

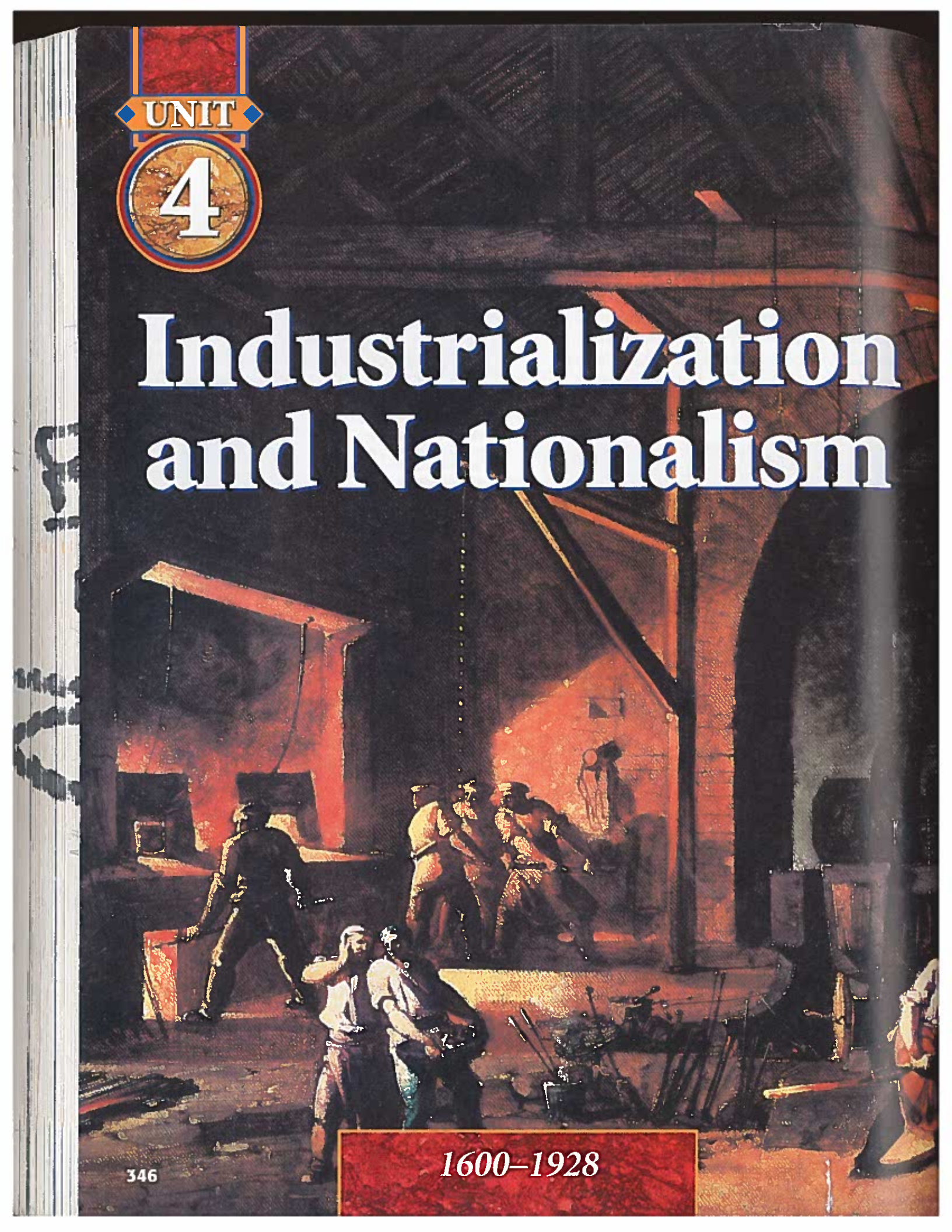
UNIT

4

# Industrialization and Nationalism

346

1600–1928



◆ CHAPTER 13 ◆

## The Industrial Revolution

1600–1901

◆ CHAPTER 14 ◆

## Life in the Industrial Age

1800–1928

◆ CHAPTER 15 ◆

## The Age Of Reform

1791–1911

◆ CHAPTER 16 ◆

## Nationalism in Europe

1806–1913

◆ CHAPTER 17 ◆

## The Age of Imperialism

1830–1917

### Main Events

- The Industrial Revolution changes the global economy
- The Age of Reform seeks to address problems from the Industrial Revolution
- Nationalism grows in Europe
- Nations compete for overseas empires

### Main Ideas

- Why was the Industrial Revolution so important?
- In what ways did life change during the Industrial Age?
- What was the Age of Reform?
- How did nationalism help to unify countries?
- What is imperialism? How did it affect the world?



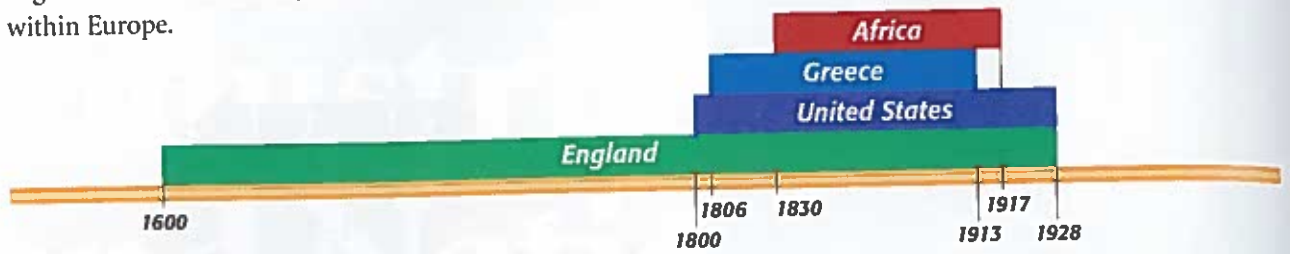
*This Fabergé Easter egg, commissioned in 1898 by Czar Nicholas II, was a gift for his wife.*

*This 1850 painting by Godfrey Sykes of the interior of an ironworks captures the spirit of the Industrial Revolution.*

# CROSS-CULTURAL CONNECTIONS

## Focus On: Science, Technology, and Society

**Main Idea** How did new technologies of the Industrial Revolution change the world? The Industrial Revolution transformed economies and societies throughout the world. Beginning in England, the technology that started the movement quickly spread throughout Europe and the United States. To support their new industries, many nations began to seek overseas empires for raw materials. The competition for empires fueled already growing nationalism within Europe.



England, 1600–1928

*In 1829, the “Rocket” won a competition sponsored by the Liverpool and Manchester Railroad in England. The steam-powered locomotive pulled three times its own weight at 12.5 mph. It carried passengers at about 24 mph.*



**The Power of Steam** The steam engine was one of the most important inventions of the Industrial Age. The first steam engines, developed in the late 1600s, simply pumped water. Scottish engineer James Watt developed the first modern steam engine in 1769. Then British inventor Richard Trevithick designed a high-pressure steam engine to power the first railroad locomotive in 1804. In 1829 the first locomotive carried passengers and freight. Soon after, railroad construction took off at a rapid pace in Britain and the United States. Railways quickly became an important source of transportation for both goods and passengers. British artist William Frith captured the noise and bustle of a British railway station in this painting from 1862.

**Increased Mobility** The development of steamship travel during the second half of the 1800s allowed for an enormous increase in immigration to the United States and Canada. Some people called steamship transportation between Europe and North America “the Atlantic Ferry.” Faster travel times meant that shipping companies had to provide little more than minimal living space in steerage for poorer passengers, who were required to supply their own food, bedding, and other necessities. In this image from the late 1800s, immigrants in search of new opportunities and a better life come ashore at Ellis Island, New York.



United States, 1800–1928

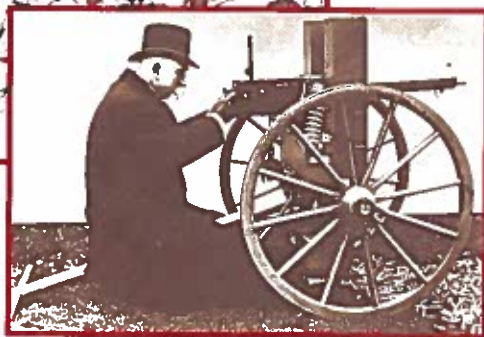
**Global Nationalism** Throughout the 1800s and continuing uninterrupted into the 1900s, the forces of nationalism increasingly shaped world events. In Europe, Latin America, the Middle East, and Asia, rising nationalism led to major change, in many cases sweeping away centuries-old political and social structures. Nationalism was stimulated, in part, by the material and technological progress of the Industrial Revolution, and by the general economic growth that resulted. Increased global communication and contact, also products of industrialization, helped to spread ideas of national identity and opposition to the "old order." The English poet Lord Byron, pictured here, championed nationalistic movements in Italy and in Greece, where he died of a fever in 1824.



Greece, 1806-1913



Africa, 1830-1917



**Tools of Imperialism** One result of technological growth in the 1800s was a rapid change in the weapons of warfare. The invention of the machine gun by Hiram Maxim in 1884 gave imperialistic countries a significant advantage over less-developed nations. Advanced weapons allowed European countries to establish colonial empires in Asia and Africa during this period. German imperialism in Africa, for example, began in the early 1880s. In this painting, created by an East African artist, German officers watch the slaughter of native Africans in the German protectorate of Tanganyika [present-day Tanzania], as German-trained African soldiers use modern weapons to defeat native warriors armed with shields and spears.

*The invention of the machine gun in 1884 made for a more portable weapon that could fire 11 rounds per second.*

## Why It Matters Today

Historically, new technology has had the power both to help and to hurt societies. As a result, people sometimes greet technological growth with mixed emotions.

**In what ways does modern technology both help and harm society? How have people in your society reacted to recently developed technology?**

## CHAPTER



1600–1901

# The Industrial Revolution



*Early hand-cranked cotton gin*

**1600**  
**Daily Life**  
The enclosure movement in England continues.

**1675**  
**Science and Technology**  
The Royal Observatory at Greenwich, England, is founded by King Charles II.

**1713**  
**Politics**  
The Treaty of Utrecht is signed.

**c. 1733**  
**Science and Technology**  
John Kay invents the flying shuttle.

**1600**



*Painting of a tulip by a Dutch artist*

**c. 1633–1637**  
**Business and Finance**  
Wild speculation in tulip bulbs ultimately ruins many Dutch investors.

**1700**

**c. 1701**  
**Science and Technology**  
Jethro Tull invents the seed drill.

**1721**  
**The Arts**  
Johann Sebastian Bach's *Brandenburg Concertos* are completed.

**1769**  
**Science and Technology**  
Richard Arkwright patents a water-powered spinning frame.

*Portrait of Johann Sebastian Bach*



## Build on What You Know

The discoveries of Galileo Galilei, Sir Isaac Newton, and other pioneering thinkers of the Scientific Revolution led to a deeper understanding of the natural world. By the early 1700s people began to apply these scientific advances in a practical way. This led to the creation of new machines and businesses. Major developments in technology were aimed at producing and moving goods. These products were designed to meet the needs of a fast-growing population. In this chapter, you will learn about how industrial developments took place and what effect they had on society.

**c. 1785**  
**Science and Technology**  
Englishman Edmund Cartwright patents the power loom.

**c. 1794**  
**Science and Technology**  
The American inventor Eli Whitney patents the cotton gin, a machine for cleaning seeds from cotton fibers.

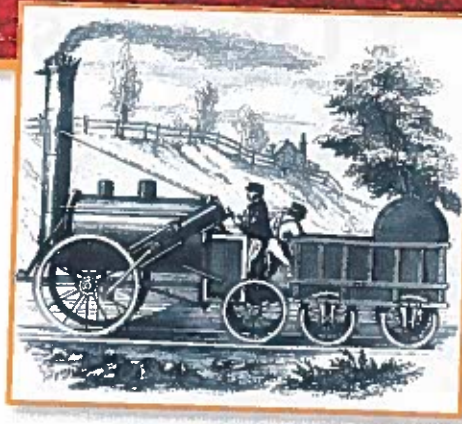
**c. 1814**  
**Science and Technology**  
George Stephenson invents the locomotive.

**c. 1817**  
**Business and Finance**  
The New York Stock Exchange opens.

**c. 1838**  
**The Arts**  
Charles Dickens publishes *Oliver Twist*.

**c. 1866**  
**Daily Life**  
The first transatlantic cable is completed.

**c. 1889**  
**The Arts**  
The Eiffel Tower is completed in Paris.



*Steam locomotive*

*Portrait of Charles Dickens*



**1800**

**1900**

**c. 1801**  
**Politics**  
Great Britain and Ireland form the United Kingdom.

**1848**  
**Politics**  
Karl Marx and Friedrich Engels publish the *Communist Manifesto*.

**1901**  
**Business and Finance**  
United States Steel is founded.

**c. 1790**  
**Business and Finance**  
The U.S. patent office is established.

**1828**  
**The Arts**  
Noah Webster publishes *An American Dictionary of the English Language* in two volumes.

**1776**  
**Business and Finance**  
Adam Smith publishes *Inquiry into the Nature and Causes of the Wealth of Nations*.

*This sequence of images shows various stages in the construction of the Eiffel Tower in Paris.*



## What's Your Opinion?

**Themes Journal** Do you agree or disagree with the following statements? Support your point of view in your journal.

**Science, Technology & Society** A society's development depends on its ability to understand and use science and technology.

**Citizenship** The roles that people play in society are related to the distribution of wealth in that society.

**Economics** The workers who produce goods and services, and so create wealth, deserve a say in how that wealth is distributed.

## SECTION

# 1

### READ TO DISCOVER

- 1 Why did the Industrial Revolution begin in Great Britain?
- 2 How did inventions in the textile industry lead to other new inventions?
- 3 What effects did developments in transportation and communication have on the spread of the Industrial Revolution?

### DEFINE

enclosure movement  
crop rotation  
Industrial Revolution  
factors of production  
mechanization  
factory system  
vulcanization

### IDENTIFY

Jethro Tull  
Richard Arkwright  
Eli Whitney  
James Watt  
Henry Bessemer  
Robert Fulton  
Samuel Morse

### WHY IT MATTERS TODAY

Increased demand for some product or service often promotes the development of new technology. Use **current** or other **current event** sources to find some type of new technology that developed to meet a need of society. Record your findings in your journal.



# Origins of the Industrial Revolution

### The Main Idea

Conditions in Great Britain led to revolutionary new methods of agriculture and manufacturing.

**The Story Continues** *A new era of peace after 1815 brought growing prosperity to western Europe. New agricultural methods and improved systems of transportation and communication helped to stimulate progress. One well known writer noted that "The benefit of . . . Turn pikes [toll roads] appears now to be so great, and the People in all Places begin to be so sensible of it, that it is incredible what Effect [turnpike construction] has already had upon Trade in the Countries where it is more completely finish'd . . ."*

## The Agricultural Revolution

Before the 1600s most European villagers worked their own plots of land in order to grow food for their families. They also used common public lands for grazing animals such as sheep and cattle. In the 1500s and 1600s common lands in England began to be enclosed, or fenced off, into individual plots. At the same time, smaller landholdings were being combined into more efficient, larger holdings. This **enclosure movement** continued into the 1700s. It reached its height by the early 1800s in Great Britain, as a growing population increased demand and raised prices for agricultural products. Wealthy landholders benefited from this movement, while many small landowners lost their lands and their traditional livelihood.

The enclosure movement had several effects. As large landowners added to their holdings, former small-plot owners were forced to become tenant farmers or move to the cities. Also, with the common lands vanishing, farmers no longer had to get permission from other villagers to try new farming methods. In the early 1700s, for example, landowner **Jethro Tull** was concerned about the amount of seed wasted by hand-scattering it over the fields. Tull invented a seed drill that made it possible to plant seeds in straight rows. He also made a horse-drawn hoe to dig up weeds between the rows and break up soil before planting.

Another English landowner, Charles "Turnip" Townshend, copied a successful Dutch practice. English farmers usually left some fields unplanted for a year to let the soil rebuild its nutrients. Townshend found that planting different crops in the fields each year had the same result. For example, he planted wheat or barley one year and root crops such as turnips the next. This system, called **crop rotation**, helped farmers to produce more crops using the same amount of land.

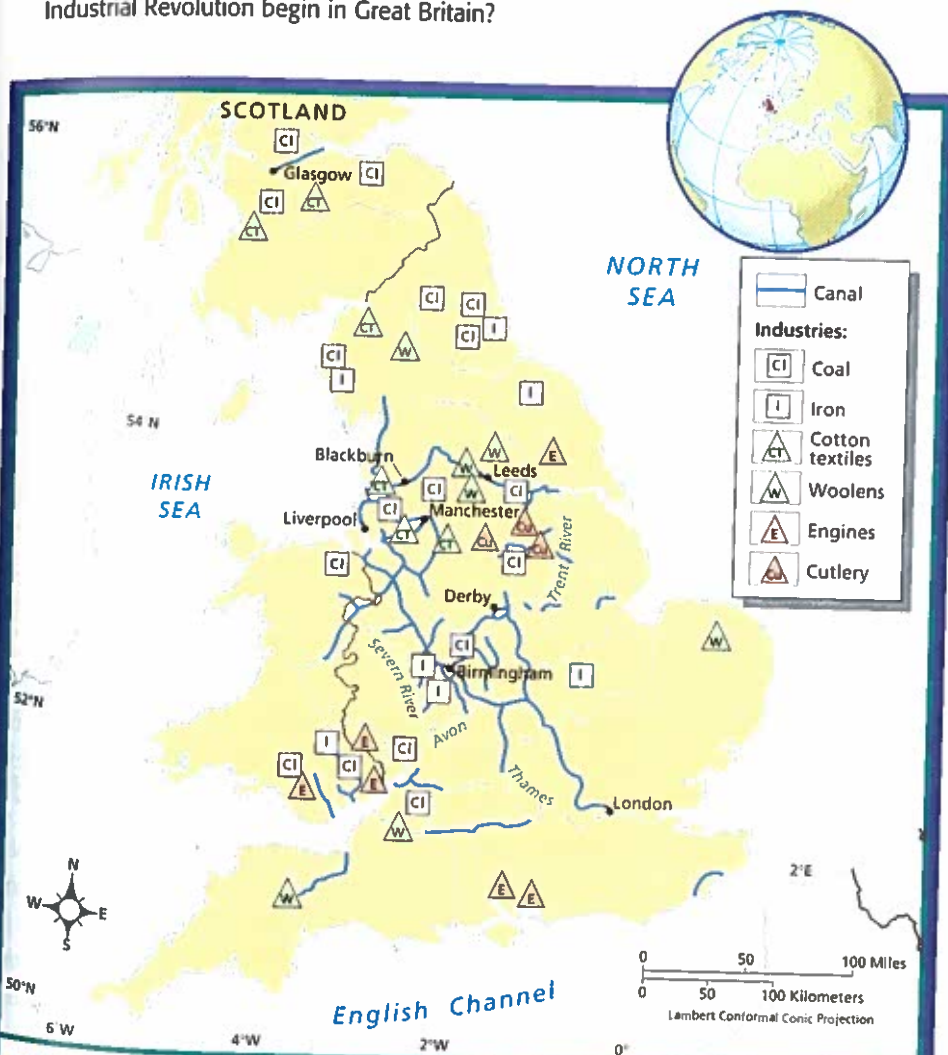
During this Agricultural Revolution, other improvements increased production and made farm labor easier. Iron plows replaced wooden ones. An American, Jethro Wood, invented a plow with a replaceable blade, which eliminated the need to buy a whole new plow. Some of these improvements were very expensive. Only wealthy farmers could afford them. By the 1800s many farm workers, replaced by machines and forced off the land, were moving to the cities. They formed a huge labor force.

✓ **READING CHECK: Identifying Cause and Effect** How did the enclosure movement lead to the development of improved technology in agriculture?

## Factors of Production

An era of rapid industrial development known as the **Industrial Revolution** followed the Agricultural Revolution. It began in Great Britain, which had a favorable combination of needed factors—land, capital, and labor. Economists call these the **factors of production**. Land refers to all natural resources. Great Britain had a rich supply of such resources, particularly coal and iron ore. Its many rivers provided waterpower and inland shipping routes, and its many harbors encouraged trade both within and beyond the British Isles. Great Britain also had rich sources of capital, including the tools, machinery, equipment, and inventory used in production. Capital also included money, which those who had grown rich during the 1700s used to invest in new businesses. Great Britain also had a large supply of labor for industry, fueled by the growth in population and migration into cities.

✓ **READING CHECK: Finding the Main Idea** Why did the Industrial Revolution begin in Great Britain?



### The Industrial Revolution in Great Britain, 1715–1851

**Interpreting Maps** In most cases, industrial centers in Britain developed around rich coal deposits and navigable rivers. Canal systems helped to link these areas to markets and shipping points.

■ **Skills Assessment: Physical Systems** What geographical factors may have helped to speed industrial development in the city of Liverpool?



## The Textile Industry

In the 1600s men and women in England spun thread and wove cloth by hand in their homes. It was a slow process. England could not meet the growing demand for cloth. As a result, automatic machinery was used to increase production. This was known as **mechanization**. Author Daniel Defoe, writing in the early 1700s, described an enormous silk-spinning machine that automatically performed in minutes operations that took many workers days to complete by hand.

### Analyzing Primary Sources

**Drawing Conclusions** According to Defoe's account, what source of power was used to drive the silk-spinning machine that he described?



“This engine contains 22,586 wheels and 97,746 movements, which work 73,726 yards of silk thread every time the wheel goes round, which is three times in one minute, and 318,504,960 yards in 24 hours. The water-wheel gives the motion to all the rest of the wheels and movements, of which any one may be stopped separately.”

Daniel Defoe, from *The British Revolution, 1750–1970: A Social and Economic History*, by Michael St. J. Parker and D. J. Reid

## DAILY LIFE

### Industrialization and Sports

By the late 1800s, sports and industry had much in common. Like work, sports became more specialized. Players had specific positions that required specific skills. Players, like factory workers, followed standard rules of conduct. Organized sports also made use of new technologies. New types of sporting equipment, for example, became available as a result of industrialization. **How were organized sports like industry?**



**New inventions.** A first step toward mechanization was the invention of a mechanized loom for weaving cloth. A loom is a frame with threads stretched lengthwise from top to bottom. These threads are known as “warp” threads. A worker pushed a shuttle holding another thread—the “weft” thread—over and under the warp threads to weave cloth. In about 1733 British engineer John Kay invented the flying shuttle, which moved the weft-carrying shuttle quickly across the loom. Weavers could now make cloth so fast they outran the supply of thread from the old-fashioned spinning wheels.

In the 1760s British weaver James Hargreaves invented the spinning “jenny.” This machine could produce eight times more thread than a single spinning wheel. Richard Arkwright later invented a way to drive the machine by waterpower. Arkwright brought workers and waterpower together and opened a spinning mill during the 1780s. Workers put in a certain number of hours each day for a fixed pay. This spinning mill was the beginning of the modern **factory system**.

Improvements in the spinning process followed, but workers still could not meet the demand for cloth. In about 1785 English minister Edmund Cartwright invented a water-powered loom. One person could now weave as much cloth as 200 hand-loom operators. This rapid change in spinning and weaving showed how inventions built on one another. The flying shuttle created a need for more thread, which faster spinning produced. This was followed by improved weaving machines. Each invention created a new need, and human ingenuity filled the gap.

**Effects of mechanization.** As supply increased, the price of cotton cloth went down. As a result, demand increased and so did the need for more raw cotton. Raw cotton imports by England went from 4 million pounds in 1761 to 100 million pounds in 1815. Most of it came from the southern United States. Cleaning seeds from the cotton fiber was slow, manual work. In 1793 American **Eli Whitney** invented the cotton gin, a machine that could clean much more cotton in a day than hand laborers could. With Whitney's invention, the southern United States became the cotton-producing center of the world. As production soared, so did the profits made by using slave labor to plant and pick cotton. Thus, the cotton gin had the unintended side effect of helping to expand slavery in the United States.

✓ **READING CHECK: Analyzing Information** Why were there so many new inventions in the textile industry in such a short period of time?

## Steam Engines, Iron, and Steel

Early machines in the Industrial Revolution were driven by waterpower. Although much better than human, animal, and wind power, waterpower had its drawbacks. A factory had to be located on a stream or river, preferably next to a waterfall or dam. Often this site was not near raw materials, a labor supply, overland transportation, or markets. Water flow also varied from season to season. A more portable and dependable power supply was needed. It was found in steam.

The power of steam had been known since ancient times. Not until about 1712, however, did English engineer Thomas Newcomen harness that power in an engine. The first, crude steam engines were expensive to operate. Scotsman **James Watt** studied and improved on Newcomen's machine. In about 1769 he patented the modern steam engine. British engineer Matthew Boulton financed the first factory to manufacture steam engines. Industry quickly adapted the engine to drive the new spinning and weaving machines. Steam replaced water as industry's major power source.

**Iron and steel.** More machines meant more iron was needed to make them. From early times, people in Britain had separated iron from its ore using wood or charcoal to fuel the forges. Coal worked even better because it generated more heat. Iron and coal became the two major raw materials of modern industry. Great Britain had plenty of both.

Early steam engines often exploded, however, because iron could not withstand high steam pressure. Steel, an iron alloy, was much stronger, but it was expensive to produce. In the 1850s American William Kelly and Englishman **Henry Bessemer**, working independently, developed what came to be known as the Bessemer process—a cheaper and more efficient method of making steel. The process injected air into molten pig iron, the material from which steel was produced, in order to remove impurities. The injection of air also increased the temperature at which the conversion of pig iron into steel took place. This prevented the molten metal from solidifying during production.

✓ **READING CHECK: Identifying Cause and Effect** How did developments in the textile industry result in inventions in steelmaking?

## Other Industrialization

British manufacturers applied new technology to other industries. Production of shoes, clothing, ammunition, and furniture was mechanized. Machines were used for printing, papermaking, lumber and food processing, and making other machines. Some new processes had important by-products. Gases released from coal were burned to give light. In the 1810s London was one of the first cities to burn gas in street lamps. By the 1850s gaslight was common in city streets.

American Charles Goodyear discovered how to make rubber less sticky. This **vulcanization** process is the basis of the modern rubber industry. The oil industry began around the mid-1800s, when people began using crude oil to make paraffin for candles, lubricating oil for machinery, and kerosene for lighting and heating.

✓ **READING CHECK: Drawing Conclusions** What were several ways in which industrialization spread?

**Holt  
Researcher**



[go.hrw.com](http://go.hrw.com)

**KEYWORD: Holt Researcher**

**FreeFind: James Watt**

After reading more about

James Watt on the Holt

Researcher, write a summary

of his contributions to science  
and technology.



*A Bessemer furnace changed molten iron into steel by forcing air through the iron to burn away carbon and other impurities.*



This scene of steamboats on the Mississippi River was produced in the mid-1800s.

## Holt Researcher

go.hrw.com

**KEYWORD:** Holt Researcher

**FreeFind:** Robert Fulton

After reading more about Robert Fulton on the Holt Researcher, create a time line of how he developed his inventions and what impact they had on society.



## Transportation

Transportation had changed little between the Middle Ages and the beginning of the Industrial Revolution. Stagecoaches, packhorses, and heavy, clumsy horse-drawn wagons were common. As industrial production increased, factories needed more raw materials and finished goods had to reach markets quickly. Improvements such as stone-topped roadways were built. Canals were dug to link rivers. The newer canals had locks to regulate the level of water.

Watt's steam engine was used to speed transportation, both on land and water. In about 1814 English engineer George Stephenson perfected a steam

locomotive that ran on rails. About 15 years later, a locomotive pulled a line of railway cars from Liverpool to Manchester. Railways soon were being built all over the world.

American engineer **Robert Fulton** was the first to build a profitable steamboat. In 1808 his boat, the *Clermont*, began regular trips on the Hudson River between New York City and Albany. Soon steamboats appeared on rivers and lakes all over the world. In the 1830s a steam-powered ship crossed the Atlantic Ocean. The voyage took about 17 days, less than half the time of a sailing ship. Soon Samuel Cunard of Great Britain was providing regular steamboat service across the Atlantic. Ships built of iron and steel now moved goods all over the world quickly and cheaply.

✓ **READING CHECK: Making Generalizations** What invention stimulated the rapid improvement of transportation around the world?

## The Communications Revolution

Early inventions such as the steam engine were mainly the work of amateur engineers. In communications technology, however, scientific research played a more important role.

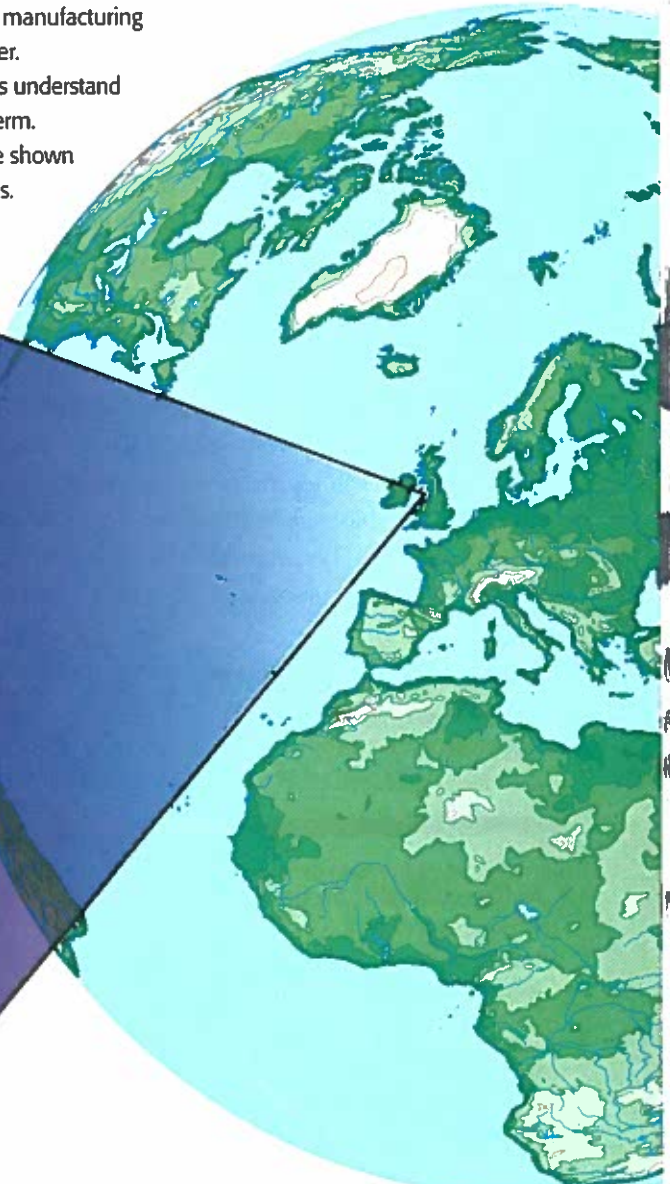
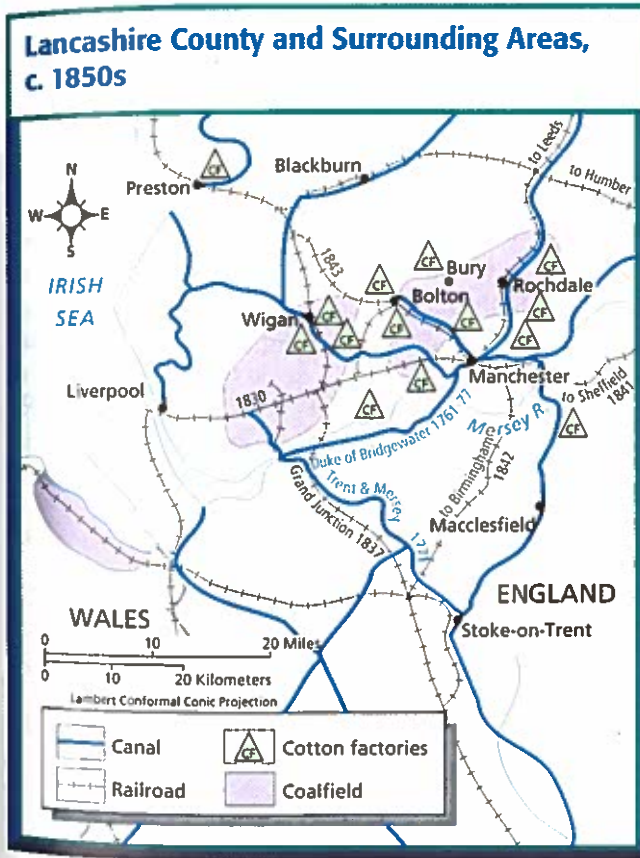
Prior to the 1800s people may have known that electricity and magnetism were related, but they had not found a practical use for this knowledge. Then in about 1800 Italian scientist Alessandro Volta built the first battery, providing a steady flow of electric current for the first time. In the 1820s André Ampère of France worked out principles governing the magnetic effect of electricity. American **Samuel Morse** put this work to practical use. Morse sent an electric current through a wire, causing a machine at the other end to click. By about 1838 Morse had worked out a system of dots and dashes—the Morse code—by which these clicks could be translated into letters of the alphabet. By 1844 Morse's invention, the telegraph, had become a practical communications device. Telegraph wires soon stretched across continents and oceans, spreading ideas at the speed of electricity.

✓ **READING CHECK: Contrasting** What was a major difference between new inventions in textiles and transportation and new inventions in communication?

# Effects of Industrialization on Lancashire

Industrialization in Great Britain had many effects. The economic and social life of some regions of the country were forever changed by new technologies and industries. Lancashire County in northwest England experienced some of the greatest change. Anchored by the manufacturing towns of Manchester and Liverpool, Lancashire became a major industrial center.

Identifying the causes of historical events and determining their effects helps us understand history. Historical events usually have several causes. Underlying causes are long term. Immediate causes lead directly to the event. Cause-and-effect relationships can be shown in many different kinds of diagrams including concept maps, sequences, and webs.



**Skills Reminder**

To determine cause and effect, identify the focus of your study—for example, the outcome of an election. This is the effect in question. Then determine the underlying, or most basic, causes. For example, how satisfied were voters with the present office holder? Next, identify the immediate causes—those occurring near at hand. For example, did the weather affect who voted? Form a conclusion about the relative importance of the various causes you have identified.

**Skills Practice**

- Study the information above.
- 1 What factors of physical geography may have been underlying causes of industrial development in Lancashire County?
  - 2 What were the probable immediate causes of railroad and canal construction in Lancashire County?
  - 3 Draw a diagram that summarizes the probable short-term and long-term causes and effects of industrialization in Lancashire County.

At Promontory Point, Utah, on May 10, 1869, the Union Pacific and Central Pacific railroads met, joining East Coast to West.



## The Spread of Industry

Industrial growth in other European countries lagged behind Great Britain. They had not developed their raw materials or markets for their products. The wars following the French Revolution also disrupted their economies.

The French government helped local industry by imposing high tariffs on foreign goods. They also encouraged the building of railroads. However, in the 1800s, most French workers were still farmers and peasants. Germany did not have a central government to aid industrial growth. Not until the 1870s did German industrialization approach that of Great Britain.

The United States had both a strong central government and rich natural resources. It also had a rapidly increasing population. British inventions and methods were adopted in the United States. Inventions like the cotton gin and mechanical reaper boosted agricultural production. Canals and railroads were built, and the steel and machinery industries boomed. By 1869 a railroad stretched from the East Coast to the West Coast. America had joined the Industrial Revolution.

✓ **READING CHECK: Sequencing** List some of the principal developments that led to industrialization in the United States.

## SECTION 1 REVIEW

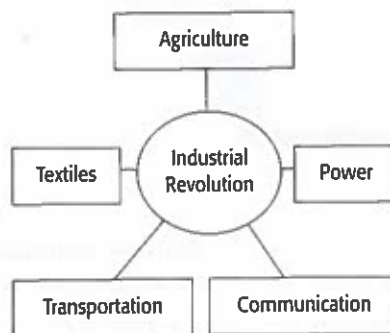
1. **Define** and explain the significance:

enclosure movement  
crop rotation  
Industrial Revolution  
factors of production  
mechanization  
factory system  
vulcanization

2. **Identify** and explain the significance:

Jethro Tull  
Richard Arkwright  
Eli Whitney  
James Watt  
Henry Bessemer  
Robert Fulton  
Samuel Morse

3. **Categorizing** Copy the web diagram below. In each box, list some of the advances made during the Industrial Revolution.



4. **Finding the Main Idea**

- Which inventions of the late 1600s and the 1700s do you think had the greatest influence on industrialization? Why?
- Why was Great Britain an ideal place for the start of the Industrial Revolution?

5. **Writing and Critical Thinking**

**Analyzing Information** Imagine that you are a journalist on the staff of a magazine for young people. Write a 150-word article explaining the factors of production that influenced the start of the Industrial Revolution.

**Consider:**

- the great variety of resources included in the factors of production: land, capital, and labor
- how the absence or shortage of some of these resources would have made industrialization more difficult

## SECTION 2

### READ TO DISCOVER

- 1 How did the increased use of machinery affect workers and working conditions?
- 2 How did the middle class differ from the working class?
- 3 How did the lives of women change during the Industrial Revolution?

### DEFINE

tenements

### WHY IT MATTERS TODAY

When women first went to work in factories, they earned much less than men. Use **CNN** or other **current event** sources to find out how the wages of women compare with those of men today. Record your findings in your journal.

CNN Student News.com

# The Factory System

**The Main Idea**  
New lifestyles and living conditions grew out of the Industrial Revolution as society began to change.

**The Story Continues** During the 1700s new factory jobs lured thousands of British farm workers to the cities. Many critics feared that urban growth and changing labor patterns would create dangerous social injustice. In 1848 John Stuart Mill wrote, “[Industrialization has] enabled a greater proportion [of workers] to live the same life of drudgery and imprisonment and an increased number of manufacturers and others to make fortunes.”

## How Machines Affected Work

The introduction of steam-powered machinery made work easier to do. Instead of spending several years as an apprentice learning a trade, a person could learn to perform a task or operate a machine in a few days.

Employers now wanted people who could learn a few simple tasks. They soon discovered that women and children could operate machines as efficiently as men. Employers preferred to hire young men and women rather than older, skilled people. Young people did not have set working habits and did not expect high wages. Women and children would work for lower wages than men. As a result the early textile factories employed mainly children and young women.

As machines became more widely used, older, skilled workers often found themselves unemployed. Factories no longer needed their abilities as weavers or spinners and would not hire them for simpler work. To make up for their lost income, many of these people sent their children to look for work in textile factories. They themselves were reduced to looking for odd jobs in cities or on farms.

✓ **READING CHECK: Finding the Main Idea** How did the production of goods change as work became mechanized?

## The Wage System

The factory system differed significantly from the domestic system. Under the domestic system, workers had usually worked unsupervised in their homes. They turned over finished products, such as thread or cloth, perhaps once a week, and were paid for the number of items completed. In factories, instead of working on a product from beginning to end, each worker performed only a small part of the entire job. Under the factory system, dozens or hundreds of laborers worked in the same room under the watchful eyes of supervisors. Everyone was employed by the factory owners. The owners paid their workers wages based on the number of hours worked or the amount of goods produced.

Several factors determined workers' wages. First and foremost, factory owners wanted to produce goods as cheaply as possible. Thus employers set wages in relation to other costs of production. For example, if the cost of land or capital increased, the owners lowered wages.

## CONNECTING TO

## Science and Technology

### Thonet Rocker

Michael Thonet, a cabinet-maker living in Austria in the mid-1800s, invented a process that revolutionized furniture making. He made the bentwood rocker shown here. Thonet bent solid wood by steaming it and clamping a thin strip of steel along one side. Complex joining and carving were no longer needed. Thonet was able to hire local people rather than costly artisans. By 1870 Thonet's factory was making about 1,300 pieces of furniture a day. With six-day workweeks, this was an incredible 400,000 pieces a year.

### Understanding Science and Technology

What was the technological significance of the Thonet rocker?



In addition, the number of workers available affected wages. An oversupply of workers brought wages down. By the same token, wages often rose when there were not enough workers to do a particular job.

Also, wages often depended on what people could expect to earn at other kinds of work. For example, early employers in textile factories wanted to attract young women as workers. Therefore they offered a wage higher than what women could earn as household servants.

Wages, moreover, were higher for men than for women. For example, in cotton mills and the London clothing trades in Great Britain, men were paid as much as twice what women earned. It was generally thought that women went to work merely to add "a little something" to their family's income. In reality, however, a woman was sometimes the only wage earner for her family.

Factory workers acquired skills and were paid accordingly. However, they had little else to show for their work. They did not own their tools or equipment, as domestic workers had. Furthermore, there were few opportunities for workers to advance within the factory.

✓ **READING CHECK: Summarizing** What four factors generally determined a factory worker's wages?

## The Lives of Factory Workers

Factory workers had many rules to follow. They had to arrive at the factory on time. They could eat or take breaks only at set times. They could leave only with permission. They worked whether it was hot or cold, summer or winter, day or night. Breaking any rules could result in heavy fines, pay cuts, or even job loss.

Factories were cold and damp in winter and steamy in summer. Sanitary facilities were poor. Early machines had no safety devices, so accidents occurred frequently. Employers provided no compensation if a worker was hurt on the job. Workers spent up to 14 hours a day, six days a week, on the job. They had to adjust their lives to the demands of machines that never needed to rest. Some people may have thought that they were expected to become machines themselves.

Abuses in factories soon scandalized Great Britain. In about 1832 a parliamentary committee investigated working conditions for children. One worker that the committee spoke to was 23-year-old Elizabeth Bently, who began to work in a flax mill when she was six years old. Bently described how she and other children had been forced to work from five in the morning until nine at night and had been beaten for being late or working too slowly. Parliament then passed the Factory Act of 1833, which allowed for factory inspection and enforcement of child labor laws.

Life in workers' homes was not much better than in the factories and mines. Workers lived in shabby apartment buildings called **tenements**. A dozen people might be crammed into a single room. As late as 1840, up to 50,000 workers in Manchester, England, lived in cellars. A popular British novelist of the

mid-1800s described the below-ground dwelling in which a fictitious working-class Manchester family lived.



“It was very dark inside. The window-panes many of them were broken and stuffed with rags. . . . the smell was so fetid [foul] as almost to knock the two men [observers who were shocked by these living conditions] down. . . . they began to penetrate the thick darkness of the place, and to see three or four little children rolling on the . . . wet brick floor, through which the stagnant, filthy moisture of the street oozed up.”

Elizabeth Gaskell, *Mary Barton*, 1848

Over time, conditions improved slightly as consumer goods became cheaper and more available to workers. Wages increased somewhat, but the lower economic classes continued to suffer.

✓ **READING CHECK: Analyzing Information** What were the living conditions of factory workers like during the Industrial Revolution?

## Development of the Middle Class

During the Industrial Revolution, the balance of economic and political power shifted from agriculture to manufacturing. As industries and cities grew, a new, well-educated middle class thrived. It consisted of bankers, manufacturers, merchants, lawyers, doctors, engineers, professors, and their families. Many members of this middle class served in management or other types of administrative jobs that helped keep industries running. Over time, this class—based upon economic standing, rather than upon birth—gained increasing social influence and political power. To many workers, the middle class represented a social stepladder. Each generation hoped that the next one would be able to rise a rung higher than they had been. As the middle class expanded, many families were able to do just that.

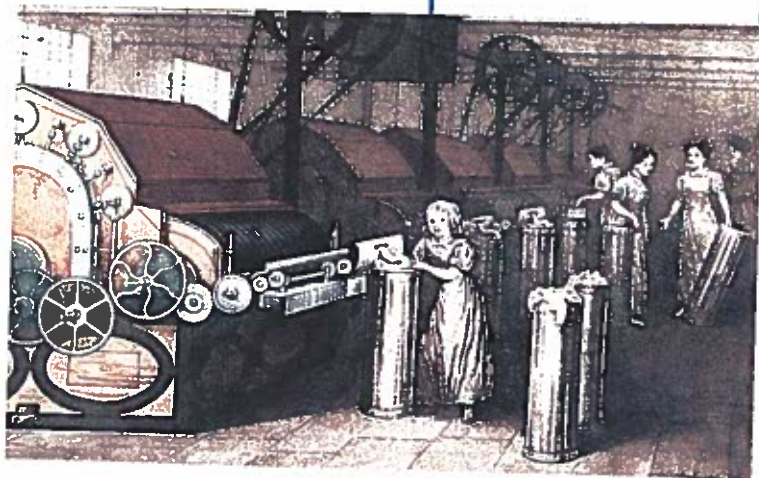
Lifestyles and living conditions at the lower levels of the middle class often differed very little from those of working-class people. As the finances of middle-class families improved, their lifestyles began to reflect their rising social status. Many middle-class families could afford to live in larger homes and less-crowded neighborhoods. Middle-class men wore business suits and women wore frills and lace. Many people in the upper tiers of the middle class owned property, hired servants, and ate well. Their children attended good schools, where they were trained for higher-level jobs. Middle-class children might also inherit money and social position from their parents. Aristocratic government leaders sought the advice of middle-class economists. Soon government leaders became as concerned about the future of industry as they were about agriculture.

✓ **READING CHECK: Drawing Inferences** What factors led to the rise of the middle class?

## YOUNG PEOPLE IN HISTORY

### Young Factory Workers

For many people in industrial England, working for a living began at an early age. Children as young as six worked in factories for 12 to 16 hours a day, six days a week. At lunchtime, children often ate food covered with factory dust. In general, factory conditions for children in industrializing England were brutal and often hazardous. **What were working conditions like for the youngest factory workers?**



**Holt  
Researcher**



[go.hrw.com](http://go.hrw.com)

**KEYWORD: Holt Researcher**

**FreeFind: Elizabeth Gaskell**

After reading more about Elizabeth Gaskell on the Holt Researcher, assess how her writings about the working class might have affected views of factory life by middle-class readers.





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*Inventions like the sewing machine eased work for many women.*

## Effect of Industrialization on Women's Lives

Throughout history, women had worked hard. They worked in the fields, spun yarn, made clothing, and prepared meals. They produced goods for sale and worked with their husbands in family businesses. As the Industrial Revolution moved production into factories, many working families moved to cities. As city dwellers, many women no longer had the resources or the need to grow food or make clothing.

As the need for farm labor decreased due to improved farming methods and equipment, some women took jobs in textile mills or factories. Many young women, however, continued to work at a

traditional woman's job—domestic service. Moving to the cities, they found jobs with middle- and upper-class families, who hired them as maids, cooks, and nannies for their children. They lived with the families and were provided food and shelter. Some of these women later took jobs in shops or factories.

Many middle-class families had enough money so that women did not need to work outside the home. They stayed at home and, often with hired help, cleaned, cooked, and took care of the children. It was often said that a woman's nature equipped her only for these tasks. In the mid-1800s, however, middle-class women began speaking out for roles outside the home.

For some women a life outside the home meant independence. It was also a way to earn a living. During the late 1800s, jobs as nurses, secretaries, and telephone operators opened up to women. Women's colleges were founded to improve their educational levels. With the growth of public schools, many women became teachers. By the end of the 1800s, most elementary school teachers were women.

✓ **READING CHECK: Identifying Points of View** What might each of the following groups have thought about women's roles in society: working-class men, working-class women, middle-class men, middle-class women?

## SECTION 2 REVIEW

1. **Define** and explain the significance: tenements

2. **Contrasting** Copy the table below. List and contrast the ways in which the rise of the factory system affected each of these groups.

Factory System		
Working-class children	Middle-class families	Women

3. **Finding the Main Idea**

- How might some of the changes that affected women in the 1800s have affected the roles that women play in society today?
- What factors led to the increased hiring of women and children in factories?

4. **Writing and Critical Thinking**

**Summarizing** Choose a well-known melody that you think suits the conditions of early factories. Write lyrics for the music expressing the feelings of a young person working in one of those factories.

**Consider:**

- details of the worker's daily life
- what the future might hold for them

**Go to [www.hrw.com](http://www.hrw.com) Homework Practice Online**  
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## SECTION

# 3

### READ TO DISCOVER

- 1 How and why did methods of production change during the Industrial Revolution?
- 2 Why did corporations emerge and how did they affect business?
- 3 What is the business cycle and how did it affect society?

### DEFINE

capitalism  
 commercial capitalism  
 industrial capitalism  
 interchangeable parts  
 mass production  
 corporations  
 monopoly  
 cartels  
 business cycle  
 depression

### IDENTIFY

Henry Ford  
 J. P. Morgan

### WHY IT MATTERS TODAY

Today's corporations are often engaged in many different types of business. Use **CNN** or other **current event** sources to identify the different businesses owned by large corporations. Record your findings in your journal.

**CNN** student  
 NEWS.com

*This painting of a factory shows one artist's view of the Industrial Revolution.*

# New Methods and Business Organizations

### The Main Idea

Improved production methods helped to speed industrialization during the late 1800s.

### The Story Continues

*The 1800s were marked by new inventions and new methods of production and distribution. At the same time, new approaches to organizing businesses led to great wealth for some and to poverty for others. Some viewed the gulf between rich and poor as a danger, while others argued that, "The price which society pays for the law of competition . . . is . . . great; but the advantages of this law are . . . greater still, for it is to this law that we owe our wonderful material development . . ."*

## Capitalism and Changing Production Methods

The late 1800s in western Europe and the United States were characterized by a growing spirit of individual enterprise that we know today as capitalism. The term **capitalism** describes an economic system in which individuals or corporations, rather than governments, control the factors of production. In a capitalist system, businesses and the means of production are privately owned and operated. Before the Industrial Revolution, most capitalists were merchants who bought and sold goods. This was called **commercial capitalism**. During the Industrial Revolution, capitalists became more involved in producing and manufacturing goods. This was called **industrial capitalism**.

**Division of labor and interchangeable parts.** Industrialization changed the way people worked. Factory owners divided the manufacturing process into steps. They hired unskilled labor and assigned a step to each worker. This division of labor increased production. The use of machines in many of the steps helped the workers produce more in a shorter time. The lowered cost of production made more profit for the owners.



American inventor Eli Whitney used division of labor to make muskets in the late 1700s. Previously, an entire gun was made by skilled artisans. Each gun was slightly different. If a part broke, a new one had to be handmade. Whitney invented machines that made parts that were all alike. Unskilled workers could now turn out identical, **interchangeable parts**. Whitney's system resulted in speedy production of inexpensive muskets that could be easily repaired. Other factory owners soon saw the benefit of interchangeable parts. They adopted the idea for their own products.

**The assembly line.** The system of producing large numbers of identical items is known as **mass production**. Division of labor, the use of interchangeable parts, and an assembly line are essential for mass production. Into the 1800s each part of an item was made in a different location in the factory. All the parts were brought together and assembled at a single location. Manufacturers then devised the assembly line, by which the parts were carried from worker to worker. Each worker performed a certain task on the part. This saved time and energy. The number of times per hour that a worker could perform a task increased.

**Henry Ford** saw a great potential in the assembly line. He used a conveyor belt to carry automobile frames from one worker to the next. Each worker added one or more of the numerous parts in the finished automobile. By using the assembly line for the production of automobiles, he founded one of the largest industries in the world.

American and European industrialists began to mass-produce many other items, such as clothing, furniture, and machinery. By reducing production costs, manufacturers were able to lower prices. More and more people could afford to buy a greater variety of goods and enjoy a higher standard of living.

✓ **READING CHECK: Making Generalizations** How did changes in production methods lead to an improved standard of living?



#### INTERPRETING THE VISUAL RECORD

**Assembly line** This image shows a Ford assembly line in the early 1900s. *How do you think the assembly line might have made work easier for these Ford employees?*

## Rise of the Corporation

Before the Industrial Revolution, most businesses were very small. A business owned and run by just one person was called a sole proprietorship. One owned and run by two or more people was called a partnership. Owners of both types of businesses were free to make business decisions. Each owner was personally responsible, however, for any debts the business had. In addition, sole proprietorships and partnerships usually remain small. Small companies with few workers typically cannot afford mass-production methods or the machinery necessary for large-scale production.

As businesses grew during the 1800s, another form of business organization became common. Businesses formed groups called **corporations** and allowed people to buy stock in their companies. This made it much easier to raise the money needed to run and expand a business. Stockholders elected directors to run the corporation. They shared in its profits, depending on how many shares of stock they owned. A stockholder's financial responsibility was limited to the amount he or she had invested. This made corporations attractive to investors. Banks played an increasingly important role in financing corporations. By the late 1800s some corporations had become very large and powerful. In 1901 American financier **J. P. Morgan** founded the United States Steel Company, one of the first of many billion-dollar corporations.

Increasing the size of a corporation did not necessarily increase its profits, however. To take advantage of mass production, factories attempted to work at full capacity. Sometimes they produced more goods than they could sell. Competition for customers was very keen between corporations making the same product. Cutting prices to sell more products could mean smaller profits. Smaller businesses often sold out to larger ones or even failed.

As a result, although the size of individual corporations increased steadily, the number of individual corporations in some industries decreased. Sometimes a corporation gained almost complete control of the production or sale of a single good or service. This was called a **monopoly**. During the late 1800s and the early 1900s, several gigantic corporations in the United States grew into monopolies or near-monopolies.

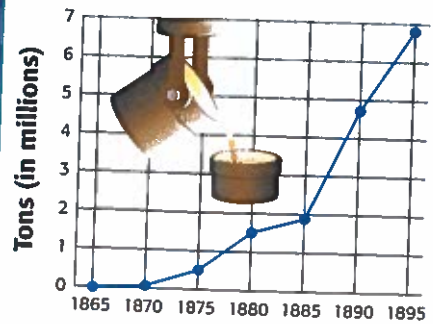
By 1900 several giant corporations in Germany had combined to control every stage of entire industries. They did this in the steel industry, for example, by owning coal and iron mines, steel mills, and factories. Such business combinations were known as **cartels**. French novelist Émile Zola described the growing size and complexity of such organizations in a dialogue in which one character describes his investment in a coal-mining cartel to another character.

Primary Source

“And is your company rich?” asked Étienne. . . . “Ah! yes. . . . Ten thousand workers, concessions reaching over sixty-seven towns, an output of five thousand tons a day, a railway joining all the pits, and workshops, and factories! Ah, yes! Ah, yes! There’s money there!”

Émile Zola, *Germinal*

### Steel Production in the United States, 1865–1895



Source: Historical Statistics of the United States

#### Interpreting the Graph

Steel production changed dramatically in the late 1800s. **How might trends in steel production have affected investment in J.P. Morgan's company?**

#### Analyzing Primary Sources

**Drawing Conclusions** What evidence does the character give to show that he has made a wise investment?

✓ **READING CHECK: Comparing** What advantages did corporations have over sole ownerships and partnerships?

This painting from 1879 depicting “bulls” and “bears” in Wall Street is meant to suggest the forces at play in the stock market. Bulls implied a strong market, while bears implied a sluggish one.



## Business Cycles

As industry became more and more important, it influenced the economies of many nations. The Industrial Revolution brought alternating periods of prosperity and decline—a pattern that came to be called the **business cycle**.

The success or failure of one industry often affected others. For example, a rising demand for goods increased the demand for machines to make the goods. Factories making machines then required more steel. This increased the need for coal and iron to make steel. To keep up with the cascading demand for goods, more workers were needed. This led to higher wages and increased purchasing power and demand. On the other hand, a falling demand for goods had the opposite result. Industries laid off workers, who, with less money to buy goods, further reduced demand. Many factories might close. When this happened, the entire economy would sink into a **depression**. Eventually demand rebounded, closed factories often reopened, and workers were rehired. The economy then moved back toward prosperity, completing the business cycle.

✓ **READING CHECK: Identifying Cause and Effect** How did the business cycle work after the Industrial Revolution?

## SECTION 3 REVIEW

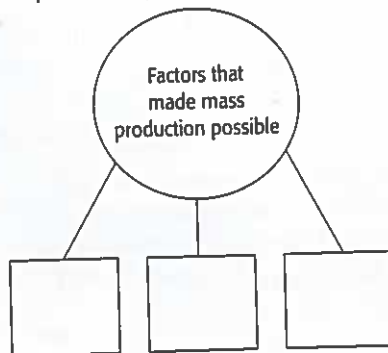
1. **Define** and explain the significance:

capitalism  
commercial capitalism  
industrial capitalism  
interchangeable parts  
mass production  
corporations  
monopoly  
cartels  
business cycle  
depression

2. **Identify** and explain the significance:

Henry Ford  
J. P. Morgan

3. **Summarizing** Copy the diagram below. In the boxes, list and describe the three factors that made mass production possible.



4. **Finding the Main Idea**

- What role did the division of labor play in helping to increase production during the Industrial Revolution?
- In what way did the use of the assembly line allow Henry Ford to reach a new level of mass production?
- How might monopolies and cartels have affected a nation's economy?
- Draw a diagram that shows the steps in the business cycle.

5. **Writing and Critical Thinking**

**Making Generalizations** Write an essay explaining how mass production affected people's lives.

**Consider:**

- changes in working conditions
- changes in economic opportunities
- changes in what people valued

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## SECTION

# 4

### READ TO DISCOVER

- 1 What were Adam Smith's ideas and how did they affect people's views of industrialism?
- 2 Why did reform movements arise?
- 3 How did workers try to improve their lives?

### DEFINE

free enterprise  
laissez-faire  
humanitarians  
utilitarianism  
strike  
unions  
collective bargaining

### IDENTIFY

Adam Smith  
Thomas Malthus  
David Ricardo  
Charles Dickens  
Jeremy Bentham  
John Stuart Mill

### WHY IT MATTERS TODAY

Labor disputes and strikes are common in today's businesses. Use **CNN** or other **current event** sources to find examples of a current or recent labor dispute. Record your findings in your journal.

CNN Student News.com

This Scottish penny, bearing the words "Wealth of Nations," is a memorial to Adam Smith.



# Living and Working Conditions

### The Main Idea

New theories helped shape the Industrial Revolution and its impact upon society.

### The Story Continues

As industrialization continued, some thinkers argued that business should be free to grow and change without any sort of government restrictions. Others, however, wanted workers to be granted the political and economic power needed to shape their own lives. British reformer J. R. Stephens held that "... every working man in the land has the right to have a good coat ... a comfortable abode ... a good dinner ... and so much wages ... as should keep him in plenty ..."

## Economic Theories

During the Enlightenment of the 1700s, a group of economists called the Physiocrats attacked the ideas of mercantilism. Mercantilism was the economic theory based on the belief that the world contained only a fixed amount of wealth. In order to increase its wealth, mercantilists argued, a country had to take some wealth away from another country. The Physiocrats disagreed with this. They believed that natural laws should be left to govern economic life. Any attempt to interfere with these natural economic laws, they felt, was certain to bring disaster. Scottish economist **Adam Smith** accepted some of the ideas of the Physiocrats. He stated his views in his book *Inquiry into the Nature and Causes of the Wealth of Nations*, which was published in 1776. In this book Smith focused on the creation of wealth, noting the importance of manufacturing as well as agriculture. Today Smith is considered the founder of classical economics.

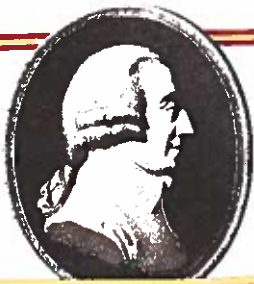
**Laws of economics.** Smith reasoned that two natural laws governed all business and economic activity. The first was the law of supply and demand. Smith said that prices and profits depended on both the amount of available goods and the demand for those goods. If an item was scarce and in great demand, people would pay a high price for it and profits would rise. As manufacturers then invested money to make more of the product, supplies would soon exceed the demand.

The result of this supply-and-demand system was tied to Smith's second natural law—the law of competition. He said that as manufacturers compete with each other to sell their products, they must reduce prices. Manufacturers who cut prices too much, however, might lose money and even go out of business. Supply then tends to go down and prices rise. The most efficient manufacturers will survive.

### History Makers Speak

"Every individual is continually exerting himself to find out the most advantageous employment for whatever capital he can command. It is his own advantage, indeed, and not that of the society, which he has in view. But the study of his own advantage, naturally, or rather necessarily, leads him to prefer that employment which is most advantageous to the society."

Adam Smith, *Inquiry into the Nature and Causes of the Wealth of Nations*



## HISTORY MAKER

**Adam Smith**  
(1723–1790)

Adam Smith was interested in how countries create wealth through industry and farming. He also noted that the division of labor was important to the increase of wealth. In his book, *Inquiry into the Nature and Causes of the Wealth of Nations*, Smith argued that the economy worked best when government involvement was limited. He favored free economic competition. Smith's ideas formed the basis of classical economics.

**Why was Adam Smith's work important?**

*Laissez-faire economic policies helped transform the small city of Sheffield, England into a major center of industry and production.*

Smith also believed that people should be free to engage in whatever business they chose. They should be able to run the business for their greatest advantage. The result would be that investors and owners would make profits, laborers would have jobs, and consumers would buy better goods at lower prices. Smith argued that mercantilist laws and regulations hindered natural economic forces. His system was one of complete **free enterprise**. Many industrialists were attracted to Smith's ideas. In the system he described, economic forces worked automatically and naturally. Free enterprise justified competition unrestricted by laws, regulations, or government controls. Producers were free—in fact, were *required*—to do business solely for their own gain.

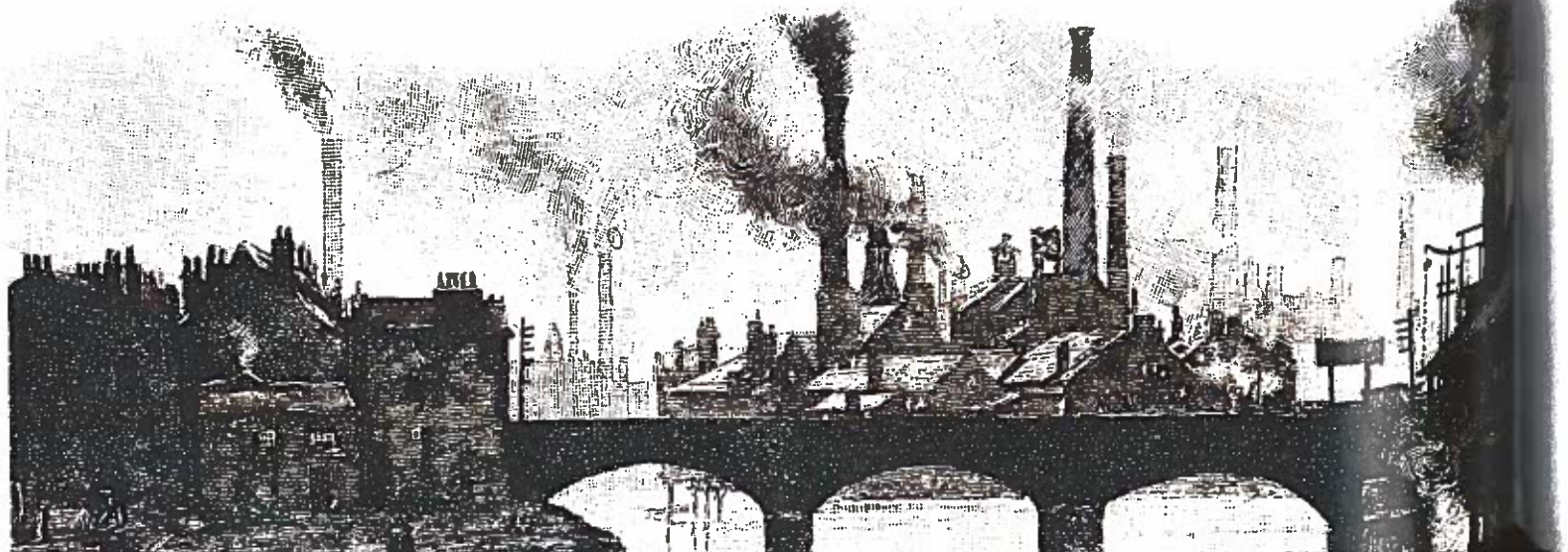
✓ **READING CHECK: Making Predictions** What might be some outcomes of implementing Adam Smith's theories about free enterprise?

**Malthus and Ricardo.** Smith's ideas received strong support from other economists. One was **Thomas Malthus**, an Anglican clergyman who became a professor of economics. In his book *An Essay on the Principle of Population*, published in 1798, Malthus wrote that population increases present the greatest obstacle to human progress. Despite famines, epidemics, and wars, he argued, people still multiply more rapidly than the food supply increases. Thus, Malthus believed that human misery and poverty are inevitable.

British economist **David Ricardo** wrote that working-class poverty is inevitable. In his book *Principles of Political Economy and Taxation*, published in 1817, Ricardo stated that supply and demand determine wages. When labor is plentiful, wages remain low. When labor is scarce, wages rise. As population grows, Ricardo wrote, more and more workers become available, and wages drop. Ricardo's idea became known as the iron law of wages.

Malthus and Ricardo painted a grim picture of workers as inevitably poor and suffering. Not surprisingly, the new social science of economics became known as the "dismal science."

**Laissez-faire.** The theories of economists such as Smith supported employers, who wanted to buy labor as cheaply as possible. They also wanted government not to meddle in the operations of business. These ideas were summed up in the French phrase *laissez-faire* (leh-say-fair). This meant "let it be," or "leave things alone."



In Great Britain, craft and merchant guilds had regulated the quality of goods—and in many cases, their prices—until well into the 1800s. Working hours and wages were also controlled. Beginning in the early 1800s, however, most regulations were dropped. Tariffs were eliminated and trade became almost completely unregulated. Laissez-faire economic ideas spread to the rest of Europe and to the United States.

✓ **READING CHECK: Summarizing** What does the theory of laissez-faire say should be done to achieve the most successful economy?

## Reformers Arise

Some people argued that businesses could not be left entirely alone. **Humanitarians**—people who work to improve the conditions of others—urged reforms. Ministers preached against the selfish practices of business people. Famous writers of the day made the public aware of the terrible working conditions in mines and factories. English writer **Charles Dickens** used his novels to attack greedy employers. In *David Copperfield*, Dickens described his own wretched childhood experiences. Other writers such as Thomas Carlyle and John Ruskin, and artists such as Gustave Doré, criticized society's obsession with money and neglect of spiritual values.

Many people argued that laws were needed to regulate work hours and set basic standards for wages and working conditions. They insisted such laws would not interfere with the economy.

In Great Britain, some reformers adopted the theory of **utilitarianism** put forth by philosopher **Jeremy Bentham**. Bentham argued that a law was useful, and therefore good, if it led to “the greatest happiness of the greatest number” of people. He believed that people should be educated so that they could decide what things were good for them or would make them happy. Bentham and his followers also called for reform of the nation's justice and prison system.

English philosopher **John Stuart Mill** also believed that a government should work for the good of all its citizens. He rejected economic systems that left workers trapped in poverty. Mill called for government to protect working children and to improve housing and factory conditions. Mill argued for full democracy and for equality for all men and women, regardless of their social class or economic power. In about 1869 he wrote *On the Subjection of Women*, a ground-breaking call for support of women's rights. Mill believed that government should promote education and guarantee individual liberty. This included the right to think as one pleased and to freely express one's views. In about 1861 Mill wrote that all human beings “have equal need of a voice in [government] to secure their share of its benefits.”

✓ **READING CHECK: Identifying Cause and Effect** Why would improving education and guaranteeing individual liberty help the working class?



*This illustration from an early edition of Dickens's David Copperfield gives a view of urban life in Great Britain during the Industrial Revolution.*



#### INTERPRETING THE VISUAL RECORD

**Child labor** Young people made up a large part of the labor force in many areas. Many early reforms centered on children. *What reforms are these young workers demanding?*



### Early Reform Laws

Working conditions, particularly for women and children, greatly troubled the British public. Parliament began reform efforts with the Factory Act of 1802, which shortened hours and improved conditions for children working in cotton mills. It proved ineffective, however, because it had no means of enforcement. The Factory Act of 1833 corrected this omission and extended the law to all textile mills.

The laws prohibited mills from employing children under 9 years of age. Children between the ages of 9 and 13 could work no more than 8 hours a day, 6 days a week. Older children could work no more than 12 hours a day. A later law said coal mines could not employ any women or any children under the age of 10. A great advance came with the Ten Hours Act in 1847, which set a 10-hour working day for women and for children under the age of 18. Because most workers were women and children, factory owners extended the 10-hour day to everyone. The laws were poorly enforced, however, and conditions remained harsh. Moreover, the reform laws did nothing to improve wages. That would have to be up to the workers themselves.

✓ **READING CHECK: Drawing Inferences** Why did children in the 1800s work long hours in factories when the same is not true today?

### Collective Action

To improve their own lives, many workers banded together to demand reform. Such efforts are known as collective action.

**Strikes.** Workers protested working conditions and low wages by refusing to work. When a large group of workers stops working, it is called a **strike**. Workers often made a list of their demands, refusing to work until the demands were met. Employers sometimes gave in to the workers. Other times they fired the workers and hired new ones. Often they waited until economic needs forced the strikers to return to work.

Numerous strikes took place in industrial countries during the 1800s. The workers usually demanded higher wages and better working conditions. Some strikes

began over wages but spread to general working and living conditions of the working class. Some strike leaders called for reorganizing society to end the differences between rich and poor. Strikes grew to large protest movements in the textile and mining areas of England, France, and eastern Europe. These demonstrations often were put down when governments used troops to arrest protesting workers.

**Unions.** Workers felt that their protests would be more successful if they were organized. They began to form associations called **unions**. These unions would collect dues from members and then use that money to pay workers if they went on strike. The unions planned actions and combined the demands of different kinds of workers in the same factory.

Workers' associations were considered illegal by British, French, and German law. When workers organized anyway, the British Parliament passed the Combination Acts of 1799 and 1800. These laws said that workers who united to demand higher wages, shorter hours, and better working conditions could be imprisoned.

Eventually workers began to make some progress. In about 1825 the Combination Acts were repealed, and in the 1870s Parliament passed laws legalizing strikes. Now unions had real power. In some cases, factory owners began to acknowledge that unions spoke for all the workers. Management and union representatives began to discuss wages, hours, and working conditions. Agreements were written into contracts lasting for a fixed period of time. This process of negotiation is called **collective bargaining**.

✓ **READING CHECK: Finding the Main Idea** How were workers able to get higher wages and better working conditions by forming unions?



*This Italian painting entitled **The Human Tide** depicts workers banding together to voice their protests.*

## SECTION 4 REVIEW

1. **Define** and explain the significance:

free enterprise  
laissez-faire  
humanitarians  
utilitarianism  
strike  
unions  
collective bargaining

2. **Identify** and explain the significance:

Adam Smith  
Thomas Malthus  
David Ricardo  
Charles Dickens  
Jeremy Bentham  
John Stuart Mill

3. **Problem Solving** Copy the web diagram below. Fill in the top boxes by listing what employers and workers wanted regarding wages and working conditions. Then fill in the compromise box by suggesting how agreements could have been reached through collective bargaining.



4. **Finding the Main Idea**

- How did Adam Smith's ideas influence employers' treatment of workers?
- Why was it easier for the government to pass laws about working hours than about wages?

5. **Writing and Critical Thinking**

**Evaluating** Write a brief article in which you identify the strong and weak points in the ideas of economist Adam Smith or reformer Jeremy Bentham.

**Consider:**

- the advantages and disadvantages of allowing business and the economy to go unregulated
- the advantages and disadvantages of government trying to create conditions to ensure justice for workers



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## SECTION

# 5

### READ TO DISCOVER

- 1 What type of society did early socialists want to establish?
- 2 How did Robert Owen put his socialist beliefs into action?
- 3 What did Karl Marx believe would happen to the capitalist world of the 1800s?
- 4 What were some competing ideas that arose out of Marxism?

### DEFINE

means of production  
socialism  
utopian socialists  
proletariat  
communism  
democratic socialism

### IDENTIFY

Robert Owen  
Karl Marx  
Friedrich Engels

### WHY IT MATTERS TODAY

Some countries of the world have socialist governments. Use [Globe](#) or other **current event** sources to find examples of socialist countries. Record your findings in your journal.

[CWN](#) News.com

# Socialism

### The Main Idea

The Industrial Revolution gave rise to new ideas about economic, political, and social justice.

**The Story Continues** As the Industrial Revolution progressed, a growing number of people became concerned with economic and social injustice. Many believed that the interests and needs of employers naturally conflicted with those of workers. As early as 1798, one writer noted that: "The increasing wealth of the nation has had little or no tendency to better the conditions of the labouring poor." As industrialization continued, demands for reform and justice based upon the new realities of the marketplace became stronger.

## Socialism

In the economy that resulted from the Industrial Revolution, a few people became enormously rich. Most, however, remained poor, including the workers whose labor drove the economy. This uneven distribution of wealth disturbed many people. Some reformers became convinced that laissez-faire capitalism was not the best economic system. They argued that laws could not do enough to remedy inequalities. The only way to distribute wealth more evenly, they felt, was to change the ownership and operation of the means of production. The **means of production** include the capital and equipment used to produce and exchange goods—for example, land, railroads, mines, factories, stores, banks, and machines.

Some of these reformers advocated a political and economic system called **socialism**. Under socialism, governments own the means of production and operate them



The political cartoon above satirizes German leader Otto von Bismarck, who passed a law trying to contain socialism. At right is a poster urging workers of the world to unite under international socialism.



for the benefit of all people, rich or poor. These reformers, called socialists, wanted to establish an economic system that would do away with the profit motive and competition. They believed everyone, not just capitalists and factory owners, had a right to share in the profits.

**Utopian socialists.** Early socialists believed that people could live peacefully with each other in small cooperative settlements in which everyone would work for the common good. They would own all the means of production in common and share the products. Socialists worked out plans for model towns and encouraged people to set them up. Some were modeled after the ideal community described in 1516 in Sir Thomas More's *Utopia*. For this reason, early socialists were sometimes called **utopian socialists**.

✓ **READING CHECK: Contrasting** How did socialism differ from capitalism?

**Owen.** In Great Britain, the most influential utopian socialist was **Robert Owen**, who lived from 1771 to 1858. He quit school at age 10 and went to work. By 19, he managed a large cotton mill and later purchased a spinning mill. In 1814 Owen entered a partnership with Jeremy Bentham.

Owen believed that people who lived in a good environment would stop acting selfishly. He felt responsible for his workers and spent much time and money to make their lives happier and more secure. Owen built good homes for them, set up schools for their children, and made inexpensive food and clothing available. Owen believed, however, that workers should not be dependent on their employers. He encouraged them to form unions. He proposed the formation of "villages of cooperation" in which the unemployed would be self-supporting instead of relying on aid. From 1825 to about 1829 Owen lived in the United States, where he tried unsuccessfully to set up cooperative communities run along socialist lines. Only later in the 1800s and early 1900s did the cooperative movement spread in Europe and America.

✓ **READING CHECK: Drawing Conclusions** What do you think Owen hoped to gain by making his employees' lives more secure?

## The Theories of Karl Marx

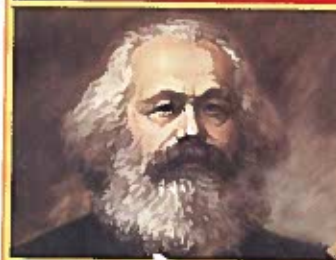
Some thinkers, such as Karl Marx, believed that utopian socialism was impractical. They said that the entire capitalist system should be destroyed. Marx believed that all great changes in history had come from changes in economic conditions. With fellow German **Friedrich Engels**, Marx published *The Communist Manifesto* in 1848. Marx and Engels summed up their view of human history in one sentence: "The history of all hitherto existing society is the history of class struggles." Marx and Engels went on to support their view:



“Free man and slave, patrician and plebeian, lord and serf, guild master and journeyman, in a word, oppressor and oppressed, stood in constant opposition to one another, carried on an uninterrupted, now hidden, now open fight, a fight that each time ended either in a revolutionary reconstitution of society at large or in the common ruin of the contending classes.”

Karl Marx and Friedrich Engels, *The Communist Manifesto*, 1848

### HISTORY MAKER



**Karl Marx**  
(1818–1883)

As a young man, Karl Marx became involved with socialist political groups in Germany and France. Marx's radical views and his attacks on government led to his expulsion from several European countries. He eventually settled in London and lived there the rest of his life.

Marx believed that economics was central to human life. He dreamed of a revolution in which the workers of the world would unite to gain political power. Marx's theories inspired the communist movements of the 1900s. **What did Marx hope for?**

*Karl Marx predicted that socialist revolutionaries would clash violently with government forces. This 1905 painting shows the aftermath of one such conflict.*



Marx said that each stage of history involved inequality, and therefore struggle, between those who owned property and those who did not. In the capitalist stage of the 1800s, for example, the struggle existed between the owners, or bourgeoisie, and the working class, or proletariat. Marx argued that all wealth is created by labor. Under capitalism, however, labor receives only a small fraction of the wealth it creates. Most of the wealth goes to the owners in the form of profits. As a result of this unequal distribution of wealth, Marx thought the time would soon come when society would divide into two classes—a few capitalists and a vast mass of workers. Marx predicted that the capitalists would continue to amass wealth while driving the proletariat deeper and deeper into poverty. Finally, the proletariat in the most advanced and industrialized nations would unite and seize power in a socialist revolution.

At first the revolutionaries would have to control the government by force, Marx said, because many people would not accept socialism. He called this the “dictatorship of the proletariat.” Eventually, after people learned the benefits of working together cooperatively, the state would “wither away.” Marx called this truly classless society “pure communism.” He believed it was the inevitable outcome of human history. In this society, Marx believed, each person would contribute what he or she could, and would receive what he or she needed. Marx said, “From each according to his abilities, to each according to his needs.”

✓ **READING CHECK: Analyzing Information** What do you think Marx meant when he said that all wealth was created by labor?

## Variations of Socialism

In the mid-1800s socialists in several European countries formed political parties. They were influenced by the ideas of Marx and Engels. Marxist socialists often believed that violent revolution was required to get rid of capitalism. They believed this was probably the only way to establish governments that owned the means of production and controlled all economic planning. Today, this economic and political system is called authoritarian socialism, or **communism**.

Another group of socialists, though influenced by Marx, believed that socialism could develop gradually through education and democratic forms of government. These moderate socialists believed that when enough people became educated about socialism, they would elect socialist representatives to their government. Then government would take over the means of production peacefully. The owners would be paid for their property and government would operate the means of production in the interests of all people. Today this type of socialism is called **democratic socialism**. Under democratic socialism, unlike communism, the people retain partial control over economic planning through the election of government officials. Individuals may own private property, but the government owns at least some of the means of production. The ideas of democratic socialism went on to influence many governments in northern and western Europe.

Marx believed that workers had to unite to fight capitalism successfully. During the 1800s several organizations for workers emerged. In 1864 Marx helped establish the International Working Men's Association, or First International. This organization disbanded, however, in 1876. A Second International was formed in 1889, after Marx's death. Torn by disagreements between moderate and radical socialists, the Second International survived only into the early 1900s. However, elsewhere, particularly in Russia, Marx's ideas would go on to have profound effects.

✓ **READING CHECK: Contrasting** How did democratic socialism differ from communism?

*Friedrich Engels's socialist activism is evidenced by his membership in the International Working Men's Association.*



## SECTION 5 REVIEW

1. **Define** and explain the significance:  
 means of production  
 socialism  
 utopian socialists  
 proletariat  
 communism  
 democratic socialism

2. **Identify** and explain the significance:  
 Robert Owen  
 Karl Marx  
 Friedrich Engels

3. **Evaluating** Copy the table below. Complete the table by listing the effects of socialism on each sector of society.

Working people	Business or factory owners	Factors of production	Government

4. **Finding the Main Idea**

- According to Karl Marx, what causes conflict within a society?
- How did the political and economic system of communism develop?

5. **Writing and Critical Thinking**

**Comparing** Write a brief comparison of Marxist socialism with moderate socialism.

**Consider:**

- how each wanted to change capitalism to socialism
- what effects each might have on the rights of individuals
- how each proposed to solve the problems of unequal distribution of wealth



**Homework Practice Online**

keyword: SH3 HP13

# Review

## Creating a Time Line

Copy the time line below onto a sheet of paper. Complete the time line by filling in the events, individuals, and dates from the chapter that you think were significant. Pick three events and explain why you think they were significant.



## Writing a Summary

Using standard grammar, spelling, sentence structure, and punctuation, write an overview of the events in the chapter.

## Identifying People and Ideas

Identify the following terms or individuals and explain their significance:

- |                          |                    |
|--------------------------|--------------------|
| 1. Industrial Revolution | 6. mass production |
| 2. factors of production | 7. laissez-faire   |
| 3. James Watt            | 8. Adam Smith      |
| 4. Robert Fulton         | 9. socialism       |
| 5. capitalism            | 10. Karl Marx      |

## Understanding Main Ideas

### Section 1 (pp. 352-358)

#### Origins of the Industrial Revolution

1. What were some of the important inventions and scientific discoveries of the Industrial Revolution?

### Section 2 (pp. 359-362)

#### The Factory System

2. How did the lives of women change during the Industrial Revolution?

### Section 3 (pp. 363-366)

#### New Methods and Business Organizations

3. How did methods of production change during the Industrial Revolution?

### Section 4 (pp. 367-371)

#### Living and Working Conditions

4. What role did unions play in improving wages and working conditions?

### Section 5 (pp. 372-379)

#### Socialism

5. What led to the development of socialism and communism?

## Reviewing Themes

1. **Science, Technology & Society** How did the Industrial Revolution influence other areas of society?
2. **Citizenship** How did the distribution of wealth affect the roles that people played in society?
3. **Economics** How did the needs of different groups influence the development of economics?

## Thinking Critically

1. **Sequencing** Trace the events leading to the mechanization of the textile industry.
2. **Drawing Inferences** What factors influenced the rise of capitalism?
3. **Making Generalizations** What factors forced employers to improve wages and working conditions?
4. **Comparing and Contrasting** Compare and contrast capitalist and socialist economies.

## Writing About History

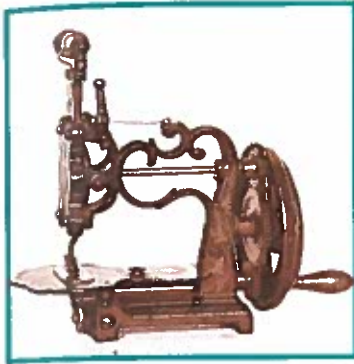
**Evaluating** American companies sometimes have goods assembled in other countries in order to cut their production costs. American workers protest that this is unfair to them. Use a problem-solving and decision-making process to decide what, if any, action you believe the government should take to address these issues. Write an editorial arguing for that action. Use the following chart to organize your thoughts before you begin writing.

Possible government action	Effect on businesses	Effect on consumers	Effect on workers
No action			
Working with other governments			
Tariffs or subsidies			
Other			

## Building Social Studies Skills

### Using Artifacts as Historical Evidence

Study the photograph and then answer the questions below.



*Hand-cranked sewing machine from the 1850s*

- Which of the following most accurately describes the historical significance of this artifact?
  - The artifact probably represents a significant technological advance.
  - The artifact was probably too cumbersome to be used effectively.
  - The artifact proves that electrical power was available to some as early as the 1850s.
  - The existence of this artifact proves that sewing machines were widely used during the 1850s.
- What can you infer about life in the 1850s from this artifact? Give specific examples.

### Distinguishing Fact from Opinion

Read the following quote from the American industrialist, Andrew Carnegie. Then answer the questions.

*"This, then, is held to be the duty of the man of wealth: To set an example of modest, unostentatious [simple] living, shunning display or extravagance . . . the man of wealth thus becoming the mere trustee and agent for his poorer brethren . . . In bestowing [giving] charity, the main consideration should be to help those who will help themselves; . . . to give those who desire to rise the [assistance] by which they may rise."*

- Which of the following statements best describes an opinion held by Carnegie?
  - Charity should be given by the wealthy to all who are less financially fortunate.
  - In a capitalist society, one must look out for oneself, without regard for others.
  - Those who are wealthy owe nothing to their society or to the people around them.
  - Wealth brings a responsibility to set a positive example for other, less wealthy people.
- What is your opinion of the views described in this quote? Give specific reasons to support your point of view.

## Alternative Assessment

### Building Your Portfolio

#### Economics

Adam Smith said that the law of supply and demand and the law of competition automatically determined business and economic trends. Use your textbook, the Internet, and other sources to identify examples of how the two laws operate today. Write an article for a young people's magazine that uses examples of products and services in today's world to explain Smith's ideas.

Link to TODAY

#### Internet connect

**Internet Activity:** [go.hrw.com](http://go.hrw.com)

**KEYWORD:** SH3 WH13

Choose a topic on the Industrial Revolution to:

- identify the historic origins of capitalism and socialism.
- compare and contrast modern labor unions with early unions.
- write a biography of a female writer who lived and wrote during the Victorian Age.

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