

CHAPTER

1

SECTION 1
Scarcity: The
Basic Economic
Problem

SECTION 2
Economic
Choice Today:
Opportunity
Cost

SECTION 3
Analyzing
Production
Possibilities

SECTION 4
The Economist's
Toolbox

CASE STUDY
The Real Cost
of Expanding
O'Hare Airport

The Economic Way of Thinking

CONCEPT REVIEW

Economics is the study of how individuals and societies satisfy their unlimited wants with limited resources.

CHAPTER 1 KEY CONCEPT

Scarcity is the situation that exists because wants are unlimited and resources are limited.

WHY THE CONCEPT MATTERS

You confront the issue of scarcity constantly in everyday life. Look again at the caption on page 2. Suppose you have \$20 to cover the cost of lunches for the week. How will you use your limited funds to meet your wants (lunch for Monday through Friday)? What if you stayed late at school twice a week and bought a \$1 snack each day? How would this affect your lunch choices? Identify one or two other examples of scarcity in your everyday life.

Online Highlights

More at ClassZone.com



Economics Update

Go to **ECONOMICS UPDATE** for chapter updates and news on the cost of expansion plans at O'Hare Airport in Chicago. (See Case Study, pages 32–33).



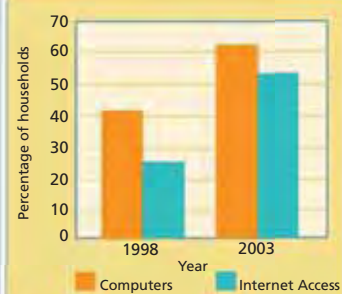
Animated Economics

Go to **ANIMATED ECONOMICS** for interactive lessons on the graphs and tables in this chapter. ▶

Interactive Review

Go to **INTERACTIVE REVIEW** for concept review and activities.

FIGURE 1.9 U.S. COMPUTER AND INTERNET ACCESS



How do economists use graphs?
See Section 4 of this chapter.

Scarcity: The Basic Economic Problem

OBJECTIVES

- In Section 1, you will
- explain how the economic definition of scarcity differs from the common definition
 - understand why scarcity affects everyone
 - learn three economic questions that societies face because of scarcity
 - describe the four factors of production and their uses

KEY TERMS

- | | |
|-----------------------------|------------------------|
| wants, p. 4 | land, p. 8 |
| needs, p. 4 | labor, p. 8 |
| scarcity, p. 4 | capital, p. 8 |
| economics, p. 4 | entrepreneurship, p. 9 |
| goods, p. 5 | |
| services, p. 5 | |
| consumer, p. 5 | |
| producer, p. 5 | |
| factors of production, p. 8 | |

TAKING NOTES

As you read Section 1, complete a cluster diagram showing how scarcity is the central concept of economics. Use the Graphic Organizer at **Interactive Review @ ClassZone.com**



What Is Scarcity?

KEY CONCEPTS

QUICK REFERENCE

Wants are desires that can be satisfied by consuming a good or a service.

Needs are things that are necessary for survival.

Scarcity exists when there are not enough resources to satisfy human wants.

Economics is the study of how individuals and societies satisfy their unlimited wants with limited resources.

Have you ever felt you wanted a new cell phone, a car, a new pair of running shoes, or the latest MP3 player? You are not alone. Consumers have many economic wants. **Wants** are desires that can be satisfied by consuming a good or service. When making purchases, people often make a distinction between the things they need and the things they want. Some things that people desire, like a house or an apartment, are more important than other things, like a flat-screen television. **Needs** are things, such as food, clothing, and shelter, that are necessary for survival.

People always want more, no matter how much they have already. In fact, wants are unlimited, but the resources available to satisfy them are limited. The result of this difference is **scarcity**, the situation that exists when there are not enough resources to meet human wants. Scarcity is not a temporary shortage of some desired thing. Rather, it is a fundamental and ongoing tension that confronts individuals, businesses, governments, and societies. Indeed, it is so basic to human experience that a social science has developed to understand and explain it. That social science is **economics**, the study of how people choose to use scarce resources to satisfy their wants. Economics involves

1. **examining** how individuals, businesses, governments, and societies choose to use scarce resources to satisfy their wants
2. **organizing, analyzing, and interpreting data** about those economic behaviors
3. **developing theories and economic laws** that explain how the economy works and to predict what might happen in the future.



Shortages and Scarcity Shortages often are temporary. Movie tickets may be in short supply today, but in a few days' time they may be easy to come by. Scarcity, however, never ends because wants always exceed the resources available to satisfy them.

PRINCIPLE 1 People Have Wants

Choice is central to the use of scarce resources. People make choices about all the things they desire—both needs and wants. You might think of food as a need, because it is necessary for your survival. Nevertheless, you make choices about food. What do you want for dinner tonight? Will you cook a gourmet creation or heat up a frozen dinner? Or will you treat yourself to a meal at your favorite restaurant? You make choices about other needs too. For example, consider the choices you make about the clothes you wear.

Wants are not only unlimited, they also are ever changing. Twenty-five years ago, for example, few Americans owned a personal computer. Today, however, few Americans can imagine life without computers and computer-related technology.

PRINCIPLE 2 Scarcity Affects Everyone

Because wants are unlimited and resources are scarce, choices have to be made about how best to use these resources. Scarcity, then, affects which goods are made and which services are provided. **Goods** are physical objects that can be purchased, such as food, clothing, and furniture. **Services** are work that one person performs for another for payment. Services include the work of sales clerks, technical support representatives, teachers, nurses, doctors, and lawyers. Scarcity affects the choices of both the **consumer**, a person who buys goods or services for personal use, and the **producer**, a person who makes goods or provides services.

APPLICATION Applying Economic Concepts

A. Identify five wants that you have right now. Describe how scarcity affects your efforts to meet these wants.

Economics Update

Find an update about computer ownership in the United States at ClassZone.com

QUICK REFERENCE

Goods are objects, such as food, clothing, and furniture, that can be bought.

Services are work that one person does for another.

A **consumer** is a person who buys or uses goods or services.

A **producer** is a maker of goods or a provider of services.

Scarcity Leads to Three Economic Questions

KEY CONCEPTS

If you have ever had to decide whether something you want is worth the money, then you have experienced scarcity firsthand. Scarcity in the lives of individual consumers—the gap between their unlimited wants and limited resources—is all too easy to understand. Scarcity, however, also confronts producers and whole societies. Indeed, scarcity requires every society to address three basic economic questions: What will be produced? How will it be produced? For whom will it be produced?

QUESTION 1 What Will Be Produced?

To answer the first fundamental economic question, a society must decide the mix of goods and services it will produce. Will it produce mainly food, or will it also produce automobiles, televisions, computers, furniture, and shoes? The goods and services a society chooses to produce depend, in part, on the natural resources it possesses. For example, a country that does not possess oil is unlikely to choose to produce petroleum products. Resources, however, do not completely control what a country produces. Japan does not possess large amounts of the iron ore needed to make steel. Yet Japan is a leading producer of automobiles, whose construction requires a great deal of steel.

Some countries, including the United States, resolve the issue of what goods and services to produce by allowing producers and consumers to decide. For example, if consumers want cars with automatic transmissions, automobile companies would be unwise to make only cars that have manual transmissions. In other countries—Cuba and North Korea, for example—the consumer plays little or no part in answering this question. Rather, the government decides what goods and services will be produced.

This first fundamental economic question involves not only what to produce, but also how much to produce. To answer this, societies must review what their wants are at any time. A country at war, for example, will choose to produce more weapons than it would during peacetime.



Some Leading Products		
China	South Africa	United States
Coal	Chemicals	Automobiles
Machinery	Coal	Coal
Rice	Gold	Textiles
Steel	Metal ores	Timber
Textiles	Metal products	Wheat

What to Produce? The availability of natural resources, such as gold, influences what the country of South Africa produces.



How to Produce For some societies, using a large amount of human labor is the most efficient way to produce food (left). For other societies, using a lot of machinery is a more efficient method of production (right).

QUESTION 2 How Will It Be Produced?

Once a society has decided what it will produce, it must then decide how these goods and services will be produced. Answering this second question involves using scarce resources in the most efficient way to satisfy society's wants. Again, decisions on methods of production are influenced, in part, by the natural resources a society possesses.

In deciding how to grow crops, for example, societies adopt different approaches. Societies with a large, relatively unskilled labor force might adopt labor-intensive farming methods. For this society, using many workers and few machines is the most efficient way to farm. The United States, however, has a highly skilled work force. So, using labor-intensive methods would be an inefficient use of labor resources. Therefore, the United States takes a capital-intensive approach to farming. In other words, it uses lots of machinery and few workers.

QUESTION 3 For Whom Will It Be Produced?

The third fundamental economic question involves how goods and services are distributed among people in society. This actually involves two questions. Exactly how much should people get and how should their share be delivered to them?

Should everyone get an equal share of the goods and services? Or should a person's share be determined by how much he or she is willing to pay? Once the question of how much has been decided, societies must then decide exactly how they are going to get these goods and services to people. To do this, societies develop distribution systems, which include road and rail systems, seaports, airports, trucks, trains, ships, airplanes, computer networks—anything that helps move goods and services from producers to consumers in an efficient manner.

APPLICATION Analyzing Cause and Effect

- B. Why does the basic problem of scarcity lead societies to ask the three fundamental economic questions?

The Factors of Production

QUICK REFERENCE

Factors of production are the resources needed to produce goods and services.

Land refers to all natural resources used to produce goods and services.

Labor is all of the human effort used to produce goods and services.

Capital is all of the resources made and used by people to produce goods and services.

KEY CONCEPTS

To understand how societies answer the first two basic questions—what to produce and how to produce it—economists have identified the **factors of production**, or the economic resources needed to produce goods and services. They divide the factors of production into four broad categories: land, labor, capital, and entrepreneurship. All of these factors have one thing in common—their supply is limited.

FACTOR 1 Land

In everyday terms, the word *land* usually refers to a stretch of ground on the earth's surface. In economic terms, however, **land** includes all the natural resources found on or under the ground that are used to produce goods and services. Water, forests, and all kinds of wildlife belong in the category of land. So, too, do buried deposits of minerals, gas, and oil.

FACTOR 2 Labor

The word *labor* usually brings to mind images of hard physical work. In economic terms, however, its meaning is far broader. **Labor** is all the human time, effort, and talent that go into the making of products. Labor, then, is not only the work done by garbage collectors, factory workers, and construction workers. It also includes the work of architects, teachers, doctors, sales clerks, and government officials.

FACTOR 3 Capital

When you hear the word *capital*, you probably think of money. In economic terms, however, **capital** is all the resources made and used by people to produce and distribute goods and services. Tools, machinery, and factories are all forms of capital. So are offices, warehouses, stores, roads, and airplanes. In other words, capital is all of a producer's physical resources. For this reason capital is sometimes called physical capital, or real capital.

While businesses invest in real capital, workers invest in human capital—the knowledge and skills gained through experience. Human capital includes such things as a college degree or good job training. When workers possess more human capital, they are more productive.

Human Capital Education increases your human capital and makes you more productive in the workplace.



ECONOMICS ESSENTIALS

FIGURE 1.1 Factors of Production

Land All the natural resources found on or under the ground that are used to produce goods and services are considered land.



Labor All the human time, effort, and talent that go into the production of goods and services are considered labor.



What are the Factors of Production?



Entrepreneurship The combination of vision, skill, ingenuity, and willingness to take risks that is needed to create and run new businesses is called entrepreneurship.

Capital All the physical resources made and used by people to produce and distribute goods and services are considered capital. So, too, are the knowledge and skills that make workers more productive.



ANALYZE CHARTS

Two new businesses have opened in your neighborhood—a coffee bar called Lou's Café and a health club called BodyPower. Construct your own Economics Essentials diagram to show how the four factors of production are used in one of these businesses.

FACTOR 4 Entrepreneurship

The fourth factor of production, entrepreneurship, brings the other three factors together. **Entrepreneurship** is the combination of vision, skill, ingenuity, and willingness to take risks that is needed to create and run new businesses. Most entrepreneurs are innovators. They try to anticipate the wants of consumers and then satisfy these wants in new ways. This may involve developing a new product, method of production, or way of marketing or distributing products. Entrepreneurs are also risk takers. They risk their time, energy, creativity, and money in the hope of making a profit. The entrepreneurs who build a massive shopping mall or who open a new health club do so because they think they could profit from these business ventures. The risk they take is that these enterprises might fail.

QUICK REFERENCE

Entrepreneurship involves the vision, skills, and risk-taking needed to create and run businesses.

APPLICATION Applying Economic Concepts

- C. Think of a product that you recently purchased. How do you think the four factors of production were used to create this product?



For more on cause and effect, see the Skillbuilder Handbook, page R20.

Analyzing Cause and Effect

Causes are the events that explain why something happens and **effects** are what happens. An effect can become the cause of other effects, resulting in a chain of events or conditions. Identifying causes and effects helps economists understand how economic conditions occur. Use the strategies below to help you identify causes and effects using a graphic organizer.

Identify causes by using the word *why* to formulate questions about the topic of the passage. Example: *Why did oil become more scarce in 2003? Why did this situation continue?* The answers you find will be the causes.

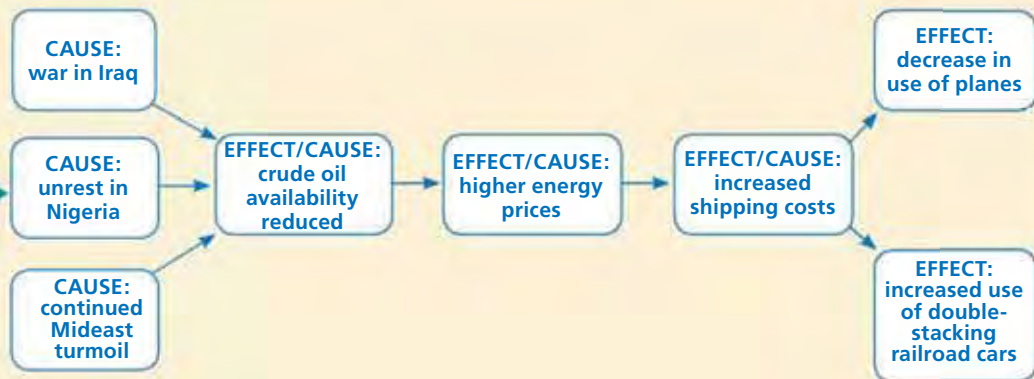
Turmoil Reduces Oil Supply

Oil is a scarce resource, but events in the Middle East have made it more so. The invasion of Iraq in 2003 by U.S.- and British-led coalition forces led to an almost immediate shut-down of Iraq's oil exports, **thereby** reducing the availability of crude oil by some 1.8 million barrels per day. Unrest in Nigeria, Africa's largest oil producer, further added to global scarcity. More than two years later, in part due to continued unrest in the Middle East, oil production was still sluggish. **One result of the continued scarcity was a rise in energy prices.** **Increased energy prices in turn caused shipping costs to rise.** The increased costs of shipping led shippers to seek more economical means of transport. Some shippers have decreased their use of planes and trucks. Instead, they have turned to less fuel-dependent modes of transport. One example is the use of double stacked railroad cars that can carry two shipping containers stacked one on top of the other.

Identify effects by looking for results or consequences. These are sometimes indicated by words such as *led to*, *brought about*, *thereby*, and *as a result*.

Look for cause-effect chains, where an effect may be the cause of another event and so on.

Diagram the causes and effects in a flowchart like this one.



THINKING ECONOMICALLY Analyzing Causes and Effects

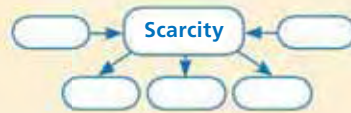
Locate and read an economics-related article in a current affairs magazine, such as *Time*, *Newsweek*, or *U.S. News & World Report*. Make a diagram to summarize the causes and effects discussed in the article.

SECTION 1 Assessment

REVIEWING KEY CONCEPTS

1. Explain the relationship between the terms in each of these pairs:
a. *wants* **b.** *consumer* **c.** *factors of production*
scarcity *producer* *entrepreneurship*
2. What is the difference between needs and wants? Explain how a need may also be a want.
3. How does scarcity affect consumers? Producers?
4. What services that individuals or businesses provide do you use every day?
5. Describe how the owners of a computer repair store might use the four factors of production to run their business.

- 6. Using Your Notes** How does scarcity affect methods of production? Refer to your completed cluster diagram.



Use the Graphic Organizer at [Interactive Review @ ClassZone.com](#)

CRITICAL THINKING

7. **Drawing Conclusions** Many high schools throughout the United States have faced a serious shortage of math and science teachers. Many prospective teachers choose to go into business and industry because of higher salaries. In some communities, businesses are “loaning” employees who want to teach part-time to schools to fill the math and science teacher gap. Does this scenario illustrate scarcity? Why or why not?
8. **Applying Economic Concepts** Consider the following entrepreneurs: Lucy, who runs an organic farm, and Ron, a sports superstar who owns several restaurants. Describe how they may have used entrepreneurship to establish and run their businesses.
9. **Writing About Economics** Select a 10-minute period of time in your day-to-day life—when you are in the cafeteria at lunchtime, for example. Analyze how scarcity affects your activities during this time period. Write your analysis in a paragraph.
10. **Challenge** At one time or another, you have probably made a choice about how to use your scarce resources that you later regretted. For example, you may have purchased a music download instead of going to the movies. What led you to your choice? What did you learn later that might have led you to a different choice?

ECONOMICS IN PRACTICE



Using Scarce Resources

Suppose you are moving into your first apartment like the young woman above. You have saved \$1,200 to use for this purpose. When you go shopping, you learn that these are the prices for things you had on your list of furnishings.

Item	Price (\$)
Kitchen table and chairs	200
TV set	150
Dishes	45
Silverware	25
Towels	35
Couch	300
Desk & chair	175
Bed	350
Computer	400
Stereo system	300

Make Economic Choices Use these prices to decide how you will spend your budget for furnishings. Make a list of the things you will buy.

Challenge What did you have to give up to get the things you chose? Why did you decide to give those things up?

Economic Choice Today: Opportunity Cost

OBJECTIVES

- In Section 2, you will
- understand why choice is at the heart of economics
 - explain how incentives and utility influence people's economic choices
 - consider the role of trade-offs and opportunity costs in making economic choices
 - demonstrate how to do a cost-benefit analysis

KEY TERMS

incentives, p. 12
 utility, p. 12
 economize, p. 12
 trade-off, p. 14
 opportunity cost, p. 14
 cost-benefit analysis, p. 15
 marginal cost, p. 16
 marginal benefit, p. 16

TAKING NOTES

As you read Section 2, complete a cluster diagram to help you see how the key concepts relate to one another. Use the Graphic Organizer at **Interactive Review @ ClassZone.com**



Making Choices

QUICK REFERENCE

Incentives are methods used to encourage people to take certain actions.

Utility is the benefit or satisfaction received from using a good or service.

To **economize** means to make decisions according to the best combination of costs and benefits.

KEY CONCEPTS

As you recall from Section 1, scarcity forces everyone to choose. But what shapes the economic choices that people make? One factor involves **incentives**, or benefits offered to encourage people to act in certain ways. Grades in school, wages paid to workers, and praise or recognition earned in personal and public life are all incentives. Choice is also influenced by **utility**, or the benefit or satisfaction gained from the use of a good or service. When they economize, people consider both incentives and utility. In common usage, the word *economize* means to “cut costs” or “do something cheaply.” In strict economic terms, however, **economize** means to “make decisions according to what you believe is the best combination of costs and benefits.”

Incentives The chance of winning a championship trophy serves as an incentive for athletes to train and play hard.



YOUR ECONOMIC CHOICES

MAKING CHOICES

How will you spend time with a friend?

You and a friend have the choice of going to dinner or going to a movie. There is an incentive for choosing the movies, since dinner would surely cost more. On the other hand, your friend has offered to help you with college applications. So dining out, which allows time for conversation, has more utility to you than seeing a movie.



Dinner



Movie

FACTOR 1 Motivations for Choice

Choice powers an economy, but what powers choice? The choices people make are shaped by incentives, by expected utility, and by the desire to economize. For example, look at Your Economic Choices above. How will you decide between the two options? Like other economic decision makers, you weigh the costs against the benefits, and you make your choice purposefully. Perhaps you decide to go out to dinner. Even though you'll spend more money, you feel that the tips your friend can give you on writing your college application essay are invaluable. You've economized by choosing what represents the best mix of costs and benefits.

In making this decision, you were guided by self-interest. This does not mean that you behaved selfishly. Rather, it simply means that you looked for ways to maximize the utility you'd get from spending time with your friend.

FACTOR 2 No Free Lunch

An old saying can sum up the issue of choice in economics: "There is no such thing as a free lunch." Every choice involves costs. These costs can take the form of money, time, or some other thing you value. Let's revisit your choices. If you chose to go to dinner rather than to a movie, you gained the benefit of a satisfying, informative, and beneficial conversation with a friend. Even so, you also paid a cost—you didn't see the movie. On the other hand, if you chose to go to the movie, you gained the benefit of an entertaining evening and having more money to save or spend on something else. Once again, however, your choice involved a cost. You sacrificed the time you could have spent getting advice and guidance on the college application process from your friend.

APPLICATION Using a Decision-Making Process

- A. You have enough money to buy either an MP3 player that is on sale or some fitness equipment you want. What incentives and utility would guide your decision?

Trade-Offs and Opportunity Cost

KEY CONCEPTS

QUICK REFERENCE

A **trade-off** is the alternative people give up when they make choices.

Choices, as you have learned, always involve costs. For every choice you make, you give up something. The alternative that you give up when you make an economic choice is called a **trade-off**. Usually, trade-offs do not require all-or-nothing choices. Rather, they involve giving up some of one thing to gain more of another.

EXAMPLE 1 Making Trade-Offs

To understand how trade-offs work, let's take a look at decisions made by Shanti, who has just finished her junior year in high school. Shanti wants to go to summer school to earn some credits she can apply to college. She could take a semester-long course at a local university, or she could take an intensive six-week course at her high school. She decides on the six-week course, even though she'll earn fewer credits. However, she will have several weeks of the summer vacation to have fun and relax.



Trade-Offs All the decisions you make, including selecting school or college courses, involve choosing among alternatives.

EXAMPLE 2 Counting the Opportunity Cost

Shanti's friend Dan, who has just graduated, has decided to take off a year before going to college. He's been offered a full-time job for the whole year. However, he decides to take the job for six months and then spend time traveling.

Dan's choice, like all economic choices, involves an opportunity cost. The **opportunity cost** of a decision is the value of the next-best alternative, or what you give up by choosing one alternative over another. Dan decided to travel around the country and visit friends. The opportunity cost of that decision is the income he could have earned at his job. If, however, Dan had decided to work for the whole year, his opportunity cost would have been the trip around the country that he didn't take. Note that Dan's opportunity cost is not the value of all the things he might have done. Rather, it is the value of his next-best alternative, or what he gave up to get what he most wanted.

QUICK REFERENCE

Opportunity cost is the value of something that is given up to get something else that is wanted.

APPLICATION Applying Economic Concepts

- B. Look again at Shanti's decision. What was the opportunity cost of her choice? If she had chosen the semester course, what would her opportunity cost have been?

Analyzing Choices

KEY CONCEPTS

Shanti and Dan did not make their choices randomly. Rather, they carefully looked at the benefits they would gain and the opportunity costs they would incur from their decisions. This practice of examining the costs and the expected benefits of a choice as an aid to decision making is called **cost-benefit analysis**. Cost-benefit analysis is one of the most useful tools for individuals, businesses, and governments when they need to evaluate the relative worth of economic choices.

QUICK REFERENCE

Cost-benefit analysis is an approach that weighs the benefits of an action against its costs.

EXAMPLE Max's Decision-Making Grid

Perhaps the simplest application of cost-benefit analysis is the decision-making grid, which shows what you get and what you give up when you make choices. Look at Max's decision-making grid in Figure 1.2 below. Max has to decide how to spend his scarce time—studying for his government class or going out with his friends. Max likes nothing better than to spend hours talking with his friends at the local juice bar. However, the F he has in the government class at the moment will not look good on his transcript. So he certainly could benefit from some extra study time.

Max knows that he has six hours available for extra study or socializing each week. He begins to build his decision-making grid by listing all the options he has for using these six hours. He then lists the benefits and opportunity costs of each of these options. After reviewing all of this information, he chooses three extra hours of study a week. He feels that the opportunity cost, three hours of time with his friends, is worth the expected benefit, a B grade.

FIGURE 1.2 Max's Decision-Making Grid

A decision-making grid helps you to see what you gain and what you lose when you make choices. Max's decision-making grid shows the costs and benefits of hours spent studying versus time spent socializing.

Choice	Benefit	Opportunity Cost
One hour of extra study	D in government class	One hour with friends
Two hours of extra study	C in government class	Two hours with friends
Three hours of extra study	B in government class	Three hours with friends
Four hours of extra study	B+ in government class	Four hours with friends
Five hours of extra study	A– in government class	Five hours with friends
Six hours of extra study	A in government class	Six hours with friends

ANALYZE TABLES

1. What is Max's opportunity cost of three extra hours of study?
2. Read the information about marginal costs on the next page. What is Max's marginal cost of moving from a grade of B+ to a grade of A–?

Costs and benefits change over time. So do goals and circumstances. Such changes will influence the decisions people make. For instance, Max learns that Pine Tree State, the college he wants to attend, only considers applicants with a 3.4 or better grade point average. If he needs to get a B+ or better to raise his GPA to 3.4, he might decide to spend less time with his friends and study four or five hours per week rather than three.

EXAMPLE Marginal Costs and Benefits

How did Max arrive at his decision? To explain it, economists would look at marginal costs and marginal benefits. **Marginal cost** is the cost of using one more unit of a good or service, while **marginal benefit** refers to the benefit or satisfaction received from using one more unit of a good or service. Max's choice was to study three extra hours, which gave him a B grade at the opportunity cost of three hours with his friends. Look again at Max's decision-making grid in Figure 1.2. What would be the marginal cost of one more hour of study? As you can see, it is the loss of one more hour with his friends. The marginal benefit of that extra hour would be an improvement in grade from B to B+. Max decided that the benefit of a slight improvement in his grade was not worth the cost of one less hour with his friends.

The analysis of marginal costs and marginal benefits is central to the study of economics. It helps to explain the decisions consumers, producers, and governments make as they try to meet their unlimited wants with limited resources.

QUICK REFERENCE

Marginal cost is the additional cost of using one more unit of a product.

Marginal benefit is the additional satisfaction from using one more unit of a product.

YOUR ECONOMIC CHOICES

MARGINAL BENEFITS AND COSTS

Which will you do—basketball practice or after-school job?

For every hour you practice basketball, you gain in skill and increase your chances of making the team. However, each hour you practice is an hour you could have spent working at an after-school job to save for a car or college or something else you want.



Basketball practice



Part-time job

APPLICATION Using a Decision-Making Process

- C. Look at Your Economic Choices above. Construct a decision-making grid that analyzes the potential choices of attending basketball practice and working at an after-school job. Which option would you choose?

SECTION 2 Assessment

REVIEWING KEY CONCEPTS

- Explain the relationship between the terms in each of these pairs:
 - incentive utility*
 - trade-off opportunity cost*
 - marginal cost marginal benefit*
- Two action movies are playing at your movie-theater complex. You have a half-price coupon for one. However, you choose to see the other. How might this still be an example of economizing?
- Think of some of the options you have for spending time after school—sports practice, hobby clubs, work, or extra study, for example. Which option would you choose? What is the opportunity cost of your choice?
- How is a decision-making grid an example of cost-benefit analysis?
- Use the concepts of marginal costs and marginal benefits to explain why some people might see the same movie ten times while others will watch it only once or twice.
- Using Your Notes** How do marginal costs and benefits relate to trade-offs? Refer to your completed cluster diagram. Use the Graphic Organizer at **Interactive Review @ ClassZone.com**



CRITICAL THINKING

- Applying Economic Concepts** A Web site reviewing new CDs offers you a free subscription. All you have to do is complete a brief online application. What is the opportunity cost of this “free” offer? Why do you think the offer is being made?
- Evaluating Economic Decisions** Explain how self-interest is part of each economic choice. Use an example from your own experience that shows how you purposely served your own self-interest in a choice you made.
- Conducting Marginal Cost–Marginal Benefit Analysis** You are on a limited budget and planning a four-day camping trip to a national park. Bus fare is \$75 each way and the ride takes 12 hours. Plane fare is \$150 each way and the ride takes an hour and a half. Conduct a cost-benefit analysis to help you choose your method of travel.
- Challenge** Why are all choices economic choices? Illustrate your answer with examples.

ECONOMICS IN PRACTICE



Making Choices

Some of the incentives that spur people to action are money, recognition, self-esteem, good grades, immediate benefit, future benefit, and altruism (doing good for others, such as working for Habitat for Humanity).

Consider Economic Choices Copy and complete the chart by noting the incentives that might motivate people to take the listed actions. (Several incentives might apply in some cases.)

Action	Incentive
Donate to charity.	
Get a promotion.	
Buy a friend a present.	
Attend a good college.	
Buy organic foods.	
Buy inexpensive imported goods.	

Challenge Have you ever had two or more conflicting incentives for a certain behavior? If so, how would you choose among them? If not, which of the incentives above motivates you most often?

Analyzing Production Possibilities

OBJECTIVES

- In Section 3, you will
- describe what a production possibilities curve is and how it is constructed
 - explain what economists learn from using production possibilities curves
 - analyze how production possibilities curves show economic growth

KEY TERMS

- economic model, *p. 18*
 production possibilities curve (PPC), *p. 18*
 efficiency, *p. 20*
 underutilization, *p. 20*
 law of increasing opportunity costs, *p. 21*

TAKING NOTES

As you read Section 4, complete a summary chart to identify the most important points on production possibilities. Use the Graphic Organizer at **Interactive Review @ ClassZone.com**

Analyzing Production Possibilities

PPC	shows impact of scarcity

Graphing the Possibilities

KEY CONCEPTS

QUICK REFERENCE

An **economic model** is a simplified representation of economic forces.

The **production possibilities curve (PPC)** is a graph used by economists to show the impact of scarcity on an economy.

In Section 2 you learned that all economic choices involve trade-offs. Economists have created **economic models**—simplified representations of complex economic activities, systems, or problems—to clarify trade-offs. One such model is a **production possibilities curve (PPC)**, a graph used to illustrate the impact of scarcity on an economy by showing the maximum number of goods or services that can be produced using limited resources.

Like all other economic models, the PPC is based on assumptions that simplify the economic interactions. For the PPC these assumptions are:

- Resources are fixed.** There is no way to increase the availability of land, labor, capital, and entrepreneurship.
- All resources are fully employed.** There is no waste of any of the factors of production. In other words, the economy is running at full production.
- Only two things can be produced.** This assumption simplifies the situation and suits the graphic format, with one variable on each axis.
- Technology is fixed.** There are no technological breakthroughs to improve methods of production.

Since the curve on a PPC represents the border—or frontier—between what it is possible to produce and what it is not possible to produce, this model is sometimes called a production possibilities frontier. It is a useful tool for businesses and even governments, but it works just as well with individual, small-scale economic decisions. For example, suppose you are preparing food for a soup kitchen and have the ingredients to make 12 loaves of whole wheat bread or 100 bran muffins or some combination of the two. A PPC can help you decide what to make.

Production Possibilities Curve

The production possibilities table in Figure 1.3 below shows five production possibilities for loaves of bread and bran muffins. These production possibilities run from the two extremes of all bread or all muffins through several combinations of the two products. The data in the table also can be plotted on a graph, as in Figure 1.4. The line joining the plotted points is the production possibilities curve. Each point on the curve represents the maximum number of loaves of bread that can be produced relative to the number of bran muffins that are produced.

Further, the PPC shows the opportunity cost of each choice in a visual way. Trace the curve from left to right with your finger. Notice that as you move along the curve you make fewer loaves of bread and more muffins. The opportunity cost of making more muffins is the bread that cannot be made.



Production Possibilities A production possibilities curve can show all the possible combinations for producing muffins and bread.

FIGURE 1.3 PRODUCTION POSSIBILITIES TABLE: BREAD vs. MUFFINS

	Loaves of Bread	Bran Muffins
a →	12	0
	10	35
b →	7	63
	4	84
c →	0	100

FIGURE 1.4 PRODUCTION POSSIBILITIES CURVE: BREAD vs. MUFFINS



- a** Here you are using all the ingredients to make only bread.
- b** This point shows a combination of 7 loaves of bread and 63 muffins. The opportunity cost of making the 7 loaves is 37 muffins ($100 - 63$).
- c** At this point, you are making all muffins and no bread.

ANALYZE GRAPHS

1. If you decided to make ten loaves of bread, how many bran muffins could you make?
2. What is the opportunity cost of making the ten loaves of bread?



Use an interactive production possibilities curve at ClassZone.com

APPLICATION Interpreting Graphs

- A.** Look at the production possibilities curve in Figure 1.4. What is the opportunity cost of increasing bread production from four loaves to seven loaves?

What We Learn from PPCs

QUICK REFERENCE

Efficiency involves producing the maximum amount of goods and services possible.

Underutilization means producing fewer goods and services than possible.

KEY CONCEPTS

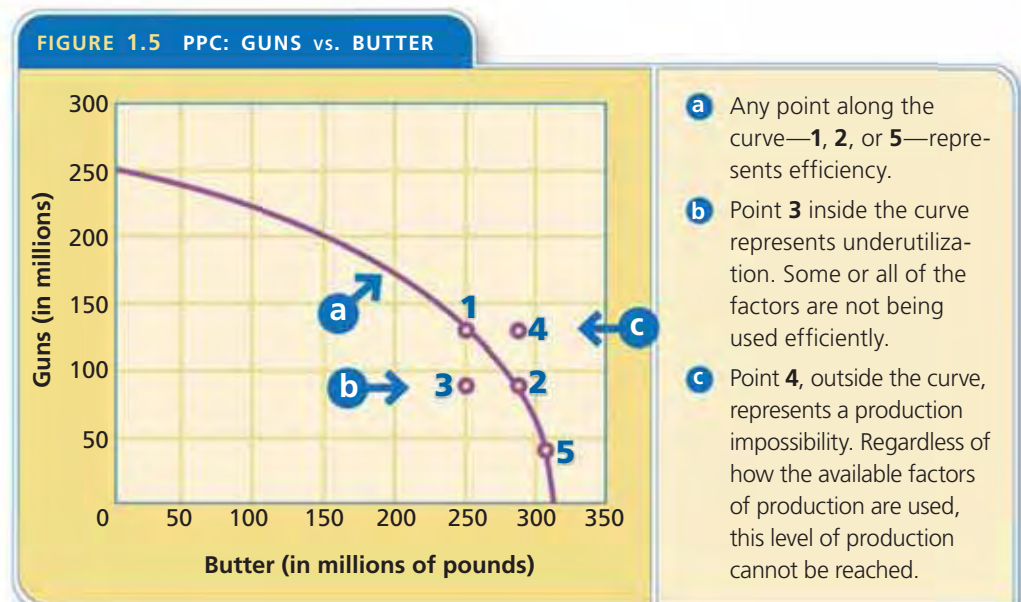
No economy actually operates according to the simplified assumptions underlying the PPC. However, economists use the simplified model because it spotlights concepts that work in the real world of scarce resources.

One important concept revealed in a PPC is **efficiency**, the condition in which economic resources are being used to produce the maximum amount of goods and services. Another is **underutilization**, the condition in which economic resources are not being used to their full potential. As a result, fewer goods and services are being produced than the economy is capable of making. Both of these conditions are easy to see in the PPC.

EXAMPLE Efficiency and Underutilization

Figure 1.5 shows the classic production possibilities model of guns vs. butter. In this model, “guns” is shorthand for military spending and “butter” represents consumer products. Every point along this PPC shows a different combination of military and consumer production. Regardless of the combination, each point represents efficiency, the most that can be produced with the available resources.

Any point inside the curve represents underutilization, or the inefficient use of available resources. Look again at Figure 1.5 and notice that point 3 indicates that all resources are not fully employed. The PPC shows that the economy is capable of producing either 47 million more guns (point 1 on the curve) or 30 million more pounds of butter (point



ANALYZE GRAPHS

1. What is the opportunity cost of moving butter production from 1 to 2?
2. At 3, factors of production are not being used efficiently. Identify a situation where this might occur.

Animated Economics

Use an interactive production possibilities curve at ClassZone.com

2 on the curve). Any point outside the curve is impossible to meet because resources are fixed. To produce the number of guns indicated at point 4, fewer pounds of butter would have to be made (point 1 on the curve). Similarly, to produce the amount of butter indicated at point 4, fewer guns would have to be made (point 2 on the curve).

The shape of the PPC shows a third important economic concept. This is the **law of increasing opportunity costs**, which states that as production switches from one product to another, increasingly more resources are needed to increase the production of the second product, which causes opportunity costs to rise.

EXAMPLE Increasing Opportunity Costs

Return again to Figure 1.5. A nation makes 250 million pounds of butter (point 1 on the curve), but wants to make 280 million pounds (point 2 on the curve). The opportunity cost of making the extra 30 million pounds of butter is 37 million guns. That works out to a cost of about 1.2 guns for every pound of butter. If the nation increases its output of butter to 312 million pounds (point 5 on the curve), the opportunity cost of the change would be 63 millions guns, nearly 2 guns for every pound of butter. This increase in the opportunity cost—each additional unit costs more to make than the last—explains why the curve is bow-shaped.

QUICK REFERENCE

The **law of increasing opportunity costs** states that as production switches from one product to another, increasing amounts of resources are needed to increase the production of the second product.



Opportunity Cost In the guns vs. butter equation, if more resources are used to make military products, such as stealth bombers, there are fewer resources available for other things, such as butter and other consumer goods. The opportunity cost of making more military products is the other products that cannot be made.

The reason for the increasing costs is fairly straightforward. Making butter involves different resources than making guns. Converting from gun production to butter production is not a simple procedure. New machinery must be produced, new factories must be built, and workers must be retrained. The cost of all these actions will be fewer and fewer guns.

APPLICATION Writing about Economics

B. Write a brief paragraph explaining the concepts a PPC shows graphically.

Changing Production Possibilities

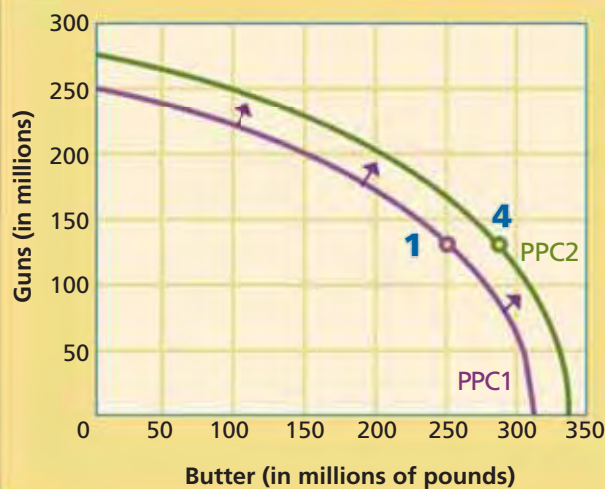
The PPC illustrates a country's present production possibilities as if all resources are fixed. However, a country's supply of resources is likely to change over time. When additional resources become available, new production possibilities beyond the original frontier become attainable, and the PPC moves outward.

EXAMPLE A Shift in the PPC

In the late 1700s, the United States occupied a relatively narrow strip of land along the Atlantic Coast. Yet in less than a hundred years, it had expanded to the Pacific Ocean. This additional land provided the United States with an abundance of natural resources. Similarly, successive waves of immigration have added huge numbers of workers to the labor pool. Also, new technology has made the use of land, labor, and capital more efficient.

The addition of new resources or the more efficient use of resources already available meant that the United States could produce more goods and services. This is shown on the PPC as a shift of the curve outward, or to the right, as Figure 1.6 illustrates. Economists refer to this increase in the economy's total output as economic growth. You'll learn more about this concept in Chapter 12.

FIGURE 1.6 SHIFT IN THE PPC



More resources or increased productivity shifts the PPC outward, or to the right, from PPC1 to PPC2. This means that the economy can produce more of both guns and butter and point 4, which was a production impossibility in Figure 1.5 on page 20, now is located on the curve.

ANALYZE GRAPHS

1. If the curve PPC2 represents current production possibilities, what does point 1 represent?
2. What might cause the PPC to shift inward?

Animated Economics

Use an interactive production possibilities curve at ClassZone.com

APPLICATION Applying Economic Concepts

- C. Identify three developments that would cause the PPC to move outward.

SECTION 3 Assessment

REVIEWING KEY CONCEPTS

- Explain how each of these terms is illustrated by the production possibilities curve.
 - underutilization
 - efficiency
- On what assumptions is the PPC based? Explain how these conditions do not correspond to the real world.
- What economic data does a PPC bring together?
- Why do opportunity costs increase as you make more and more butter and fewer guns?
- Based on what we learn from PPCs, what does an economy need to be able to produce more of both products on the graph?

6. Using Your Notes Write a one-paragraph summary of this section. Refer to your completed summary chart for the ideas to use in your summary.

Analyzing Production Possibilities	
PPC	shows impact of scarcity

Use the Graphic Organizer at **Interactive Review @ ClassZone.com**

CRITICAL THINKING

- 7. Applying Economic Concepts** Explain why, in an economy that produces only fish and computers and is working at efficiency, the 500th computer made will cost more in terms of fish than the 450th computer made.
- 8. Applying Economic Concepts** Suppose the owners of a car-manufacturing company are thinking of entering the motorcycle production business. How would a PPC model help them make a decision?
- 9. Analyzing Cause and Effect** If new technology was introduced but there were not enough skilled workers to use it, where would the nation's production be plotted on the PPC—inside or outside the curve? Explain your answer.
- 10. Challenge** During a war, a country suffers massive devastation of its industry. How would the country's PPC change from before the war to after the war? Sketch a PPC to illustrate your answer.

ECONOMICS IN PRACTICE



Creating a PPC

The following information reflects the production possibilities of an economy that makes only corn and television sets. Use the data to create a production possibilities curve.

Bushels of Corn (in thousands)	Television Sets (in thousands)
10	0
9	1
7	2
4	3
0	4

Label Points on a PPC Use the letters to locate the following points on your PPC:

- A** The point at which the economy makes all TVs and no corn
- B** A point representing efficiency
- C** A point representing underutilization
- D** A point representing an impossible level of production

Challenge Use information from your PPC to explain the law of increasing opportunity costs.

Use **SMART Grapher @ClassZone.com** to complete this activity.

The Economist's Toolbox

OBJECTIVES

- In Section 4, you will
- demonstrate how and why economists use economic models
 - understand how and why economists use statistics, charts, tables, and graphs
 - compare macroeconomics to microeconomics
 - contrast positive economics with normative economics

KEY TERMS

statistics, p. 24
 microeconomics, p. 27
 macroeconomics, p. 27
 positive economics, p. 29
 normative economics, p. 29

TAKING NOTES

As you read Section 4, complete a chart to see similarities and differences between key concepts. Use the Graphic Organizer at **Interactive Review @ ClassZone.com**

Concepts	Similarities	Differences
Charts & Tables vs. Graphs		
Micro vs. Macro		
Positive vs. Normative		

Working with Data

KEY CONCEPTS

An old joke notes that economics is everything we already know expressed in a language we don't understand. While many economists might disagree with the second part of this joke, they probably would have little argument with the first part. Economics is something that everybody engages in every day, and in that way everyone has knowledge of it. Individuals, business owners, and government officials make economic decisions all the time. Economists study these decisions and look for logical ways to explain why some nations are rich while others are poor, or why some consumers want one kind of product while others want another.

Since economists can't interview every person in every nation about economic choices, they rely on **statistics**—numerical data or information—to see patterns of behavior. To help organize and interpret the data they collect, they develop economic models. As you recall from Section 3, an economic model is a simplified representation of complex economic forces. The language of economists—these statistics and models—may sometimes be a little hard to understand. However, it is a more efficient way of explaining economic relationships and interactions than everyday language.

QUICK REFERENCE

Statistics are information in numerical form.

Using Economic Models

In science class, you may have seen a model of a lunar eclipse, which shows how, with the sun behind it, the earth casts a shadow on the moon. The model assumes certain laws of planetary orbit and simplifies the relationships among the objects in the solar system. However, these assumptions and simplifications make the process of the eclipse quite clear.

Economic models work in the same way. They are based on assumptions and are simplified because they focus on a limited number of variables. Economists can express their models in words, graphs, or equations. Models help economists explain why things are as they are. In some cases, models can help economists to predict future economic activity. You've already learned how economists construct and use one important economic model—the production possibilities curve—in Section 3. You'll learn about another, the circular flow model, in Chapter 2.

Using Charts and Tables


Economists study statistics in a particular way, looking for trends, connections, and other interesting relationships. They have several tools to help them with this task. Among the most common tools are charts and tables, in which data are arranged and displayed in rows and columns. (See Figure 1.7 above.) By showing numbers in relation to other numbers, charts and tables can reveal patterns in the data.

Suppose, for example, you were curious about how much money various developed countries give to help developing countries. In Figure 1.7, if you looked at one set of numbers, you would see that Luxembourg contributed \$236 million, while Canada gave more than ten times that, offering nearly \$2.6 billion. Your immediate interpretation of these data might be that Canada gives far more in foreign aid than Luxembourg does. But looking at other sets of numbers might suggest a different interpretation. Luxembourg may have contributed far less than Canada in actual dollar amounts. However, the foreign aid Luxembourg gave represented close to 1 percent of the value of all the goods and services the nation produced. Canada's contribution, in contrast, was about 0.3 percent of its total economy. After studying these numbers, you might conclude that in relative terms Luxembourg gives more than Canada in foreign aid.

FIGURE 1.7 DEVELOPMENT ASSISTANCE

Country	Aid (in millions of U.S. Dollars)	Percentage of Total Economy
Luxembourg	236	0.83
Canada	2,599	0.27

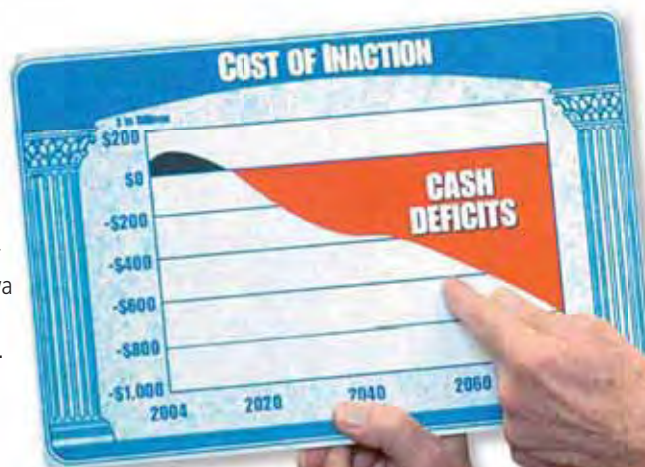
Source: Organization for Economic Co-operation and Development, 2004 Figures

 **Economics Update**
Find an update on foreign aid at **ClassZone.com**

Using Graphs

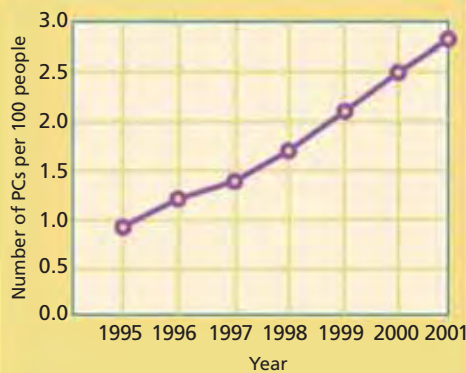
When economists are interested in identifying trends in statistics, they often use graphs, or visual representations of numerical relationships. The most common type is the line graph. Line graphs are particularly useful for showing changes over time.

Statistics During a debate in the U.S. Senate on the future of Social Security, Senator Charles Grassley of Iowa illustrates a point using statistics in graph form.



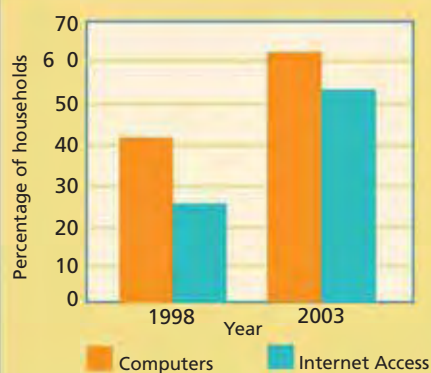
TYPES OF GRAPHS

FIGURE 1.8 PCs PER 100 PEOPLE IN DEVELOPING COUNTRIES



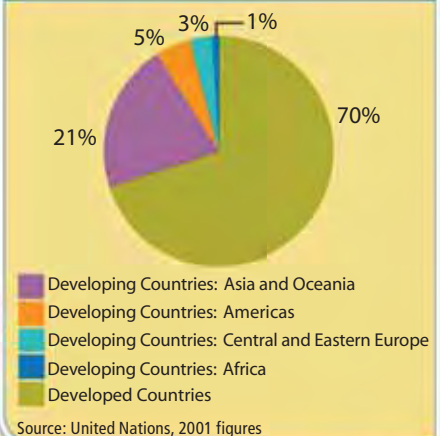
Source: United Nations

FIGURE 1.9 U.S. COMPUTER AND INTERNET ACCESS



Source: National Telecommunications and Information Administration

FIGURE 1.10 INTERNET USERS BY REGION



Source: United Nations, 2001 figures

ANALYZE GRAPHS

Graphs show statistics in a visual form. Line graphs (Figure 1.8) are particularly useful for showing changes over time. Bar graphs (Figure 1.9) make it easy to compare numbers or sets of numbers. Pie, or circle, graphs (Figure 1.10) show relationships among the parts of a whole.



Use a variety of interactive graphs at ClassZone.com

All line graphs use at least two sets of numbers, or variables: one plotted along the horizontal axis, running from left to right, the other plotted along the vertical axis, running from bottom to top. On the line graph in Figure 1.8 above, the range of time from 1995 to 2001 is shown on the horizontal axis. The number of PCs (personal computers) per 100 people in developing countries is shown on the vertical axis.

The number of PCs for each year is plotted on the graph and then these points are joined to form a line. The line may slope upward, showing an upward trend, or downward, showing a downward trend. The line may be straight, keeping the same slope throughout, or it may be curved, having a varied slope. (In later chapters you'll see that where graphs are used to illustrate economic concepts, lines are referred to as curves whether they are straight or curved.) How would you describe the trend shown in Figure 1.8?

A bar graph is especially useful for comparisons. The bar graph in Figure 1.9 above shows information on the percentage of households in the United States that have access to computers and the Internet. The bars vividly illustrate that access to information technology increased dramatically in the United States between 1998 and 2003.

A pie graph, often called a pie chart or circle graph, is especially good for representing numbers in relation to a whole. Take a look at the pie graph in Figure 1.10 above. The whole circle represents all the Internet users in the world. The slices of the pie, which represent regions of the world, are drawn in proportion to the percentage of the whole they constitute.

NEED HELP?

Throughout this book, you will be asked to interpret and analyze information in graphs. If you need help with these tasks, see "Interpreting Graphs."



Skillbuilder Handbook, page R29

APPLICATION Interpreting Graphs

- A. Look at the pie graph in Figure 1.10 above. Write a generalization based on information in the graph.

Microeconomics and Macroeconomics

KEY CONCEPTS

For scientists, everything in the earth, air, and water—and beyond—is a source of data to be observed and studied. Yet the data often make little sense until they are seen through the lens of a microscope or telescope. Economic information, as with scientific data, takes on meaning when it is viewed through the most useful lens. Two of the lenses through which economists observe economic behavior are microeconomics and macroeconomics. **Microeconomics** is the study of the behavior of individual players in an economy, such as individuals, families, and businesses. **Macroeconomics** is the study of the behavior of the economy as a whole and involves topics such as inflation, unemployment, aggregate demand, and aggregate supply.

Microeconomics

As the prefix *micro-*, meaning small, would suggest, microeconomics examines specific, individual elements in an economy. The elements include prices, costs, profits, competition, and the behavior of consumers and producers. Microeconomics can help you understand how the sandwich shop owner arrived at the price of the lunch you bought today, why the neighborhood has several sandwich shops offering the same kinds of food, and why some of these shops flourish while others fail. Microeconomics also can offer explanations for why students decide to work only on the weekends and not on school nights, why some families buy a used car rather than a new car, and why the mom-and-pop grocery store in your neighborhood closed after the superstore opened nearby.

Within the field of microeconomics there are areas of specialized concentration. Business organization, labor markets, agricultural economics, and the economics of environmental issues are among the topics that microeconomists might study. You will study the issues of microeconomics in more depth starting in Chapter 4.

Macroeconomics

Macroeconomics, as its prefix *macro-*, meaning large, would suggest, examines the economic “big picture.” In other words, macroeconomics is the study of the economy as a whole. While the limited spending power of an unemployed person would be in the realm of microeconomics, the effect of widespread unemployment on the whole nation would be a macroeconomic issue. In a similar way, the rising price of coffee would interest a microeconomist, but a general rise in prices, a sign that the whole economy is experiencing inflation, would be a matter for a macroeconomist.

QUICK REFERENCE

Microeconomics is the study of individuals, families, and businesses in an economy.

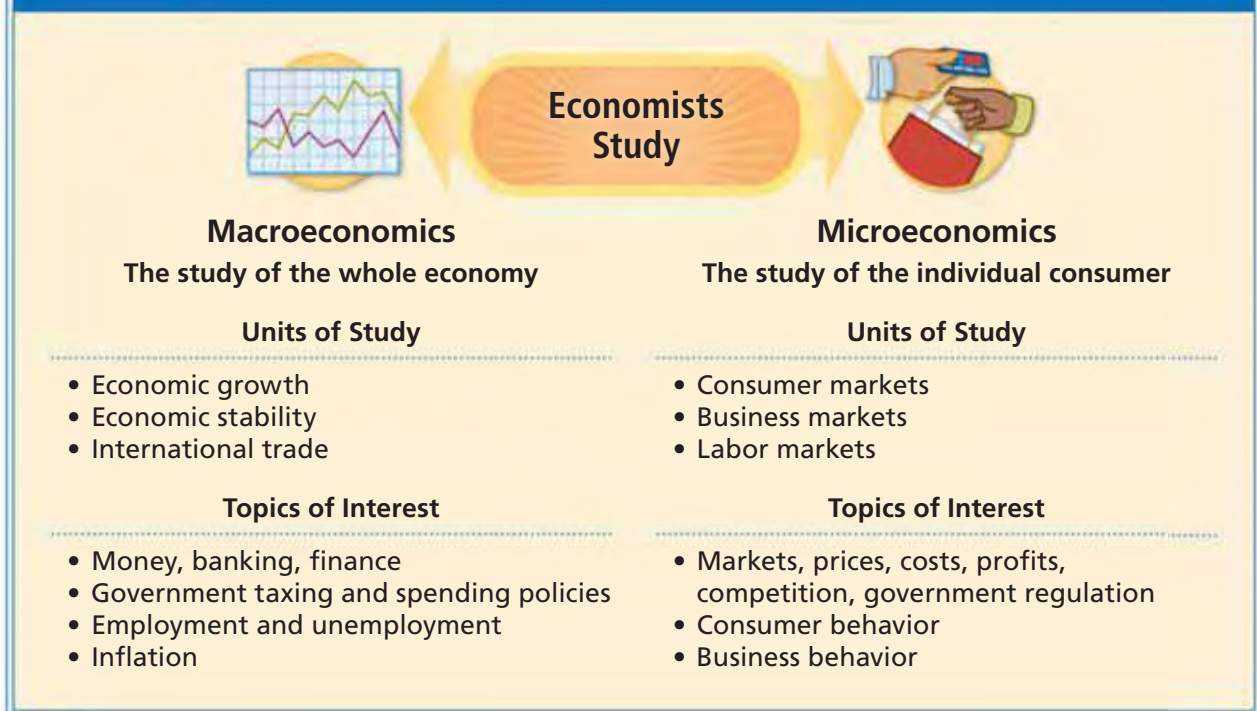
Macroeconomics is the study of the economy as a whole and is concerned with large-scale economic activity.

Microeconomics vs. Macroeconomics Changes in coffee prices might interest a microeconomist. A macroeconomist might study general changes in prices.



ECONOMICS ESSENTIALS

FIGURE 1.11 The Two Branches of Economics



ANALYZE CHARTS

The division between microeconomics and macroeconomics is not a fixed one. Some topics fall under both areas of study. For example, a microeconomist might be interested in employment levels in the hotel industry, while a macroeconomist looks at employment levels in the economy as a whole. Identify another topic area that might be of interest to both microeconomists and macroeconomists.

While microeconomics considers the *individual* consumer, macroeconomics studies the consumer *sector*, also called the household sector. A sector is a combination of all the individual units into one larger whole. Macroeconomics also examines the business sector, and the public, or government, sector—that part of the economy that provides public goods and services.

Macroeconomists bring a national or global perspective to their work. They study the monetary system, the ups and downs of business cycles, and the impact of national tax policies on the economy. In addition, they look at such global issues as international trade and its effect on rich and poor nations. You will study macroeconomics in depth beginning in Chapter 10.

APPLICATION Categorizing Economic Information

- B. Which does each of the news headlines relate to—microeconomics or macroeconomics?
1. National Unemployment Figures Rise
 2. World Trade Organization Meets
 3. Shipbuilder Wins Navy Contract
 4. Cab Drivers on Strike!
 5. Gasoline Prices Jump 25 Cents

Positive Economics and Normative Economics

KEY CONCEPTS

Economics also can be viewed through another pair of lenses. One of those lenses is **positive economics**, a way of describing and explaining economics as it is, not as it should be. Positive economics involves verifiable facts, not value judgments. The other is **normative economics**, a way of describing and explaining what economic behavior ought to be, not what it actually is. Normative economics does involve value judgments because it seeks to make recommendations for actions.

Positive Economics

Positive economics uses the scientific method to observe data, hypothesize, test, refine, and continue testing. Statements made within positive economics can be tested against real-world data and either proved (or at least strongly supported) or disproved (or at least strongly questioned). Suppose, for example, your state is debating the pros and cons of a lottery to raise money for education. In the framework of positive economics, researchers would study data from states with lotteries to see if educational spending increased after the lotteries were begun.

Normative Economics

Normative economics, in contrast, is based on value judgments. It goes beyond the facts to ask if actions are good. Since the values of people differ, so do the recommendations based on normative economics.

Consider the issue of using lottery money to fund education. Two economists might agree that the data show that state-run lotteries result in more money for schools, and that many lottery tickets are purchased by people who are poor. Their recommendations, however, might differ because they have different values. One economist might support a lottery because it increases funding for schools. The other might oppose a lottery because it places a burden on the poor.

APPLICATION Applying Economic Concepts

- C. Are the following statements examples of positive economics or normative economics?
1. Because of scarcity, everyone must make choices.
 2. Americans buy too many cars and do not use mass transit enough.

QUICK REFERENCE

Positive economics studies economic behavior as it is.

Normative economics involves judgments of what economic behavior ought to be.

Normative Economics Why is this statement about the North American Free Trade Agreement (NAFTA) an example of normative economics?



Adam Smith: Founder of Modern Economics

FAST FACTS

Adam Smith

Scottish political economist and moral philosopher

Born: June, 1723

Died: July 17, 1790

Accomplishment:

Laying the foundation for modern economics

Other Major Work:

The Theory of Moral Sentiments (1759)

Famous Quotation:

"It is not from the benevolence of the butcher, the brewer, or the baker, that we can expect our dinner, but from their regard to their own interest."

Influenced:

Alexander Hamilton
Thomas Malthus
Karl Marx
Defenders of capitalism
Critics of capitalism

Economics Update

Learn more about Adam Smith at ClassZone.com

Some 250 years ago, economics as an academic discipline did not even exist. Any discussion of economic issues usually took place in the fields of politics and philosophy. In 1776, however, Adam Smith completely changed this.

Seeing the Invisible

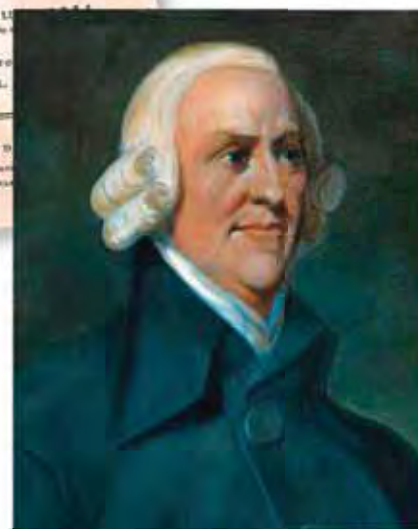
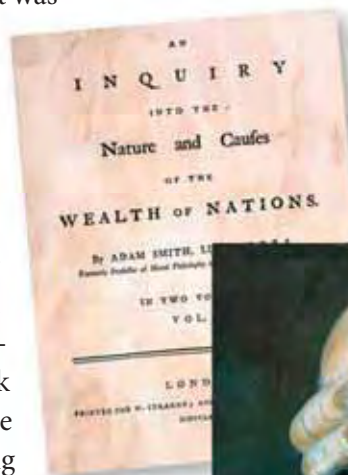
No other economist has had as much influence as Adam Smith, yet he would not have even considered himself an economist. Smith was born in Kirkcaldy, Scotland, in 1723 and studied, and later taught, literature, logic, and moral philosophy. In 1764 he traveled to France and met many European Enlightenment writers and thinkers. His discussions with them encouraged him to look at the world anew. The result was his groundbreaking work, *An Inquiry into the Nature and Causes of the Wealth of Nations*, which he published in 1776.

In *The Wealth of Nations*, Smith challenged the idea that mercantilism—a system by which the government of the homeland controlled trade with its colonies—was economically sound. Instead, he argued, a nation would be wealthier if it engaged in free trade. It was in this market where goods could be exchanged freely that Adam Smith saw a new economic relationship.

He reasoned that people behave in ways that satisfy their economic self-interest. A tailor will make clothes as long as people will buy them at a price that satisfies him. If he makes more clothes than customers wish to buy, he will cut back and make fewer until he finds the balance again. In this way, according to Smith, an “invisible hand” guides the marketplace. In such a free market, both the buyer and the seller benefit from each transaction. Smith’s idea of the “invisible hand,” as well as many other principles he explained in *The Wealth of Nations*, became the foundation of modern economic theory.

Founder of Economics

The Wealth of Nations is considered the founding work of the subject of economics—even though Smith never used the word *economics* in the book.



APPLICATION Analyzing Effects

- D. What impact do you think individual self-interest has on the economy as a whole? Illustrate your answer with examples.

SECTION 4 Assessment

REVIEWING KEY CONCEPTS

- Explain the differences between the terms in each of these pairs:
 - statistics*
 - macroeconomics*
 - positive economics*
 - economic model*
 - microeconomics*
 - normative economics*
- Why do economists often choose to present statistics in charts, tables, or graphs?
- Create a simple model to explain how you decide how much time to study and how much time to unwind each evening. You may use words, charts or graphs, or equations.
- Think of an example of a macroeconomic issue that affects an individual person, family, or business and explain its effect.
- Explain the value of statistics and other data to positive economics and to normative economics.

6. Using Your Notes In what ways was Adam Smith a microeconomist? In what ways a macroeconomist? Refer to your completed comparison and contrast chart.

Concepts	Similarities	Differences
Charts & Tables vs. Graphs		
Micro vs. Macro		
Positive vs. Normative		

Use the Graphic Organizer at **Interactive Review @ ClassZone.com**

CRITICAL THINKING

- 7. Making Inferences** How do you think politicians might use normative economics statements?
- 8. Applying Economic Concepts** In which category does each item below belong—microeconomics or macroeconomics? Why?
 - Studying statistics to see how well the economy is doing at creating jobs or increasing exports;
 - Studying statistics on gasoline sales and hotel bookings to explore the impact of higher gas prices on vacation plans.
- 9. Distinguishing Fact from Opinion** Consider the example of the state lottery to raise money for education. How might it be possible for two economists to see the same information and arrive at different opinions about what to do?
- 10. Challenge** When you go out shopping, do you often worry that there will be a shortage of something you really want? If so, explain why you think there might be a shortage. If not, explain why there seems to be enough of everything you would want to buy.

ECONOMICS IN PRACTICE



Ford Motor Company assembly line, 1913

Using Graphs

Graphs are among the most important tools used by economists.

Create Graphs Use the following information about Model T Fords (shown above) to create two line or bar graphs.

Average price per car
 1909 — \$904
 1911 — \$811
 1913 — \$638
 1915 — \$626

Number of cars sold
 1909 — 12,176
 1911 — 40,400
 1913 — 179,199
 1915 — 355,249

Source: Model T Ford Club of America

Challenge As Henry Ford lowered the price of the Model Ts, he potentially reduced his profit—the amount of money he made—on the sale of each car. Why was that a good economic choice?

Use **SMARTGrapher @ ClassZone.com** to complete this activity.

The Real Cost of Expanding O'Hare Airport

Background Chicago's O'Hare airport is one of the busiest airports in the United States. It is a major hub for both domestic and international airlines, and its smooth running is essential if the many airlines that fly in and out of O'Hare are to remain on schedule. However, delays at O'Hare are commonplace, and this sometimes disrupts air travel throughout the United States and abroad.

Two main factors are responsible for delays at O'Hare: turbulent Midwestern weather and the layout of O'Hare's runways. Because all but one of the runways are interconnected, bad weather results in the shutting down of most of the runway system. A modernization plan to improve efficiency at O'Hare was adopted in 2005. This plan generated considerable, and often heated, discussion and debate.

What's the issue? What are the real costs involved in airport expansion? Study these sources to determine the costs tied to the expansion of O'Hare airport.

A. Online Report

This report describes the anticipated benefits of the O'Hare Modernization Plan to redesign the runway system and expand the airport.

Chicago O'Hare Airport Expansion

The modernization plan is estimated to cost \$6.6 billion (in 2001 dollars), which will probably be more like \$8 billion by completion. . . .

Supporters of the expansion plan say delays could be cut by 79% and that 195,000 jobs and \$18 billion would be put into the local economy. In 2004 the airport played host to 69.5 million arriving, departing and connecting passengers and had total aircraft operations at nearly 929,000, an average of one landing or takeoff every 56 seconds. . . .

The airport has 178 gates on eight connected concourses and one freestanding terminal. The realignment [of the runways] and modernization program could make a great deal of difference to the efficiency of the airport. Overall, delays are expected to drop by 79%. The future airfield will be able to accommodate approximately 1.6 million aircraft operations and 76 million [passengers] per year.

Source: Airport-technology.com/projects/chicago



Thinking Economically What factors led to the development of the plan to expand O'Hare? What are the projected costs and benefits?

B. Political Cartoon

Cartoonist Grizelda drew this cartoon about people protesting noise pollution at an airport.



Source: www.CartoonStock.com

Thinking Economically

Which opportunity cost does this cartoon address? Explain your answer.

C. Organization Website

The Alliance of Residents Concerning O'Hare (AReCo) addresses problems related to the aviation industry. AReCo's website presents the group's findings and views regarding the expansion of O'Hare.

Area Residents Challenge Wisdom of O'Hare Expansion

AReCo cites health hazards, seeks alternatives to enlarging O'Hare.

The [aviation] industry and airport expansionists consistently try to minimize the impacts of airports and aircraft. One example of the harm that has been . . . understated by the federal government . . . [is the] underreporting [of] the amounts of deadly pollution coming from airports/aircraft.

For example, combined aircraft-related amounts of benzene [a known cause of cancer in humans] totaled 20 tons at Logan, Bradley, and Manchester airports in 1999! . . . Mega airports, such as Chicago's O'Hare, operate more aircraft annually than all of the three above-mentioned airports combined, thus emitting even more harmful and even deadly pollution in heavily urban-populated areas. . . .

In the meantime, there are intelligent steps that Chicago (and others) can take that will really modernize the metropolitan air transportation system and retain Chicago's title of "our nation's transportation hub." Such steps include placing a much stronger emphasis on [more than one type of] transportation, such as medium and high-speed rail, that would link O'Hare airport to other airports (becoming a "virtual hub") and building a new airport in a less populated peripheral area.

Source: Areco.org

Thinking Economically What alternatives does AReCo cite to O'Hare's expansion?

THINKING ECONOMICALLY Synthesizing

1. Explain the real cost of expanding O'Hare airport. Use information presented in the documents to support your answer.
2. Who are the most likely winners and losers as a result of the O'Hare expansion? Explain your answer.
3. How might supporters of expansion use a production possibilities model to strengthen their case?

Review this chapter using interactive activities at **ClassZone.com**

- Online Summary
- Quizzes
- Vocabulary Flip Cards
- Graphic Organizers
- Review and Study Notes

Online Summary

Complete the following activity either on your own paper or online at **ClassZone.com**

Choose the key concept that best completes the sentence. Not all key concepts will be used.

consumer	producer
economic model	production possibilities curve
economics	scarcity
efficiency	statistics
factors of production	trade-off
incentive	underutilization
macroeconomics	utility
microeconomics	wants
opportunity cost	

1 is the fundamental economic problem. It arises because human **2** are limitless, while resources are limited. It affects what a **3** buys and what a **4** makes. It affects what is produced, how it is produced, and who gets what is produced. It affects how the four **5** are put to use.

Since people cannot have everything they want, they have to make choices. Every choice, however, involves a **6**, something you have to give up to get what you want. When making an economic decision, you need to consider the **7**, the value of the thing you gave up.

Economists often use an **8**, a simplified representation of reality, to clarify concepts. Economists use such tools in **9**, the study of the economic behavior of individual persons, families, and businesses, and in **10**, the study of the economy as a whole.

One useful model, the **11**, shows the maximum amount of goods that an economy can produce. It also shows **12**, when not all resources are put to full use.

REVIEWING KEY CONCEPTS

Scarcity: The Basic Economic Problem (pp. 4–11)

1. In what ways does scarcity affect both consumers and producers?
2. What are the four factors of production and how do they relate to scarcity?

Economic Choice Today: Opportunity Cost (pp. 12–17)

3. What does the phrase “there’s no such thing as a free lunch” mean in economic terms?
4. Why is it important to consider marginal benefits and costs when you do a cost-benefit analysis?

Analyzing Production Possibilities (pp. 18–23)

5. What are three things a PPC shows?
6. What factors could lead to economic growth?

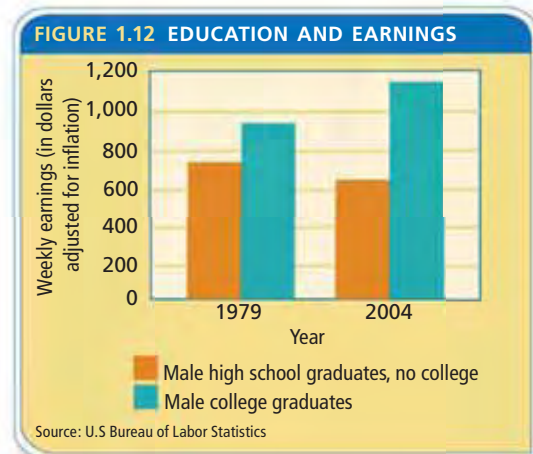
The Economist’s Toolbox (pp. 24–33)

7. What are some tools that economists use to draw meaning from large amounts of data?
8. What are the differences between microeconomics and macroeconomics?


APPLYING ECONOMIC CONCEPTS

Look at the bar graph below showing the relationship between educational level and weekly wages.

9. Describe the relationship between education and earnings for males in 1979.
10. Explain why the earnings gap between college and high school graduates might have changed between 1979 and 2004.



CRITICAL THINKING

- 11. Creating Graphs** Use the following information to create a bar graph showing the weekly wages for females with a high school education and those with a college education in 1979 and 2004.
- 1979 High school graduates, no college, \$424
College graduates, \$605
- 2004 High school graduates, no college, \$488
College graduates, \$860
- Source: U.S. Bureau of Labor Statistics
Use  **SMARTGrapher** @ **ClassZone.com** to complete this activity.
- 12. Interpreting Graphs** Compare the graph you created with the one on page 34. Identify three differences between the changes over time for women and for men.
- 13. Evaluating Economic Decisions** You plan to open a restaurant that specializes in meals cooked with organic products. You realize that location is very important for this kind of business. You have two options: you can rent an expensive site downtown or you can buy an inexpensive building in a quiet neighborhood. What are the benefits and the opportunity cost for each option?
- 14. Conducting Cost-Benefit Analysis** You are considering taking a part-time job after school at a local veterinary surgery. Create a decision-making grid to analyze your potential choices. Include alternative jobs you might take and the costs and benefits of each. Similarly, list activities other than working that you might pursue after school. Indicate which alternative you would choose and explain your choice.
- 15. Challenge** You own a small factory that makes widgets and you want to increase production, so you hire new workers. Each new worker increases productivity, but each also must be paid. When will you stop hiring new workers?

SIMULATION

Start a Business

- Step 1** Team up with a partner or small group of classmates.
- Step 2** With your partner or group, decide on a business you want to start. This could be anything that has a realistic chance of succeeding: computer technician, T-shirt printer, caramel-corn producer, dog walker, or anything you think may fulfill a want.
- Step 3** On a chart like the one below, list the factors of production you will need to use to start and run your business.
- Step 4** Develop a business plan—a way that you can use the factors of production so efficiently that you will be able to make money. Describe your business plan in a paragraph.
- Step 5** Present your plan to the rest of the class. When all pairs or groups have made their presentations, hold a class vote to select the best plan.

Factors of Production	
Land	Labor
1.	1.
2.	2.
3.	3.
Capital	Entrepreneurship
1.	1.
2.	2.
3.	3.