Section 3

IV Individual Development and Identity: G

Industrialization, 1865–1901

The table below lists terms that relate to post-Civil War industrialization.

<table>
<thead>
<tr>
<th>Column 1</th>
<th>Column 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.</td>
<td>reduction in cost of a good brought about by combining competing firms into one corporation</td>
</tr>
<tr>
<td>4.</td>
<td>an organization of workers with the same skills</td>
</tr>
<tr>
<td>6.</td>
<td>combination of firms or corporations formed by legal agreement, especially to reduce competition</td>
</tr>
<tr>
<td>7.</td>
<td>policy that government should not interfere in operating costs</td>
</tr>
<tr>
<td>18.</td>
<td>total value of goods and services produced by a company tool to fight union demands by refusing to allow employees to enter its facilities</td>
</tr>
<tr>
<td>21.</td>
<td>costs that occur while running a company</td>
</tr>
</tbody>
</table>

Copyright © by The McGraw-Hill Companies, Inc.

Linking Past and Present

Activity 14

Making Comparisons

CRITICAL THINKING

Predicting Results

How do cordless phones differ from cellular phones?

Answer the questions below on a separate sheet of paper.

To transmit microwave signals across oceans, the system for making a wire quickly proved impractical. Instead, wires were wrapped in tinfoil and vert's sound into an electric current that travels across jelly. A net worth phone, ushered in a new era of communication.

Giant leaps in technology have been made in the field of telecommunication.

<table>
<thead>
<tr>
<th>Year: Invention:</th>
<th>Name Date Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>1860</td>
<td></td>
</tr>
<tr>
<td>1887</td>
<td></td>
</tr>
<tr>
<td>1877</td>
<td></td>
</tr>
<tr>
<td>1878</td>
<td></td>
</tr>
<tr>
<td>1887</td>
<td></td>
</tr>
<tr>
<td>1882</td>
<td></td>
</tr>
<tr>
<td>1862</td>
<td></td>
</tr>
<tr>
<td>1860</td>
<td></td>
</tr>
<tr>
<td>1887</td>
<td></td>
</tr>
</tbody>
</table>

Meeting NCSS Standards

The following standards are highlighted in Chapter 14:

Section 1: VII Production, Distribution, and Consumption: A, B
Section 2: IV Individual Development and Identity: G
Section 3: VII Production, Distribution, and Consumption: A, B, D, E
Section 4: IV Individual Development and Identity: A, C
Chapter 14 Test

DIRECTIONS:

(4 points each)

1. Economies of scale resulted in lower costs and higher prices.
2. Even before the invention of the automobile, petroleum was in high demand.
3. ‘Let people do as they choose.’
4. Fixed costs
5. Air brakes
6. Government
7. People shared in corporate profits by buying and selling company stock.
8. A. John D. Rockefeller
9. B. Thomas Alva Edison
10. C. Eugene V. Debs
11. D. Andrew Carnegie
12. A. Ogden, Utah
13. B. St. Louis, Missouri

To order, call Glencoe at 1-800-334-7344. To find classroom resources to accompany many of these videos, check the following home pages:

A&E Television: www.aande.com
The History Channel: www.historychannel.com

Use our Web site for additional resources. All essential content is covered in the Student Edition.

You and your students can visit tav.glencoe.com, the Web site companion to the American Vision. This innovative integration of electronic and print media offers your students a wealth of opportunities. The student text directs students to the Web site for the following options:

- Chapter Overviews
- Student Web Activities
- Self-Check Quizzes
- Textbook Updates

Answers to the student Web activities are provided for you in the Web Activity Lesson Plans. Additional Web resources and Interactive Tutor Puzzles are also available.
**SECTION RESOURCES**

<table>
<thead>
<tr>
<th>Daily Objectives</th>
<th>Reproducible Resources</th>
<th>Multimedia Resources</th>
</tr>
</thead>
</table>
| **SECTION 1**  
The Rise of Industry  
1. Identify the effects of expanding population on industry.  
2. Explain the effects of technological innovations such as the telephone and telegraph on American development. | Reproducible Lesson Plan 14–1  
Daily Lecture and Discussion Notes 14–1  
Guided Reading Activity 14–1*  
Section Quiz 14–1*  
Reading Essentials and Study Guide 14–1  
Performance Assessment Activities and Rubrics | Daily Focus Skills Transparency 14–1  
Interactive Tutor Self-Assessment CD-ROM  
ExamView® Pro Testmaker CD-ROM  
Presentation Plus! CD-ROM  
TeacherWorks™ CD-ROM  
Audio Program  
Skillbuilder Interactive Workbook, Level 2  
ABCNews Interactive™ Historic America Electronic Field Trips |
| **SECTION 2**  
The Railroads  
1. Discuss ways in which the railroads spurred industrial growth.  
2. Analyze how the railroads were financed and how they grew. | Reproducible Lesson Plan 14–2  
Daily Lecture and Discussion Notes 14–2  
Guided Reading Activity 14–2*  
Section Quiz 14–2*  
Reading Essentials and Study Guide 14–2  
Performance Assessment Activities and Rubrics | Daily Focus Skills Transparency 14–2  
Interactive Tutor Self-Assessment CD-ROM  
ExamView® Pro Testmaker CD-ROM  
Presentation Plus! CD-ROM  
TeacherWorks™ CD-ROM  
Audio Program |
| **SECTION 3**  
Big Business  
1. Analyze how large corporations came to dominate American business.  
2. Evaluate how Andrew Carnegie’s innovations transformed the steel industry. | Reproducible Lesson Plan 14–3  
Daily Lecture and Discussion Notes 14–3  
Guided Reading Activity 14–3*  
Section Quiz 14–3*  
Reading Essentials and Study Guide 14–3  
Performance Assessment Activities and Rubrics  
Interpreting Political Cartoons | Daily Focus Skills Transparency 14–3  
American Art & Architecture  
Interactive Tutor Self-Assessment CD-ROM  
ExamView® Pro Testmaker CD-ROM  
Presentation Plus! CD-ROM  
TeacherWorks™ CD-ROM  
Audio Program |
| **SECTION 4**  
Unions  
1. Describe industrial working conditions in the United States in the late 1800s.  
2. List the barriers to labor union growth. | Reproducible Lesson Plan 14–4  
Daily Lecture and Discussion Notes 14–4  
Guided Reading Activity 14–4*  
Section Quiz 14–4*  
Reading Essentials and Study Guide 14–4  
Performance Assessment Activities and Rubrics | Daily Focus Skills Transparency 14–4  
Interactive Tutor Self-Assessment CD-ROM  
ExamView® Pro Testmaker CD-ROM  
Presentation Plus! CD-ROM  
TeacherWorks™ CD-ROM  
Vocabulary PuzzleMaker CD-ROM  
Audio Program |

*Also Available in Spanish

---

**OUT OF TIME?**  
Assign the Chapter 14 Reading Essentials and Study Guide.
Chapter 14 Resources

INDEX TO NATIONAL GEOGRAPHIC MAGAZINE

The following articles relate to this chapter.

- “Geronimo,” October 1992
- “New Life for Ellis Island,” September 1990
- “Pittsburgh—Stronger than Steel,” December 1991

NATIONAL GEOGRAPHIC SOCIETY PRODUCTS AVAILABLE FROM GLENCOE

To order the following products for use with this chapter, contact your local Glencoe sales representative, or call Glencoe at 1-800-334-7344:

- PictureShow: Native Americans, 1 and 2 (CD-ROM, Transparencies)
- PictureShow: Immigration (CD-ROM)
- PicturePack: Immigration (Transparencies)

ADDITIONAL NATIONAL GEOGRAPHIC SOCIETY PRODUCTS

To order the following, call National Geographic at 1-800-368-2728:

- Full Steam Ahead: The Race to Build a Transcontinental Railroad
- Immigration: The Triumph of Hope
- Native Americans (Poster Set)

NGS ONLINE

Access National Geographic's Web site for current events, atlas updates, activities, links, interactive features, and archives.

www.nationalgeographic.com

KEY TO ABILITY LEVELS

Teaching strategies have been coded.

L1 BASIC activities for all students
L2 AVERAGE activities for average to above-average students
L3 CHALLENGING activities for above-average students
L4 ENGLISH LANGUAGE LEARNER activities

From the Classroom of…

Tom Beaman
Reynolds High School
Troutdale, OR

Strategic Inventions

The rise of the United States to an industrial power started after the Civil War. The period between 1865 and 1901 saw rapid industrialization.

Give students a list of 10 to 15 items invented during this time period that contributed to the growth of industry in the United States. Consider items such as the light bulb, the elevator brake, the ice machine, the telephone, the electric streetcar, and the gasoline-powered car.

Students should research the background of one item’s invention. They should then comment on how it contributed to the growth of industry.

ADDITIONAL RESOURCES FROM GLENCOE

- American Music: Cultural Traditions
- American Art & Architecture
- Outline Map Resource Book
- U.S. Desk Map
- Building Geography Skills for Life
- Inclusion for the High School Social Studies Classroom Strategies and Activities
- Teaching Strategies for the American History Classroom (Including Block Scheduling Pacing Guides)

Block Schedule

Activities that are suited to use within the block scheduling framework are identified by:
**Why It Matters Activity**

Ask students to explain how the industrialization of the United States in the late 1800s affects their shopping habits in the 2000s. Students should evaluate their answers after they have completed the chapter.

**Why It Matters**

The rise of the United States as an industrial power began after the Civil War. Many factors promoted industry, including cheap labor, new inventions and technology, and plentiful raw materials. Railroads rapidly expanded. Government policies encouraged growth, and large corporations became an important part of the economy. As industry expanded, workers tried to form unions to fight for better wages and working conditions.

**The Impact Today**

Trends which began in this era can still be seen today.
- Corporations continue to play an important role.
- Technology continues to change American life.
- Unions remain powerful in many industries.


**TWO-MINUTE LESSON LAUNCHER**

Ask students to imagine that they will be choosing outstanding modern inventions, such as machines, processes, materials, medicinal drugs, and new treatments, to exhibit at a technical fair being held in your community. Have students list the inventions that might be included in such an exhibit.
This painting by twentieth-century artist Aaron Bohrod captures the dynamism of an industrializing nation. Bohrod titled his work *The Big Blow: the Bessemer Process.*

More About the Art

Aaron Bohrod (1907–1992) was well known during his lifetime as a painter, sculptor, printmaker, ceramist, and illustrator. Many of his paintings exhibit social realism and attention to detail.

Organizing Information

Have students use a graphic organizer similar to the one shown below to link these areas of industrialization to key names in this chapter.

**Graphic Organizer Activity**

**Organizing Information** Have students use a graphic organizer similar to the one shown below to link these areas of industrialization to key names in this chapter.

**Industrialization**

- railroads
  - Vanderbilt
- steel
  - Carnegie
- oil
  - Rockefeller
- technology
  - Edison
- unions
  - Gompers

**Time Line Activity**

Have students write a paragraph about how the events listed on the time line have affected their lives within the last year. Invite students to share their experiences with the class.
On October 21, 1879, Thomas Alva Edison and his team of workers were too excited to sleep. For weeks they had worked to create an electric incandescent lamp, or lightbulb, that would burn for more than a few minutes. For much of the 1800s, inventors had struggled to develop a form of lighting that would be cheaper, safer, and brighter than traditional methods such as candles, whale oil, kerosene, and gas. If Edison and his team could do it, they would change the world. Finally, after weeks of dedicated effort, they turned night into day. Edison later recalled:

“We sat and looked and the lamp continued to burn and the longer it burned the more fascinated we were. None of us could go to bed and there was no sleep for over 40 hours; we sat and just watched it with anxiety growing into elation. It lasted about 45 hours and then I said, ‘If it will burn 40 hours now I know I can make it burn a hundred.’ ”

—quoted in Eyewitness to America

The United States Industrializes

Although the Industrial Revolution began in the United States in the early 1800s, the nation was still largely a farming country when the Civil War erupted. Out of a population of more than 30 million, only 1.3 million Americans worked in industry in 1860. After the Civil War, industry rapidly expanded, and millions of Americans left their farms to work in mines and factories.

By the early 1900s, Americans had transformed the United States into the world’s leading industrial nation. By 1914 the nation’s gross national product (GNP)—the total...
value of all goods and services produced by a country—was eight times greater than it had been when the Civil War ended.

**Natural Resources** An abundance of raw materials was one reason for the nation’s industrial success. The United States contained vast natural resources upon which industry in the 1800s depended, including water, timber, coal, iron, and copper. The presence of these resources meant that American companies could obtain them cheaply and did not have to import them from other countries. Many of the nation’s resources were located in the mountains of the American West. The settlement of this region after the Civil War helped to accelerate industrialization, as did the construction of the transcontinental railroad. Railroads brought settlers and miners to the region, and carried the resources back to factories in the East.

At the same time, a new resource, petroleum, began to be exploited. Even before the invention of the automobile, petroleum was in high demand because it could be turned into kerosene. Kerosene was used in lanterns and stoves. The American oil industry was built on the demand for kerosene. It began in western Pennsylvania, where residents had long noticed oil bubbling to the surface of area springs and streams. In 1859 Edwin Drake drilled the first oil well near Titusville, Pennsylvania. By 1900 oil fields from Pennsylvania to Texas had been opened. As oil production rose, it fueled economic expansion.

**A Large Workforce** The human resources available to American industry were as important as natural resources in enabling the nation to industrialize rapidly. Between 1860 and 1910, the population of the United States almost tripled. This population provided industry with a large workforce and also created greater demand for the consumer goods that factories produced.

Population growth stemmed from two causes—large families and a flood of immigrants. American industry began to grow at a time when social and economic conditions in China and eastern Europe convinced many people to leave their nations and move to the United States in search of a better life. Between 1870 and 1910, roughly 20 million immigrants arrived in the United States. These multitudes added to the growing industrial workforce, helping factories increase their production and furthering demand for industrial products.

**Reading Check** **Explaining** How did oil production affect the American economy?

---

**CHAPTER 14 Industrialization 437**

**TEACH**

**Daily Lecture and Discussion Notes 14–1**

**Answers:**
1. on rail lines
2. iron ore and coal

**Geography Skills Practice**

**Ask:** Which states had sawmills? (Michigan and Wisconsin)

**Answer:** fueled economic expansion

**Reading Check**

**Writng a Magazine Article**

Have students write a magazine article about one of the new inventions mentioned in this section. Instruct students to write the article as it might have appeared at the time the invention was introduced. L1

**Use the rubric for creating a magazine, newspaper, Web site article, or help wanted ad on pages 85–86 in the Performance Assessment Activities and Rubrics.**
CHAPTER 14
Section 1, 436–440

Guided Reading Activity 14–1

**Free Enterprise**

Another important factor that enabled the United States to industrialize rapidly was the free enterprise system. In the late 1800s, many Americans embraced the idea of *laissez-faire* (leh·say·FAR), literally “let do,” a French phrase meaning “let people do as they choose.” Supporters of laissez-faire believe the government should not interfere in the economy other than to protect private property rights and maintain peace. These supporters argue that if the government regulates the economy, it increases costs and eventually hurts society more than it helps.

Laissez-faire relies on supply and demand rather than the government to regulate prices and wages. Supporters claim that a free market with competing companies leads to greater efficiency and creates more wealth for everyone. Laissez-faire advocates also support low taxes to ensure that private individuals, not the government, will make most of the decisions about how the nation’s wealth is spent. They also believe that the government’s debt should be kept limited since money the government borrows from banks is not available to be loaned to individuals for their own uses.

In the United States, the profit motive attracted people of high ability and ambition into business. American entrepreneurs—people who risk their capital in organizing and running a business—appreciated the challenges and rewards of building a business and making profits for themselves.

In the late 1800s, the prospect of making money in manufacturing and transportation attracted many entrepreneurs. The savings that New Englanders accumulated through trade, fishing, whaling, textile mills, and shoe manufacturing helped build hundreds of factories and thousands of miles of railroad track. An equally important source of private capital was Europe, especially Great Britain. Foreign investors saw more opportunity for profit and growth in the United States than at home, and their money also helped to fund the nation’s industrial buildup.

**Government’s Role in Industrialism**

In many respects, the United States practiced laissez-faire economics in the late 1800s. State and federal governments kept taxes and spending low and did not impose costly regulations on industry. Nor did they try to control wages and prices. In other ways, the government went beyond laissez-faire and adopted policies intended to help industry, although these policies frequently produced results other than what had been intended.

Since the early 1800s, the struggle between the northeastern states and the southern states had shaped the economic debate in the United States. Northern leaders wanted high tariffs to protect American industry from foreign competition. They also sought federal subsidies for companies building roads, canals, and railroads to the west. Southern leaders opposed subsidizing internal improvements, and they favored low tariffs to promote trade and to keep the cost of imported manufactured goods low.

The Civil War ended this debate. When the South seceded, the Republicans were left in control of Congress. They quickly passed the *Morrill Tariff*,...
reversing years of declining tariffs. By the end of the Civil War, tariffs had nearly tripled. Congress also gave vast tracts of western land and nearly $65 million in loans to western railroads. The government also sold public lands with mineral resources for much less than their market value. Historians still dispute whether these policies helped to industrialize the country.

Supporters of laissez-faire generally favor free trade and oppose subsidies, believing that tariffs and subsidies drive up prices and protect inefficient companies. They point out that one reason the United States industrialized so rapidly in the 1800s was because it was one of the largest free trade areas in the world. Unlike Europe, which was divided into dozens of states, each with tariffs, the entire United States was open to trade. The Constitution bans states from imposing tariffs, and there were few federal regulations to impede the movement of goods across the country. Similarly, the United States practiced free trade in labor, placing very few restrictions on immigration.

High tariffs, however, contradicted laissez-faire ideas and hurt many Americans. When the United States raised tariffs against foreign goods, other countries raised their tariffs against American goods. This hurt American companies trying to sell goods overseas, and in particular, it hurt farmers who sold their products to Europe. Ironically, the problems farmers faced may have helped speed up industrialization, as many rural Americans decided to leave their farms and take jobs in the new factories.

Despite the problems tariffs created for trade, many business leaders and members of Congress believed they were necessary. Much of Western Europe had already industrialized, and few believed that the new American industries could compete with the large established European factories unless tariffs were put in place to protect them. By the early 1900s, many American industries were large and highly competitive. Business leaders increasingly began to push for free trade because they believed they could compete internationally and win.

### New Inventions

A flood of important inventions helped increase the nation’s productive capacity and improved the network of transportation and communications that was vital to the nation’s industrial growth. New inventions led to the founding of new corporations, which produced new wealth and new jobs.

#### TECHNOLOGY

**Bell and the Telephone** One of the most dramatic inventions in the late 1800s came in the field of communications. In 1874 a young Scottish-American inventor named Alexander Graham Bell suggested the idea of a telephone to his assistant, Thomas Watson. Watson recalled, “He had an idea by which he believed it would be possible to talk by telegraph.” Bell intended to make an electrical current of varying intensity transmit sound.

Bell worked until 1876 before he succeeded in transmitting his voice. Picking up the crude telephone, he called to the next room, “Come here, Watson, I want you.” Watson heard and came. The telephone

---

**Science** Invite a science teacher or a representative of a telephone company to demonstrate the science behind the invention of the telephone and discuss the science involved in cellular communications. Encourage students to ask questions. After the presentation, discuss how the standard telephone and cellular telephone have changed the way people communicate with one another. List the advantages and disadvantages of telephone communications. L2
revolutionized both business and personal communication. In 1877 Bell and others organized the Bell Telephone Company, which eventually became the American Telephone and Telegraph Company (AT&T).

**Edison and Electricity** Perhaps the most famous inventor of the late 1800s was Thomas Alva Edison. A great innovator, Edison worked tirelessly to invent new products and to improve devices created by others. His laboratory at Menlo Park, New Jersey, staffed by skilled assistants, became the forerunner of the modern research laboratory. Edison stood as a symbol for the emerging age of technology.

Edison first achieved international fame in 1877 with the invention of the phonograph. Two years later, Edison perfected the lightbulb and the electric generator. His laboratory then went on to invent or improve several other major devices, including the battery, the dictaphone, the mimeograph (an early copying machine), and the motion picture.

In 1882 the Edison Electric Illuminating Company launched a new industry and began the transformation of American society when it began to supply electric power to customers in New York City. In 1889 several of Edison’s companies merged to form the Edison General Electric Company, which today is known as GE.

**Technology’s Impact** As knowledge about technology grew, almost everyone in the United States felt its effects. Shortly after the Civil War, Thaddeus Lowe invented the ice machine, the basis of the refrigerator. In 1882 the Edison Electric Illuminating Company supplies electric power to customers in New York City. In 1889 several of Edison's companies merged to form the Edison General Electric Company, which today is known as GE.

Edison and Electricity Perhaps the most famous inventor of the late 1800s was Thomas Alva Edison. A great innovator, Edison worked tirelessly to invent new products and to improve devices created by others. His laboratory at Menlo Park, New Jersey, staffed by skilled assistants, became the forerunner of the modern research laboratory. Edison stood as a symbol for the emerging age of technology.

Edison first achieved international fame in 1877 with the invention of the phonograph. Two years later, Edison perfected the lightbulb and the electric generator. His laboratory then went on to invent or improve several other major devices, including the battery, the dictaphone, the mimeograph (an early copying machine), and the motion picture.

In 1882 the Edison Electric Illuminating Company launched a new industry and began the transformation of American society when it began to supply electric power to customers in New York City. In 1889 several of Edison’s companies merged to form the Edison General Electric Company, which today is known as GE.

**Technology’s Impact** As knowledge about technology grew, almost everyone in the United States felt its effects. Shortly after the Civil War, Thaddeus Lowe invented the ice machine, the basis of the refrigerator. In 1882 the Edison Electric Illuminating Company supplies electric power to customers in New York City. In 1889 several of Edison's companies merged to form the Edison General Electric Company, which today is known as GE.

Edison and Electricity Perhaps the most famous inventor of the late 1800s was Thomas Alva Edison. A great innovator, Edison worked tirelessly to invent new products and to improve devices created by others. His laboratory at Menlo Park, New Jersey, staffed by skilled assistants, became the forerunner of the modern research laboratory. Edison stood as a symbol for the emerging age of technology.

Edison first achieved international fame in 1877 with the invention of the phonograph. Two years later, Edison perfected the lightbulb and the electric generator. His laboratory then went on to invent or improve several other major devices, including the battery, the dictaphone, the mimeograph (an early copying machine), and the motion picture.

In 1882 the Edison Electric Illuminating Company launched a new industry and began the transformation of American society when it began to supply electric power to customers in New York City. In 1889 several of Edison’s companies merged to form the Edison General Electric Company, which today is known as GE.

**Technology’s Impact** As knowledge about technology grew, almost everyone in the United States felt its effects. Shortly after the Civil War, Thaddeus Lowe invented the ice machine, the basis of the refrigerator. In 1882 the Edison Electric Illuminating Company supplies electric power to customers in New York City. In 1889 several of Edison's companies merged to form the Edison General Electric Company, which today is known as GE.

Edison and Electricity Perhaps the most famous inventor of the late 1800s was Thomas Alva Edison. A great innovator, Edison worked tirelessly to invent new products and to improve devices created by others. His laboratory at Menlo Park, New Jersey, staffed by skilled assistants, became the forerunner of the modern research laboratory. Edison stood as a symbol for the emerging age of technology.

Edison first achieved international fame in 1877 with the invention of the phonograph. Two years later, Edison perfected the lightbulb and the electric generator. His laboratory then went on to invent or improve several other major devices, including the battery, the dictaphone, the mimeograph (an early copying machine), and the motion picture.

In 1882 the Edison Electric Illuminating Company launched a new industry and began the transformation of American society when it began to supply electric power to customers in New York City. In 1889 several of Edison’s companies merged to form the Edison General Electric Company, which today is known as GE.

**Technology’s Impact** As knowledge about technology grew, almost everyone in the United States felt its effects. Shortly after the Civil War, Thaddeus Lowe invented the ice machine, the basis of the refrigerator. In 1882 the Edison Electric Illuminating Company supplies electric power to customers in New York City. In 1889 several of Edison's companies merged to form the Edison General Electric Company, which today is known as GE.

Edison and Electricity Perhaps the most famous inventor of the late 1800s was Thomas Alva Edison. A great innovator, Edison worked tirelessly to invent new products and to improve devices created by others. His laboratory at Menlo Park, New Jersey, staffed by skilled assistants, became the forerunner of the modern research laboratory. Edison stood as a symbol for the emerging age of technology.

Edison first achieved international fame in 1877 with the invention of the phonograph. Two years later, Edison perfected the lightbulb and the electric generator. His laboratory then went on to invent or improve several other major devices, including the battery, the dictaphone, the mimeograph (an early copying machine), and the motion picture.

In 1882 the Edison Electric Illuminating Company launched a new industry and began the transformation of American society when it began to supply electric power to customers in New York City. In 1889 several of Edison’s companies merged to form the Edison General Electric Company, which today is known as GE.

**Technology’s Impact** As knowledge about technology grew, almost everyone in the United States felt its effects. Shortly after the Civil War, Thaddeus Lowe invented the ice machine, the basis of the refrigerator. In 1882 the Edison Electric Illuminating Company supplies electric power to customers in New York City. In 1889 several of Edison's companies merged to form the Edison General Electric Company, which today is known as GE.

Edison and Electricity Perhaps the most famous inventor of the late 1800s was Thomas Alva Edison. A great innovator, Edison worked tirelessly to invent new products and to improve devices created by others. His laboratory at Menlo Park, New Jersey, staffed by skilled assistants, became the forerunner of the modern research laboratory. Edison stood as a symbol for the emerging age of technology.

Edison first achieved international fame in 1877 with the invention of the phonograph. Two years later, Edison perfected the lightbulb and the electric generator. His laboratory then went on to invent or improve several other major devices, including the battery, the dictaphone, the mimeograph (an early copying machine), and the motion picture.

In 1882 the Edison Electric Illuminating Company launched a new industry and began the transformation of American society when it began to supply electric power to customers in New York City. In 1889 several of Edison’s companies merged to form the Edison General Electric Company, which today is known as GE.

**Technology’s Impact** As knowledge about technology grew, almost everyone in the United States felt its effects. Shortly after the Civil War, Thaddeus Lowe invented the ice machine, the basis of the refrigerator. In 1882 the Edison Electric Illuminating Company supplies electric power to customers in New York City. In 1889 several of Edison's companies merged to form the Edison General Electric Company, which today is known as GE.

Edison and Electricity Perhaps the most famous inventor of the late 1800s was Thomas Alva Edison. A great innovator, Edison worked tirelessly to invent new products and to improve devices created by others. His laboratory at Menlo Park, New Jersey, staffed by skilled assistants, became the forerunner of the modern research laboratory. Edison stood as a symbol for the emerging age of technology.

Edison first achieved international fame in 1877 with the invention of the phonograph. Two years later, Edison perfected the lightbulb and the electric generator. His laboratory then went on to invent or improve several other major devices, including the battery, the dictaphone, the mimeograph (an early copying machine), and the motion picture.

In 1882 the Edison Electric Illuminating Company launched a new industry and began the transformation of American society when it began to supply electric power to customers in New York City. In 1889 several of Edison’s companies merged to form the Edison General Electric Company, which today is known as GE.

**Technology’s Impact** As knowledge about technology grew, almost everyone in the United States felt its effects. Shortly after the Civil War, Thaddeus Lowe invented the ice machine, the basis of the refrigerator. In 1882 the Edison Electric Illuminating Company supplies electric power to customers in New York City. In 1889 several of Edison's companies merged to form the Edison General Electric Company, which today is known as GE.

Edison and Electricity Perhaps the most famous inventor of the late 1800s was Thomas Alva Edison. A great innovator, Edison worked tirelessly to invent new products and to improve devices created by others. His laboratory at Menlo Park, New Jersey, staffed by skilled assistants, became the forerunner of the modern research laboratory. Edison stood as a symbol for the emerging age of technology.

Edison first achieved international fame in 1877 with the invention of the phonograph. Two years later, Edison perfected the lightbulb and the electric generator. His laboratory then went on to invent or improve several other major devices, including the battery, the dictaphone, the mimeograph (an early copying machine), and the motion picture.

In 1882 the Edison Electric Illuminating Company launched a new industry and began the transformation of American society when it began to supply electric power to customers in New York City. In 1889 several of Edison’s companies merged to form the Edison General Electric Company, which today is known as GE.

**Technology’s Impact** As knowledge about technology grew, almost everyone in the United States felt its effects. Shortly after the Civil War, Thaddeus Lowe invented the ice machine, the basis of the refrigerator. In 1882 the Edison Electric Illuminating Company supplies electric power to customers in New York City. In 1889 several of Edison's companies merged to form the Edison General Electric Company, which today is known as GE.

Edison and Electricity Perhaps the most famous inventor of the late 1800s was Thomas Alva Edison. A great innovator, Edison worked tirelessly to invent new products and to improve devices created by others. His laboratory at Menlo Park, New Jersey, staffed by skilled assistants, became the forerunner of the modern research laboratory. Edison stood as a symbol for the emerging age of technology.

Edison first achieved international fame in 1877 with the invention of the phonograph. Two years later, Edison perfected the lightbulb and the electric generator. His laboratory then went on to invent or improve several other major devices, including the battery, the dictaphone, the mimeograph (an early copying machine), and the motion picture.

In 1882 the Edison Electric Illuminating Company launched a new industry and began the transformation of American society when it began to supply electric power to customers in New York City. In 1889 several of Edison’s companies merged to form the Edison General Electric Company, which today is known as GE.

**Technology’s Impact** As knowledge about technology grew, almost everyone in the United States felt its effects. Shortly after the Civil War, Thaddeus Lowe invented the ice machine, the basis of the refrigerator. In 1882 the Edison Electric Illuminating Company supplies electric power to customers in New York City. In 1889 several of Edison's companies merged to form the Edison General Electric Company, which today is known as GE.
The Wright Brothers Triumph at Kitty Hawk

Why Learn the Skill?

Just as you are about to leave home to catch your school bus, you hear a radio report. Firefighters are battling a blaze near the bus garage. Your bus is late. Although no one told you, you know that the fire disrupted the bus schedule. You have made an inference. From the limited facts available, you formed a conclusion. By combining facts and general knowledge, you inferred that the fire trucks delayed your bus.

Learning the Skill

Learning how to make inferences will help you draw conclusions about particular situations. To make accurate inferences, follow these steps:

- Read or listen carefully for stated facts and ideas.
- Review what you already know about the same topic or situation.
- Use logic and common sense to form a conclusion about the topic.
- If possible, find information that proves or disproves your inference.

Practicing the Skill

Read the following passage about early airplanes, and then answer the questions that follow.

On December 8, 1903, Samuel Langley was ready for his second attempt at flying a manned, self-propelled aircraft. This had never been done before.

Langley used a $50,000 U.S. government grant to build a plane based on unmanned aircraft designs, adding a very powerful engine. The plane broke apart on takeoff and crashed into the Potomac River.

In contrast, Wilbur and Orville Wright used a little more than $1,000 of their personal savings to build their aircraft. The brothers carefully studied the problems with previous planes and designed one with better wings, a more efficient propeller, and a strong but light engine. On December 17, 1903, these intrepid Americans made the first manned, powered flight in history on the sand dunes of Kitty Hawk, North Carolina.

First flight at Kitty Hawk, December 17, 1903

- What are the facts regarding Langley’s attempt?
- What are the facts regarding the Wright brothers’ attempt?
- What inferences might you draw based on the success of the Wright brothers and failure of Langley?

Skills Assessment

Complete the Practicing Skills questions on page 461 and the Chapter 14 Skill Reinforcement Activity to assess your mastery of this skill.

Applying the Skill

Making Inferences  Preview the biography of Mary Harris “Mother” Jones on page 456, and then answer these questions.

1. What kind of work did Jones’s husband do before he died?
2. How did Jones travel to West Virginia while working as an organizer for the United Mine Workers?
3. Based on these facts, what inference can you make about Mary Jones? What inference can you make about how the people in the camps felt about her?

ANSWERS TO PRACTICING THE SKILL

1. Langley used government money and unmanned aircraft designs and failed.
2. The Wright brothers created new designs with little money and were successful.
3. Students’ answers will vary, but they may suggest that personal ingenuity and profit motive often have better results than government-funded efforts.

Applying the Skill

1. He was a union organizer.
2. She traveled on foot or atop a farm wagon.
3. Students’ answers will vary.
Section Overview
This section focuses on how the growth of railroads affected the growth of industries.

Main Idea
After the Civil War, the rapid construction of railroads accelerated the nation’s industrialization and linked the country together.

Reading Strategy
Organizing As you read about the development of a nationwide rail network, complete a graphic organizer similar to the one below listing the effects of this rail network on the nation.

Reading Objectives
• Discuss ways in which the railroads spurred industrial growth.
• Analyze how the railroads were financed and how they grew.

Section Theme
Individual Action The railroads provided new ways for some Americans to amass wealth.

An American Story
At Promontory Summit, Utah, on May 10, 1869, hundreds of spectators gathered to watch a historic event. Dignitaries from the East and the West met to hammer gold and silver spikes into the final rails that would join two great railroad lines—the Union Pacific and Central Pacific—and span the entire country.

 Telegraph offices around the country stood ready to receive news that the last spike had been driven. When the news arrived, bells pealed across the nation, and even the Liberty Bell was rung. In Chicago a seven-mile procession paraded through the streets, and the pealings of church bells resonated throughout the nation’s small towns. General Grenville Dodge, who had overseen part of the construction, observed:

The trains pulled up facing each other, each crowded with workmen who sought advantageous positions to witness the ceremonies. . . . The officers and invited guests formed on each side of the track. . . . Prayer was offered; a number of spikes were driven in the two adjoining rails . . . and thus the two roads were welded into one great trunk line from the Atlantic to the Pacific.

—quoted in Mine Eyes Have Seen

Linking the Nation
In 1865 the United States had about 35,000 miles of railroad track, almost all of it east of the Mississippi River. After the Civil War, railroad construction expanded dramatically, linking the distant regions of the nation in a transportation network. By 1900 the United States, now a booming industrial power, boasted over 200,000 miles of track.

Answers to Graphic: development of time zones, sped long-distance transportation, longer and heavier trains used, rate per mile declined, united America’s regions, promoted a national market

Preteaching Vocabulary
Have students write short sentences to describe each of the Key Names.

Guide to Reading

SECTION RESOURCES

Reproducible Masters
• Reproducible Lesson Plan 14–2
• Daily Lecture and Discussion Notes 14–2
• Guided Reading Activity 14–2
• Section Quiz 14–2
• Reading Essentials and Study Guide 14–2
• Performance Assessment Activities and Rubrics

Transparencies
• Daily Focus Skills Transparency 14–2

Multimedia
• Interactive Tutor Self-Assessment CD-ROM
• ExamView® Pro Testmaker CD-ROM
• Presentation Plus! CD-ROM
• TeacherWorks™ CD-ROM
• Audio Program
The railroad boom began in 1862 when President Abraham Lincoln signed the Pacific Railway Act. This act provided for the construction of a transcontinental railroad by two corporations, the Union Pacific and the Central Pacific railroad companies. To encourage rapid construction, the government offered each company land along its right-of-way. Feverish competition between the two companies developed, as each sought to obtain as much public land and money as possible.

**The Union Pacific and Grenville Dodge** Under the direction of engineer Grenville Dodge, a former Union general, the Union Pacific began pushing westward from Omaha, Nebraska, in 1865. The laborers faced blizzards in the mountains, scorching heat in the desert, and sometimes angry Native Americans. Labor, money, and engineering problems plagued the supervisors of the project. As Dodge observed:

“... At one time we were using at least ten thousand animals, and most of the time from eight to ten thousand laborers... To supply one mile of track with material and supplies required about forty cars... Everything—rails, ties, bridging, fastenings, all railway supplies, fuel for locomotives and trains, and supplies for men and animals on the entire work—had to be transported from the Missouri River.”

—quoted in *The Growth of the American Republic*

The railroad workers included Civil War veterans, new immigrants from Ireland recruited especially for the task, frustrated miners and farmers, cooks, adventurers, and ex-convicts. At the height of the project, the Union Pacific employed about 10,000 workers. While most of the laborers camped along the line, about one-fourth of them slept three-deep in bunk beds on rolling boarding cars. Camp life was rough, dirty, and dangerous, with lots of gambling, hard drinking, and fighting.

**The Big Four and the Central Pacific** The Central Pacific Railroad began as the dream of engineer Theodore Dehone Judah, who convinced the California legislature to organize a state railroad convention to support his idea. He sold stock in his fledgling Central Pacific Railroad Company to four Sacramento merchants: grocer Leland Stanford, shop owner Charley Crocker, and hardware store owners Mark Hopkins and Collis P. Huntington.

These so-called “Big Four” eventually made huge fortunes from their investment. Leland Stanford

**Creating a Thematic Map** Tell students that before railroads stretched across the country, communities determined their own times. Have students discuss why railroads needed to standardize times. Then have students create a time zone map of the continental United States and Canada that could be posted in a train depot. L1

Use the rubric for creating a map, display, or chart on pages 77–78 in the Performance Assessment Activities and Rubrics.
became governor of California and later served as a United States senator after founding Stanford University in 1885.

Because of a shortage of labor in California, the Central Pacific Railroad hired about 10,000 workers from China. All the equipment—rails, cars, locomotives, and machinery—was shipped from the East, either around Cape Horn at the tip of South America or over the Isthmus of Panama in Central America.

**Railroads Spur Growth**

The transcontinental railroad was the first of many lines that began to crisscross the nation after the Civil War. This expansion spurred American industrial growth. By linking the nation, railroads helped increase the size of markets for many products. Huge consumers themselves, the railroads also stimulated the economy by spending extraordinary amounts of money on steel, coal, timber, and other necessities.

**Linking Other Lines** In the early 1800s, most railroads had been built to promote specific cities or to serve local needs. By 1865 hundreds of small unconnected lines existed. The challenge for eastern capitalists was to create a single rail transportation system from this maze of small companies.

Railroad consolidation proceeded rapidly from 1865 to 1900. Large rail lines took over about 400 small railroads, and by 1890 the Pennsylvania Railroad was a consolidation of 73 smaller companies. Eventually seven giant systems with terminals in major cities and scores of branches reaching into the countryside controlled most rail traffic.

One of the most famous and successful railroad consolidators was Cornelius Vanderbilt, a former boat captain who had built the largest steamboat fleet in America. By 1869 Vanderbilt had purchased and merged three short New York railroads to form the New York Central, running from New York City to Buffalo. Within four years he had extended his control over lines all the way to Chicago, which enabled him to offer the first direct rail service between New York City and Chicago. In 1871 Vanderbilt began construction of New York’s Grand Central terminal.

**The Benefits of a National System** Before the 1880s each community set its clocks by the sun’s position in the sky at high noon. At noon in Chicago, for example, it was 12:50 P.M. in Washington, D.C., 12:09 P.M. in Louisville, Kentucky, and 11:41 A.M. in St. Paul, Minnesota. Local time interfered with train scheduling and at times even threatened passenger safety. When two trains traveled on the same track, collisions could result from scheduling errors caused by variations in time.

To make rail service safer and more reliable, in 1883 the American Railway Association divided the country into four time zones in regions where the same time was kept. The federal government ratified this change in 1918.

Large integrated railroad systems benefited the nation. They were able to shift cars from one section of the country to another according to seasonal needs and in order to speed long-distance transportation. At the same time, new locomotive technology and the introduction of air brakes enabled railroads to put longer and heavier trains on their lines. The new rail systems, along with more powerful locomotives,
The new railroad tracks made railroad operation so efficient that the average rate per mile for a ton of freight dropped from two cents in 1860 to three-fourths of a cent in 1900.

The nationwide rail network also helped unite Americans in different regions. Looking back at a quarter century of railroad travel, the Omaha Daily Republican observed in 1883 that railroads had “made the people of the country homogeneous, breaking through the peculiarities and provincialisms which marked separate and unmingling sections.” This was, perhaps, an overstatement, but it recognized a significant contribution that railroads made to the nation.

**Reading Check**  
**Summarizing** How did the government help finance railroads?

**Robber Barons**

The great wealth many railroad entrepreneurs acquired in the late 1800s led to accusations that they had built their fortunes by swindling investors and sell the land to settlers, real estate companies, and other businesses to raise the money they needed to build the railroad.

In the 1850s, the federal government granted individual states over 28 million acres of public lands to give to the railroads. After the Pacific Railway Acts of 1862 and 1864, the government gave the land directly to the railroad companies. During the 1850s and 1860s, the federal land grant system awarded railroad companies over 120 million acres of land, an area larger than New England, New York, and Pennsylvania combined. Several railroad companies, including the Union Pacific and the Central Pacific, earned enough money from the government’s generous land grants to cover much of the cost of building their lines.

**INTERDISCIPLINARY CONNECTIONS ACTIVITY**

**Language Arts** Tell students that most large industries have their own specialized terms that are used on the job. Have interested students create a lexicon of terms used by railroad workers. Tell them that the lexicon should include the term, its pronunciation, and good, working definitions. For at least two of the terms, students should also include a drawing or diagram for further explanation. L2
The corruption in the railroad industry became public in 1872 when the Crédit Mobilier scandal erupted. Crédit Mobilier was a construction company set up by several stockholders of the Union Pacific, including Oakes Ames, a member of Congress. Acting for both the Union Pacific and Crédit Mobilier, the investors signed contracts with themselves. Crédit Mobilier greatly overcharged Union Pacific for the work it did, and since the same investors controlled both companies, the railroad agreed to pay the inflated bills.

By the time the Union Pacific railroad was completed, the investors had made several million dollars, but the railroad itself had used up its federal grants and was almost bankrupt. To convince Congress to give the railroad more grants, Ames gave other members of Congress shares in the Union Pacific at a price well below their market value. During the election campaign of 1872, a disgruntled associate of Ames sent a letter to the New York Sun listing the members of Congress who had accepted shares. The scandal led to an investigation that implicated several members of Congress, including Speaker of the House James G. Blaine and James Garfield, who later became president. It also revealed that Vice President Schuyler Colfax had accepted stock from the railroad.

The Great Northern The Crédit Mobilier scandal provided sensational newspaper headlines. It created the impression that all railroad entrepreneurs were robber barons—people who loot an industry and give nothing back—but the term was not always deserved.

One railroad entrepreneur who was clearly not a robber baron was James J. Hill. Hill built and operated the Great Northern Railroad from St. Paul, Minnesota, to Everett, Washington, without any federal land grants or subsidies. He built the Great Northern across good land, carefully planning his route to pass by towns in the region. To increase business, he offered low fares to settlers who homesteaded along his route. He then identified American products that were in demand in China, including cotton, textiles, and flour, and arranged to haul those goods to Washington for shipment to Asia. This enabled the railroad to earn money by hauling goods both east and west, instead of simply sending lumber and farm products east and coming back empty, as many other railroads did. Operating without government subsidies or land grants, the Great Northern became the most successful transcontinental railroad and the only one that was not eventually forced into bankruptcy.

### Section Quiz 14–2

**DIRECTIONS: Matching** Match each item in Column A with the items in Column B.

<table>
<thead>
<tr>
<th>Column A</th>
<th>Column B</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The Pacific Railway Act</td>
<td>A. Jay Gould</td>
</tr>
<tr>
<td>2. Grenville Dodge</td>
<td>B. the transcontinental railroad was paid for</td>
</tr>
<tr>
<td>3. Leland Stanford</td>
<td>C. railroad man of the early 1800s</td>
</tr>
<tr>
<td>4. Cornelius Vanderbilt</td>
<td>D. by the construction of railroads</td>
</tr>
<tr>
<td>5. Credit Mobilier</td>
<td>E. a railroad tycoon</td>
</tr>
</tbody>
</table>

**Answer:**

1. C
2. E
3. B
4. A
5. D

**Section 2, 442–446**

**Answer:***

shipped goods both ways, operated without aid, and was a financial success

### CLOSE

Have students discuss ways in which the railroads spurred industrial growth.

### SECTION 2 ASSESSMENT ANSWERS

1. Terms are in blue.
   - Terms are in blue.

2. Pacific Railway Act (p. 443), Grenville Dodge (p. 443), Leland Stanford (p. 443), Cornelius Vanderbilt (p. 444), Jay Gould (p. 446), Credit Mobilier (p. 446), James J. Hill (p. 446)
   - These are all terms mentioned in the text.

3. provided for the construction of the transcontinental railroad
   - This is a term used to describe the purpose of land grants.

4. supervised the Union Pacific’s westward expansion
   - This is a term used to describe Jay Gould’s role in railroad development.

5. increased size of markets, spent great amounts of money on resources
   - These are terms used to describe the economic impact of railroads.

6. land grants, private investment, gifts of public lands to railroads, money generated from running the railroads
   - These are terms used to describe the sources of revenue for railroads.

7. Students’ quizzes will vary. Students should include answers for their quiz questions.
   - This is a term used to describe the variability of student responses.

8. Students' advertisements will vary. Advertisements should include a list of benefits.
   - This is a term used to describe the promotional strategies used by railroads.

Have students discuss ways in which the railroads spurred industrial growth.
Main Idea
After the Civil War, big business assumed a more prominent role in American life.

Key Terms and Names
- corporation, stockholder, stock, economies of scale, fixed costs, operating costs, pool, Andrew Carnegie, Bessemer process, vertical integration, horizontal integration, monopoly, trust, holding company

Reading Strategy
Organizing: As you read about the rise of corporations in the United States, complete a graphic organizer similar to the one below to describe the steps large business owners took to weaken or eliminate competition.

- Slashed prices temporarily

Reading Objectives
- Analyze how large corporations came to dominate American business.
- Evaluate how Andrew Carnegie’s innovations transformed the steel industry.

Section Theme
Economic Factors: Large national corporations formed in the United States in the mid-1800s and contributed to greater production.

The Rise of Big Business
Before the Civil War, the personal wealth of a few people operating in partnership financed most businesses, including many early factories. Most manufacturing enterprises were very small. By 1900 everything had changed. Big businesses dominated the economy, operating vast complexes of factories, warehouses, offices, and distribution facilities.

An American Story
In the 1860s, the oil industry in the United States was highly competitive. One highly efficient company was Standard Oil, owned by John D. Rockefeller and his associates. Because his company shipped so much oil, Rockefeller was able to negotiate rebates, or refunds, from railroads that wanted his business. This gave his company an advantage, and he began to pressure other oil companies to sell out to him.

Oil producer Franklin Tarbell pledged never to surrender. Tarbell’s daughter Ida later recalled her father’s indignation over Rockefeller’s maneuvers:

“...It was as if somebody had tried to crowd me off the road. . . . There were rules, you couldn’t use the road unless you obeyed those rules. . . . The railroads—so said my father—ran through the valley by the consent of the people; they had given them a right of way. The road on which I trotted was a right of way. One man had the same right as another, but the railroads had given to one something they would not give to another. . . . The strong wrested from the railroads the privilege of preying upon the weak.”

—quoting in All in the Day’s Work

The strong wrested from the railroads the privilege of preying upon the weak.

SECTION RESOURCES
- Reproducible Masters
- Daily Focus Skills Transparency 14–3
- Reproducible Lesson Plan 14–3
- Daily Lecture and Discussion Notes 14–3
- Guided Reading Activity 14–3
- Section Quiz 14–3
- Reading Essentials and Study Guide 14–3
- Transparencies
- Daily Focus Skills Transparency 14–3

Multimedia
- Interactive Tutor Self-Assessment CD-ROM
- ExamView® Pro Testmaker CD-ROM
- Presentation Plus! CD-ROM
- TeacherWorks™ CD-ROM
- Audio Program
**ECONOMICS**

**The Role of Corporations** Big business would not have been possible without the corporation. A **corporation** is an organization owned by many people but treated by law as though it were a single person. A corporation can own property, pay taxes, make contracts, and sue and be sued. The people who own the corporation are called **stockholders** because they own shares of ownership called **stock**. Issuing stock allows a corporation to raise large amounts of money for big projects while spreading out the financial risk.

Before the 1830s, there were few corporations in the United States because entrepreneurs had to convince a state legislature to issue them a charter. Beginning in the 1830s, however, states began passing general incorporation laws, allowing companies to become corporations and issue stock without charters from the legislature.

**Economies of Scale** With the money they raised from the sale of stock, corporations could invest in new technologies, hire a large workforce, and purchase many machines, greatly increasing their efficiency. This enabled them to achieve what is called **economies of scale**, in which corporations make goods more cheaply because they produce so much so quickly using large manufacturing facilities.

All businesses have two kinds of costs, fixed costs and operating (or variable) costs. **Fixed costs** are costs a company has to pay, whether or not it is operating. For example, a company would have to pay its loans, mortgages, and taxes, regardless of whether it was operating. **Operating costs** are costs that occur when running a company, such as paying wages and shipping charges and buying raw materials and other supplies.

The small manufacturing companies that had been typical before the Civil War usually had very low fixed costs but very high operating costs. If sales dropped, it was cheaper to shut down and wait for better economic conditions. By comparison, big companies had very high fixed costs because it took so much money to build and maintain a factory. Compared to their fixed costs, big businesses had low operating costs. Wages and transportation costs were such a small part of a corporation’s costs that it made sense to keep operating, even in a recession.

In these circumstances, big corporations had several advantages. They could produce goods more cheaply and efficiently. They could continue to operate in poor economic times by cutting prices to increase sales, rather than shutting down. Many were also able to negotiate rebates from the railroads, thus lowering their operating costs even further.

Small businesses with high operating costs found it difficult to compete against large corporations, and many were forced out of business. At the time, many people criticized corporations for cutting prices and negotiating rebates. They believed the corporations were behaving unethically by using their wealth to drive small companies out of business. In many cases, the changing nature of business organization and the new importance of fixed costs that caused competition to become so severe forced many small companies out of business.

**The Consolidation of Industry**

Many corporate leaders did not like the intense competition that had been forced on them. Although falling prices benefited consumers, they cut into profits. To stop prices from falling, many companies organized pools, or agreements to maintain prices at a certain level.

American courts and legislatures were suspicious of pools because they interfered with competition and property rights. As a result, companies that formed pools had no legal protection and could not enforce their agreements in court. Pools generally did not last long. They broke apart whenever one member cut prices to steal the market share from another, which then allowed competition to resume. By the 1870s, competition had reduced many industries to a few large and highly efficient corporations.

**Andrew Carnegie and Steel** The remarkable life of Andrew Carnegie illustrates many of the different factors that led to industrialism and the rise of big business in the United States. He was born in Scotland, the son of a poor hand weaver who emigrated to the United States in 1848. At age 12, Carnegie went to work as a bobbin boy in a textile factory earning $1.20 per week. After two years, he became a messenger in a telegraph office, then served as private secretary to Thomas Scott, a superintendent and later president of the Pennsylvania Railroad. Carnegie’s energy impressed Scott, and when Scott was promoted, Carnegie succeeded him as superintendent.

As a railroad supervisor, Carnegie knew that he could make a lot of money by investing in companies that served the railroad industry. He bought shares in iron mills and factories that made sleeping cars and also able to negotiate rebates from the railroads, thus lowering their operating costs even further.

Small businesses with high operating costs found it difficult to compete against large corporations, and many were forced out of business. At the time, many people criticized corporations for cutting prices and negotiating rebates. They believed the corporations were behaving unethically by using their wealth to drive small companies out of business. In many cases, the changing nature of business organization and the new importance of fixed costs that caused competition to become so severe forced many small companies out of business.
locomotives. He also invested in a company that built railroad bridges. In his early 30s, he was earning $50,000 per year, and he decided to quit his job with the railroad to concentrate on his own business affairs.

As part of his business activities, Carnegie frequently traveled to Europe to sell railroad bonds. On one trip, he met the English inventor, Sir Henry Bessemer, who had invented a new process for making high quality steel efficiently and cheaply. After meeting Bessemer, Carnegie decided to concentrate his investments in the steel industry. He opened a steel company in Pittsburgh in 1875 and quickly adapted his steel mills to use the Bessemer process. Carnegie often boasted about how cheaply he could produce steel:

Quoted in The Growth of the American Republic

"Two pounds of iron stone mined upon Lake Superior and transported nine hundred miles to Pittsburgh; one pound and one-half of coal mined and manufactured into coke, and transported to Pittsburgh; one-half pound of lime, mined and transported to Pittsburgh; a small amount of manganese ore mined in Virginia and brought to Pittsburgh—and these four pounds of materials manufactured into one pound of steel, for which the consumer pays one cent."

Vertical and Horizontal Integration  To increase manufacturing efficiency even further, Carnegie took the next step in building a big business. He did this by beginning the **vertical integration** of the steel industry. A vertically integrated company owns all of the different businesses on which it depends for its operation. Instead of paying companies for coal, lime, and iron, Carnegie’s company bought coal mines, limestone quarries, and iron ore fields. Vertical integration saved companies money while enabling big companies to become even bigger.

Successful business leaders like Carnegie also pushed for **horizontal integration**, or combining many firms engaged in the same type of business into one large corporation. Horizontal integration took place frequently as companies competed. When a company began to lose market share, it would often sell out to competitors to create a larger organization. By 1880, for example, a series of buyouts had enabled Rockefeller’s Standard Oil to gain control of approximately 90 percent of the oil refining industry in the United States. When a single company achieves control of an entire market, it becomes a **monopoly**. Many Americans feared monopolies because they believed that a company with a monopoly could charge whatever it wanted for its products. Others, however, supported monopolies. They believed that monopolies had to keep prices low because raising prices would encourage competitors to reappear and offer the products for a lower price. In some industries companies had a virtual monopoly in the United States but were competing on a global scale. Standard Oil, for example, came very close to having a monopoly in the United States, but competition with other

**Vertical Integration**

- Purchase of Companies at All Levels of Production
  - Ace Meat Industries
  - Delivery Wagons
  - Meat Packing Plants
  - Cooled Warehouses
  - Refrigerated Railroad Cars
  - Slaughterhouse
  - Cattle

**Horizontal Integration**

- Purchase of Competing Companies in Same Industry
  - U.S. Oil Company
  - Independent Oil Refineries

---

**Chart Skills Practice**

Evaluating Which combination do you think would yield the most efficient business? Why?

- **Horizontal and vertical integration were the two most common business combinations in the late 1800s.**

**Answer:** Answers may vary. Both could be highly efficient if well managed. Some students may favor vertical integration since they may argue that horizontal integration reduces competition and may lead to less efficient giant business.

**Chart Skills Practice**

Ask: What potential problems exist if one large business buys all its competitors? (The resulting monopoly can charge high prices; it has less reason to be highly efficient.)

**Discussing a Topic** Have students compare the game of Monopoly with the monopolies built by Rockefeller and other magnates. L1

**F.Y.I.**

Today the Organization of Petroleum Exporting Countries (OPEC) tries to maintain stability in the oil industry to ensure profits. This is called a cartel. Since 1970 OPEC has controlled approximately one-third to one-half of the world’s oil supply. In 2001 member nations included Algeria, Indonesia, Iran, Iraq, Kuwait, Libya, Nigeria, Qatar, Saudi Arabia, the United Arab Emirates, and Venezuela.
oil companies throughout the world forced the Standard Oil Company to keep its prices low.

**Trusts** By the late 1800s, many Americans had grown suspicious of large corporations and feared the power of monopolies. To preserve competition and prevent horizontal integration, many states made it illegal for one company to own stock in another without specific permission from the state legislature. In 1882 Standard Oil formed the first trust, a new way of merging businesses that did not violate the laws against owning other companies. A trust is a legal concept that allows one person to manage another person’s property. The person who manages another person’s property is called a trustee.

Instead of buying a company outright, which was often illegal, Standard Oil had stockholders give their stocks to a group of Standard Oil trustees. In exchange, the stockholders received shares in the trust, which entitled them to receive a portion of the trust’s profits. Since the trustees did not own the stock but were merely managing it for someone else, they were not violating the law. This arrangement enabled the trustees to control a group of companies as if they were one large merged company.

**Holding Companies** Beginning in 1889 the state of New Jersey further accelerated the rise of big business with a new general corporation law. This law allowed corporations chartered in New Jersey to own stock in other businesses without any need for special legislative action. Many companies immediately used the New Jersey law to create a new organization called a holding company. A holding company does not produce anything itself. Instead, it owns the stock of companies that do produce goods. The holding company controls all of the companies it owns, effectively merging them into one large enterprise. By 1904 the United States had 318 holding companies. Together these giant corporations controlled over 5,300 factories and were worth more than $7 billion.

**Reading Check**
What techniques did corporations use to consolidate their industries?
Selling the Product

The vast array of products that American industries churned out led retailers to look for new ways to market and sell goods. N.W. Ayer and Son of Philadelphia, for example, developed bold new formats for advertising. Large display ads with illustrations replaced the small-type line ads that had been standard in newspapers. By 1900 retailers were spending over $90 million a year on advertising, approximately 10 times what they had spent in 1865. Advertising attracted readers to the newest retail business, the department store.

In 1877 advertisements billed John Wanamaker’s new Philadelphia department store, the Grand Depot, as the “largest space in the world devoted to retail selling on a single floor.” When Wanamaker’s opened, only a handful of department stores existed in the United States; soon hundreds sprang up. Department stores changed the idea of shopping by bringing a huge array of different products together in a large, elegant building. They created an atmosphere that made shopping seem glamorous and exciting.

Chain stores, a group of similar stores owned by the same company, first appeared in the mid-1800s. In contrast to department stores, which offered many services, chain stores focused on thrift, offering low prices instead of elaborate service and decor. Woolworth’s, a chain store that opened in 1879, became one of the most successful retail chains in American history.

To reach the millions of people who lived in rural areas in the late 1800s—far from chain stores or department stores—retailers began issuing mail-order catalogs. Two of the largest mail-order retailers were Montgomery Ward and Sears, Roebuck. Their huge catalogs, widely distributed through the mail, used attractive illustrations and friendly descriptions to advertise thousands of items for sale.

Critical Thinking
5. Forming an Opinion Do you think an individual today can rise from “rags to riches” like Andrew Carnegie did? Why or why not?
6. Organizing Use a graphic organizer like the one below to list ways business leaders in the late 1800s tried to eliminate competition.

Analyzing Visuals
7. Analyzing Photographs Study the photograph on page 450 of a woman using an early electric vacuum cleaner. How would you compare this to today’s vacuum cleaners? How do you think new mass-produced appliances such as this one affected the lives of women in this era?

Answer: large display ads in newspapers, department stores, chain stores, mail-order catalogs

Writing About History
8. Expository Writing Write a newspaper editorial in which you explain why entrepreneurs such as John D. Rockefeller and Andrew Carnegie were a positive or a negative force on the U.S. economy in the late 1800s.

CLOSE

Have students analyze how large corporations came to dominate American business.
By the 1880s, the Standard Oil Company, under the direction of John D. Rockefeller and his associates, had gained control of more than 90 percent of the oil refining business in the United States. Did Standard Oil use unfair tactics? The United States Industrial Commission investigated, calling Rockefeller himself to testify. Rockefeller said his success was due to the efficiency of his company. George Rice, an independent refiner from Marietta, Ohio, told the Industrial Commission that Standard Oil’s advantage was criminal collusion with the railroads. Was he right? You’re the historian.

Read the following excerpts from the Industrial Commission hearings of 1899. Then complete the questions and activities on the next page.

John D. Rockefeller

**Question:** To what advantages, or favors, or methods of management do you ascribe chiefly the success of the Standard Oil Company?

**Answer [Rockefeller]:** I ascribe the success of the Standard to its consistent policy to make the volume of its business large through the merits and cheapness of its products. It has spared no expense in finding, securing, and utilizing the best and cheapest methods of manufacture. It has sought for the best superintendents and workmen and paid the best wages. It has not hesitated to sacrifice old machinery and old plants for new and better ones. It has placed its manufactories at the points where they could supply markets at the least expense. It has not only sought markets for its principal products, but for all possible by-products, sparing no expense in introducing them to the public. It has not hesitated to invest millions of dollars in methods of cheapening the gathering and distribution of oils by pipe lines, special cars, tank steamers, and tank wagons. . . .

**Question:** What are, in your judgment, the chief advantages from industrial combinations—(a) financially to stockholders; (b) to the public?

**Answer:** All the advantages which can be derived from a cooperation of person and aggregation of capital. . . . It is too late to argue about advantages of industrial combinations. They are a necessity. And if Americans are to have the privilege of extending their business in all the States of the Union, and into foreign countries as well, they are a necessity on a large scale, and require the agency of more than one corporation. Their chief advantages are:

1. Command of necessary capital.  
2. Extension of limits of business.  
3. Increase the number of persons interested in the business.  
4. Economy in the business.  
5. Improvements and economies which are derived from knowledge of many interested persons of wide experience.  
6. Power to give the public improved products at less prices and still make a profit from stockholders.  
7. Permanent work and good wages for laborers.

Board of Trustees  Even though it is now illegal to operate a business as a trust, many corporations continue to refer to the group who directs the business as the “board of trustees.”

Point of View  Historians disagree about some of the issues surrounding the business practices employed by John D. Rockefeller and the Standard Oil Trust. For example, while it was common practice for the railroads to offer rebates to big shippers in a variety of industries, some historical accounts indicate that in addition to rebates, Rockefeller got inside information from the railroads about the business activities of his competitors. Discrepancies can also be found in historical accounts of the business practices of George Rice. Some accounts characterize Rice as a reputable businessman, while others paint him as a charlatan and con man.
From George Rice’s testimony

I am a citizen of the United States. . . Producer of petroleum for more than 30 years, and a refiner of same for 20 years, but my refinery has been shut down during the past 3 years, owing to the powerful and all-prevailing machinations of the Standard Oil Trust, in criminal collusion and conspiracy with the railroads to destroy my business of 20 years of patient industry, toil, and money in building up, wholly by and through unlawful freight discriminations. I have been driven from pillar to post, from one railway line to another, for 20 years, in the absolutely vain endeavor to get equal and just freight rates with the Standard Oil Trust, so as to be able to run my refinery at anything approaching a profit, but which I have been utterly unable to do. I have had to consequently shut down, with my business absolutely ruined and my refinery idle. This has been a very sad, bitter, and ruinous experience for me to endure, but I have endeavored to the best of my circumstances and ability to combat it the utmost I could for many a long waiting year, expecting relief through the honest and proper execution of our laws, which have as yet, however, never come. . . . Outside of rebates or freight discriminations I had no show with the Standard Oil trust, because of their unlawfully acquired monopoly, by which they could temporarily cut only my customers’ prices, and below cost, leaving the balance of the town, nine-tenths, uncut. This they can easily do without any appreciable harm to their general trade, and thus effectively wipe out all competition, as fully set forth. Standard Oil prices generally were so high that I could sell my goods 2 to 3 cents a gallon below their prices and make a nice profit, but these savage attacks and cuts upon my customers’ goods, and their consequent loss, plainly showed them their power for evil, and the uselessness to contend against such odds, and they would buy no more of my oil. . . .

CHAPTER 14 Industrialization

Understanding the Issue
1. According to Rockefeller’s testimony, consumers would benefit from companies similar to Standard Oil because they would get a better product at a lower price. In addition, these companies claimed to offer permanent work and good wages for laborers.
2. George Rice believed that Standard Oil was successful because it paid so little to ship its oil compared to what other refiners paid for freight. He also believed that Standard Oil cut its prices drastically to entice competitors’ customers so that it could later eliminate the competition.
3. Students’ answers will vary. They should be able to defend their positions.

Activities
1. Investigate Today many industries, unions, and special interest groups lobby Congress for favorable legislation. What are the most powerful groups? How do they operate?
2. Check the News Are there any companies that recently have been investigated for unfair or monopolistic practices? Collect headlines and news articles and create a bulletin board display.

Writing an Essay Have students write an essay expressing their point of view on the controversy described in this passage. Instruct them to include enough background information in the essay so that someone who is not familiar with this topic will be able to understand the main ideas. Students may consult one of the popular weekly newsmagazines to see examples of well-written essays. Be sure they express their opinions in the essay.

Ask students to explain how two people can view the same circumstances so differently.
CHAPTER 14
Section 4, 454–459

FOCUS

Section Overview
This section focuses on the formation of labor unions during the late 1800s.

BELLRINGER
Skillbuilder Activity

Project transparency and have students answer the question.
Available as a blackline master.

Daily Focus Skills Transparency 14–4

Guide to Reading

Answers to Graphic:
1877: Great Railroad Strike
1886: American Federation of Labor founded
1886: Riot in Chicago’s Haymarket Square
1894: Pullman Strike
1903: Women’s Trade Union League founded

An American Story

On September 6, 1869, hundreds of miners’ wives and children heard the repeated shrill blasts of the Avondale Mine’s whistle, which signaled an accident. The families ran to the mine’s entry and beheld a terrifying sight: hot smoke billowing from the mine shaft.

The owners of the Avondale Coal Mine in Luzerne County, Pennsylvania, had not built a second entrance to their mine. Without an escape route, the 179 miners trapped below soon died. Songs to commemorate the disaster later gave voice to the silenced victims:

And as their souls ascended
To God who gave them breath
They plead against the company
Whose greed had caused their death

Following the deaths at Avondale, John Siney, an Irish immigrant and union leader, urged his fellow miners to unionize:

Men, if you must die with your boots on, die for your families, your homes, your country, but do not longer consent to die like rats in a trap.

—quoted in Labor’s Untold Story

Working in the United States

Life for workers in industrial America was difficult. As machines replaced skilled labor, work became monotonous. Workers had to perform highly specific, repetitive tasks and could take little pride in their work. In addition, working conditions were...
often unhealthy and dangerous. Workers breathed in lint, dust, and toxic fumes. Heavy machines lacking safety devices caused a high number of injuries.

Despite the difficult working conditions, industrialism brought about a dramatic rise in the standard of living. While only a few entrepreneurs became rich, real wages earned by the average worker rose by about 50 percent between 1860 and 1890.

Despite the rise in the standard of living, the uneven division of income between the wealthy and the working class caused resentment among workers. In 1900 the average industrial worker made approximately $22 per week and worked an average of 59 hours per week.

At the same time, an economic phenomenon of the late 1800s made relations between workers and employers even more difficult. Between 1865 and 1897, the United States experienced deflation, or a rise in the value of money. Throughout the late 1800s, deflation caused prices to fall, which increased the buying power of workers’ wages. Although companies cut wages regularly in the late 1800s, prices fell even faster, so that wages were actually still going up in buying power. Most workers, however, believed that the companies wanted to pay them less money for the same work, and it made them angry. Eventually, many workers decided that the only way to improve their working conditions was to organize unions.

Reading Check

Describing: What aspects of industrial life caused frustration for workers in the late 1800s?

Early Unions

There were two basic types of industrial workers in the United States in the 1800s—craft workers and common laborers. Craft workers had special skills and training. They included machinists, iron molders, stonemasons, glass-blowers, shoemakers, printers, carpenters, and many others. Craft workers generally received higher wages and had more control over how they organized their time on the shop floor. Common laborers had few skills and received lower wages.

In the 1830s, as industrialism began to spread, craft workers began to form trade unions—unions limited to people with specific skills. By 1873 there were 32 national trade unions in the United States. Among the largest and most successful were the Iron Molders’ International Union, the International Typographical Union, and the Knights of St. Crispin—the shoemakers’ union.

Industry Opposes Unions

Employers were often forced to recognize and negotiate with trade unions because they represented workers whose skills they needed. However, employers generally regarded unions as illegitimate conspiracies that interfered with their property rights. Owners of large corporations particularly opposed industrial unions, which united all craft workers and common laborers in a particular industry.

Companies used several techniques to prevent unions from forming. They required workers to take a cut in pay and, if so, were entitled to make more money than that. My workers will have to take a pay cut.” Ask: Was Pullman justified in asking his workers to take a cut in pay and, if so, why? Discuss why present-day companies ask employees to take pay cuts. L1

Answer: Workers are dangerously close to molten steel. Ask: What problems resulted from unsafe working conditions? (injuries, deaths, and illnesses)

Reading Check

Answer: working conditions, low pay, highly specific and repetitive tasks.

COOPERATIVE LEARNING ACTIVITY

Organizing a Union

Organize students into two groups. Designate one group as the employers and have them decide what they would tell their employees to keep them from joining a union. Ask the other group to be union organizers, and have them decide what they would tell workers about the advantages of joining a union. Have each group develop a list of talking points. Have several members of each group present their arguments to the class. Discuss the long-range economic and social effects of labor unions.

Use the rubric for a cooperative group management plan on pages 81–82 in the Performance Assessment Activities and Rubrics.
Students should include as United States in the late 1800s. Have
below to categorize the obstacles izer similar to the one shown
draw a diagram or list the
. In 1900 the average industrial worker made approximately an
45. The only way workers
could help themselves was to work
against social change. The workers
in their community and the factories
hours and worked an average of a week.
1877. Tell them to write investigative articles that tell when, what, where, why, and how things
occurred. Ask students to do independent research to find facts such as dates. Have volunteers
read their articles to the class. L2
Verbal/Linguistic Have students play the role of a reporter assigned to cover the railroad strike of
1877. Tell them to write investigative articles that tell when, what, where, why, and how things
occurred. Ask students to do independent research to find facts such as dates. Have volunteers
read their articles to the class. L2
Identifying Why were some Americans suspicious of Unions?
The Struggle to Organize
Although workers attempted on many occasions to create large industrial unions, they rarely succeeded. In
many cases the confrontations with owners and the government led to violence and bloodshed. In 1868
William Sylvis, president of the Iron Molders Union and leader of the National Labor Union, wrote to Karl
Marx to encourage Marx’s work and express his own hopes:
Our cause is a common one. . . . Go ahead in the good work that you have undertaken, until the most glorious success
crowns your efforts . . . monied

Mother Jones 1830–1930
Mary Harris “Mother” Jones emi-
grated to the United States from Ireland in 1835 at the age of five. Jones
became the nation’s most prominent woman union leader after a tragic
personal loss. In 1867 her husband
George, a union organizer, and their
four children died from yellow fever.
Widowed and childless, Jones moved
to Chicago and opened a dressmaker’s shop. From her shop window, Jones
saw the effects of the economic
downturn of the 1870s: “Poor shivering
wretches, jobless and hungry.” At night
she attended rallies for the Knights of Labor.
By 1890 Jones had become an
organizer for the United Mine Workers. In 1897 she traveled to West Virginia.
The intrepid labor organizer trudged
from camp to camp along railroad
tracks or rode atop farm wagons. She
slept in a tent.
A journalist who followed Jones on
her trip reported that Jones began her
speeches slowly, encouraging her listen-
ers to “look on yourselves, and upon
each other. Let us consider this together
for I am one of you, and I know what it
is to suffer.” Then Mother Jones would
make an impassioned plea for the min-
ers to join the union. “You pity your-

pects, or you would stand together
to help one another.”

Answers:
1. Owners of large corporations opposed —unions that united all
2. Workers who tried to organize a union, companies often used a to break it.
3. In the 1830s, craft workers the united all —unions limited to peo-
4. Unions generally —to organizing or requiring owners to negotiate with them.
5. Some workers were —to union organizers. Workers who tried to
organize were often threatened with fines or jail.

Guided Reading Activity 14–4
Complete the sentence. Refer to your textbook to fill in the blanks.

Name

Date

Class

Owners of large corporations opposed —unions that united all
workers. If workers formed a union, companies often used a to break it.
In the 1830s, craft workers formed —unions limited to people
engaged in a particular craft. It was virtually impossible for a union
that wanted to organize a trade to succeed.

Political and Social Opposition Workers who wanted to organize a union faced several major
problems. There were no laws giving workers the right to organize or requiring owners to negotiate with them. Courts
regularly ruled that strikes were “conspiracies in restraint of trade,” for which labor leaders
might be fined or jailed.

Unions also suffered from the perception that they threatened American institutions. In the late 1800s,
the ideas of Karl Marx, called Marxism, had become very influential in Europe. Marx argued that
the basic force shaping capitalist society was the class struggle between workers and owners. He believed
that workers would eventually revolt, seize control of the factories, and overthrow the government.

Marxists claimed that after the revolution, the government would seize all private property and create a
socialist society where wealth was evenly divided. Eventually, Marx thought, the state would wither away, leaving a Communist society where classes did not exist. Marxism strongly shaped the thinking of
European unions.

While many labor supporters agreed with Marx, a few supported anarchism. Anarchists believe that
society does not need any government. At the time, some believed that with only a few acts of violence,
they could ignite a revolution to topple the government. In the late 1800s, anarchists assassinated
government officials and set off bombs all across Europe, hoping to trigger a revolution.

As Marxist and anarchist ideas spread in Europe, tens of thousands of European immigrants began
arriving in the United States. Nativism—anti-immigrant feelings—was already strong in the
United States. As people began to associate immigrant workers with revolution and anarchism, they
came increasingly suspicious of unions. These fears, as well as the government’s duty to maintain
law and order, often led officials to use the courts, the police, and even the army to crush strikes and break up unions.
The Great Railroad Strike of 1877 In 1873 a severe recession known as the Panic of 1873 struck the American economy and forced many companies to cut wages. In July 1877, as the recession continued, several railroads announced another round of wage cuts. This triggered the first nationwide labor protest. The day after the cuts took effect, railroad workers in several railroads announced another round of wage cuts. This triggered the first nationwide labor protest. The day after the cuts took effect, railroad workers in Martinsburg, West Virginia, walked off the job and blocked the tracks. As word spread, railroad workers across the country walked off the job. The strike eventually involved 80,000 railroad workers in 11 states and affected two-thirds of the nation’s railways. Angry strikers smashed equipment, tore up tracks, and blocked rail service in New York, Baltimore, Pittsburgh, St. Louis, and Chicago. The governors of several states called out their militias to stop the violence. In many places, gun battles erupted between the militia and striking workers. Determined to stop the violence, President Hayes ordered the army to open the railroad between Philadelphia and Pittsburgh. He then sent troops to Chicago, where the strike had paralyzed the entire city. The troops restored order, but by the time the strike ended, more than 100 people lay dead, and millions of dollars of property had been destroyed.

The Knights of Labor The failure of the Great Railroad Strike convinced many labor organizers that workers across the nation needed to be better organized. By the late 1870s, enough workers had joined a new organization, the Knights of Labor, to make it the first nationwide industrial union. The Knights called for an eight-hour workday and a government bureau of labor statistics. They also supported equal pay for women, the abolition of child labor, and the creation of worker-owned factories. The Knights’ leaders initially opposed the use of strikes, preferring to use boycotts to pressure power is fast eating up the substance of the people.

We have made war upon it, and we mean to win it. If we can we will win through the ballot box; if not, we will resort to sterner means. A little bloodletting is sometimes necessary in desperate causes.

—quoted in Industrialism and the American Worker

CHAPTER 14 Industrialization

INTERDISCIPLINARY CONNECTIONS ACTIVITY

Economics Have students use magazines to create a collage of today’s American workforce. Instruct students to insert text callouts to highlight how today’s workforce is similar to and different from the workforce the late 1800s. L1

CHAPTER 14 Industrialization

Designing a Board Game Have students design a game based on life in the late 1800s. Invite interested students to play some of the games and explain the connections to the 1800s. L3

Use the rubric for creating a cooperative group management plan on pages 81–82 in the Performance Assessment Activities and Rubrics.

A century after the railroad strike of 1877, another group of transportation workers, air traffic controllers, went on strike demanding higher wages and fewer working hours. In August 1981, over 11,000 striking air traffic controllers were fired.

Hard Work Strict rules were enforced in the workplace in the late 1800s. Many bosses forbade singing, drinking, joking, smoking, or conversation on the job. They also denied immigrant workers time to celebrate their national holidays and holy days, and they did not accommodate workers who did not want to work on the Sabbath.
employers. They also supported arbitration, a process in which an impartial third party helps workers and management reach an agreement.

In the early 1880s, the Knights began to use strikes, and they achieved great success initially. After striking Knights convinced one of Jay Gould’s railroads to reverse wage cuts in 1885, membership in the union leapt from 100,000 to 700,000 in less than a year. The following year, 1886, marked the peak of their success. In the spring of that year, an event known as the Haymarket Riot undermined the Knights’ reputation, and the union rapidly declined.

**The Haymarket Riot** In the early 1880s, the movement for an eight-hour workday began to build support. In 1886 organizers called for a nationwide strike on May 1 to show support for the idea. On that date, strikes took place in many cities, including Chicago.

On May 3, a clash between strikers and police in Chicago left one striker dead. The next evening, an anarchist group organized a meeting in Chicago’s Haymarket Square to protest the killing. Around 3,000 people gathered to hear the speeches. When police entered the square, someone threw a bomb. The police opened fire, and workers shot back. Seven police officers and four workers were killed.

Police arrested eight people for the bombing. Seven of those arrested were German immigrants and advocates of anarchism. The incident horrified people across the country. No one knew who threw the bomb. Although the evidence was weak, all eight men were convicted, and four were later executed. Unfortunately for the Knights of Labor, one of the men arrested was a member of the union. The incident badly hurt the Knights’ reputation, and they began to lose members rapidly.

**The Pullman Strike** Although the Haymarket Riot set back the drive to create industrial unions, other labor organizers continued their efforts. In 1893 railroad workers created the American Railway Union (ARU) under the leadership of Eugene V. Debs. One of the companies the ARU unionized was the Pullman Palace Car Company.

The Pullman Company was based in Illinois. It employed many nonfarm workers. All unions, including railroad

**CRITICAL THINKING ACTIVITY**

**Synthesizing** Ask students to describe stereotypes associated with unions. Have students then explain how these stereotypes were formed. Then ask students to explain the impact of these stereotypes on the efforts of organized labor. Finally, ask students to evaluate if these stereotypes about unions are still held by people today. L1
unions, represented only 18 percent. As the 1900s began, the vast majority of workers remained unorganized, and unions were relatively weak.

**Reading Check** Analyzing What AFL policies contributed to its growth as a union?

**Working Women**

Throughout the 1800s, most wage-earning workers in the United States were men. After the Civil War, the number of women wage earners began to increase. By 1900 women made up more than 18 percent of the labor force.

The type of jobs women did outside the home in the late 1800s and early 1900s reflected society’s ideas about what constituted “women’s work.” Roughly one-third of women worked as domestic servants. Another third worked as teachers, nurses, sales clerks, and secretaries. The remaining third were industrial workers, but they were employed in light industrial jobs that people believed appropriate to their gender. Many worked in the garment industry and food processing plants.

Regardless of their employment, women were paid less than men even when they performed the same jobs. It was assumed that a woman had a man helping to support her, either her father or her husband, and that a man needed higher wages to support a family. For this reason, most unions, including the AFL, excluded women.

In 1903 two labor organizers, Mary Kenney O’Sullivan and Leonora O’Reilly, decided to establish a separate union for women. With the help of Jane Addams and Lillian Wald—the founders of the settlement house movement—they established the *Women’s Trade Union League* (WTUL), the first national association dedicated to promoting women’s labor issues. The WTUL pushed for an eight-hour day, the creation of a minimum wage, an end to evening work for women, and the abolition of child labor. The WTUL also collected funds to support women on strike.

**Reading Check** Comparing How were female industrial workers treated differently than male workers in the late 1800s?

---

### Checking for Understanding

1. **Define:** deflation, trade union, industrial union, lockout, Marxism, arbitration, closed shop.
2. **Identify:** blacklist, Knights of Labor.
3. **List** the groups of workers represented by the Knights of Labor and the American Federation of Labor.

### Reviewing Themes

4. **Individual Action** What political contribution did Mary Harris “Mother” Jones make to American society?

### Critical Thinking

5. **Analyzing** Why did early labor unions fail?
6. **Organizing** Use a graphic organizer similar to the one below to list the factors that led to an increase in unions in the late 1800s.

### Analyzing Visuals

7. **Analyzing Photographs** Examine the photograph at the top of this page of workers in a watch factory. Most of the people in the picture are women. What do you think the jobs were of the men in the photograph?

### Writing About History

8. **Persuasive Writing** Imagine that you are an American worker living in one of the nation’s large cities. Write a letter to a friend explaining why you support or oppose the work of labor unions.

---

### Section 4 Assessment Answers

1. Terms are in blue.
2. blacklist (*p. 456*), Knights of Labor (*p. 457*)
3. industrial workers, trade workers
4. She became a key organizer for the United Mine Workers union.
5. confrontations led to violence, courts ruled against them, frequent strikes, fought for many things all at the same time, blacklisting
6. concern about working conditions, concern about job security, economic challenges such as deflation
7. managers or supervisors
8. Students’ letters will vary. Letters should express a point of view.
Reviewing Key Terms

Students’ answers will vary. The pages where the words appear in the text are shown in parentheses.

1. gross national product (p. 436)
2. laissez-faire (p. 438)
3. entrepreneur (p. 438)
4. time zone (p. 444)
5. land grant (p. 445)
6. corporation (p. 448)
7. economies of scale (p. 448)
8. fixed costs (p. 448)
9. operating costs (p. 448)
10. pool (p. 448)
11. vertical integration (p. 449)
12. horizontal integration (p. 449)
13. monopoly (p. 449)
14. trust (p. 450)
15. holding company (p. 450)
16. deflation (p. 455)
17. trade union (p. 455)
18. industrial union (p. 455)
19. lockout (p. 456)
20. Marxism (p. 456)
21. arbitration (p. 458)
22. closed shop (p. 458)

Reviewing Key Facts

23. Morrill Tariff (p. 438), Andrew Carnegie (p. 448)
24. iron ore, water, copper, coal, timber; large families, and floods of immigrants
25. helped increase the nation’s productive capacity, improved transportation and communication
26. by offering land grants
27. large display advertisements in newspapers, department stores, chain stores, mail-order catalogs
28. to change poor working conditions, low pay, and job security
29. craft workers and common laborers
30. Students’ answers will vary. Names may include inventors and industrialists.
31. large labor force, inventions, abundant natural resources, free enterprise system
32. a. force and fraud; b. the “it’s just business” attitude that excused immoral actions

Critical Thinking

30. Analyzing Themes: Individual Action List the names and actions of five people who contributed to American economic growth in the late 1800s.
31. Organizing Use a graphic organizer similar to the one below to list the factors that led to making the United States an industrial nation.

32. Interpreting Primary Sources Americans like Ida Tarbell criticized large corporations such as the Standard Oil Company. In the following excerpt from History of the Standard Oil Company, she warns of the results of Rockefeller’s business practices on the nation’s morality.

Read the excerpt and answer the questions that follow:

Very often people who admit the facts, who are willing to see that Mr. Rockefeller has employed force and fraud to secure his ends, justify him by declaring, ‘It’s business.’ That is, ‘It’s business’ has come to be a legitimate excuse for hard dealing, sly tricks, special privileges. It is a common enough thing to hear men arguing that the ordinary laws of morality do not apply in business.

Critical Thinking

30. Students’ answers will vary. Names may include inventors and industrialists.
31. large labor force, inventions, abundant natural resources, free enterprise system
32. a. force and fraud; b. the “it’s just business” attitude that excused immoral actions
33. Inventions such as electric power and the automatic loom led to large manufacturing companies and industrialization but created a host of challenges for workers, such as harsh working conditions. This led workers to unite and join labor unions.

Practicing Skills
34. Making Inferences

Reread the passage titled "Working in the United States" from Section 4, page 454. Then answer the following questions.

a. What facts are stated about working conditions in the United States during this time period?

b. Based on your answer to the previous question, what can you infer about the attitude of employers toward their workers during this time?

35. Portfolio Writing: Persuasive Writing

Think of a product that you think is essential to life today. Write an advertisement for this product that would persuade people to purchase it.


Read "Driving the Golden Spike" by Alexander Toponce, under Reshaping the Nation. For further background, reread your textbook’s coverage of the same subject on page 443. Then prepare a presentation for your classmates. In it, describe what Toponce had to say about the workers during the celebration and what Grenville Dodge had to say about their experience during the project. What attitudes do you think each man had toward the workers?

37. The graph above shows steel production from 1865 to 1900. Study the graph and answer the questions below.

a. Interpreting Graphs: Between what years did steel production have the greatest increase?

b. Making Inferences: How did increased steel production contribute to American industrialism?