium answers two of the fundamental questions raised earlier:
  - The allocation question: How much of each good should be produced? The market answers with the equilibrium quantity.
  - The distribution question: Who receives the produced goods and services? The market answers by allowing everyone who is willing and able to pay the equilibrium price or more to purchase goods and services.
6. The market equilibrium quantity is the quantity of a good found to be allocatively efficient. The market demand curve accurately depicts society's willingness to pay, and the market supply curve accurately depicts society's costs. If markets determine price, as shown earlier, markets can produce the allocatively efficient amounts of all goods and services, thus using society's scarce resources efficiently. Those are big "ifs," however (which are explored further in Session 6, which address market failures).

7. Price is not a measure of demand or a measure of supply; it is a measure of the relative scarcity of the good (its desirability relative to its availability). It takes both demand and supply to determine price. (For example, although the demand for air is great, the price of air is zero because of its abundance—that is, at a price of zero, the quantity of air supplied is greater than the quantity demanded.)
8. Several factors can cause an increase or decrease in demand—that is, a shift of the demand curve to the right or left:
  - changes in consumer tastes/preferences,
  - changes in consumer income/wealth,
  - changes in the prices of related goods,
  - changes in consumer expectations, and
  - changes in the number of buyers.
9. Several factors can cause an increase or decrease in supply—that is, a shift of the supply curve to the right or left:
  - changes in productivity/technology,
  - changes in resource prices,
  - changes in government policies,
  - changes in expectations, and
  - changes in the number of sellers.
10. A change in demand or supply leads to a surplus or shortage at the initial price, which causes the price to change and the market to move to the new equilibrium price and quantity.
11. Price changes in one market often lead to price changes in other related markets because of goods that are substitutes or complements for one another or because one good is an input in the production of another.

## Resources

NOTE: See p. v for instructions on how to set up an [Econ Lowdown](#) account and assign resources found in the Resource Gallery to your students.

### ***Demand***

#### **Online Modules**

Allow time for students to complete the module:

- Demand (30:00)  
<https://www.econlowdown.org/resource-gallery/demand>

#### **Video Q&A**

Allow time for students to view the video and answer the questions:

- Economic Lowdown Video Series—Demand (15:00)  
<https://www.econlowdown.org/resource-gallery/economic-lowdown-episode-2-demand>

### **Lessons**

Allow time for students to complete the lesson:

- Lesson 4A: Demand Curve Construction (see p. 4.6 in this session)

### ***Supply***

#### **Online Modules**

Allow time for students to complete the module:

- Supply (30:00)  
<https://www.econlowdown.org/resource-gallery/supply>

#### **Video Q&A**

Allow time for students to view the video and answer the questions:

- Economic Lowdown Video Series—Supply (10:00)  
<https://www.econlowdown.org/resource-gallery/economic-lowdown-episode-1-supply>

#### **Reading Q&A**

Allow time for students to read the essay and answer the questions:

- *Page One Economics*®: The Science of Supply and Demand  
<https://www.econlowdown.org/resource-gallery/the-science-of-supply-and-demand>

## Lessons

Allow time for students to complete the lesson:

- Lesson 4B: Shifting Supply and Demand (see p. 4.12 in this session)
- *High School Economics*, 3rd Edition (email [acee@economicsarkansas.org](mailto:acee@economicsarkansas.org) to order this book)
  - Lesson 4: Classroom Market for Cocoa  
Visuals and activities for this lesson can be found at <https://highschooeconomics.councilforeconed.org/>

## Market Equilibrium

### Online Modules

Allow time for students to complete the module:

- Market Equilibrium (30:00)  
[https://www.econlowdown.org/resource-gallery/market\\_equilibrium](https://www.econlowdown.org/resource-gallery/market_equilibrium)

### Video Q&A

Allow time for students to view the video and answer the questions:

- Economic Lowdown Video Series—Equilibrium (15:00)  
<https://www.econlowdown.org/resource-gallery/economic-lowdown-episode-3-equilibrium>

## Lessons

Allow time for students to complete the lesson:

- Visual 4A: Steps in Market Equilibrium Change (see p. 4.10 in this session)
- *High School Economics*, 3rd Edition (email [acee@economicsarkansas.org](mailto:acee@economicsarkansas.org) to order this book)
  - Lesson 5: What Happens When Prices Are Not in Equilibrium?  
Visuals and activities for this lesson can be found at <https://highschooeconomics.councilforeconed.org/>
  - Lesson 6: The Markets Never Stand Still  
Visuals and activities for this lesson can be found at <https://highschooeconomics.councilforeconed.org/>
  - Lesson 7: How Markets Interact  
Visuals and activities for this lesson can be found at <https://highschooeconomics.councilforeconed.org/>

## Lesson 4A:

# Demand Curve Construction

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### Objective

Students will be able to construct a demand graph using provided information.

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### Time Required

One class period

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### Materials

- Visuals 4A.1, 4A.2, and 4A.3 (optional), one copy of each for the teacher
  - Handout 4A, one copy for each student
  - Index cards
  - Blank overhead transparency or paper for document camera
  - Overhead markers
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### Procedure

1. Display *Visual 4A.1: Demand*. Read the definition. Underscore that in order for people to help create the demand for a good or service, they must be both willing and able to purchase the good or service.
  2. Ask students to think about how much they would be willing and able to pay for an A in your class for the term.
  3. Explain that you will be accepting bids for A's and using the data to construct a demand curve.
  4. Hand out index cards for students to write down their bids. Explain that they need to write the dollar amount they are willing and able to pay and their name on the paper so you know who to talk to about the deal after class. (Note: In order to give you time to place the bids in order and write the dollar amounts on an overhead or graph, you may want to give students an article to read or have another activity.)
  5. Using the bids for an A for the semester, construct a demand graph. The graph is constructed by graphing the bids from highest to lowest. (*Visual 4A.2: Demand Curve for an A* is provided as an example.)
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6. Explain that the graph is read as follows: Reading up from the horizontal axis and then over to the vertical axis, the graph shows the added value of the  $n$ th A to the class.
7. Note that this is a downward-sloping curve, indicating that as society (the class) gets more A's, in general, the added value of another A falls (because it is given to someone who values it less highly than the students before).
8. Continue explaining the graph as follows: Reading from the vertical axis over and then down to the horizontal axis, the graph shows the number of A's that would be purchased at a given price, or the quantity demanded of A's. Note that all the students who value an A greater than the price chosen would be willing and able to buy an A (because they would value it more highly than the price chosen), but all those students who value an A less than the price chosen would not be willing or able to buy an A. Also, note that if a lower price is chosen, there are more students with values higher than the price and hence, more students would buy the A's. This is the law of demand: As price falls, buyers will buy more units of a good or service (and vice versa). (Optional: Display *Visual 4A.3: Steps in Market Equilibrium Change*.)
9. If there are any blank index cards, on which students did not note a price, or if any students wrote zero, note the following: Students who refuse to "pay" for a grade are simply not in the market for an A because they are not willing, or in some cases not able, to buy the grade.
10. Conclude the demonstration by explaining that the demand for any good or service can be described with price and quantity data. Explain that the relationship between price and quantity demanded is an inverse relationship—as price goes up, quantity demanded goes down.

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## Closure

12. Distribute *Handout 4A: Construct a Demand Curve* and have the students generate their own demand curve based on the information provided.

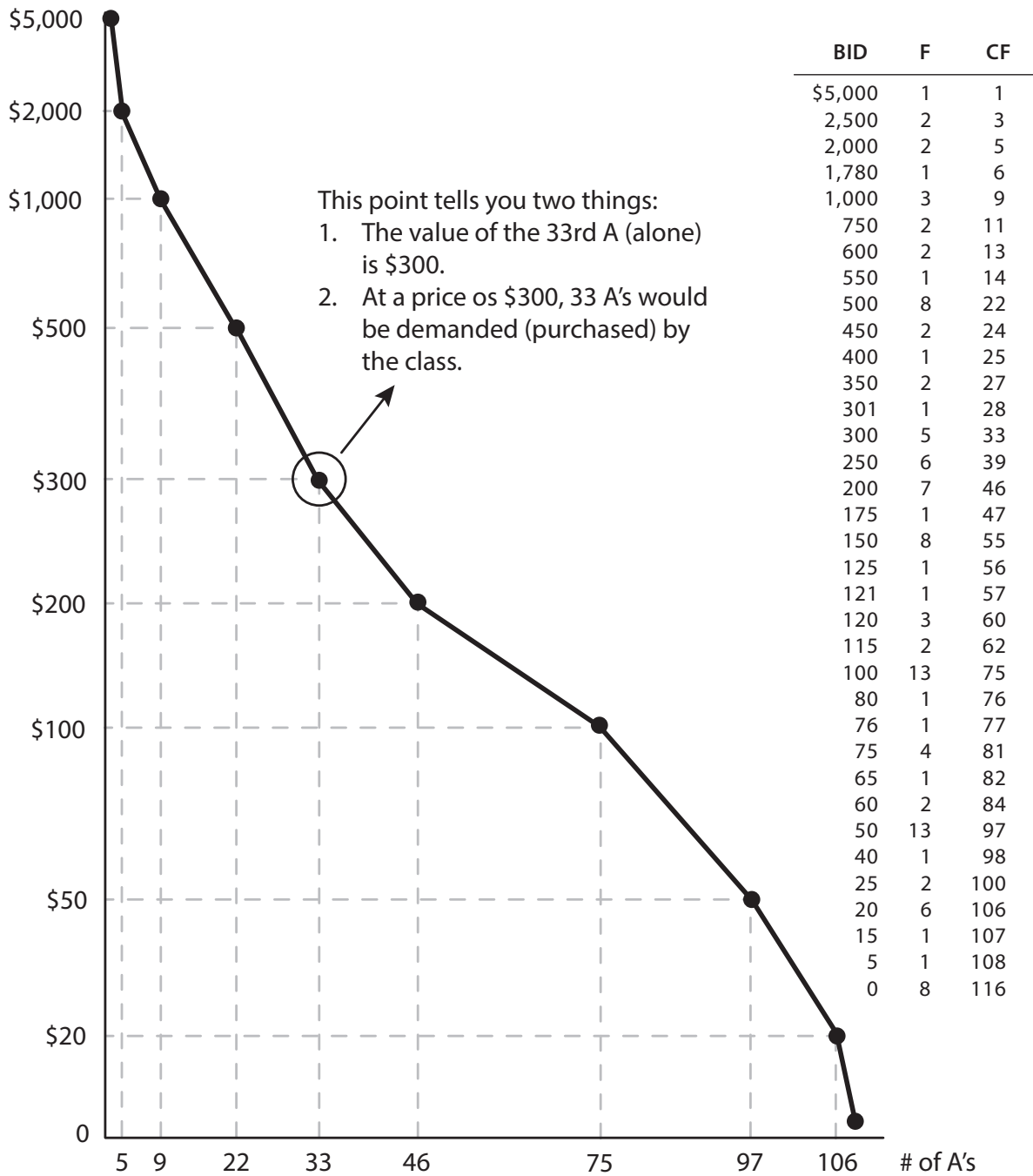
## Visual 4A.1: Demand

# Demand

The quantity of a good or service that buyers are *willing* and *able* to buy at all possible prices during a certain time period.



### Visual 4A.2: Demand Curve for an A



NOTE: F, frequency; CF, cumulative frequency.

**Visual 4A.3: Steps in Market Equilibrium Change** (optional)

1. **An event occurs** that changes the demand for or supply of a given good or service.
2. **Demand and/or supply shift(s)** in response to the above change.
3. **A surplus or shortage occurs** at the old equilibrium price.
4. **The price moves:** It increases if there is a shortage; it decreases if there is a surplus.
5. **The new equilibrium price and quantity are established** at the intersection of the new demand or supply curve and the original demand or supply curve.

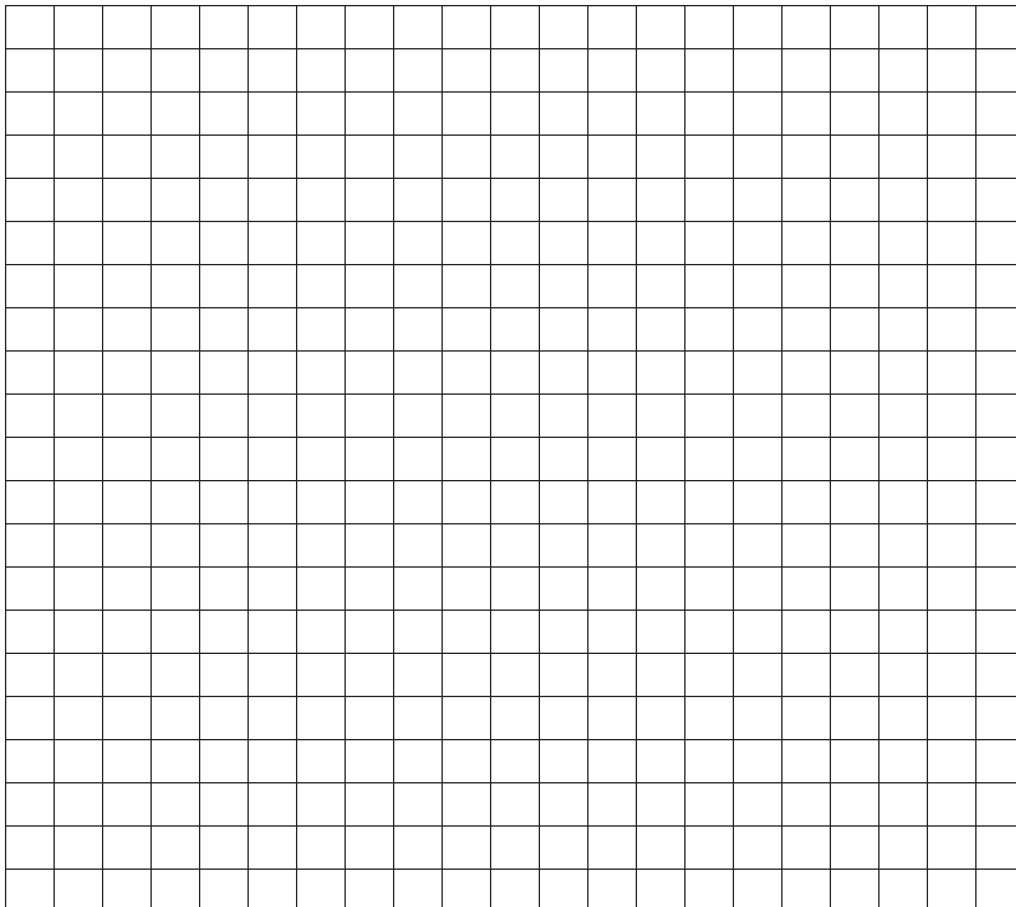
## Handout 4A: Construct a Demand Curve

Name \_\_\_\_\_

Directions: Construct a demand graph using the information provided. Label your graph.

### Market for Soft Drinks

Suggested price	Quantity demanded
\$2.50	1
\$2.00	2
\$1.75	4
\$1.50	6
\$1.25	7
\$1.00	10
\$0.75	13
\$0.50	15



## Lesson 4B:

# Shifting Supply and Demand

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### Author

Dr. Jeni Logan

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### Objectives

Students will

- construct market equilibrium graphs, and
  - shift supply and demand on a graph to determine the new equilibrium point.
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### Time Required

One class period

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### Materials

- Visual 4B.1 (optional), one copy for the teacher
  - Handout 4B.1, one copy for each student
  - Handout 4B.1—Answer Key, one copy for the teacher
  - Whiteboard or document camera
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### Procedure

1. Display and discuss *Visual 4B: Shifts in Supply and Demand*. Distribute *Handout 4B.1: Supply and Demand Graphing*.
  2. Ask a student to read number 1. Ask the following:
    - What was affected, supply or demand? (*See the Answer Key*).
  3. Ask the students to recall how the graphs were labeled from the session on supply and demand. Ask them to label their graphs while you do so on the board.
  4. Ask the students to construct a simple supply and demand equilibrium graph for number 1 in the space provided on the handout. Demonstrate how to do so on the board.
  5. Continue through as many of the scenarios as needed until the students can complete the remainder on their own. NOTE: If your students are not ready to graph a double shift, tell them they do not need to complete number 11.
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### **Visual 4B.1: Shifts in Supply and Demand** (optional)

## **Causes of Shifts (Changes) in Demand**

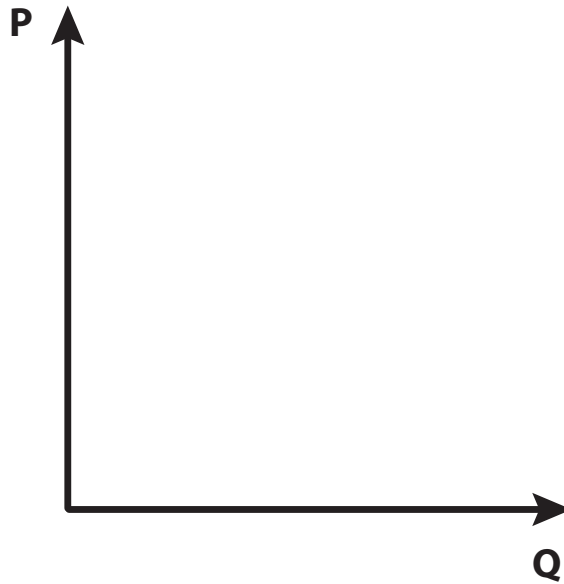
1. Consumer tastes/preferences (changes in a person's willingness to pay)
2. Consumer income/wealth (changes in a person's ability to pay)
3. Prices of related goods (changes in the prices of substitute goods or complementary goods)
4. Consumer expectations about the future
5. The number of buyers

## **Causes of Shifts (Changes) in Supply**

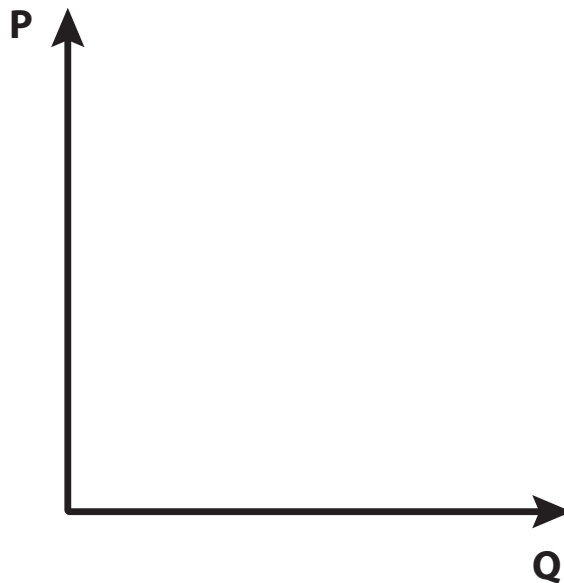
1. Productivity/technology (resource savings in how the good is produced)
2. Prices of resources used (resource prices are directly related to costs)
3. Government policies (changes in taxes or subsidies)
4. Producer expectations about the future
5. The number of sellers

### Handout 4B.1: Supply and Demand Graphing (page 1 of 6)

1. Suppose the price of peanut butter increases sharply. How will this influence the market for jelly?

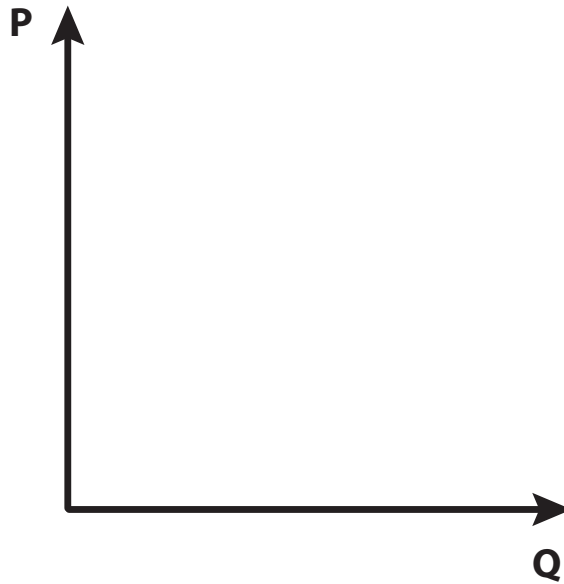


2. Suppose a lack of rainfall in the Midwest leads to a reduction in wheat production. How will this influence the market for bread?

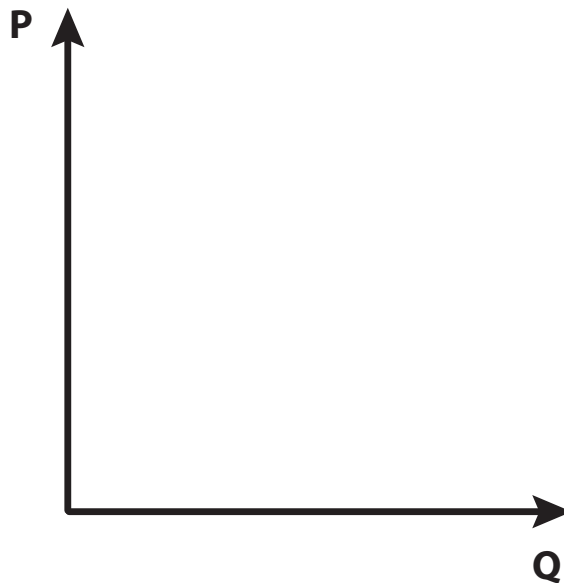


### Handout 4B.1: Supply and Demand Graphing (page 2 of 6)

3. As the summer season approaches, more people want to surf. How will this influence the surfboard market?

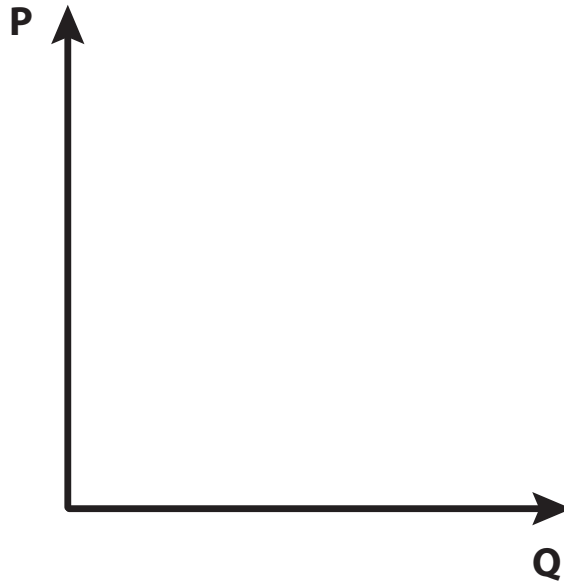


4. Suppose lemonade vendors expect future lemonade prices to double. How will this influence the current lemonade market?

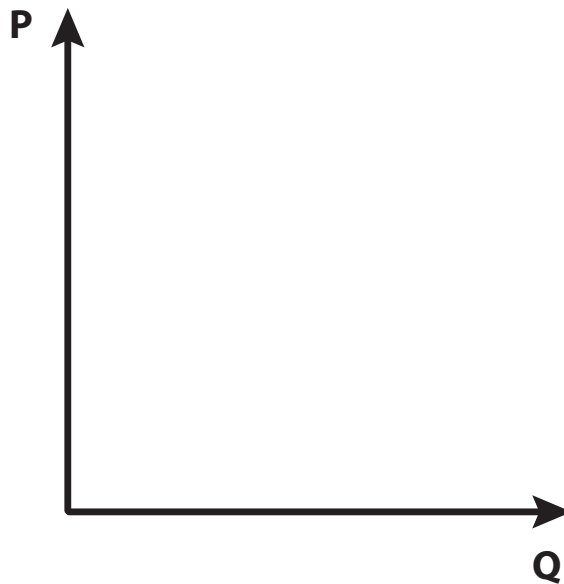


### Handout 4B.1: Supply and Demand Graphing (page 3 of 6)

5. Technological advancements in cellular phones have dramatically improved the production process. How has this influenced the cellular phone market?



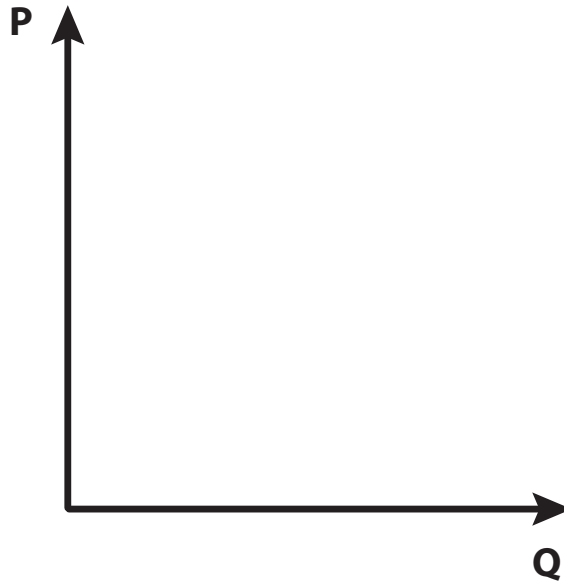
6. Suppose the price of Pepsi™ falls dramatically. How will this affect the market for Coke™?



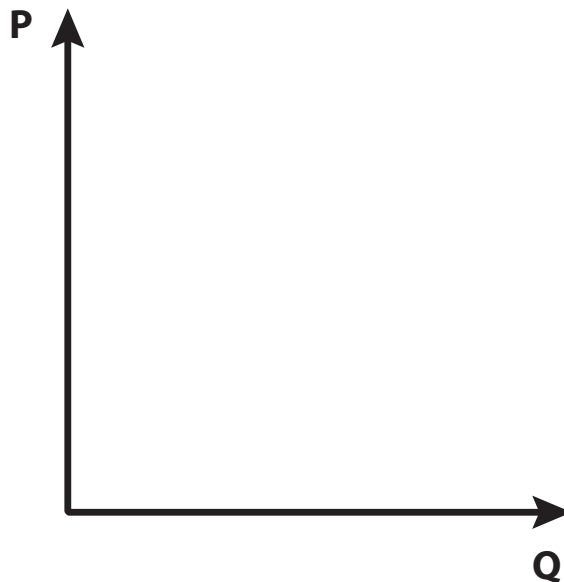


### Handout 4B.1: Supply and Demand Graphing (page 4 of 6)

7. Suppose medical professionals announce that consuming coffee will stunt your growth. How will this influence the coffee market?

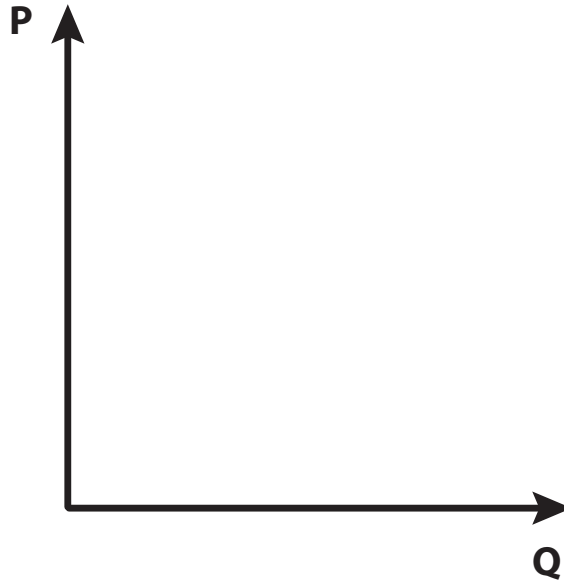


8. Suppose households anticipate a dramatic increase in the price of milk in the future. How will this influence the milk market?

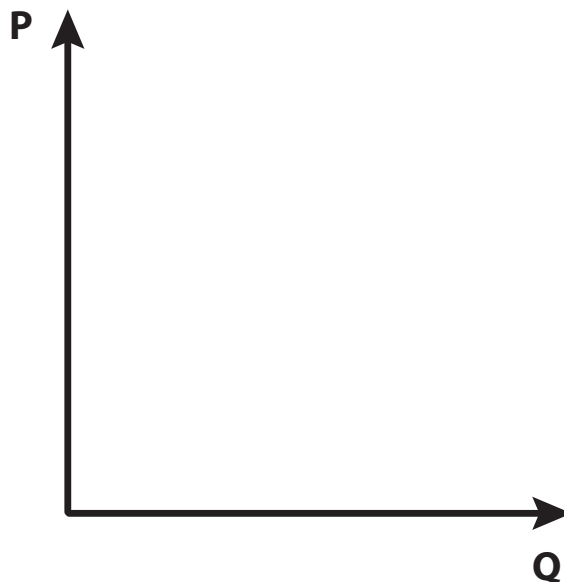


### Handout 4B.1: Supply and Demand Graphing (page 5 of 6)

9. Suppose that because of higher profit potential elsewhere, many Brussels sprout sellers are leaving the market. How will this influence the Brussels sprout market?

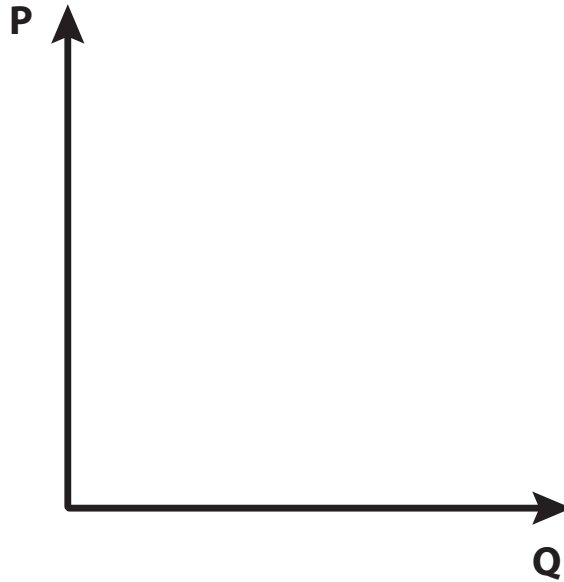


10. Suppose people become increasingly concerned with physical fitness. How will this influence the market for athletic shoes?



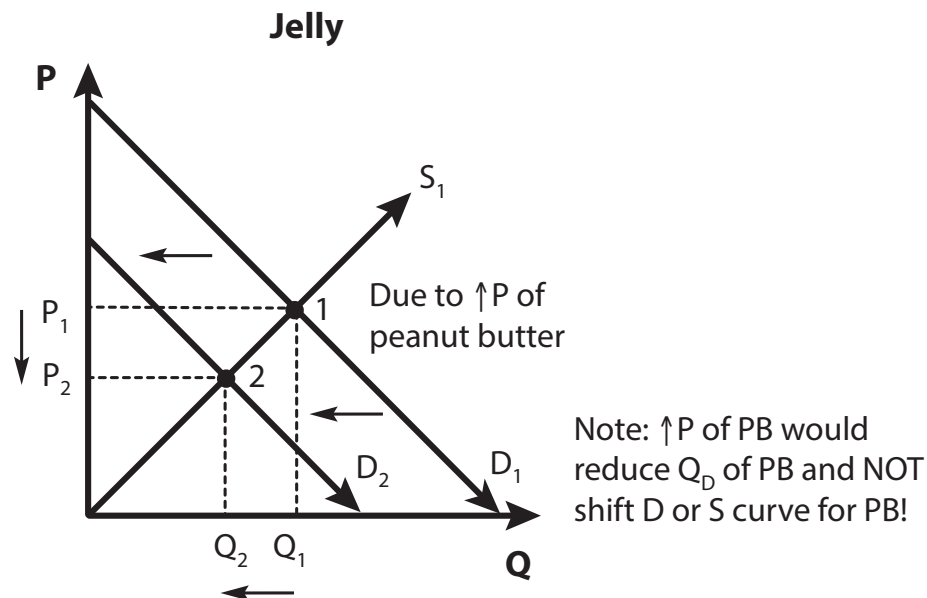
### Handout 4B.1: Supply and Demand Graphing (page 6 of 6)

11. Suppose hurricanes decrease the shrimp population but the popularity of shrimp cocktail increases. How will this influence the market for shrimp? (**Double shift alert!**)

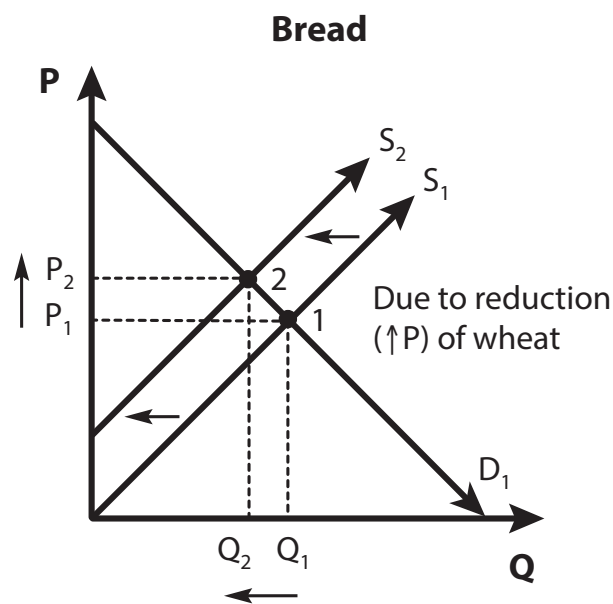


### Handout 4B.1: Supply and Demand Graphing—Answer Key (page 1 of 6)

- Suppose the price of peanut butter increases sharply. How will this influence the market for jelly? (*The demand for jelly decreases because peanut butter and jelly are complementary goods. The equilibrium price of jelly decreases and the equilibrium quantity decreases.*)

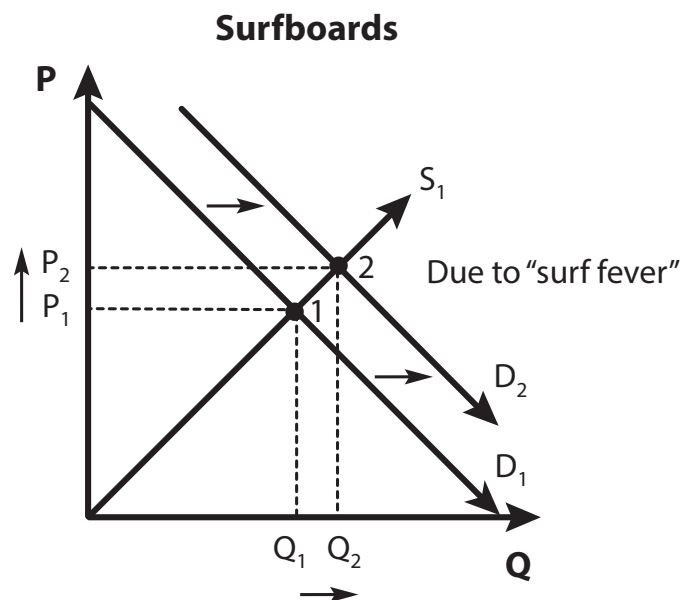


- Suppose a lack of rainfall in the Midwest leads to a reduction in wheat production. How will this influence the market for bread? (*The supply of bread decreases because wheat is an input in the production of bread. The equilibrium price of bread increases and the equilibrium quantity decreases.*)

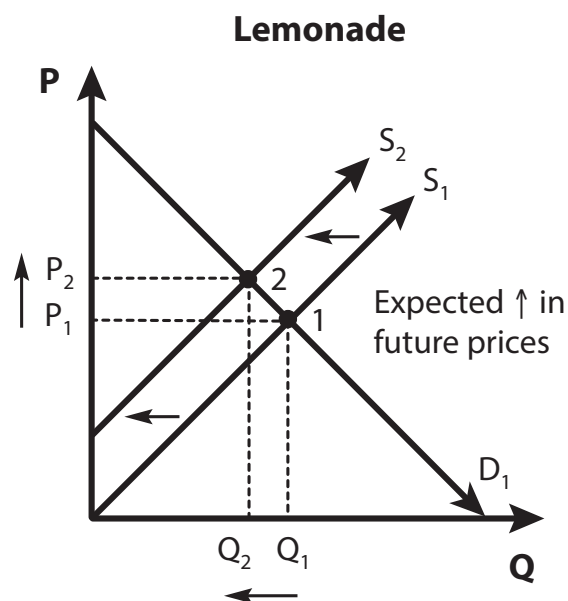


### Handout 4B.1: Supply and Demand Graphing—Answer Key (page 2 of 6)

3. As the summer season approaches, more people want to surf. How will this influence the surfboard market? *(The demand for surfboards increases because the number of consumers in the market increases. The equilibrium price of surfboards increases and the equilibrium quantity increases.)*

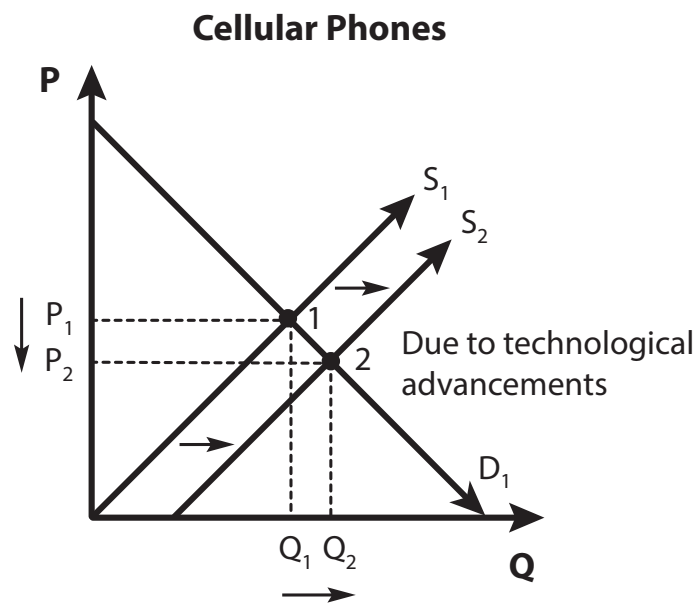


4. Suppose lemonade vendors expect future lemonade prices to double. How will this influence the current lemonade market? *(The supply of lemonade today decreases because producers expect to receive higher prices in the future. The equilibrium price of lemonade rises and the equilibrium quantity decreases.)*

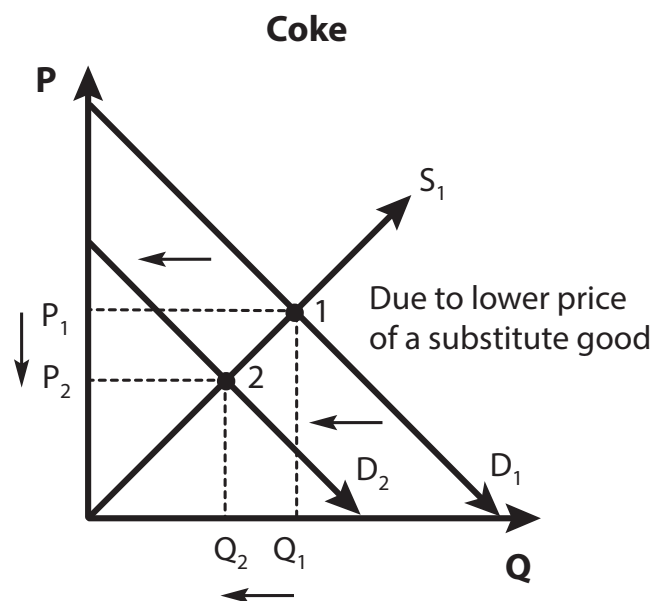


### Handout 4B.1: Supply and Demand Graphing—Answer Key (page 3 of 6)

5. Technological advancements in cellular phones have dramatically improved the production process. How has this influenced the cellular phone market? (*The supply of phones has increased because of a change in technology. The equilibrium price of cellular phones decreased and the equilibrium quantity increased.*)

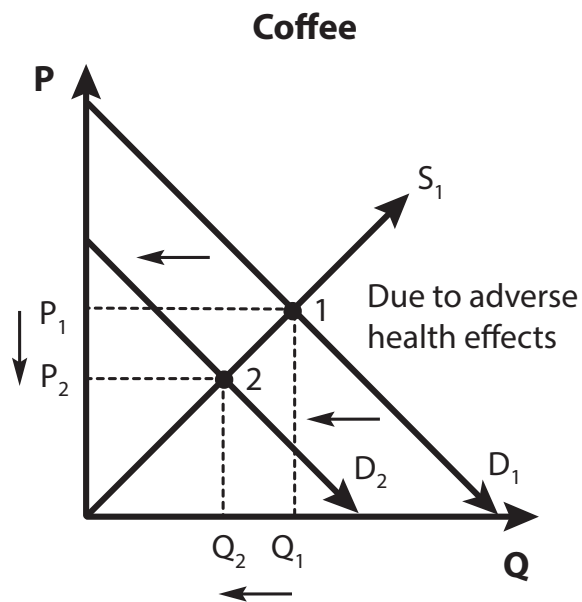


6. Suppose the price of Pepsi™ falls dramatically. How will this affect the market for Coke™? (*The demand for Coke decreases because Pepsi is a substitute for Coke. The equilibrium price of Coke decreases and the equilibrium quantity decreases.*)

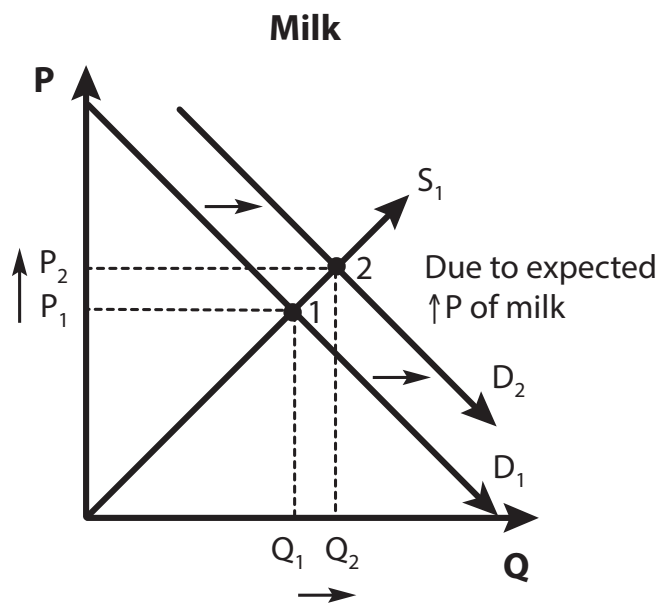


### Handout 4B.1: Supply and Demand Graphing—Answer Key (page 4 of 6)

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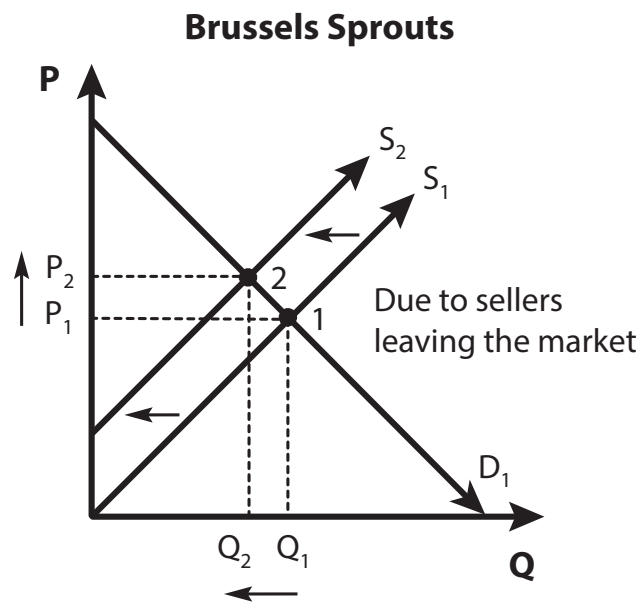


8. Suppose households anticipate a dramatic increase in the price of milk in the future. How will this influence the milk market? (*The current demand for milk increases because consumers expect to pay more in the future. The equilibrium price of milk increases and the equilibrium quantity increases.*)

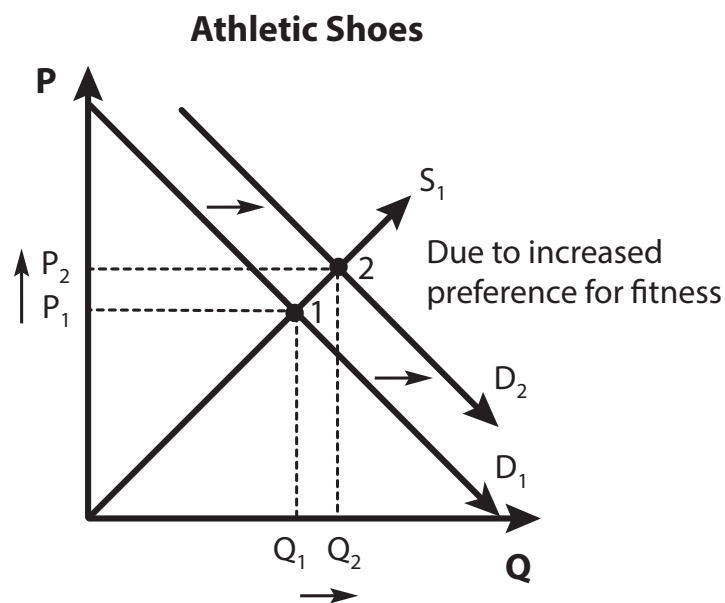


### Handout 4B.1: Supply and Demand Graphing—Answer Key (page 5 of 6)

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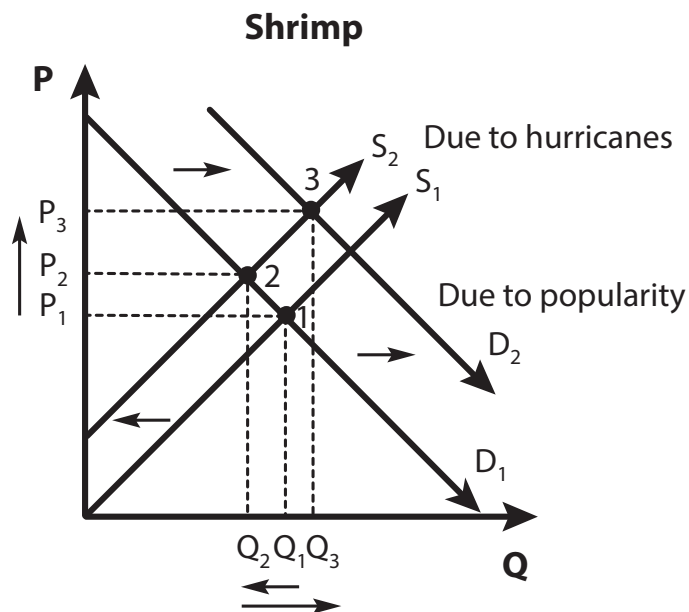
10. Suppose people become increasingly concerned with physical fitness. How will this influence the market for athletic shoes? (*The demand for athletic shoes increases because consumer tastes and preferences have changed. The equilibrium price of athletic shoes increases and the equilibrium quantity increases.*)





### Handout 4B.1: Supply and Demand Graphing—Answer Key (page 6 of 6)

11. Suppose hurricanes decrease the shrimp population but the popularity of shrimp cocktail increases. How will this influence the market for shrimp? **(Double shift alert!)** (The demand for shrimp increases and the supply of shrimp decreases. The equilibrium price increases, but how the equilibrium quantity changes is unknown.)



## Standards and Benchmarks

### Arkansas Economic Standards

**Content Standard E.1:** Students will understand the impact of economic decision-making. This includes the exchange of goods and services; role of producers, consumers, and government in the marketplace; and growth, stability, and interdependence within a global economy.

**Content Standard E.3:** Students will understand the exchange of goods and services. This includes different allocation methods and changes in supply and demand; the role of producers, consumers, and government in a market economy; and the degree of competition among buyers and sellers in markets.

- **E.3.ECON.2:** Evaluate the roles of scarcity, incentives, trade-offs, and opportunity costs in decision making (e.g., PACED decision making model, cost/benefit analysis)
- **E.3.ECON.3:** Justify various economic solutions to problems affecting an individual or society using marginal cost and marginal benefit analysis.
- **E.3.ECON.4:** Analyze the role of producers in a market economy.
- **E.3.ECON.5:** Evaluate intended and unintended consequences of government policies created to improve market outcomes (e.g., regulatory, participatory, supervisory, price floor, price ceiling, minimum wage).
- **E.3.ECON.6:** Compare and contrast various degrees of competition in markets (e.g., perfect competition, monopolistic competition, oligopoly, monopoly)
- **E.3.ECON.7:** Explain how differences in the extent of competition in various markets can affect price, quantity, and variety.