



CHAPTER

18

Global Economic Challenges

Why It Matters

Have you decided what you want to be “when you grow up”? What factors are you considering when making your plans for the future? Which career interests you the most? How will you decide? List the advantages and disadvantages of your top two career choices. Share your reasoning with other students in your class. Read Chapter 18 to find out how globalization affects your personal choices as well as those of businesses and nations.

The BIG Ideas

1. The study of economics helps us deal with global economic issues and global demand on resources.
2. Scarcity is the basic economic problem that requires people to make choices about how to use limited resources.

Many U.S. manufacturers
use components produced in
overseas factories, such as this
Deere parts manufacturing
plant in Macau.



Economics ONLINE Chapter Overview Visit the *Economics: Principles and Practices* Web site at glencoe.com and click on *Chapter 18—Chapter Overviews* to preview chapter information.



SECTION

1

Globalization: Characteristics and Trends

GUIDE TO READING

Section Preview

In this section, you will learn that globalization leads to growing interaction among countries and the development of international organizations.

Content Vocabulary

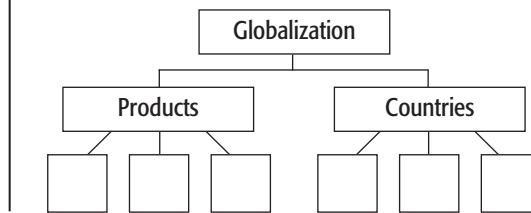
- globalization (p. 501)
- multinational (p. 502)
- outsourcing (p. 503)
- General Agreement on Tariffs and Trade (GATT) (p. 504)
- division of labor (p. 504)
- comparative advantage (p. 504)
- European Coal and Steel Community (ECSC) (p. 505)
- Free Trade Area of the Americas (FTAA) (p. 506)

Academic Vocabulary

- strategy (p. 504)
- context (p. 504)

Reading Strategy

Explaining As you read the section, complete a graphic organizer similar to the one below by explaining how globalization affects products and countries.



COMPANIES IN THE NEWS

—The Motley Fool

Name That Company

Founded in 1868 and based in Camden, N.J., I'm a global maker of soups, snacks, vegetable-based beverages, premium chocolate and more. My brands include Godiva, Pace, Pepperidge Farm, Prego, Swanson, and V8. I invented condensed soup in 1897. I rake in more than \$7 billion in annual sales. The colors on my soup cans were inspired by the Cornell football team's uniforms in 1898. Americans consume about 2.5 billion bowls of my top three soups each year. I sell watercress and duck gizzard soup in China. Who am I? ■

(Answer: Campbell Soup)



One of the most important trends in the world today is **globalization**—the movement toward a more integrated and interdependent world economy. Globalization, as the news story shows, means that people in any country can purchase products made anywhere else in the world.

Globalization is taking place because of the voluntary decisions we make as consumers. People today are buying more foreign products, and firms are extending their operations on a global scale. Both actions have important consequences for our future economic well-being.

globalization
the movement toward a more integrated and interdependent world economy



multinational corporation producing and selling without regard to national boundaries and whose business activities are located in several different countries (*also see page 76*)

Skills Handbook

See page R37 to learn about **Making Generalizations**.

Characteristics of Globalization

MAIN Idea Globalization involves the global spread of products, markets, and production, while international organizations aid trade.

Economics & You Do you ever check where the everyday products you use come from? Read on to learn how globalization brings the world to you.

There was a time when most markets were local. As transportation and communication improved and populations grew, markets expanded to nearby communities. Local markets expanded into regions, then the nation, and today the world.

As a result of this progress, many economists view globalization as a natural, almost inevitable, process. Globalization involves more than markets, however. We also see the globalization of production, institutions, and even culture.

Global Products and Markets

Today you can find specific goods, such as products from McDonald's, KFC, Pizza Hut, Starbucks, or Pepsi, all over the globe.

This would have been news just a few years ago, but today the global presence of a product is the rule rather than the exception.

Many of the products we use are made by **multinationals** that produce and sell without regard to national boundaries. Some of these giant corporations, such as British Petroleum (United Kingdom), Ford Motor Company (United States), and Shell Oil Company (United Kingdom and Netherlands) are well known to most people. Others, such as News Corporation (Australia), Kyocera (Japan), Schlumberger (Netherlands), and Vodafone (United Kingdom) are less well known but make products that millions of Americans use every day.

As a result of globalization, stores are stocked with a wide variety of products from other countries. Switzerland's Nestle provides us with chocolate bars, coffee, and Stouffer's frozen foods. Baskin-Robbins is owned by a firm in the United Kingdom. The Citgo gas station you might use is owned by a Venezuelan company, and the 7-Eleven store by a Japanese firm. The products these companies offer have the

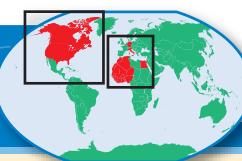
Global Products

The Nestlé Company is headquartered in Switzerland but sells its products worldwide. *How is globalization reflected in stores?*





The Global Economy & YOU



Global Anatomy of an American Rock Band

Rock 'n' roll music is as American as apple pie. To put together a band, however, you need instruments of global origin. A great example is the Steinway grand piano, which is truly a work of international proportion. Steinway manufactures its grand piano in both New

York and Hamburg, Germany. The strings are made from Swedish steel, and the keys are crafted from Bavarian spruce.

Many other musical inventions, such as the guitar, steel drums, synthesizer, and the microphone, led to the American sound. Look at the table to see how global efforts have made American music possible.

Musical Instrument/Invention	Inventor	Country of Origin/Date
Hydraulic organ	Ctesibius of Alexandria	Egypt, 246 B.C.
Steel drums	Enslaved people from West Africa	Trinidad, 1500s
Pianoforte	Bartolomeo Cristofori	Italy, c. 1720
Harmonica	Friedrich Ludwig Buschmann	Germany, 1821
Saxophone	Adolphe Sax	Belgium, 1841
Microphone	Emile Berliner	Germany, 1876
Fender guitar	Leo Fender	United States, 1946
Synthesizer	Hugh Le Caine	Canada, 1970

same features regardless of the country in which they are sold. This similarity makes selling in a global market easy.

Global Production

Globalization means more than having standardized products all over the world, though. It extends to production as well. In some cases, multinationals move their production facilities to be nearer to customers. For example, firms such as Toyota, Nissan, and Honda have opened manufacturing operations in the United States. Others, such as IBM, Boeing, and Intel, moved production facilities abroad to be closer to less expensive sources of labor and raw materials.

Most global manufacturing operations are highly sophisticated. For example, Dell uses the Internet to track production and shipping in its plants around the world. By keeping close watch on its operations, Dell is able to keep a modest three-day inventory in its assembly plants. If conditions in one location should suddenly change,

Dell can either speed up or slow down shipments of parts to keep production flowing smoothly.

One of the more controversial aspects of global production is **outsourcing**—hiring outside firms for non-core operations to lower operating costs. Many Americans consider outsourcing a controversial issue because they fear losing their jobs to overseas workers. While this is a concern to many workers, in the long run the lower costs of production, and the lower prices that consumers pay, are benefits that more than offset the lost jobs.

This is little comfort to those who lose their jobs. Yet it is likely that these workers have benefited from and contributed to globalization by buying low-priced clothes made in Indonesia, TV sets from Korea, or other products made abroad.

outsourcing
hiring outside firms to perform non-core operations to lower operating costs

Global Institutions

Another aspect of globalization is the growth of international organizations that promote trade between nations. One such



General Agreement on Tariffs and Trade (GATT)
international agreement to extend tariff concessions and reduce import quotas

division of labor
separation of work into a number of individual tasks to be performed by different workers
(*also see page 17*)

comparative advantage
a country's ability to produce a given product at a lower opportunity cost than another country (*also see page 444*)

example is the **General Agreement on Tariffs and Trade (GATT)**. The GATT is an international agreement signed in 1947 between 23 countries to extend tariff concessions and do away with import quotas. The success of the GATT led to its successor, the World Trade Organization (WTO). Today nearly 150 countries belong to the WTO and turn to it whenever conflicts arise between member countries.

The International Monetary Fund (IMF) offers advice and financial assistance to nations so that their currencies can compete in open markets. Without the IMF, many countries would be unable to engage in international trade because their money would not be accepted by other nations.

The World Bank is another global agency that helps developing countries join global markets as part of their economic development **strategy**. It provides technical assistance, financial support, and grants for infrastructure to help even the poorest of nations join the growing globalization movement. Finally, the United Nations has a role to play in preserving peace through international cooperation.

✓**Reading Check Analyzing** How do multinational firms contribute to globalization?

Project Funding
The World Bank has approved funding to improve the rail and road transport system in Mumbai (Bombay), India, where 6.4 million people commute every day. **What other organizations provide assistance to developing countries?**

Globalization Trends

MAIN Idea Growing economic interdependence has led to increased regional integration.

Economics & You Do you remember learning about the European Union? Read on to find out how this organization has spurred integration in other regions.

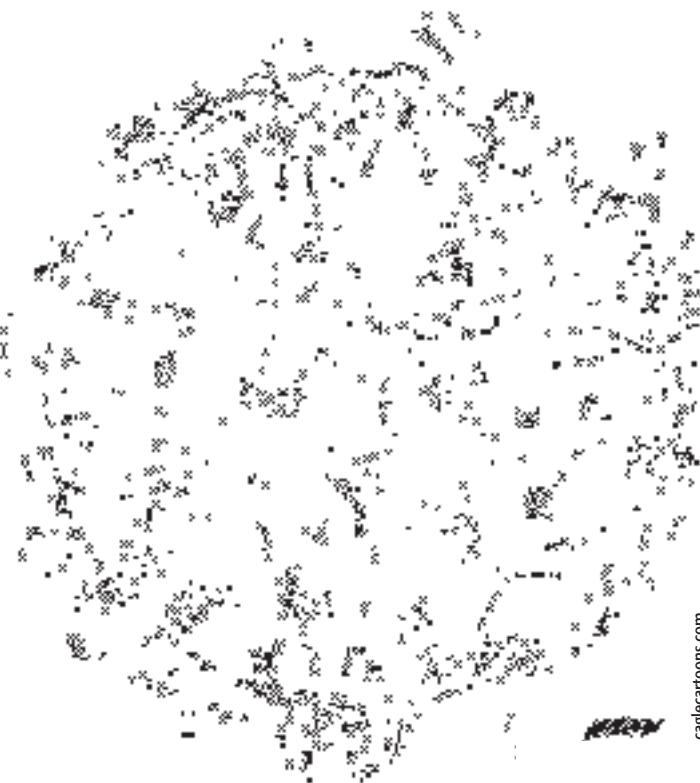
With continued globalization, two trends stand out. The first is the growing economic interdependence among nations. The second is growing regional economic integration around the world.

Growing Interdependence

As markets develop, producers become more specialized in their activities. Specialization and the **division of labor** lead to higher levels of productivity. If producers who perform a specialized task have a **comparative advantage**, or the ability to do something at a relatively lower opportunity cost than someone else, they will be able to compete more effectively in the market.

In the **context** of the family, this usually means that the strongest person handles those tasks that require the most strength.





caglecartoons.com

Global Interdependence

Because of trade and the uneven distribution of resources, the global economy is interdependent. **How does the cartoon illustrate this interdependence?**

In a global context, the countries most effective at using capital and technology are the ones manufacturing products such as automobiles, which they then exchange for the raw materials of other nations.

The result is an incredible amount of interdependence. This means that we depend on others, and others depend on us, for almost everything we do. On a global scale, it allows a country such as Japan, which has almost no domestic energy resources, to become an advanced industrial nation. It also allows other countries with little manufacturing capacity, such as Saudi Arabia, to exchange their energy resources for a wide range of consumer and other manufactured goods.

The weakness of interdependence is the possibility that a breakdown anywhere in the global system could affect everyone. For example, if oil exports from the Persian Gulf should be halted as a result of terrorism or war, industrial output and standards of living all over the globe will suffer.

Regional Economic Integration

In a global economy, the culture, currency, or laws of an individual country can interfere with the increase in economic

integration. As a result, a number of countries have pursued various degrees of integrating their economies within regions.

Economic integration is furthest along in the 27-nation European Union (EU), which had its roots in the **European Coal and Steel Community (ECSC)**. The ECSC consisted of Belgium, France, Germany, Italy, Luxembourg, and the Netherlands. It was organized in 1951 to coordinate iron and steel production so that it would be difficult for the nations to ever again go to war with one another. The ECSC was enormously successful, and over the years the cooperation evolved into the EU.

Today, approximately half of the EU countries have given up their national currencies in favor of the euro. EU members also have removed most internal barriers to the movement of workers, financial capital, goods, and services. The European Union has not yet achieved complete economic integration because many differences remain; still, the EU is one of the largest unified markets in the world.

The economic success and political stability of the EU have given regional economic integration a huge boost around the world. One consequence is the creation of the Association for Southeast Asian

European Coal and Steel Community (ECSC) group of six European countries formed in 1951 to coordinate iron and steel production to ensure peace among member countries

 **Skills Handbook**
See page R58 to learn about **Interpreting Cartoons**.



Free Trade Area of the Americas (FTAA) 34-nation group established in 1994 in order to set up a regional free trade area in the Americas with no internal barriers to trade

Nations (ASEAN), which seeks cooperation similar to that in the EU. Two other associations are less successful than either the EU or ASEAN. The Common Market for Eastern and Southern Africa (COMESA), shown below in **Figure 18.1**, consists of 20 countries. The other association is called the **Free Trade Area of the Americas (FTAA)**. The FTAA includes 34 nations and was established in 1994 in order to set up a

regional free-trade area in the Americas with no internal barriers to trade.

As globalization continues, different regional groups may merge into even larger global markets. This will have additional benefits, because economic cooperation among countries usually leads to increased political cooperation. Thus, globalization will likely enhance economic growth and political stability among all nations.

Figure 18.1 ►

The Common Market for Eastern and Southern Africa (COMESA)



- COMESA is an emerging 20-country common market (customs union) for eastern and southern Africa. The organization was formed to remove all internal barriers to trade and to adopt uniform trade standards for nonmember countries.

Economic Analysis *What other regional group served as an example for COMESA?*



Will Globalization Continue?

Despite the growth and support for globalization, progress has not always been smooth. Change can be threatening to established ways of doing business. Clashes erupt when people fear that not just their jobs but their way of life is at risk. Problems can arise on a small scale when McDonald's or KFC opens a store in a scenic European location. It also happens when Wal-Mart brings a new store to England, China, or any other country where it might force local "mom and pop" businesses to close.

These concerns apply to services as well. France has rules that protect domestic filmmakers by restricting the number of American movies that can be shown. Canada requires its radio stations to reserve a certain amount of air time for music performed by Canadian artists.

Politics can also play a role in helping or hindering globalization. When nations get along well with one another, they are more likely to cooperate by forming free-trade

areas or customs unions. If nations do not get along well, or if an international conflict should erupt, then the opposite result could occur. For example, a dispute with the United States over the future of Taiwan could interrupt China's globalization process. If this happens, trade will likely fall off between the two nations, dealing a severe blow to globalization.

Finally, some radical political organizations oppose the capitalism that drives globalization. Before World War I broke out in 1914, Russian revolutionaries known as Bolsheviks fought against capitalism. Now fundamentalist extremists such as al-Qaeda oppose globalization.

In short, while globalization can lead to great economic gains, these gains may not be important to everyone. Even a perceived threat to culture, politics, or religion can slow or halt the process of globalization.

✓Reading Check Describing What characteristics show that the European Union is successful at regional integration?

SECTION

1

Review

Vocabulary

- 1. Explain** the significance of globalization, multinational, outsourcing, General Agreement on Tariffs and Trade (GATT), division of labor, comparative advantage, European Coal and Steel Community (ECSC), and Free Trade Area of the Americas (FTAA).

Main Ideas

- 2. Describing** Use a graphic organizer like the one below to describe the effects of globalization on markets, production, and institutions.

	Effects
Markets	
Production	
Institutions	

- 3. Identifying** What trends result from continued globalization?

Critical Thinking

- 4. The BIG Idea** What is the relationship between globalization and interdependence?
- 5. Drawing Conclusions** Why might a company move its production facilities to another country? Why would it not move its headquarters in the same way?
- 6. Analyzing Visuals** Look at the photo on page 504. How does this photo show you that the public transportation system of Mumbai needs to be improved?

Applying Economics

- 7. Globalization** Visit your local grocery store and make a list of at least 10 products that reflect globalization. Create a poster illustrating these products and showing where each originates (or where the producer is based). Present your poster to the class and explain why you do or do not personally benefit from globalization. Be prepared to defend your position.



BusinessWeek NEWSCLIP

American companies have been selling their products in other countries for quite some time. With globalization, though, the tide is turning. Today businesses from other parts of the world are finding their way to the U.S. market.

Emerging Giants

Like other rural residents of southern Mississippi, Jamie Lucenberg, 35, faced a huge cleanup job . . . in the wake of Hurricane Katrina. He needed a tractor fast to clear debris and trees from his 17-acre family farm, just 16 miles north of devastated Biloxi. . . . But rather than buy an American-made John Deere or New Holland, brands he grew up with, Lucenberg chose a shiny red Mahindra 5500 made by India's Mahindra & Mahindra Ltd. . . .

Surprised that a company from India is penetrating a U.S. market long dominated by venerable names like Deere & Co.? Then it's time to take a look at how globalization has come full circle. A new breed of ambitious multinational is rising on the world scene, presenting both challenges and opportunities for established global players.

These new contenders hail from seemingly unlikely places, developing nations such as Brazil, China, India, Russia, and even Egypt and South Africa. They are



shaking up entire industries, from farm equipment and refrigerators to aircraft and telecom services, and changing the rules of global competition. . . .

What makes these upstarts global contenders? Their key advantages are access to some of the world's most dynamic growth markets and immense pools of low-cost resources, be they production workers, engineers, land, petroleum, or iron ore. But these aspiring giants are about much more than low cost. The best of the pack are proving as innovative and expertly run as any in the business, astutely absorbing global consumer trends and technologies and getting new products to market faster than their rivals.

—Reprinted from *BusinessWeek*

Examining the Newsclip

- 1. Describing** How is globalization changing the presence of multinationals?
- 2. Determining Cause and Effect** What helps multinationals from emerging markets compete globally?

SECTION
2

Global Problems and Economic Incentives

GUIDE TO READING

Section Preview

In this section, you will learn that global economic challenges include overpopulation, resource depletion, and pollution.

Content Vocabulary

- scarcity (*p. 509*)
- subsistence (*p. 510*)
- renewable resource (*p. 512*)
- hydropower (*p. 512*)
- biomass (*p. 512*)
- gasohol (*p. 513*)
- nonrenewable resource (*p. 513*)
- glut (*p. 515*)
- pollution (*p. 516*)
- acid rain (*p. 516*)
- pollution permit (*p. 517*)

Academic Vocabulary

- compounded (*p. 509*)
- successive (*p. 518*)

Reading Strategy

Identifying As you read the section, complete a graphic organizer like the one below by identifying and describing the global problems that scarcity can bring.

Problem	Description

ISSUES IN THE NEWS

—The New York Times

Pollution From Chinese Coal Casts a Global Shadow

One of China's lesser-known exports is a dangerous brew of soot, toxic chemicals and climate-changing gases from the smokestacks of coal-burning power plants.

In early April [2006], a dense cloud of pollutants over Northern China sailed to nearby Seoul [Korea], sweeping along dust and desert sand before wafting across the Pacific. An American satellite spotted the cloud as it crossed the West Coast [of America].

. . . Coal is indeed China's double-edged sword—the new economy's black gold and the fragile environment's dark cloud.

Already, China uses more coal than the United States, the European Union and Japan combined. . . . To make matters worse, India is right behind China in stepping up its construction of coal-fired power plants—and has a population expected to outstrip China's by 2030. ■



The fundamental economic problem is **scarcity**, the condition that results from not having enough resources to produce all of the things people would like to have. We experience scarcity at the personal and national levels, even in relatively prosperous nations such as the United States. At the global level, scarcity reveals itself

through food, energy, and other resource shortages, all of which are **compounded** as world population grows.

As countries increase their populations and grow their economies, they are faced with the problem of how to use scarce resources without harming another important resource—the environment.

scarcity

fundamental economic problem of meeting people's virtually unlimited wants with scarce resources (also see page 6)



subsistence

state in which a society produces only enough to support itself

Global Population Growth

MAIN Idea While the world's overall population growth rate is decreasing, population in developing countries still grows faster than in the developed ones.

Economics & You Do you or any of your friends have fewer brothers and sisters than either of your parents? Read on to see how an economist would explain this change.

Population growth has fascinated the world ever since Thomas Malthus published his *Essay on the Principle of Population* in 1798. His views, written over 200 years ago, are still relevant today because of the growing demand for resources.

Malthus: Views on Population

Thomas Malthus argued that a population would grow faster than its ability to feed itself. The problem, he stated, was that population tended to grow geometrically, as in the number sequence 1, 2, 4, 8, 16, 32, 64, and so on. The ability of the earth to feed people, however, would grow at a slower and more constant rate, such as 1, 2,

3, 4, 5, and so on. Eventually, according to Malthus, the masses of the world would be reduced to a condition of **subsistence**—the state in which a population produces only enough to support itself.

In many countries in the developing world, poverty is widespread. Whether in the African country of Somalia or the Indian city of Kolkata (Calcutta), thousands of street dwellers search for food in refuse piles by day and sleep in the streets at night. Similar conditions exist in other parts of the world. In these places, the Malthusian prediction of a subsistence standard of living is a cruel reality.

World Population Growth

Despite the dire predictions, population growth appears to be slowing. **Figure 18.2** shows the rate of world population growth from 1950 to 2050. According to the figure, population grew the fastest in 1962 and 1963 but the rate of growth has declined, or is expected to decline, steadily thereafter.

According to the U.S. Census Bureau, the world population is currently growing at a rate of about 1.13 percent per year, but the growth rate is expected to fall below

Figure 18.2 ▶ Projected Annual World Population Growth Rate, 1950–2050

- The annual rate of world population growth peaked in 1962 and 1963 and has slowly declined ever since.

Economic Analysis *Why is a slower rate of population growth expected?*





Figure 18.3 ▶ World Population Growth by Country

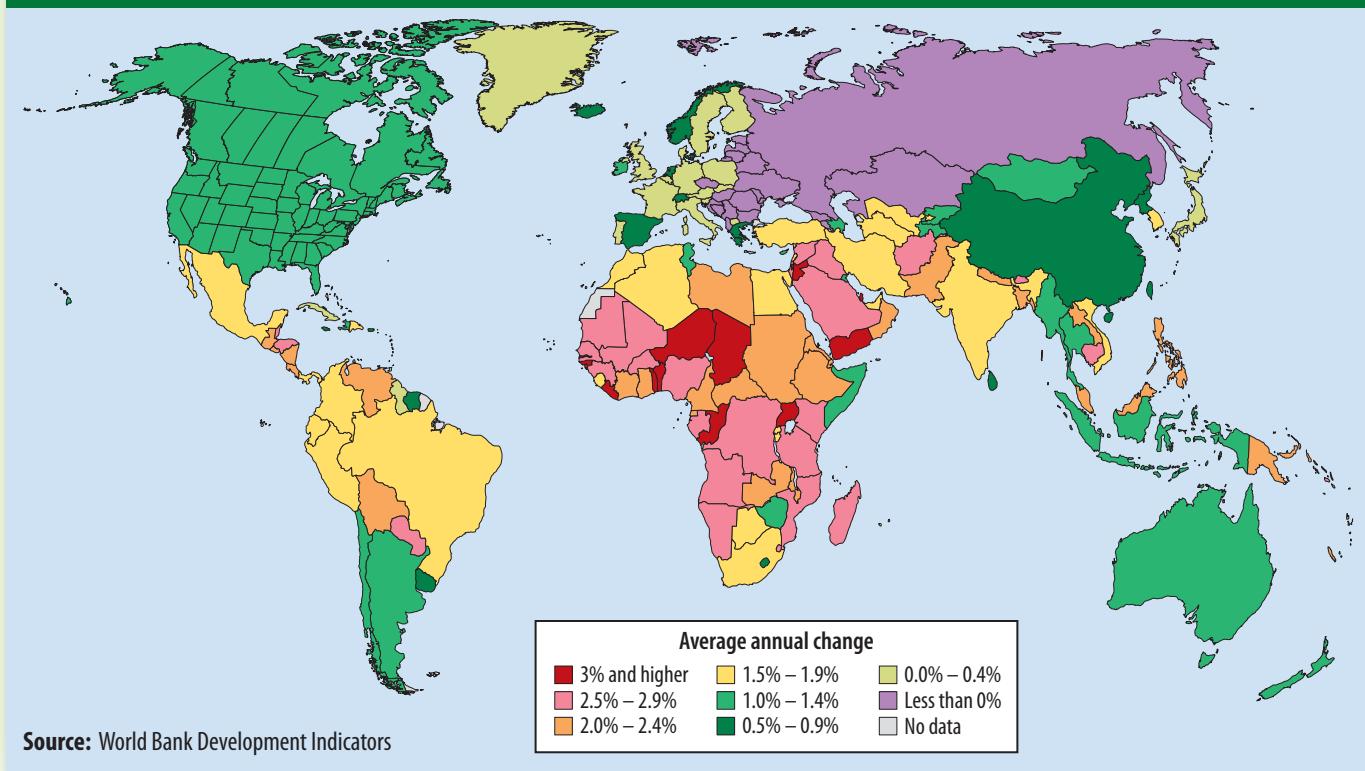
- The map shows the population growth rates of the countries of the world.

Economic Analysis How does the annual growth rate in China compare with that of Brazil?

Maps In Motion

See StudentWorks™ Plus or glencoe.com.

CURRENT WORLD POPULATION GROWTH RATES



one percent by 2017. If the world population keeps growing at the rates shown in Figure 18.2, it will reach about 8 billion in 2027, and then hit 9 billion by 2045.

Was Malthus Wrong?

Population is growing at different rates around the world. As Figure 18.3 shows, industrialized nations have the lowest rates of population growth, while the poorer nations in the developing world tend to have the highest population growth rates.

Malthus did not foresee the enormous advances in productivity that allowed a rising standard of living to accompany a growing population. He also did not foresee that families might choose to have fewer children. This is especially true for a

number of industrialized countries, including Japan, Russia, and Germany, that have shrinking populations.

Malthus's predictions may not have been entirely accurate for the industrialized countries, but they still have long-term consequences for all nations. Today, for example, population pressures in the developing world are causing problems for many industrialized countries, such as the United States, which is besieged by illegal immigrants from China, Mexico, and Haiti.

Economic Incentives

Economic incentives play a role in population growth. For example, children are relatively expensive to raise in an industrialized country. Medical costs at birth, health



renewable resource natural resource that can be replenished for future use

hydropower power or energy generated by moving water

biomass energy made from wood, peat, municipal solid waste, straw, corn, tires, landfill gases, fish oils, and other waste

insurance, larger homes, cars, and college expenses add to the cost of raising children. In addition, one parent bears an opportunity cost if he or she forgoes a career while staying home to raise the children. If a family wants to minimize these costs, as they might other costs, part of the answer is to have fewer children.

The opposite happens in the developing world because children there are regarded as an asset. Medical expenses are minimal or nonexistent, insurance is rare, homes are often shared, and cars and college educations are seldom available. Even young children are likely to help with house work or farm work. Since developing countries do not have retirement programs like Social Security, parents tend to have many children in hopes that some of the children will care for them in their old age.

The result is predictable. If children are an asset to the family rather than a cost, then parents will try to have as many children as they can. This explains the high rate of population growth in developing countries and the declining—or negative—rate of population growth in the developed world.

✓Reading Check Explaining Why might Malthus have been wrong in his predictions?



The Demand for Resources

MAIN Idea Because of scarcity, societies need to conserve nonrenewable resources while finding efficient ways to harness renewable resources.

Economics & You Do changes in gas prices affect your daily activities? Read on to learn how changes in gas prices affect the demand for alternative energy sources.

Population pressures add to the depletion of many important resources. Some of these resources are in the form of raw materials, minerals, arable land, and energy. Energy is especially important because it is necessary for the production of the technological goods that make our lives more comfortable.

Renewable Resources

Economists recognize two general types of resources. One is a **renewable resource**, or natural resource that can be replenished for future use. Four main sources of renewable resources are used today.

The renewable resource that contributes the most to our energy needs today is **hydropower**, power or energy generated by moving water. In the 1800s, hydropower propelled the mills and factories of the Northeast. The power was reliable, and its source—water—was abundant and free. Later, generators at the Hoover Dam and the Tennessee Valley Authority were completed to generate power on a much larger scale. Today, many countries are trying to harness the power of moving water found in ocean waves and tides.

Another source is **biomass**, or energy made from wood and wood waste, peat, municipal solid waste, straw, corn, tires, landfill gases, fish oils, and other waste. While relatively new, this is the second most important form of renewable energy produced in the United States today. An example of biomass is ethanol, or grain alcohol that is made from corn or other



crops. Ethanol is used to make **gasohol**—a fuel that is a mixture of 90 percent unleaded gasoline and 10 percent ethanol. Since 1998, many American cars have also been designed to run on E85, a mixture of 85 percent ethanol and 15 percent gasoline.

The third-largest source of renewable energy is solar power, or energy that is harnessed from the sun. Solar power has never been effectively developed, however, and did not get much attention when the price of oil was low. While solar power holds much promise, it accounts for only a fraction of the renewable energy used today.

The fourth-largest category of renewable energy sources is wind-generated electricity. Since the early 1980s, many wind farms have been built, each producing enough electricity to power a medium-sized city. California is the largest producer of wind-generated energy, but wind farms can be found in many other states as well.

Nonrenewable Resources

Most of the energy we use today comes from **nonrenewable resources**—resources that cannot be replenished once they are used. The major nonrenewable resource

category—fossil fuels—is being consumed at an alarming rate and at current consumption levels may only last for a few more generations.

Oil is the biggest nonrenewable energy source in use today, primarily because it was so inexpensive during much of the 1900s. Oil also is much more convenient to use than natural gas or coal.

Natural gas and coal are tied for the second-largest nonrenewable energy source. Historically, natural gas was more difficult to transport and use than oil, so it did not become an important energy source until much later. Eventually inexpensive natural gas became popular as an industrial fuel, and many factories and industrial technologies were built around it.

Coal was the first nonrenewable fuel to be used on a large scale, but oil and natural gas soon displaced it because they are easier to use. Still, coal is both inexpensive and plentiful. Nearly two-thirds of the world's known coal deposits are in the United States, Russia, and China, with reserves estimated to last about 200 years.

Nuclear energy is the next-largest and newest source of nonrenewable energy, accounting for nearly 8 percent of all energy

Oil Refineries such as this one in France prepare oil for general use.

What type of resource is oil?

gasohol
mixture of 90 percent unleaded gasoline and 10 percent grain alcohol, or ethanol

nonrenewable resource resource that cannot be replenished once it is used



used in the United States. The future of nuclear power is uncertain, however, for a number of reasons.

Cost is one reason. Nuclear reactors are expensive to build and maintain. Second, nuclear energy produces highly hazardous by-products which are difficult to dispose of safely. Finally, there is always some chance that a nuclear plant will fail, or that another accident would happen like the 1979 near-meltdown at Three Mile Island in Pennsylvania. The 1986 meltdown of the Chernobyl reactor in Chernobyl, Ukraine, served as another reminder of the possible dangers of nuclear power. These and other reactor shutdowns are all daunting problems, but safety issues need to be addressed and dealt with before nuclear power becomes more widespread.

Energy Use in the United States

Figure 18.4 shows the sources and uses of energy in the United States. About two thirds, or 67.5 percent of our energy, comes

from domestic production in the form of coal, natural gas, crude oil, nuclear power, and other sources. Slightly less than one third, or 31.7 percent, is imported from abroad. Most of this energy is in the form of petroleum.

The figure also shows that most of the energy we consume, or 82.2 percent of the total, is from fossil fuels such as coal, natural gas, and petroleum. Only a relatively small fraction comes from nuclear power and renewable energy resources.

Finally, the figure shows that nearly one-third of our total energy is used in industry. Only about one-fifth of the energy, or 20.3 percent, goes to residential use.

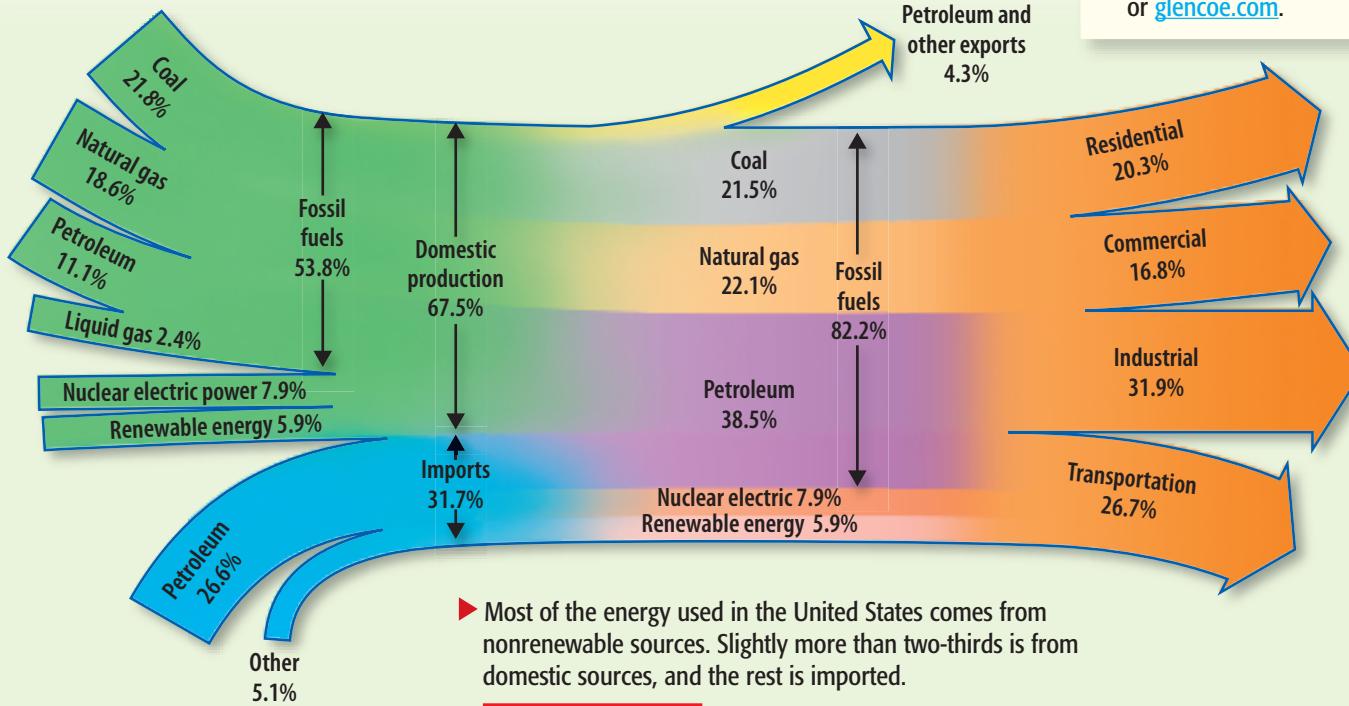
Nonmarket Conservation Efforts

With resources becoming increasingly scarce, efforts are underway to find the best ways to use and preserve them. One way is to appeal to everyone's sense of civic responsibility. For example, we can ask people to drive their automobiles less, to turn off the

Figure 18.4 ► **Energy Flows in the United States**

Charts In Motion

See StudentWorks™ Plus
or glencoe.com.



Economic Analysis *What percentage of energy used in the United States is provided by petroleum?*

Numbers will not add up to 100% due to rounding.

Source: Energy Information Administration



lights when they leave a room, or to adjust thermostats when they are not at home.

Such measures have been tried, but generally they fail to work. Even the 55-mile-per-hour speed limit, which was instituted to conserve gasoline, did not work. Not only did drivers routinely ignore the law, most individual states eventually repealed the lower speed limits.

Markets and Price Incentives

People seem to be much more responsive to changes in prices. When oil was cheaper before 1973, few countries were willing to devote large resources to retrieving it. In 1973, however, the OPEC oil embargo dramatically raised the price of oil. When the price increased sharply, many countries increased their production almost overnight. At the same time, interest in alternative energy sources soared, and countries poured billions into energy-research projects ranging from shale oil to solar power.

By 1981 oil prices had dropped considerably because of a worldwide **glut**—a substantial oversupply—of oil. At the same time, a worldwide recession and efforts at energy conservation further reduced the demand for oil. Oil prices were also kept low after the first Gulf War in the early 1990s because some OPEC members increased production to replenish their financial reserves, which had been depleted during the war.

Lower oil prices had several consequences. First, the search for alternative energy sources began to wane. Second, the exploration for new oil reserves slowed dramatically. Third, consumers changed



Speed Limits
When lower speed limits failed to reduce energy use, most states repealed them. *Why was the 55-miles-per-hour speed limit introduced?*

their spending habits again, buying more large houses and low-mileage SUVs instead of fuel-efficient cars. By 2006 increasing demand caught up with stable supply, and energy prices shot up again. This price hike, in turn, renewed interest in conserving energy and stimulated the global search for alternative energy sources.

In the end, the price system that encourages people to conserve energy when oil prices are high does exactly the opposite when oil prices go down. High prices thus help conserve resources, while low prices tend to do the opposite.

glut substantial oversupply of a product

✓ **Reading Check** **Analyzing** Why is the percentage of renewable energy sources in the United States relatively low?

Skills Handbook

See page R40 to learn about **Analyzing Information**.



pollution

contamination of air, water, or soil by the discharge of a poisonous or noxious substance

acid rain

pollution in the form of rainwater mixed with sulfur dioxide to create a mild form of sulfuric acid

Pollution and Economic Incentives

MAIN Idea Pollution is a problem for society that can be controlled through legislation, fees, and permits.

Economics & You Does your school have an environmental club? Read on to find what societies do to protect the environment.

Economic incentives can help solve the global problem of pollution. **Pollution** is the contamination of air, water, or soil by the discharge of a poisonous or noxious substance. Most economists argue that the best way to attack the problem is to attack the incentives that caused pollution in the first place.

The Incentive to Pollute

Pollution does not occur on its own: it occurs because people and firms have an incentive to pollute. If that incentive can be removed, pollution will be reduced.

For example, factories historically located along the banks of rivers so they could discharge their refuse into the moving waters. Factories that generated smoke and other air pollutants often were located

farther from the water, but their tall smokestacks still blew the pollutants long distances. Others tried to avoid the problem by digging pits on their property to bury their toxic wastes.

In all three situations, factory owners were trying to lower production costs by using the environment as a giant waste-disposal system. From a narrow viewpoint, the reasoning was sound. Firms increase their profits when they lower production costs. Those who produce the most at the least cost make the most profits.

The cost of pollution to society as a whole, however, is enormous. For example, **acid rain**—a mixture of water and sulfur dioxide that makes a mild form of sulfuric acid—falls over much of North America, damaging forests and rivers. Fertilizer buildup and raw sewage runoff poison ecosystems in other areas. The damage caused by pollution is extensive, but it can be controlled. One way is through government standards passed by law. Another way is through economic incentives.

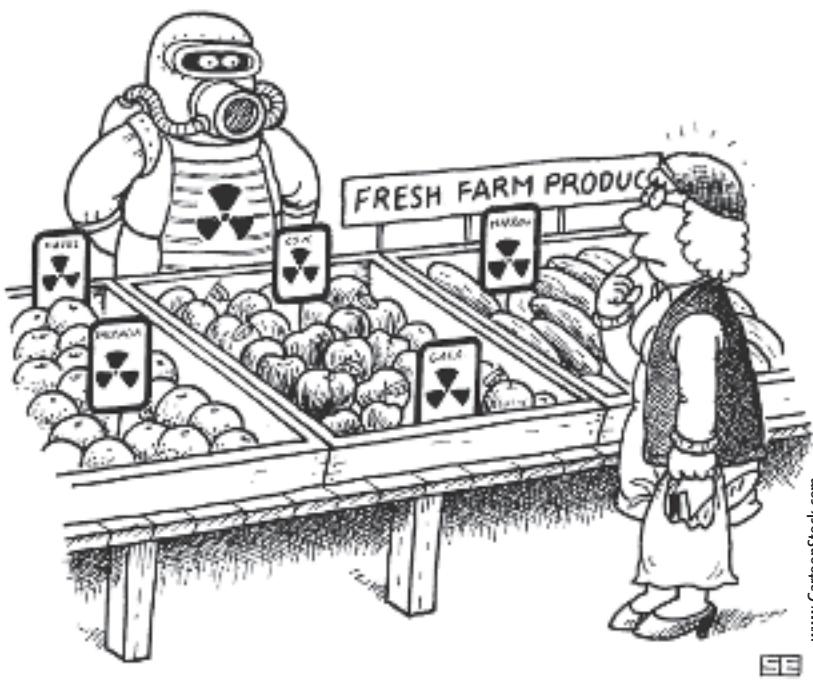
Legislated Standards

Legislated standards include laws that specify the minimum levels of purity for air, water, and auto emissions. These government standards can be effective, but they are generally inflexible. Once a standard is set, a firm has to meet it or cease production. Because of this, many firms lobby extensively to exempt their industry from pollution control standards.

Congress has declared that all automobiles sold in the United States cannot exceed certain maximum emission standards. Once these standards have been set, the Environmental Protection Agency (EPA) tests random vehicles in every model line of cars. It also samples random cars on the road to ensure that they adhere to the emission controls.

Another pollution-control program was the Superfund that Congress established in 1980 to identify and clean up some of the most hazardous waste sites in the country.

Pollution Toxic run-off and air pollution can affect agriculture. **What does the protective suit imply?**





The intent was to track down the original polluters and make them pay for the cleanup. When it was discovered that many of the original polluters had gone out of business and could not be forced to pay, the law was amended to force existing businesses to help with the cleanup costs. This was not popular with businesses because some firms were forced to pay for the cleanup of wastes that others left behind.

Pollution Fees

A more market-based approach is to charge firms in proportion to the amount of pollutants they release. Depending on the industry, the size of the tax would depend on the severity of the pollution and the quantity of toxic substances being released. A firm can then either pay the fees or take steps to reduce the pollution.

For example, suppose a community wants to reduce air pollution caused by four factories, each of which releases large quantities of coal dust. A \$50 tax on every ton of coal dust released into the air might be applied to each factory. Devices attached to the top of the factory's smokestacks would measure the amount of dust released during a given period, and the factory would be billed accordingly.

Under these conditions, some firms might choose to pay the \$50 tax. Others, however, might decide to spend \$10, \$20, or \$30 to clean up a ton of pollution. As long as it is cheaper to clean up the pollution than to pay the tax, individual firms will have the incentive to clean up and stop polluting.

This tax approach does not try to remove all of the pollution, but it can remove a significant amount. In addition, it provides flexibility that legislated standards lack by giving individual firms freedom of choice.

Real-world examples of pollution fees are more complicated than this hypothetical example, but they all work the same way. In addition, firms that pay the tax also help defray some of the costs of the program, which is a relief to taxpayers.

Tradable Pollution Permits

An expanded version of pollution fees is the EPA's use of **pollution permits**—federal permits allowing public utilities to release specific amounts of emissions into the air—to reduce sulfur dioxide emissions at coal-burning electric utilities. Sulfur dioxide emissions from the

pollution permit
federal permit allowing a public utility to release pollutants into the air

CAREERS

Environmental Scientist

The Work

- * Identify and eliminate sources of pollutants or hazards that affect people, wildlife, and their habitats
- * Analyze measurements or observations of air, food, water, soil, and other resources and make recommendations on how best to clean and preserve the environment
- * May design and monitor waste disposal sites, preserve water supplies, and reclaim contaminated land and water to comply with federal environmental regulations



Qualifications

- * Master's degree with a specialization in environmental or biological science, plus several years of experience in the field
- * Experience with computer modeling, data analysis and integration, digital mapping, remote sensing, and geographic information systems
- * Strong oral and written communication skills
- * Must pass a civil service examination

Earnings

- * Median annual earnings: \$51,080

Job Growth Outlook

- * Average

Source: *Occupational Outlook Handbook, 2006–2007 Edition*



Did You Know?

Pollution Permits In 2005 the European Union started to use tradable pollution control permits to control emissions. The supply of permits in the first year was large—resulting in values of a one-ton permit ranging from 9.5 to 13 euros (\$10 to \$15). As fewer permits are issued in successive years, their price will rise.



Student Web Activity
Visit the *Economics: Principles and Practices* Web site at glencoe.com and click on Chapter 18—Student Web Activities for an activity on the Environmental Protection Agency.

burning of coal and oil react with water and oxygen to form compounds that fall to the earth as acid rain.

Under this program, the EPA awards a limited number of permits to all utilities. If reducing or cleaning up one ton of emissions costs a utility \$300, and if it can sell a permit for \$350, the firm will decrease its own emissions and sell the unused permit to another utility whose cleanup or reduction costs are higher. If removing a ton of pollutants would cost the second utility \$400, then that company would be better off to buy the permit for \$350 from the first

utility. In either case, one of the utilities has the incentive to clean up a ton of pollutants.

The first set of pollution permits went on sale in March 1993 at the Chicago Board of Trade. The one-ton permits brought prices ranging from \$122 to \$450. The EPA issued additional permits in successive years, but it will issue fewer permits as time goes on, making them scarcer and more expensive. Ultimately, higher prices for the permits will give more utilities the incentive to spend larger amounts of money on antipollution devices.

The system also has advantages for environmentalists who want utilities to reduce pollution at even faster rates. Several environmental groups have purchased pollution permits with their own funds, making them scarcer and therefore more expensive for the utilities.

Reading Check Summarizing In which ways can governments control pollution?

SECTION

2

Review

Vocabulary

- 1. Explain** the significance of scarcity, subsistence, renewable resource, hydropower, biomass, gasohol, nonrenewable resource, glut, pollution, acid rain, and pollution permit.

Main Ideas

- 2. Describing** How did Malthus believe population growth would affect the future of the planet?
- 3. Identifying** Use a graphic organizer like the one below to identify four renewable and four nonrenewable resources.

Resources	
Renewable	Nonrenewable
1.	1.
2.	2.

- 4. Describing** What legislative attempts have been undertaken to control pollution?

Critical Thinking

- 5. The BIG Idea** How does population growth affect world resources? How does this relate to the fundamental economic problem of scarcity?
- 6. Drawing Conclusions** Why does the United States continue to rely on oil as its primary energy source? Write a paragraph explaining your answer.
- 7. Contrasting** How do legislated standards and economic incentives differ in regard to pollution control?
- 8. Analyzing Visuals** Look at Figure 18.3 on page 511. Compare the population growth rates in the United States, Germany, Mexico, India, the Democratic Republic of the Congo, and Afghanistan. What conclusions can you draw from this information?

Applying Economics

- 9. Scarcity** As the president's chief expert on energy issues, what would you suggest we do to conserve our nonrenewable resources? Why?



CASE STUDY

Toyota Leads in Hybrids

Ahead of the Competition

When Toyota began developing the Prius in 1995, gasoline averaged \$1.24 a gallon. Skeptics stated that such low gas prices did not justify the expense of switching from an internal combustion engine (ICE) to a hybrid gasoline-and-battery-powered “greener” car. Toyota did not listen to the skeptics and instead invested heavily in hybrid technology. A decade later, gas prices had more than doubled, and sales of the Prius hit the half-million mark.



Engineering Green

The long road to the hybrid's success was riddled with problems—from touchy batteries and an “un-American” design to a trunk so small that it could not hold even a stroller. Yet top managers at Toyota were determined to create an environmentally friendly car that got great gas mileage. Toyota pushed its engineers—more than 1,000 of them—to work out the kinks, delivering the hybrid to the U.S. auto market in July 2000—5 years and \$1 billion after the car's conception. Despite the

Prius's “jerky ride” and its high sticker price, Toyota's new model was a success. Fans of the hybrid car overlook the less-than-smooth ride for the improved gas mileage they get and the money they save at the pump. They also like to do their part for a cleaner planet with the lower emissions produced by the Prius compared to ICE cars.

Setting a Trend

Since the Prius was introduced, many other automakers have jumped on the hybrid bandwagon. But Toyota keeps expanding its list of hybrid cars. Couple that with a strong demand for low-cost, fuel-efficient cars not just in the United States but in other parts of the world, especially Europe, and it's easy to understand why Toyota has become the market leader in the United States—and one of the world's biggest automakers.

COMPARING HYBRIDS

2006 Autos	Combined Gas Mileage (MPG)	Monthly Gas Savings	Sticker Price
Honda Insight	63	\$79.37	\$19,330
Toyota Prius	55	\$70.71	\$21,275
Honda Civic Hybrid	50	\$63.89	\$21,850
Ford Escape 2WD	33	\$25.25	\$27,515
Mazda Tribute Hybrid 4WD	31	\$17.92	\$20,705
Mercury Mariner Hybrid 4WD	31	\$17.92	\$29,840
Toyota Highlander Hybrid 2WD	30	\$13.89	\$33,030
Lexus RX 400h 2WD	30	\$13.89	\$49,060

Source: omninerd.com

Analyzing the Impact

- 1. Summarizing** Why did Toyota build the Prius?
- 2. Drawing Conclusions** What problems with the Prius did Toyota have to overcome in order to be successful in the U.S. auto market?



SECTION

3

Applying the Economic Way of Thinking

GUIDE TO READING

Section Preview

Economics provides a foundation for analyzing choices and making decisions today and in the future.

Content Vocabulary

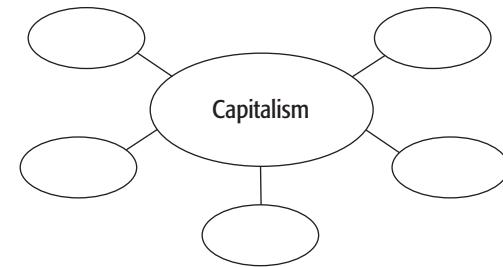
- cost-benefit analysis (p. 522)
- opportunity costs (p. 522)
- modified free enterprise economy (p. 522)

Academic Vocabulary

- equipped (p. 521)
- incapacitated (p. 523)

Reading Strategy

Describing As you read the section, complete a graphic organizer like the one below by describing how capitalism helps us with economic choices.



ISSUES IN THE NEWS

—U.S. News & World Report

Can America Keep Up?

... Over the past century, Americans have become accustomed to winning every global battle that mattered: two world wars, the space race, the Cold War, the Internet gold rush. Along the way, Americans have enjoyed unprecedented prosperity and lived lives that were the envy of the rest of the world.

Today, while unemployment remains low, home values continue to surge, and fearless American consumers keep spending beyond their means, the land of the free is slowly, but unmistakably, yielding advantages earned over decades to foreigners who work harder, expect less, and, often, are better educated. But business leaders, top academics, and other experts ... increasingly see America as a nation that has pulled into the slow lane. ... ■



The U.S. economy had a remarkable run in the last century, making it the world's largest economy. However, where will we be by the end of this century—or in the next few decades, for that matter?

Most economic measures put the U.S. economy on top, but there are no guarantees that it will always be that way. When teams compete in sports, staying on top is

usually more difficult than getting to the top. The same holds true for our economy. How well we do, and how long we continue to do well, depends in large part on our understanding of how we got into this position—and what we need to do to stay there. As you read in the news story, some people have their doubts about how well we will be able to accomplish this feat.



A Framework for Decision Making

MAIN Idea The study of economics and economic tools help us make the best economic choices.

Economics & You What tools do you use when you make a decision? Read on to learn how the study of economics can help us make choices for the future.

Through your study of economics, you have learned that scarcity requires us to make choices. This began when you discovered different ways to analyze a problem and evaluate alternative solutions for it. You also found out that the social science of economics has evolved to the point where it functions as a generalized theory of choice.

Economics provides a framework for decision making that helps people to become better decision makers. The future will be different from the past, or even the present for that matter. Yet one thing in economics is likely to remain the same—the way we think about problems.

A Reasoned Approach

Economic decision making requires a careful, reasoned approach to problem solving. The National Council on Economic Education, an organization dedicated to the improvement of economic literacy in the United States, recommends the following five steps to useful decision making:

1. State the problem or issue.
2. Determine the personal or broad social goals to be attained.
3. Consider the principal alternative means of achieving the goals.
4. Select the economic concepts needed to understand the problem and use them to appraise the merits of each alternative.
5. Decide which alternative best leads to the attainment of the most goals or the most important goals.

—A Framework for Teaching the Basic Concepts, 2005

Life is full of trade-offs, but you will be better **equipped** to deal with the future if you know how to analyze the problems you will encounter.

Decision Making

These high school students discuss different solutions to problems with their project. *Why should you follow decision-making steps?*





Adaptability

Capitalism adapts to the changing wants and needs of people.

Why is adaptability important for an economic system?

cost-benefit analysis

way of thinking that compares the cost of an action to its benefits (also see page 24)

opportunity cost
cost of the next best alternative use of money, time, or resources when one choice is made rather than another (also see page 20)

modified free enterprise economy

free enterprise system with some government involvement (also see page 53)

Decision Making at the Margin

Economists use a number of tools to help them analyze problems and make decisions. Some of these tools include production possibilities curves, supply and demand curves, and production functions.

One of the most important decision-making tools is marginal analysis. For example, when a firm makes a decision to produce more output, it compares the extra cost of production with the extra benefits to be gained. If the benefits outweigh the costs, the firm decides to produce more. If the costs outweigh the benefits, the firm decides otherwise.

This process of **cost-benefit analysis** involves comparing the costs of an action to its benefits. Firms use such cost-benefit analyses for most of their production or purchase decisions. Government agencies apply it when they evaluate programs. Individuals use it when they have to make decisions about specific actions they need to take. Cost-benefit analysis is used in a similar way to make choices among economic goals because even if goals conflict, it helps to evaluate the costs and benefits of each choice.

Finally, we must remember that economists use a very broad definition of costs—that of **opportunity costs**. This ensures that we account for all of the costs of a decision, not just the monetary ones.

Reading Check **Analyzing** How do the five steps to resolving problems relate to economic decision making?

Coping With the Future

MAIN Idea The ability of capitalism to adapt to changes in the market helps economies address economic issues of the future.

Economics & You Do you remember learning how free market economies gradually adapt to change? Read on to find out how this adaptability will help in the future.

Everyone wants to know what will happen to the economy in the future. How will it adjust, and what course will it take? We can find part of the answer by examining the way we make incremental decisions and part of the answer by understanding how markets work.

The success of capitalism, the economic system in which private citizens own the factors of production and use them to generate a profit, will play a role. Capitalism has demonstrated an ability to generate wealth., and it also has shown that it can adapt to the changing desires and needs of people. If it continues to show this adaptability in the future, capitalism will play a dominant role in our lives.

The Success of Markets and Prices

A **modified free enterprise economy**—a free enterprise economy with some government involvement—allows buyers and sellers to freely make all the decisions that satisfy their wants and needs. In such an economy, the forces of supply and demand are allowed to interact to establish prices in a market. Prices, in turn, act as signals for producers and consumers to make or change their production and spending decisions.

A market economy has many advantages, including the ability to adjust to change gradually without the need for government intervention. As long as the forces of supply and demand are allowed to function, they will send producers and consumers the signals needed to reallocate resources.



The Triumph of Capitalism

During the 1930s, the forces of socialism and communism were sweeping the world, while capitalist countries were in economic depression. Communism in the Soviet Union had considerable impact upon the world, and socialist parties were on the rise in Europe and the European colonies in Africa and Asia.

Since then, communism in the former Soviet Union has collapsed under the weight of its own inefficiencies. Many socialist countries have embraced capitalism and the discipline of the market system.

Capitalism is now the dominant economic force in the world, but it is not the laissez-faire capitalism of the past. Capitalism has changed because people have addressed some of the weaknesses that Karl Marx and others identified many years ago.

The capitalism of the 1930s was ruthlessly efficient in providing only for those who produced or earned enough to buy the necessities of life. Early capitalism had

little room or consideration for the elderly, the ill, or the **incapacitated**.

Most capitalistic economies today, including the United States, have modified their systems to make them more compatible with prevailing norms of what is right and wrong. The result is a free market economy based on capitalism, yet modified to satisfy the economic goals of freedom, efficiency, equity, security, full employment, price stability, and economic growth.

Capitalism has evolved over the years, and it shows every sign of continuing to do so in the future. In this respect, capitalism adjusts to changes the same way a market adjusts to small changes in supply and demand—incrementally, with adjustments so small that they are hardly noticed in the short run. This ability to evolve, and to adjust to the demands placed on it, are strengths of capitalism that will continue to ensure its success in the future.

Reading Check Summarizing Why has capitalism been able to become the dominant economic system in the world?

SECTION 3

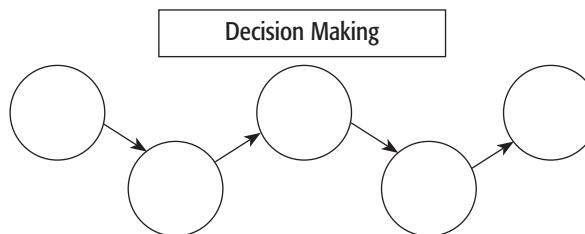
Review

Vocabulary

- Explain** the significance of cost-benefit analysis, opportunity costs, and modified free enterprise economy.

Main Ideas

- Identifying** Use a graphic organizer like the one below to identify the steps in the decision-making process.



- Describing** How does today's capitalism in the United States differ from that of the 1930s?

Critical Thinking

- The BIG Idea** How is cost-benefit analysis useful in the decision-making process?
- Synthesizing** Why has capitalism developed into the most successful economic system? What might this imply about the future?
- Inferring** How does marginal analysis assist in decision making?
- Analyzing Visuals** Look at the photo on page 521. Are the students making their decisions as a group, or do they have a leader? Which approach is better, and why?

Applying Economics

- Cost-Benefit Analysis** Think of a decision you must make in the next few days. Write a paragraph about how you will use your estimates of the costs and benefits to make your decision.



Profiles in Economics



Nancy Barry has shown many people in the banking industry that it pays to provide money to the poor. In particular, she wants to "bring the poor woman into the center of our focus."

Nancy Barry (1950–)

- president of Women's World Banking since 1990
- recipient of the Forbes Trailblazer Award for her efforts in opening doors for women in business

Banking on Women

Unlike her classmates at the Harvard Business School, Nancy Barry did not want to be an investment banker. She wanted to change the world. For 25 years, Barry has fulfilled that dream in her role as a member and president of Women's World Banking (WWB), a "global not-for-profit financial institution devoted to increasing poor women's economic access, participation and power."

Her early experience in the less developed countries of Peru and Tanzania convinced her that systematic change was necessary to encourage development. According to Barry, women need "access, not subsidies. They need opportunities, not paternalism." As a member of the UN Expert Group on Women and Finance, she has worked with governments in developing countries to ensure that their policies hinder neither business growth nor women's access to it.

Microfinance Provides the Push

Barry passionately believes that microfinance—the practice of lending very small amounts of capital to business upstarts—has the potential to revolutionize women's lives. For example, a micro loan might help a woman in Bangladesh to operate a fruit stand, which would allow her daughters to go to school and her family to have health insurance. The average micro loan from WWB is only \$532—not much by American standards but a huge amount for someone used to surviving on less than \$2 a day.

Unlike traditional bank loans, micro loans are almost always paid off. This has prompted other lenders to offer such loans. Under Barry's leadership, the WWB has grown to include more than 55 microfinance institutions that now serve about 18 million low-income women around the world.

Examining the Profile

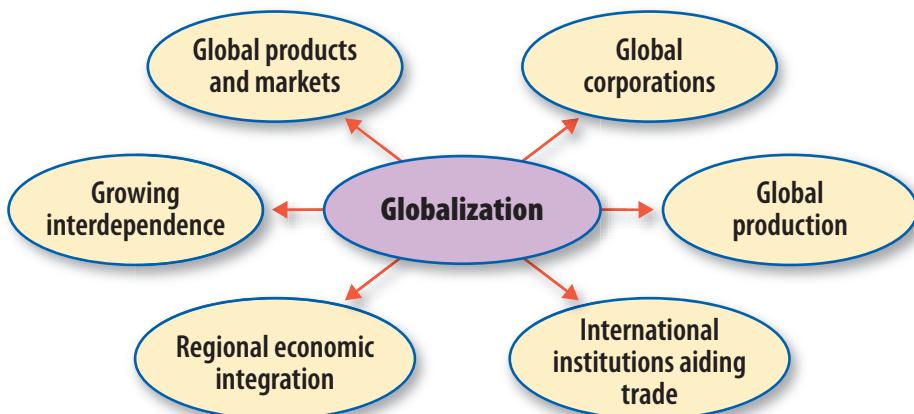
1. **Determining Cause and Effect** What is the impact of financially successful women on families and communities?
2. **Drawing Conclusions** What form should financial aid to women take?



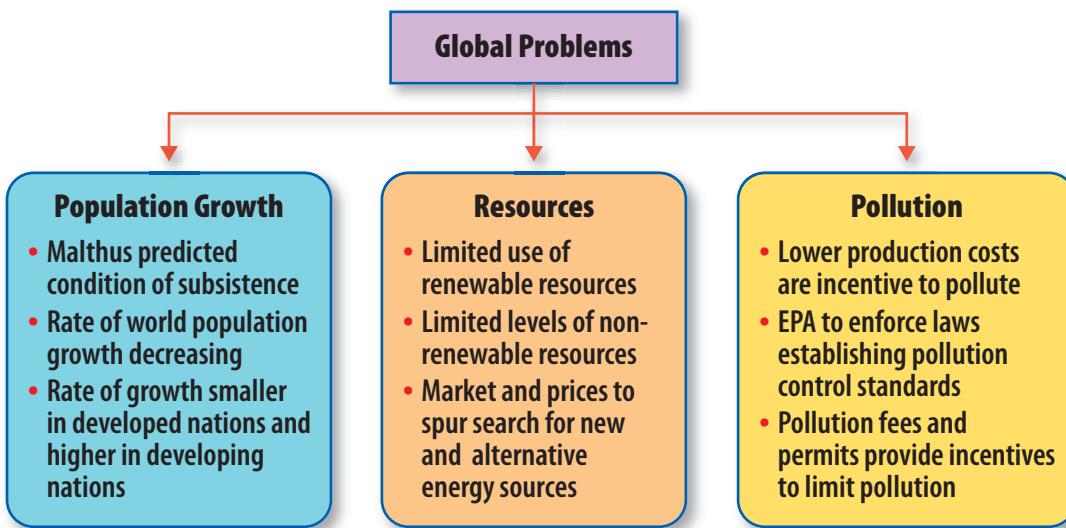
Study anywhere, anytime!

Download quizzes and flash cards to your PDA from glencoe.com.

- **Globalization** With increasing globalization of products, markets, and production, global economic integration and interdependence are growing.



- **Global Problems** An increasing world population puts pressure on available resources, leads to the search for new and alternative energy sources, and requires ways to deal with pollution.



- **Decision Making** Whenever we have to make an economic decision, we can use several tools and models to help with the decision.



Review Content Vocabulary

Identify the term that best completes the following sentences.

- | | |
|----------------------|----------------------|
| a. acid rain | e. opportunity cost |
| b. division of labor | f. outsourcing |
| c. gasohol | g. pollution permits |
| d. globalization | h. subsistence |

1. The state in which the population produces barely enough to support itself is _____.
2. By issuing fewer and fewer ____, the EPA hopes to reduce sulfur dioxide emissions.
3. ____ is a mixture of 90 percent unleaded gasoline and 10 percent grain alcohol, or ethanol.
4. ____ is the movement toward a more integrated and interdependent world economy.
5. Many U.S. companies use ____ to lower operating costs by shifting some operations to countries with lower wage rates.
6. ____ is a type of pollution in which rain mixes with sulfur dioxide emissions to create a form of sulfuric acid.
7. Economists use the term ____ to ensure that all the costs of a decision, not just the monetary ones, are included.
8. An example of ____ is the separate tasks performed by employees who work on an assembly line.

Review Academic Vocabulary

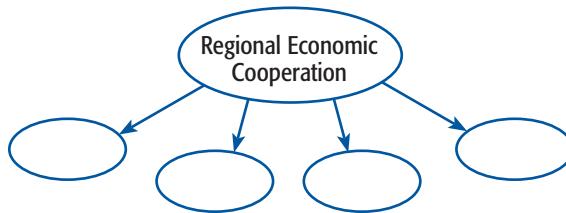
Match each of the terms with its synonyms.

- | | |
|--------------------------|---------------------------|
| a. compounded | d. incapacitated |
| b. context | e. strategy |
| c. equipped | f. successive |
| | |
| 9. following, subsequent | 12. intensified, worsened |
| 10. design, tactic | 13. outfitted, prepared |
| 11. framework, situation | 14. injured, disabled |

Review the Main Ideas

Section 1 (pages 501–507)

15. **Describe** how markets, products, and production increase globalization.
16. **Identify** regional economic organizations by using a graphic organizer like the one below.



17. **Explain** the meaning of *global interdependence*.

Section 2 (pages 509–518)

18. **Describe** why, despite Malthus's predictions, certain parts of the world have enjoyed steadily increasing standards of living.
19. **Describe** how American consumers and the automobile industry reacted to the oil price increases of the 1970s.
20. **Explain** why incentives exist that cause pollution and how they work.

Section 3 (pages 520–523)

21. **Identify** the importance of cost-benefit analysis.
22. **Describe** why adapting to change is important for an economic system.

Critical Thinking

23. **The BIG Ideas** As both an environmentalist and an economist, which of the incentives to preserve scarce resources would you advise using? Why?
24. **Synthesizing** Select one of the resources discussed in Section 2. How can the price system help ensure that this resource is used wisely?

- 25. Making Comparisons** If you had to decide to use either legislated standards or a pollution tax to reduce pollution, which would you choose? In your reasoning, explain the pros and cons of each approach.
- 26. Predicting** How might the world be different in 50 years if we do not use resources wisely today?
- 27. Analyzing** Globalization has led to an increase in interdependence. In your opinion, is this a positive or negative trend? Explain your reasoning.

Thinking Like an Economist

- 28. Critical Thinking** Renewable energy resources account for only a small portion of our total energy production. Explain the changes that would have to take place in order for people to make greater use of renewable energy resources.

Math Practice

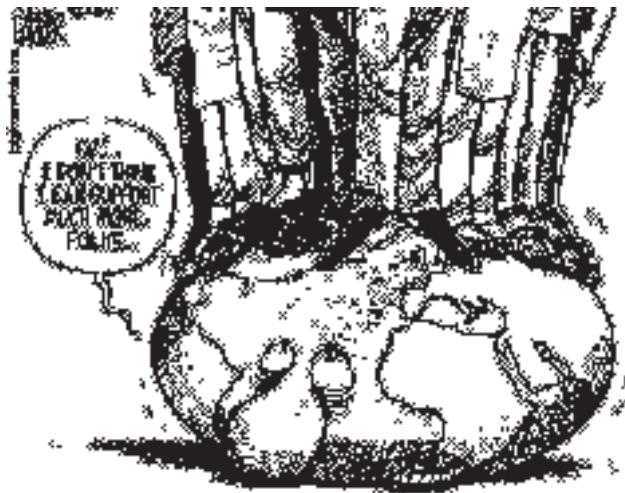
- 29.** The table below shows the average gross domestic product (GDP) for low-, middle-, and high-income countries for the years 1990 and 2004. Study the table, and then answer the following questions in short paragraphs.
- Determine the percentage change in GDP for low-, middle-, and high-income countries. How do these rates compare?
 - What might explain the difference between the growth rates?
 - How might growing globalization change the GDP for these countries?

GDP AND INCOME		
	1990	2004
Low income	\$609,821	\$1,239,169
Middle income	\$3,238,587	\$7,156,777
High income	\$17,887,372	\$32,900,093

Source: World Development Indicators, 2006, World Bank

Interpreting Cartoons

- 30.** Examine the cartoon below. What issue is being addressed by this cartoon? Why is this a problem?



Copyright Jeff Parker and CagleCartoons.com 2006. All rights reserved.

Applying Economic Concepts

- 31. Scarcity** Scarce natural resources are an issue that concerns citizens throughout the world. What can you personally do to help conserve resources?
- 32. Modified Free Enterprise Economy** The United States has a modified free enterprise economy in which the government provides some regulation. Based on what you have learned about globalization and global problems, do you think the government should play a smaller or larger role in regulating the U.S. economy? Give reasons to support your answer.

Writing About Economics

- 33. Expository Writing** Access to clean water and sanitation is important to maintaining health. Research the availability of clean water for a developing country. Determine what problems exist and how these problems affect economic development. Then identify steps the country is taking to deal with the problem. Also discuss aid the country might receive from outside sources to deal with the problem.



The Global Economy & YOU



Recycling

The average American generates about 4.5 pounds of waste each day. Thanks to the growing popularity of recycling, only about 3.1 pounds of that waste make it to the landfill. Americans concerned about the environment increasingly are willing to recycle. They have much to learn from their European counterparts.

Waste Not, Want Not

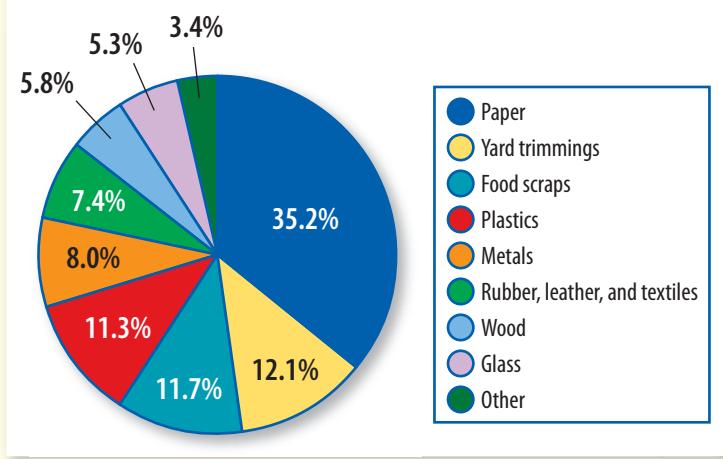
Many Europeans are avid recyclers. Much of this enthusiasm is due to widespread concern about space for landfills. Each country takes a different approach to recycling, though. Switzerland, for example, charges a hefty fee for each bag of waste, while recycling is free. In addition, recycling is extremely convenient, with bottle banks at every supermarket, paper collection in every town, and even a pick-up service for green waste.

In Germany, all apartment courtyards and most neighborhoods have color-coded sorting bins for separating packaging material, paper and cardboard, glass, and bio-waste such as fruit and vegetable



photo: recycling bins outside Cloth Hall in Krakow, Poland

U.S. SOURCES OF WASTE



Source: EPA

peelings. The bins for “other” household trash often are the size of a regular kitchen trash can and may hold weekly trash for up to 3 families. With all the material that gets recycled, that's usually plenty of space.

While the Germans may call themselves the “world champions of recycling,” the citizens of Copenhagen, Denmark’s capital, may be the real thing. The city adopted regulations in 1991 to recycle 58 percent of household, commercial, and industrial waste, incinerate 24 percent, and deposit only 18 percent in landfills. Copenhagen has not quite reached its goals, but it reduced the number of landfills from 30 to 3.



Take Back That Apple

Companies doing business in Europe have had to adapt to European attitudes and laws. In many countries, for example, stores are required to take back any unwanted packaging material. This has had a surprising side effect: packaging became simplified—and cheaper. Today, U.S. computer companies such as IBM, Apple, and Dell take back old computers and components when customers purchase new ones.

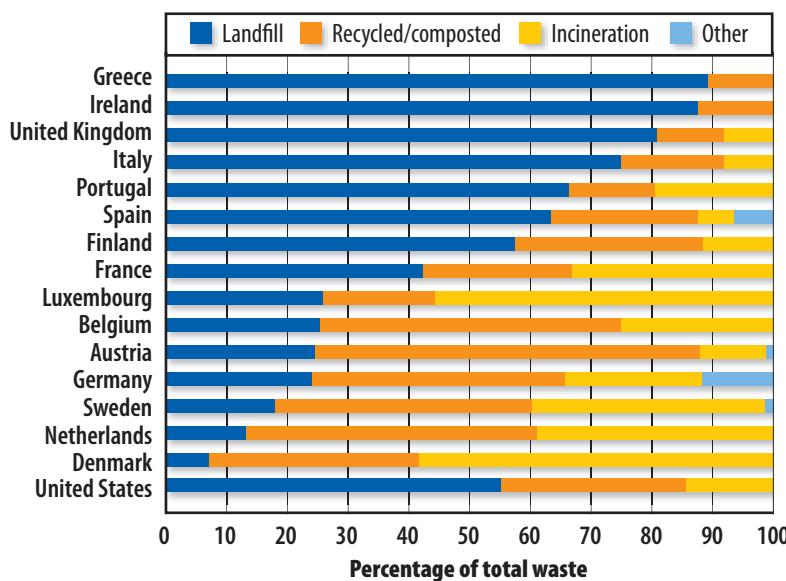
What Does It Mean for You?

While U.S. recycling efforts have been largely voluntary, the European example has had an impact on this side of the Atlantic. Today you can find trash cans that divide waste into recyclables and regular waste in many public places. In 2006 Maine became the first state to require makers of televisions and computer monitors to pay for recycling and safely disposing of their old products. U.S. companies have learned that customers appreciate their recycling efforts. Many European recycling programs are now in effect in the United States, Canada, and elsewhere in the world.

Analyzing the Issue

- 1. Identifying** How do European countries make recycling easy for their citizens?
- 2. Analyzing Visuals** Take a look at the graph titled “U.S. Sources of Waste.” What are the three largest sources of waste? How could individuals and corporations help lower this percentage?
- 3. Applying** Research recycling efforts in your community. Then use the examples from these pages to outline improvements to these efforts.

WASTE MANAGEMENT IN EUROPE AND THE UNITED STATES



Sources: Defra; National Energy Education Development Project, Museum of Solid Waste

photo: landfill in the United States

