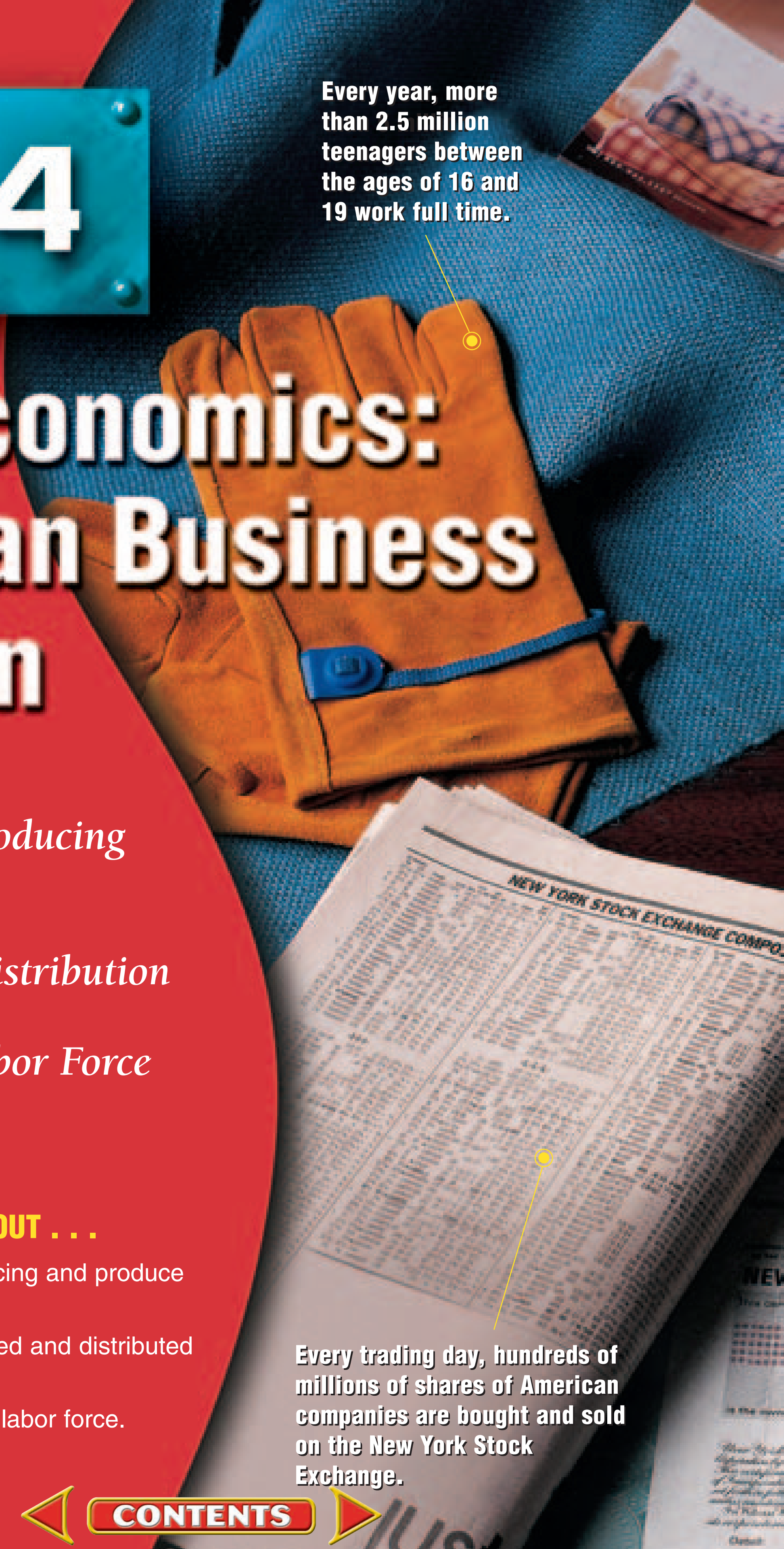
UNIT 4

Microeconomics: American Business In Action



Every year, more than 2.5 million teenagers between the ages of 16 and 19 work full time.

Every trading day, hundreds of millions of shares of American companies are bought and sold on the New York Stock Exchange.

In this unit, read to FIND OUT . . .

- how businesses obtain financing and produce goods.
- how those goods are marketed and distributed to you as a consumer.
- who makes up the American labor force.

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Retailing in the United States is close to a $4-trillion-a-year business.

Shopping on the Internet is estimated to be a $65 billion industry, growing at nearly 26 percent a year.

The United States produces nearly 23 percent of the world's entire output of goods.

CHAPTER 10

Financing and Producing Goods

Why It's Important

How do shoe manufacturers get started? How could you get started if you wanted to open a business? This chapter will explain how companies obtain the financing needed to open for business, and how they try to work efficiently to make profits.

To learn more about factors that affect efficiency and profitability, view the **Economics & You** *Chapter 19 video lesson:* **Financing and Producing Goods**

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ECONOMICS Online

Chapter Overview Visit the *Economics Today and Tomorrow* Web site at ett.glencoe.com and click on ***Chapter 10—Chapter Overviews*** to preview chapter information.

SECTION 1

Investing in the Free Enterprise System

Cover Story

The Chicago Tribune, May 26, 1999

Finding money for your small business is often as deflating as looking for a job. It can be an arduous process of networking, mailing people information about yourself and then calling to see what they think.

A Chicago company is using the Internet to try to streamline the money-hunting process for entrepreneurs by connecting them with venture capitalists. Venture Capital Online has signed up more than 80 venture capital firms nationwide representing $15 billion in capital. It has 200 possible deals in the pipeline. . . .

Reader's Guide

Terms to Know

- financing
- cost-benefit analysis
- revenues
- profits

Reading Objectives

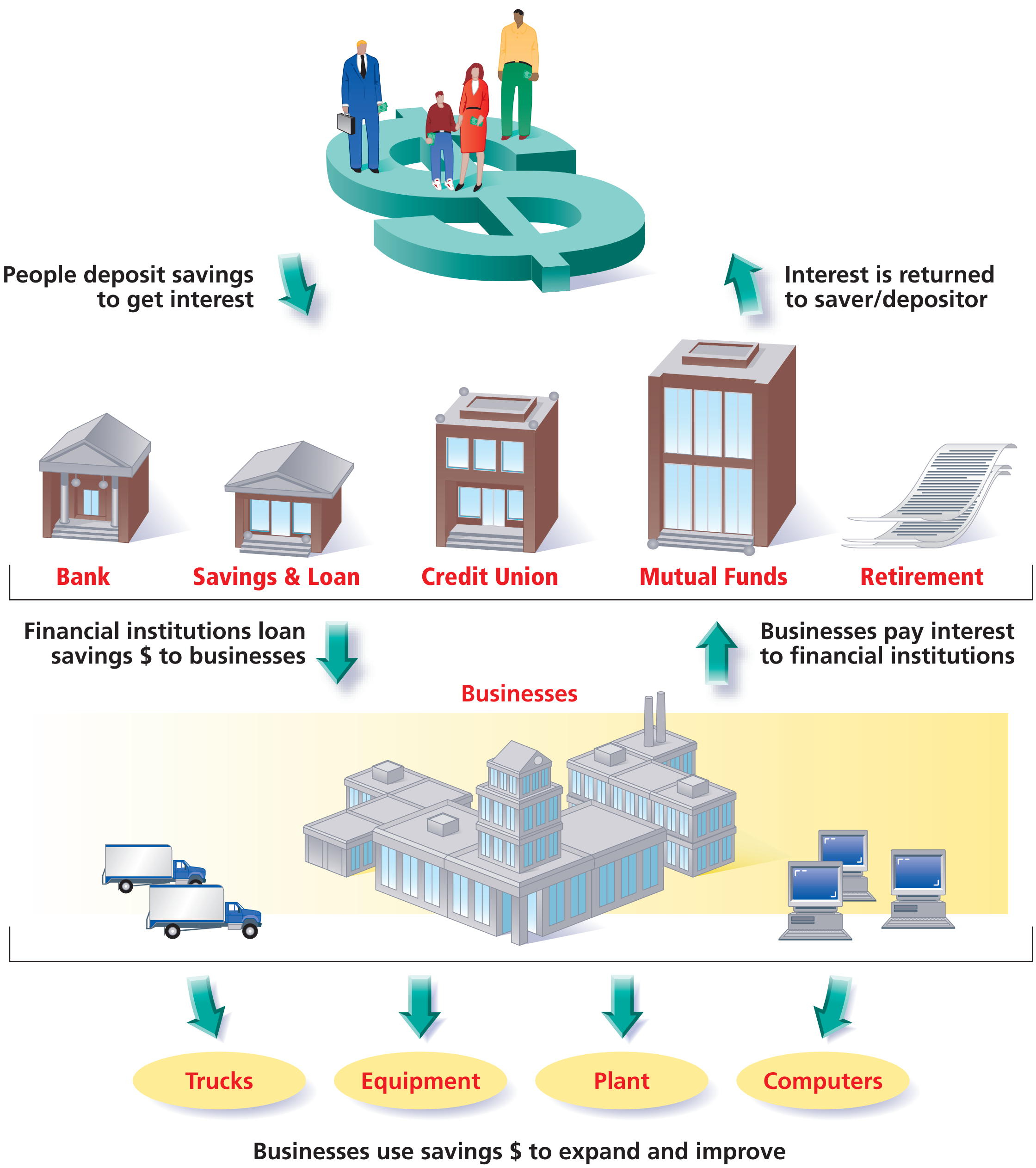
1. How does a business decide whether to expand or not?
2. Why are people willing to finance business investment?
3. How does competition for financing determine how resources are allocated in a market economy?

If you were an entrepreneur, you would face many hurdles on your road to success. One hurdle would be finding sufficient financing to pay for your company's current needs—such as parts and tools—and its long-term needs—such as growth. **Financing** is the obtaining of funds, or money capital. As you read this section, you'll learn that both the short-term and long-term needs of businesses can be financed in a variety of ways.

financing: *obtaining funds or money capital for business expansion*

FIGURE 10.1

Financing Business Expansion Businesses are able to obtain financing because you and other income earners do not spend all that you earn during a year. Through saving, you and others who save make resources available to finance business expansion in the United States.



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Turning Savings Into Investments

Financing business operations and growth is an integral part of our free enterprise system. It all begins with people who save by depositing their funds in one of several types of financial institutions, which you learned about in Chapter 6. The financial institutions, in turn, make these deposits available to businesses to finance growth and expansion. **Figure 10.1** illustrates how people's savings become a resource available to finance business expansion in the United States.

Global Economy

It Started With the Dutch

In 1602, when the Dutch East India Company was founded to expand and control trade in Asia, it raised financial capital by selling shares of its expected future profits to investors. The investors thus became the owners of the company, and their ownership shares eventually became known as "shares of stock."

The company also issued notes of indebtedness, which involved borrowing money in return for interest on the funds, plus eventual repayment of the principal amount borrowed. Today we call these notes of indebtedness "bonds."

As the company prospered, some of its revenues were used to pay lenders the interest and principal owed them. Of the profits that remained, some were paid to shareholders and some were reinvested in the company. The methods of financing used by the Dutch East India Company nearly 400 years ago—stocks, bonds, and reinvestment—are still the main methods of financing for today's corporations. ■

Before You Pursue Financing

Let's assume that you own an electronics repair company that you have incorporated. You now have the opportunity to open additional repair shops in other locations, but you do not have enough extra cash to invest in the expansion. You can obtain this financing in one of many ways. These include digging into your own personal savings, asking your friends and family to loan funds to the company, borrowing from a financial institution, or selling more shares of stock. Even if you are able to finance the expansion, however, one important question remains. *Should* you expand?

Businesses usually answer this question by making a standard **cost-benefit analysis.** This analysis requires that you estimate the cost of any action and compare it with the benefits of that action. Developing a cost-benefit analysis involves five steps:

(1) Estimate the costs of expansion.
(2) Calculate expected **revenues,** or total income from sales.
(3) Calculate expected **profits,** or revenues minus costs.
(4) Calculate how much it will cost you to borrow funds to finance your proposed business expansion.
(5) If expected profits more than cover the cost of financing the expansion, then the expansion may be warranted. See **Figure 10.2** on page 266.

cost-benefit analysis: *a financial process in which a business estimates the cost of any action and compares it with the benefits of that action*

revenues: *total income from sales of output*

profits: *the money earned after a business subtracts its costs from its revenues*

The steps below show an example of cost-benefit analysis. Here is a simple numerical example: Suppose that you can borrow $1 million to finance your business expansion. Your bank will charge 10 percent per year for the loan. That equals $100,000 per year. If your expansion could generate profits of $200,000 per year, then borrowing $1 million would certainly be worthwhile.

Remember the rule that always applies: *Undertake an activity up to the point at which the additional benefit equals the additional cost.* In this case the activity is financing an expansion. The additional benefit is higher profits, and the additional cost is the cost of borrowing.

Why People Are Willing to Finance Investment

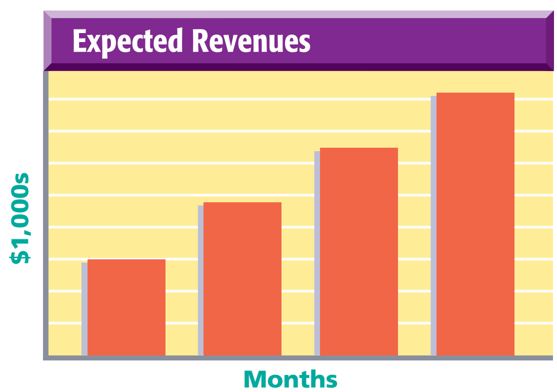
Businesses are interested in obtaining financing so that they can expand and make higher profits in the future. The people who finance such business investments—whether intentionally or

FIGURE 10.2 **Five Steps of Cost-Benefit Analysis**

Step 1 *Costs you may face if you expand your business include:*

- renting new stores
- training new workers
- additional bookkeeping
- opportunity cost of your time to check on new shops
- electricity and other utilities
- additional insurance
- possible new taxes
- meeting government regulations
- additional inventory

Step 2 *Calculate your expected revenues.*



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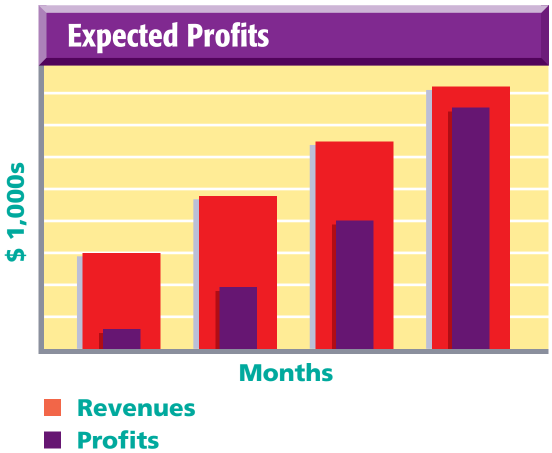
unintentionally—are also seeking rewards. Savers unintentionally finance business growth when they deposit funds in a savings account or certificate of deposit (CD). Their reward is the interest earned on the savings account or CD. For those who intentionally finance investment, the reward is the interest on a corporate bond that they purchase, or dividends from the stock that they buy in an expanding company.

Pursuing Investment Financing

In a free enterprise system, resources normally go where they generate the highest expected value. Financing investment often directs the allocation of these resources. When one business succeeds at obtaining financing, it uses funds that might have helped another business. In a market economy, each business competes for scarce financial resources. If the cost to finance business expansion is relatively high, only those businesses that believe they have the most profitable expansion projects will be willing to

Step 3 *Calculate your expected profits.*



Step 5 *Your expected profits should outweigh your costs of expansion.*

Step 4 *Calculate how much the loan plus interest will cost you monthly.*

ECONOMICS Online

Student Web Activity Visit the *Economics Today and Tomorrow* Web site at ett.glencoe.com and click on ***Chapter 10—Student Web Activities*** to learn how businesses can obtain financing from the Internet.

CLICK HERE

pay the high cost of financing. If the cost of financing is relatively low, more companies will decide that they, too, can profitably engage in additional business investment. In either instance, the lending institution makes the final decision in regard to lending the business the money to expand.

Methods of Financing There are several methods of financing business expansion. As you learned in Chapter 6, corporations offer stock and may sell bonds to finance investment. Businesses, just like individuals, can also borrow from banks, finance companies, or other institutions. Today businesses can even use the Internet to obtain financing. In Section 2, you'll learn more about the types of financing for business operations.

Practice and **assess** key skills with ***Skillbuilder Interactive Workbook, Level 2.***

SECTION 1 Assessment

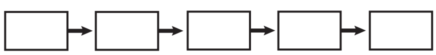
Understanding Key Terms

1. **Define** financing, cost-benefit analysis, revenues, profits.

Reviewing Objectives

2. **Graphic Organizer** Use a diagram like the one below to summarize the five steps in cost-benefit analysis.

Cost-Benefit Analysis



3. Why are people willing to finance business investment?
4. How does competition for financing determine how resources are allocated in our market economy?

Applying Economic Concepts

5. **Economic Institutions** Use your own specific saving habits to create a chart similar to **Figure 10.1** on page 264. Include arrows showing in what type of financial institution your savings are deposited, where those savings go (hypothetically), and what your reward for saving is.

Critical Thinking Activity

6. **Synthesizing Information** Imagine that you own a company. Use the following data to construct a bar graph showing your profits for a period of 6 months.

Revenues	*Costs*	*Profits?*
(1) $4,560	$3,990	
(2) $3,320	$3,000	
(3) $4,420	$2,250	
(4) $4,870	$2,250	
(5) $5,010	$2,880	
(6) $4,770	$3,120	

Critical Thinking Skills

Making Generalizations

Generalizations are judgments that are usually true, based on the facts at hand. If you say, "We have a great soccer team," you are making a generalization. If you also say that your team is undefeated, you are providing evidence to support your generalization.

- Identify the subject matter.
- Collect factual information and examples relevant to the topic.
- Identify similarities among these facts.
- Use these similarities to form some general ideas about the subject.

Learning the Skill

To learn how to make a valid generalization, follow the steps listed on the left.

Practicing the Skill

Read the excerpt below, then identify whether each generalization that follows is valid or invalid. Explain your answers.

"At the Lintumespsan Middle School, six miles outside of Helsinki, kids as young as 10 are showing up with mobile phones. They're supposed to turn them off during class hours, but some of them always forget. What's worse, the children have their phones rigged to ring with a few bars from songs by Guns N' Roses and the Leningrad Cowboys. . . . Some 58% of all Finns own a mobile phone–the highest penetration in the world. . . . Mobile-phone subscribers can request their bank balances, weather updates, traffic reports, even the latest headlines from Cable News Network, through short-message services."

–*Business Week*, May 3, 1999

1. All Finns own mobile phones.
2. Many Finnish school children own mobile phones.
3. In Finland, mobile phones are used for more than just talking to friends.
4. Mobile-phone sales are increasing in Finland.

Application Activity

Read at least three editorials in your local newspaper. Then make a generalization about each editorial.

Practice and **assess** key skills with ***Skillbuilder Interactive Workbook, Level 2.***

SECTION 2

Types of Financing for Business Operations

READER'S GUIDE

Terms to Know

- debt financing
- short-term financing
- intermediate-term financing
- long-term financing

Reading Objectives

1. What are three general kinds of debt financing?
2. What four factors should companies consider in choosing the right financing?

COVER STORY

ENTREPRENEUR, JULY 2003

If you're thinking . . . investing in your own company is smarter than investing in the stock market, you're right. Not only have smaller company values held up better than the stock market, but right now, formerly scarce and costly items such as labor, facilities, and equipment are plentiful and cheap. . . . [E]ntrepreneurs . . . are finding that investing in their companies has the allure once restricted to Internet IPOs.

Businesses, like individuals, must undergo a certain process when borrowing funds. A business that wants to borrow must show creditworthiness by undergoing a credit check. A credit rating of good, average, or poor is then assigned to the business. Like an individual who borrows money, a business must pay interest on its loan and repay it within a stated period of time. As you read this section, you'll learn about the financing options from which businesses may choose.

Three Kinds of Financing

Raising money for a business through borrowing, or **debt financing,** can be divided into three categories: short-term, intermediate-term, and long-term financing.

debt financing: *raising money for a business through borrowing*

Short-Term Financing

When a business borrows money for any period of time less than a year, it has obtained **short-term financing.** **Figure 10.3** describes several types of short-term

short-term financing: *money borrowed by a business for any period of time less than a year*

FIGURE 10.3 Short-Term Financing

Trade Credit

Trade credit is extended by one firm to another business buying the firm's goods. It allows the buyer to take possession of goods immediately and pay for them at some future date—usually 30 to 90 days later.

Businesses often receive a discount—2 percent, for example—if they pay their bill within 10 days. If a business does not repay the bill in that amount of time, it is, in effect, paying 2 percent interest for the use of the trade credit.

Unsecured Loans

Most short-term bank credit for businesses is in the form of unsecured bank loans. These are loans not guaranteed by anything other than the promise to repay them.

The borrower must sign a *promissory note* to repay the money in full by a specified time and with a specified rate of interest. The usual repayment period is one year.

Secured Loans

Secured loans are backed by *collateral*—something of value that borrowers will lose if they do not repay a loan. Businesses offer as collateral property such as machinery, inventories, or *accounts receivable*—money owed to a business by its customers.

Line of Credit

A *line of credit* is a maximum amount of money a company can borrow from a bank during a period of time, usually one year.

Rather than apply each time for a loan, a company may automatically borrow up to the amount of the line of credit—$100,000, for example.

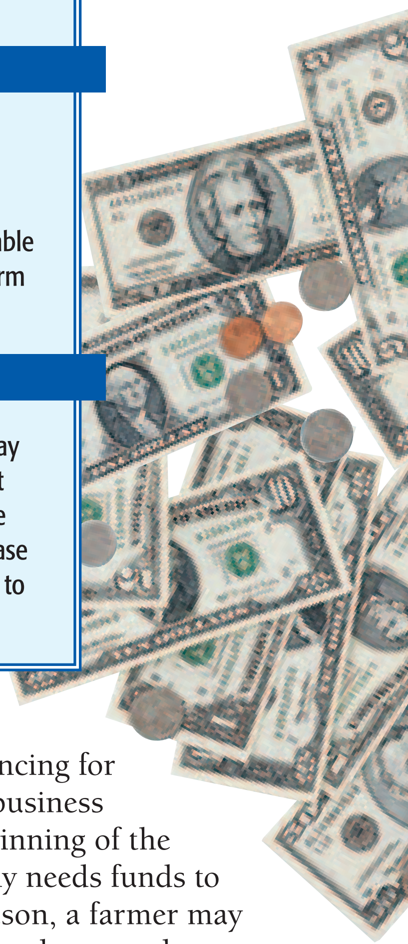


FIGURE 10.4 Intermediate-Term Financing

Loans

Intermediate-term loans have repayment periods of from 1 to 10 years and generally require collateral such as stocks, bonds, equipment, or machinery. The loan is considered a mortgage if it is secured by property such as the building in which the business is located. Sometimes large, financially sound companies may be able to get unsecured intermediate-term loans.

Leasing

Leasing means renting rather than buying—whether it is a building, machinery, or the like. One advantage of leasing is that the leasing company will often service the machinery at low cost. Another advantage is that the business may deduct a part of the money spent on a lease before figuring income taxes. A disadvantage is that a lease often costs more than borrowing to buy the same equipment.

financing. A business may seek short-term financing for many reasons. A company may have excellent business during the month but not be paid until the beginning of the following month. In the meantime, the company needs funds to pay salaries and its bills. During a growing season, a farmer may have to borrow to buy seed, repair equipment, and pay workers.

intermediate-term financing: *money borrowed by a business for 1 to 10 years*

Intermediate-Term Financing Borrowing money for 1 to 10 years is considered **intermediate-term financing.** When a company wants to expand its business by buying more land, buildings, or equipment, short-term financing generally is not adequate. For example, if you decided to expand your electronics repair business by opening another shop, you would not apply for a 90-day loan. In 90 days, you would not be able to do enough repair jobs to earn the additional revenue to repay the loan. Instead, you would look for intermediate-term financing such as described in **Figure 10.4.**

Long-Term Financing Borrowing for longer than 10 years is called **long-term financing.** Long-term financing is used for major expansion, such as building a new plant or buying expensive, long-lasting machines to replace outdated ones. For financing debts lasting 10 to 15 years or more, corporations either issue stock or sell bonds. **Figure 10.5** describes bonds and stocks as

long-term financing: *money borrowed by a business for a period of more than 10 years*

FIGURE 10.5 Long-Term Financing

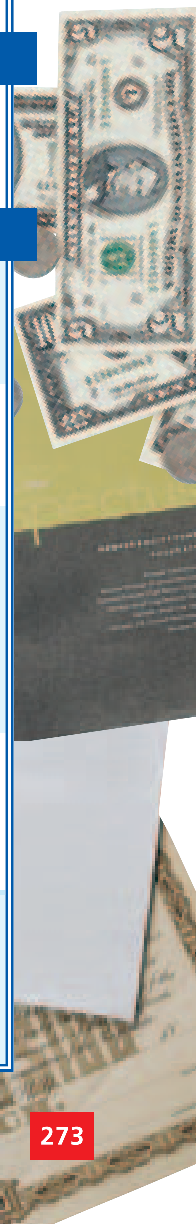
Bonds

Bonds promise to pay a stated rate of interest over a stated period of time, and to repay the full amount borrowed at the end of that time.

Stocks

Selling stock is called *equity financing,* because part of the ownership, or equity, of the company is being sold. Corporations may sell either preferred or common stock. The differences between these types of stock are explained below.

Common Stock	Preferred Stock
1. Common stock is issued by all public corporations; it is the stock most often bought and sold.	**1.** Many corporations do not issue preferred stock.
2. Holders of common stock have voting rights in a corporation. As a group, they elect the board of directors.	**2.** Holders of preferred stock generally have no voting rights.
3. Common stock may pay dividends based on a corporation's performance. If the company does well, dividends may be high; if it does poorly, the dividends may be low or zero.	**3.** Preferred stock pays a fixed dividend. This amount must be paid before holders of common stock receive any dividends. If a company is unable to pay a fixed dividend on time, it must usually make up the missed payment at a later date.
4. The value of common stock rises and falls in relation to the corporation's performance and what investors expect it to do in the future.	**4.** The value of preferred stock changes in relation to how well the company is doing.
5. If a corporation fails, holders of common stock are the last to be paid with whatever money is left after paying all creditors.	**5.** If a corporation fails, holders of preferred stock must be paid before any holders of common stock are paid, but bondholders are paid before any stockholders.



methods of long-term financing. Usually only large corporations finance long-term debt by selling bonds. Unlike smaller companies, large corporations with huge assets appear to be better risks to investors who are interested in buying bonds.

Choosing the Right Financing

Financial managers try to obtain capital at a minimum cost to the company. To do so, they try to choose the best mix of financing. The length of a loan that a company takes out or a corporation's decision regarding whether to sell bonds or issue stock depends on four factors. These factors are the costs of interest, the financial condition of the company, the overall economic climate, and the opinions of the company's owners.

Careers

Financial Manager

Job Description

- Prepare financial reports
- Assess the risk of transactions, raise capital, and analyze investments
- Communicate with investors

Qualifications

- Master's degree in business administration, economics, finance, or risk management

Median Salary: $67,020

Job Outlook: Average

—*Occupational Outlook Handbook*, 2002–03

Interest Costs When interest rates in general are high, a business may be reluctant to take out a loan. A company may delay its expansion until it can borrow at better interest rates. Or it may take out a series of short-term loans at high rates, hoping that interest rates will drop. When that happens, the company will then take out a long-term loan.

Interest rates also affect the decision to issue bonds. When rates are high, corporations must offer high rates of interest on their bonds to attract investors. When interest rates drop overall, corporations can offer lower rates of return on their bonds.

Financial Condition of the Company

A company or corporation whose sales and profits are stable or are expected to increase can safely take on more debt—if its current debt is not too large. Financial managers use cost-benefit analysis to determine if the potential profits will cover the cost of financing expansion.

Market Climate As shown in **Figure 10.6,** financial managers need to be aware of the market climate when determining whether to sell bonds or issue stock to raise financing. If economic growth in the overall market appears to be slow, investors

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FIGURE 10.6

Market Climate Business managers must keep an eye on the market climate before obtaining financing. High interest rates combined with a slow economy could spell disaster for a business interested in expanding.

may prefer the fixed rate of return of bonds or preferred stock to the unknown return on common stock.

Control of the Company Bonds do not have voting rights attached to them. Most preferred stocks also do not give voting rights to shareholders. The owners of common stocks, however, do have the right to vote in company elections. When debating issues of financing, financial managers may have to gain approval from the owners of common stocks before taking action.

Practice and **assess** key skills with *Skillbuilder Interactive Workbook, Level 2.*

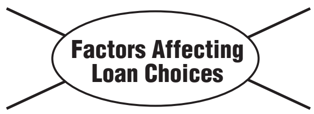
SECTION 2 Assessment

Understanding Key Terms

1. **Define** debt financing, short-term financing, intermediate-term financing, long-term financing.

Reviewing Objectives

2. What are three general kinds of debt financing?
3. **Graphic Organizer** Use a diagram like the one in the next column to describe the four factors that affect a company's decision either to obtain financing in the form of loans or to sell bonds or issue stock.



Applying Economic Concepts

4. **Economic Institutions** If you were starting a T-shirt business with limited funds, what type of short-term financing would you pursue first? Why?

Critical Thinking Activity

5. **Making Comparisons** Write a paragraph describing the difference between secured and unsecured loans.

People & Perspectives

Thomas Sowell

ECONOMIST (1930–)

- A Rose and Milton Friedman Senior Fellow, The Hoover Institution, Stanford University
- Columnist for *Forbes Magazine* and other periodicals; author of a nationally syndicated newspaper column
- Published books include *Conquests and Cultures* (1998), *Migrations and Cultures* (1996), and *Race and Culture: A World View* (1994)

Economics professor and author Thomas Sowell is an outspoken commentator on political, economic, and social issues. Sowell suggests that many of the country's problems can be addressed by applying basic economic concepts to all aspects of life. In this excerpt, Sowell shows how the failure to apply inventory control or the law of supply and demand has created problems in education:

"When anyone who owns a business discovers that unsold products are piling up on the shelf or in the warehouse, it doesn't take a rocket scientist to figure out that it is time to cut back production until the inventory declines.

But no such logic applies in the academic world.

Complaints about the excess number of Ph.D.s in the humanities have gone on for years. Every year, for 12 consecutive years, American universities have broken all previous records for the number of Ph.D.s awarded. . . . Forget about supply and demand when it comes to academia.

Ironically, doctorates in science, engineering and mathematics have come down somewhat in recent years, even though American companies are recruiting engineers from India, Russia and other places. But in English, history, and other humanities fields, the graduate schools are flooding the market with people for whom there are no jobs."

—excerpted from the *Jewish World Review*, February 18, 1999

Checking for Understanding

1. According to Sowell, how has a lack of inventory control created the situation where there are too many Ph.D.s?
2. Do you think the subjects university students study should be determined by economic concepts? Why or why not?
3. If you were in a position of authority on a college campus, how would you resolve the dilemma?

SECTION 3

The Production Process

Cover Story

The New York Times, April 19, 1999

Each month, a purchasing agent for BOC Gases in Murray Hill, New Jersey, logs on to the Internet and looks for a bargain. In this case, the bargain involves not only the price of the product, but an entire cost-saving process set in motion when the on-screen "order" button is clicked.

Nearly 7,000 miles away from New Jersey, in a Japanese gas processing plant, a BOC supplier receives the million-dollar order. . . . And within minutes, a BOC distribution center in San Diego receives electronic notice from Japan that the shipment is on the way.

Reader's Guide

Terms to Know

- production
- consumer goods
- mechanization
- assembly line
- division of labor
- automation
- robotics

Reading Objectives

1. What are the four major steps in production operations?
2. How has technology changed production methods since the early 1800s?

After businesses obtain the necessary financing, they can begin production. **Production** is the process of changing resources into goods that satisfy the needs and wants of individuals and other businesses. As noted in the *Cover Story* above, production also involves careful planning in getting raw materials from suppliers on time. As you read this section, you'll learn about all the steps in the production process.

production: *process of changing resources into goods that satisfy the needs and wants of individuals and businesses*

Steps in Production Operations

Businesses may produce **consumer goods,** or goods sold directly to individuals to be used as they are. As you learned in Chapter 1, businesses may also produce *capital goods,* which are

consumer goods: *goods produced for individuals and sold directly to the public to be used as they are*

FIGURE 10.7

Business Location Locating a sandwich shop next to a movie theater was a wise business decision. Location is the most important planning decision in starting a retail business.

products used to make other goods. The machines used to assemble automobiles are examples of capital goods.

Besides the actual manufacturing of a good, the production process for both types of goods involves several other operations. These include planning, purchasing, quality control, and inventory control. A fifth operation, product design, will be discussed in Chapter 11.

Planning Planning includes choosing a location for the business and scheduling production. *Where* a business is located, or perhaps even more important today—*how* the business will get its products to consumers—is directly related to how successful the business will be. Among the location factors to consider are nearness to markets, raw materials, labor supply, and transportation facilities.

For example, businesses that cater to young people should locate near teen hangouts, universities, and so on. See **Figure 10.7.** Businesses that use coal should locate near their required raw material—coal fields. Businesses that require many unskilled workers should locate near urban areas with a large supply of labor. Finally, a business needs to have access to a means of delivering its products—highways, railroads, airlines, and pipelines.

Scheduling production operations involves setting start and end times for each step in the production process. It includes checking the use of labor, machinery, and materials so that production moves smoothly.

Purchasing In order to do business, a company obviously needs the raw materials to produce its goods or offer its services. It also, however, must have machinery, office supplies, telephones, and so on. The people who purchase goods for a business have to decide what to buy, from whom, and at what price. See **Figure 10.8.** To get the best

deal for the company, purchasers must find answers to such questions as:

- Is this the best price?
- Are these goods made well? Will they last?
- Does this supplier offer such services as equipment repair?
- Who pays shipping and insurance costs, and how will goods be shipped?
- How much time is there between ordering goods and receiving them?

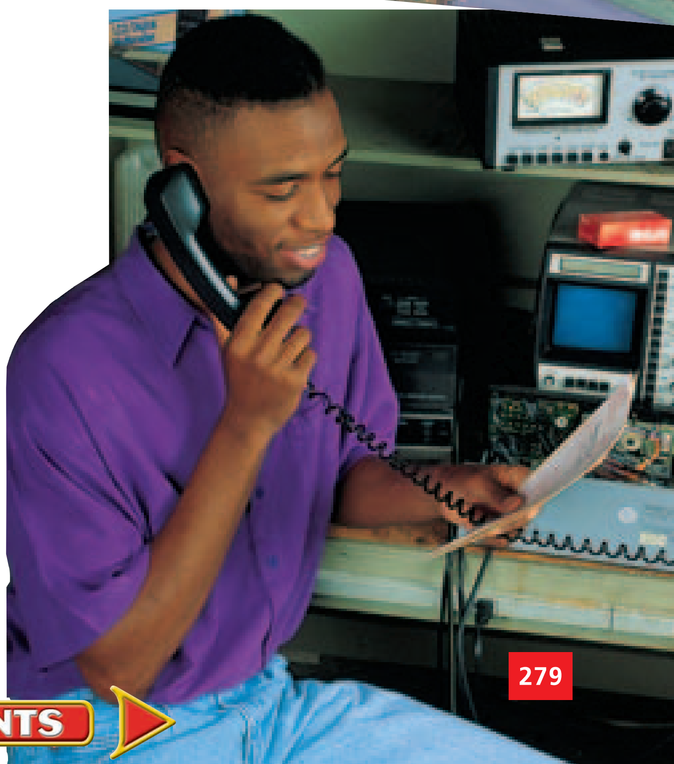
Quality Control Quality control involves overseeing the grade or freshness of goods, their strength or workability, their construction or design, safety, adherence to federal or industry standards, and many other factors. Quality control systems can be as simple as testing one item per thousand produced or testing each product as it is finished. See **Figure 10.9** on page 280.

Inventory Control Almost all manufacturers and many service businesses, such as dry cleaners, need inventories of the materials they use in making their products or offering their services. A production line can come to a complete halt if inventory runs out. Manufacturers and businesses, such as supermarkets, also keep stockpiles of finished goods on hand for sale.

FIGURE 10.8

Purchasing Decisions Before purchasing goods and services from a supplier, a company must consider the price and quality of those goods as well as services, shipping, and delivery.

A Purchasing Inventory



B Purchasing Supplier Services

C Purchasing Shipping and Delivery Services

Inventories are costly, however. There is an opportunity cost involved in maintaining inventory. The more inventory a business has, the less capital it has for other activities. For example, it costs money to warehouse and insure goods against fire and theft. Some goods such as film and medicines spoil if kept beyond a certain period of time. Other goods such as cars and stylish clothes become obsolete, or out of date, in time.

mechanization: *combined labor of people and machines*

assembly line: *production system in which the good being produced moves on a conveyor belt past workers who perform individual tasks in assembling it*

division of labor: *breaking down of a job into small tasks performed by different workers*

automation: *production process in which machines do the work and people oversee them*

Technology and Production

Technology is the use of science to develop new products and new methods for producing and distributing goods and services. From the time of the Industrial Revolution in the late 1700s, technology has changed the methods of production.

Mechanization The Industrial Revolution—the beginning of the factory system—came about through **mechanization,** which combines the labor of people and large power-driven machines. With the introduction of spinning and weaving machines in factories, entrepreneurs replaced skilled handiwork with machines run by unskilled workers. The rate of output per labor hour greatly increased as a result.

FIGURE 10.9

Quality Control Trade-Off The more time spent on quality control—such as this person inspecting vacuum cleaners—the higher the production costs.

The Assembly Line An outgrowth of mechanization was the **assembly line.** An assembly line is a production system in which the good being produced moves on a conveyor belt past workers who perform individual tasks in assembling it. The Ford Motor Company developed the modern assembly-line process early in the twentieth century. Because the assembly line results in more efficient use of machines and labor, the costs of production drop.

Division of Labor Assembly-line production is only possible with interchangeable parts made in standard sizes, and with the **division of labor,** or the breaking down of a job into small tasks. A different worker performs each task.

Automation Mechanization combines the labor of people and machines. In **automation,** machines do the work and people oversee them. Automation is so common in American society that most of us don't even think about the efficiency of automated traffic signals, doors, or teller machines anymore.

CONTENTS

Economic Connection to... Technology

No More Waiting?

In computer science terminology, a "bot" (short for "robot") is a software program that can scan E-mail messages to locate key words and phrases and respond appropriately without any human input. Companies that do business on the Internet use "bots" for all types of customer-service tasks—everything from tracking orders to offering troubleshooting tips. Many computer engineers believe that "bots" soon will be handling all routine customer questions. Waiting 20 minutes or longer on the telephone for a human customer-service representative may soon be a thing of the past! ■

Robotics ***Robotics*** refers to sophisticated, computer-controlled machinery that operates the assembly line. In some industries, robotics regulate every step of the manufacturing process–from the selection of raw materials to processing, packaging, and inventory control.

robotics: *sophisticated, computer-controlled machinery that operates an assembly line*

Practice and **assess** key skills with ***Skillbuilder Interactive Workbook, Level 2.***

SECTION 3 Assessment

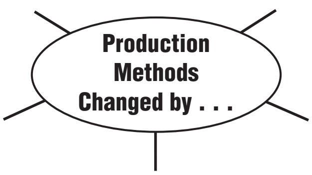
Understanding Key Terms

1. Define production, consumer goods, mechanization, assembly line, division of labor, automation, robotics.

Reviewing Objectives

2. What are the most important steps in the production process?

3. Graphic Organizer Use a diagram like the one below to explain the factors that have changed production since the early 1800s.



Applying Economic Concepts

4. Productivity Imagine that you are financially prepared to open a small ice-cream cafe. Explain the steps you would follow to begin production. Include information about your planning, purchasing, quality control, and inventory control decisions in your explanation.

Critical Thinking Activity

5. Categorizing Information Make a spreadsheet listing the five advances in technology discussed in this section. For one week, be aware of and count examples of each type of technology. At the end of each day, input your totals in the appropriate column of your spreadsheet. Tabulate your totals at the end of the week. Share your spreadsheet with the rest of the class.

BusinessWeek

Spotlight on the Economy

Going All Out to Pick Up a Gig

Check It Out! In this chapter you learned that businesses must make wise decisions when selecting a supplier to ship raw materials as well as finished goods. In this article, read to learn how the Fender guitar company made a very wise decision when it selected a shipping agent.

Who says service is dead? When a big outfit like United Parcel Service is willing to hire a bunch of Dutch rockers to tune a client's guitars, you know that some companies still will do anything to keep a customer happy.

UPS Worldwide Logistics began shipping famed Fender guitars to Europe in April. As happens with stringed instruments, sometimes they arrived out of tune. Previously, the pricey guitars had been sent to 20 European distributors who tuned and tested them. But that was too costly and slow. So, to please Fender, UPS has hired four rock guitarists at its warehouse in [the city of] Roermond, the Netherlands, to do the job. "We've checked disk drives for IBM, but this was a unique challenge," says UPS project manager Ronald Klingeler.

The challenge, however, was met. In May, when the rock group Kiss played a Saturday night concert in Hamburg, it requested a new guitar on Friday—and got one, on time and in tune. Fender says the system will cut costs by 9% and delivery time from months to weeks. But life with a corporate-funded garage band is hard on some UPS guys. Says Klingeler: "When they see a really nice guitar, they always have this urge to try it out and play a song."

Think About It

1. **What did the supplier (UPS) do to help the client (Fender)?**
2. **By using UPS, how much in production costs is Fender saving?**
3. **How was Fender's delivery time improved?**

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CHAPTER 10 Summary

ECONOMICS Online

CLICK HERE

Chapter Overview Visit the *Economics Today and Tomorrow* Web site at ett.glencoe.com and click on ***Chapter 10—Chapter Overviews*** to review chapter information.

SECTION 1 Investing in the Free Enterprise System

- **Financing** business operations and growth is an integral part of our free enterprise system. It all begins with people who save by depositing their funds in a financial institution.
- Financial institutions, in turn, make these deposits available to businesses to finance growth and expansion.
- Businesses usually perform a **cost-benefit analysis** before deciding whether to pursue financing for expansion.
- A cost-benefit analysis involves estimating costs, calculating expected **revenues,** calculating expected **profits,** and calculating the costs of borrowing.

SECTION 2 Types of Financing for Business Operations

- Raising money for a business through borrowing, or **debt financing,** can be divided into three categories based on length of time of repayment.
- **Short-term financing** is for those businesses that need funds to cover monthly or seasonal budget highs and lows.
- Borrowing money for 1 to 10 years to buy more land, buildings, or equipment is considered **intermediate-term financing.**
- **Long-term financing,** such as issuing stock and selling bonds, is used for major business expansion.
- Financial managers must examine interest costs, the market climate, and the financial condition of the company, as well as inform holders of common stock before obtaining financing.

SECTION 3 The Production Process

- **Production** is the process of changing resources into goods that satisfy the needs and wants of individuals and other businesses.
- Producing **consumer goods** and capital goods involves planning, purchasing, quality control, and inventory control.
- Planning includes choosing a location for the business and scheduling production.
- The people who purchase goods for a business have to decide what to buy, from whom, and at what price.
- Five major advances in technology—**mechanization,** the **assembly line,** the **division of labor, automation,** and **robotics**—have drastically affected the methods and costs of production.

CHAPTER 10

Assessment and Activities

ECONOMICS Online

Self-Check Quiz Visit the *Economics Today and Tomorrow* Web site at ett.glencoe.com and click on ***Chapter 10—Self-Check Quizzes*** to prepare for the Chapter Test.

CLICK HERE

Identifying Key Terms

Write the letter of the definition in Column B that correctly defines each term in Column A.

Column A

1. revenues
2. consumer goods
3. cost-benefit analysis
4. debt financing
5. profits
6. short-term financing
7. intermediate-term financing
8. assembly line
9. mechanization

Column B

a. the money earned after subtracting costs from revenues
b. raising money for a business through borrowing
c. trade credit and promissory notes are involved in this kind of financing
d. combining labor of people and machines
e. process that looks at actions and their benefits
f. total income from sales of output
g. enables workers to perform individual tasks more efficiently
h. sold directly to the public to be used as they are
i. leasing is typical in this kind of financing

Recalling Facts and Ideas

Section 1

1. How do individuals turn savings into investments?
2. Outline the steps you would use in reaching a necessary financial decision.

Section 2

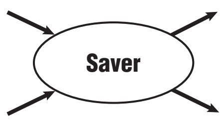
3. What are two reasons a business may need short-term financing?
4. Issuing stocks is a form of what type of financing?
5. Do holders of common stock have any rights in a corporation? Explain.

Section 3

6. Besides quality control, what other steps are involved in the production process?
7. What does assembly-line production require?

Thinking Critically

1. **Categorizing Information** Use a diagram like the one below to describe how a saver can be both a creditor and a debtor.



2. **Synthesizing Information** Assume that you have to buy new inventory that you plan to sell off completely by the end of each month. Determine the most appropriate type of financing to use to buy this inventory.

Applying Economic Concepts

Making Financing Decisions Imagine that you own a business. List at least five business expansions you would like to make to your company that would require financing. Explain after each type of business expansion, such as buying 10 desktop computers, what the appropriate type of financing might be. Explain your choices.

Cooperative Learning Project

Organize into three groups, with each group working on one of the following topics. After the research is complete, each group will report its findings to the class.

A. **Division of Labor** The most famous example of the division of labor focuses on a pin factory, which Adam Smith discussed in his book *The Wealth of Nations*. Group A should do the following: (1) find the passage in the book about the pin factory; (2) develop a chart showing the elements of Adam Smith's arithmetic example; and (3) calculate the percentage increase in productivity due to the division of labor.

B. **Assembly-Line Techniques** This group can divide into two smaller groups. Group B1 will report on how Henry Ford developed the assembly-line process. Group B2 will look at what Eli Whitney developed with the use of interchangeable parts.

C. **Robotics** Group C will research how robotics developed and how much of American manufacturing uses robotics.

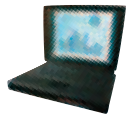
Reviewing Skills

Making Generalizations Read the following excerpt, then make a generalization based on the reading.

"Henry Ford introduced the first moving assembly line in 1913 at his Model T plant in Highland Park, Michigan. Different conveyor systems carried subcomponents to the main assembly line in a finely orchestrated manner. Before the advent of the assembly line, a Model T took more than 12 hours to produce and cost $950. By 1927, after numerous refinements, Model Ts were being turned out in less than half that time, with a price tag of $290 apiece."

—*Business Week: 100 Years of Innovation,* Summer 1999

Technology Activity



Using the Internet The Small Business Administration (SBA) was designed to help small businesses with short-term financing. Obtain information about the SBA on the Internet. Write an informative brochure for potential small business owners, describing how the SBA can help them get started.

Analyzing the Global Economy

Engineers at the University of Pennsylvania unveiled the Electronic Numerical Integrator and Computer (ENIAC) for the U.S. government in 1946 to enable artillery men to aim their guns more accurately. ENIAC was made up of 30 separate units, weighed 30 tons, occupied 1,800 square feet, had 17,468 vacuum tubes, and could do nearly 400 multiplications per second. ENIAC, however, was not the first electronic computer. Research the earlier computers built in Britain and Germany.

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Global Economy

Worldwide Advertising Each year the United States spends over $450 billion on advertising. The map below shows advertising expenditures for five countries whose economies are at different levels of development.

Russia

Category	Spending ($millions)
Television	718.4
Radio	123.0
Print*	1,130.5
Outdoor**	58.7
Point of Purchase	374.6
Promotions***	2,773.0
Direct Mail	314.5
Other	4,117.0
Total	*$96.1 billion*
% of World Total	*10.1%*

Egypt

Category	Spending ($millions)
Television	119.7
Radio	4.8
Print*	188.4
Outdoor**	9.8
Point of Purchase	46.8
Promotions***	727.9
Direct Mail	30.3
Other	128.4
Total	*$12.6 billion*
% of World Total	*1.3%*

Kenya

Category	Spending ($millions)
Television	15.2
Radio	0.2
Print*	24.0
Outdoor**	1.2
Point of Purchase	2.0
Promotions***	88.7
Direct Mail	5.5
Other	11.5
Total	*$1.5 billion*
% of World Total	*0.16%*

Vietnam

Category	Spending ($millions)
Television	15.5
Radio	0.8
Print*	24.4
Outdoor**	1.3
Point of Purchase	0.8
Promotions***	79.7
Direct Mail	7.2
Other	10.2
Total	*$1.4 billion*
% of World Total	*0.15%*

Singapore

Category	Spending ($millions)
Television	129.7
Radio	67.0
Print*	204.2
Outdoor**	10.6
Point of Purchase	261.6
Promotions***	535.7
Direct Mail	66.3
Other	244.6
Total	*$15.2 billion*
% of World Total	*1.6%*

*newspapers and magazines
**billboards, etc.
***coupons, give-aways, etc.

Thinking Globally

1. What is the largest category of advertising for each country?

2. Which of the expenditures for specific countries surprised you the most? Explain your answer.

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