Review and Preview
The early 1800s saw the new nation growing larger and developing a sense of pride. Students will now focus on the impact of the new technology of the Industrial Revolution.

Section Focus Question
How did the new technology of the Industrial Revolution change the way Americans lived?
Before you begin the lesson for the day, write the Section Focus Question on the board. (Lesson focus: Many people went from working on farms to working in factories in the North, while industrial needs and new inventions encouraged planters to raise more cotton in the South, increasing the need for slaves.)

Prepare to Read

Build Background Knowledge
In this section students will read about the Industrial Revolution and how it affected life in the United States. Ask students to think about how life would be without machines. Use the Idea Wave strategy (TE, p. T24) to encourage responses. Then discuss how technology can change the way people live.

Set a Purpose
Read each statement in the Reading Readiness Guide aloud. Ask students to mark the statements True or False.

Have students discuss the statements in pairs or groups of four, then mark their worksheets again. Use the Numbered Heads strategy (TE, p. T24) to call on students to share their group’s perspectives. The students will return to these worksheets later.

The Industrial Revolution

Objectives
• Explain the changes that the Industrial Revolution brought to American life.
• Discuss the importance of Samuel Slater’s cotton mill.
• Describe the growth of industry in the United States after 1812.
• Identify important developments in factories and the problems that factory life produced.

Reading Skill
Identify Central Issues From the Past
To effectively study history, you can identify important—or central—issues and then seek to make generalizations from them. To make a generalization, identify main points or ideas in a text. Then, devise a general principle or broad statement that applies to all of them and to other situations.

Key Terms and People
Industrial Revolution
factory system
capitalist
Francis Cabot Lowell
mass production
interchangeable parts

Why It Matters
In early America, most people worked as farmers. Men worked in the fields to produce food for their families. Women helped in the fields and made simple goods, like candles and soap, at home. The Industrial Revolution changed all this.

Section Focus Question: How did the new technology of the Industrial Revolution change the way Americans lived?

A Revolution in Technology
In the 1700s, a great change began that we now call the Industrial Revolution. Gradually, machines took the place of many hand tools. Much of the power once provided by people and horses began to be replaced, first by flowing water and then by steam engines.

The Industrial Revolution began in Britain, in the textile, or cloth-making, industry. For centuries, workers had spun thread in their homes on spinning wheels. The thread was then woven into cloth on hand looms. Making thread was time-consuming. It took one person, spinning one strand at a time, almost two weeks to produce a pound of cotton thread.

Machines and Factories
In the 1760s, the spinning jenny speeded up the thread-making process. The jenny allowed a person to spin many strands at once. However, thread still had to be made by hand.

Then, in 1764, Richard Arkwright invented the water frame, a spinning machine powered by running water rather than human energy. Other inventions speeded up the weaving process. To house the large machines, manufacturers built textile mills on the banks of rivers.

Differentiated Instruction
Gifted and Talented
Spinning Mill
Ask students to suppose that they work in a spinning mill, such as the one shown in the transparency Spinning Mill (see p. 383). Have students write several diary entries describing the mill, the machines in it, and their particular job.

Encourage students to include details and references to the positive and negative aspects of work in a mill. Ask students to share highlights of their diary entries with the class.
The new mills created a new way of working, known as the factory system. The factory system brings workers and machinery together in one place. Instead of spinning at home, textile workers had to go to the factories and begin and end work at specific hours. Workers now had to keep up with the machines instead of working at their own pace.

British mill owners soon recognized the potential of the new water frames and the factory system. However, the system required huge amounts of money to be invested in buildings and machines. Thus, the mill owners turned to capitalists, people who invest capital, or money, in a business to earn a profit. Factories proved to be a good investment for the capitalists and mill owners. By 1784, British workers were producing 24 times as much thread as they had in 1765.

**Steam Power** Building factories on riverbanks had some disadvantages. In a dry season, the machines had no power. Also, most factories were far from cities, and labor was hard to find in rural areas.

In 1790, Arkwright built the first steam-powered textile plant. The steam engine was a reliable source of power. Factories no longer had to be built on riverbanks. They could be built in cities, where young women and children provided cheap labor.

Britain tried to guard the secrets of its industrial success. It forbade anyone to take information about textile machinery out of Britain. Skilled workers were forbidden to leave the country.

**A Revolution in Technology**

**The American Industrial Revolution**

pp. 382–384

**Instruction**

- **Vocabulary Builder** Before teaching this lesson, preteach the High-Use Words invest and efficient, using the strategy on TE p. T21.

- **Key Terms** Following the instructions on p. 7, have students create a See It–Remember It chart for the Key Terms in this chapter.


- **Ask:** How did the factory system work? (It brought together workers and machinery in one place.)

- **To help students understand early factories,** show the transparency Spinning Mill and discuss the questions.

- Show the History Interactive transparency James Watt’s Steam Engine. Have students discuss the questions.

**Independent Practice**

Have students begin filling in the study guide for this section.

**Monitor Progress**

As students fill in the study guide, circulate to make sure they understand the importance of the Industrial Revolution.

**Answers**

- **Checkpoint** Possible answer: Machines took the place of hand tools.

- **Identify Economic Benefits** A manufacturer who used a steam engine would not be limited to building a factory on a riverbank, but could choose a location closer to cheap labor.
Differentiated Instruction

Instruction

Have students read American Industry Grows. Remind students to look for cause and effect.

Ask: What sparked the growth of industry in the United States? (During the War of 1812, the British blockade forced Americans to supply their own goods.)

Ask: Why did Lowell’s mill town have boardinghouses, a library, and a hospital for its workers? (Lowell wanted better lives for his workers.)

Ask: Why do you think Charles Dickens was amazed when he saw Lowell? (He was probably surprised that conditions in Lowell were so good compared to those in England.)

Independent Practice

Have students continue filling in the study guide for this section.

Interactive Reading and Notetaking Study Guide, Chapter 11, Section 1 (Adapted Version also available.)

Monitor Progress

As students fill in the study guide, circulate and make sure students understand how the growth of American industry affected workers. Provide assistance as needed.

Answers

Distinguish Relevant Information

Possible answer: Smoke from the factories might fill the air; there might be more traffic on roads; there would be a place for people to work.

Checkpoint

It was against British law to take technology out of England, so he had to memorize the plans for machines.

The American Industrial Revolution

In 1789, a young apprentice in one of Arkwright’s factories decided to immigrate to the United States. Samuel Slater knew that his knowledge of Arkwright’s machines could be worth a fortune. He studied hard and memorized the plans of Arkwright’s machines. Then, he boarded a ship for New York.

In the United States, Slater joined forces with a wealthy merchant, Moses Brown. Brown had rented a textile mill in Pawtucket, Rhode Island. Relying entirely on his memory, Slater constructed a spinning machine based on Arkwright’s. Slater’s factory began producing cotton thread at a rate never before seen in the United States.

Why did Samuel Slater have to build his machines from memory?

American Industry Grows

The success of Slater’s mill marked the beginning of American industrialization. Industrialization began in the Northeast. The region was home to a class of merchants who had capital to build factories and to buy raw materials.

Still, U.S. industry did not grow significantly until the War of 1812. As the British navy blockaded U.S. ports, Americans had to depend on their own industries to supply goods.

The Lowell Mills

Francis Cabot Lowell found a way. Before the war, he had visited England and seen the latest weaving machines. When he returned to the United States, Lowell and an associate built an improved version of the English machines.

Differentiated Instruction

Advanced Readers

Factory Conditions

Assign students the worksheet A Factory Report in 1846. Have them answer the questions and define the underlined words in the text. Then have students read the document aloud to the class, explaining the underlined words as they read. Discuss with the class why working conditions deteriorated.

Teaching Resources, Unit 4, A Factory Report in 1846, p. 20
With several other capitalists, Lowell opened a mill in Waltham, Massachusetts. The mill was organized in a new way. Instead of obtaining thread from separate spinning mills, Lowell’s factory brought together spinning and weaving in one building.

After Lowell died in 1817, his partners expanded the business. Wanting better lives for their workers, the partners built a new town, with boardinghouses, a library, and a hospital. They named their mill town Lowell after their late partner.

**Lowell Girls** The new factories were staffed with young women from nearby farms. “Lowell girls” lived in boardinghouses under strict supervision. After work, they might attend lectures or visit libraries. As a result, many women gained an education they probably would not have received on their family farms. The British novelist Charles Dickens was amazed when he saw Lowell:

“Firstly, there is a . . . piano in a great many of the boardinghouses. Secondly, nearly all these young ladies subscribe to circulating libraries. Thirdly, they have [created] a periodical called ‘The Lowell Offering.’ . . .”

—Charles Dickens, *American Notes*, 1842

**Women’s Wages** In the early 1800s, women factory workers who were married were expected to turn their wages over to their husbands, who could spend the money as they wished. This injustice was one of many that women fought against through the women’s rights movement later in the century.

**History Background**

---

**Checkpoint** How was the Lowell factory system different from the European factory system?

---

**Links Across Time**

**Technology and Work**

- **1820s** The Industrial Revolution opened the way for new developments in technology, which changed the way people worked.
- **1981–2000s** Since the invention of the personal computer, changes in technology have affected not only how people work but also where they work. With speedy laptops and hand-held devices, workers are able to work successfully at home or at the office.

**Technology’s Impact** Technology continues to advance. How are technological innovations changing people’s lives today?

---

**Answers**

- **Reading Skill** Possible answer: War may sometimes result in the halting of trade, causing people to come up with new ways to fill the need to supply goods.
- **Checkpoint** Instead of obtaining thread from separate spinning mills, Lowell’s factory brought together spinning and weaving in one building.

---

Chapter 11 Section 1 385
**Independent Practice**

Have students continue filling in the study guide for this section.

**Monitor Progress**

- As students fill in the study guide, circulate to make sure individuals understand the problems with factory life. Provide assistance as needed.
- Tell students to fill in the last column of the Reading Readiness Guide. Probe for what they learned that confirms or invalidates each statement.

**Assess and Reteach**

**Assess Progress**

Have students complete Check Your Progress. Administer the Section Quiz.

**Differentiated Instruction**

**Unfamiliar Words** Suggest to students that they use a ruler to help them keep their place as they read, line to line, down a page. Have students mark unfamiliar words or phrases (such as *handcrafted* on this page) with a sticky note. Review with them from time to time what they have marked.
Child Labor Children routinely worked on family farms in the 1800s. Their labor was often needed to help feed their families. Working on a home farm was different from working in a factory, however. American textile mills, coal mines, and steel foundries employed children as young as 7 or 8. These children had no opportunities for education. They often worked in unsafe conditions. By 1880, more than a million children between the ages of 10 and 15 worked for pay.

Factory Conditions Working conditions were appalling. Factories were poorly lighted. There was little fresh air. Machines were designed to perform a task, not to protect the worker. As a result, many workers were injured on the job. A worker who lost a hand or a foot received no help. He or she needed to depend on family for support. Business owners provided no payments for disabled workers, as they do by law today.

To keep machines running as long as possible, workdays lasted 12 or 14 hours. By 1844, workers were demanding shorter days. “Eight hours for work, eight hours for sleep, and eight hours for God and the brethren” was an early slogan. Conditions gradually improved, but the 8-hour workday was far in the future.

Looking Back and Ahead Although the new factories were hard on workers, industrialization led to vastly increased production and lower prices. In the next section, you will read how the growth of northern industry helped to widen the gap between the North and the South.
Mill Workers

Prepare to Read

Introduction
Lucy Larcom was born in Massachusetts in 1824. After her father died when she was 11, Lucy went to work in the Lowell textile mills. Years later, she wrote about her experiences. The following selection is an excerpt from her memoirs.

Reading Skill
Analyze Setting In literature, a character’s actions and attitudes often are affected by his or her surroundings. In the memoir below, we learn how the physical conditions in a textile mill affect Lucy Larcom’s outlook on work. As you read, pay attention to her descriptions of the mill.

Vocabulary Builder
As you read this literature selection, look for the following underlined words:

bobbin (bahn) n. spool for thread or yarn, used in spinning, weaving, or in a sewing machine
board (bord) n. meals provided regularly for pay

drudge (druh) n. person who does hard, menial, or tedious work

Women and girls who worked in northern mills were educated. Some mills published collections of workers’ essays and poetry.

I went to my first day’s work in the mill with a light heart. The novelty of it made it seem easy, and it really was not hard just to change the bobbins on the spinning-frames every three-quarters of an hour or so, with half a dozen other little girls who were doing the same thing. When I came back at night, the family began to pity me for my long, tiresome day’s work, but I laughed and said, “Why, it is nothing but fun. It is just like play.”

And for a while it was only a new amusement . . . . We were not occupied more than half the time. The intervals were spent frolicking around the spinning-frames, teasing and talking to the older girls, or entertaining ourselves with games and stories in the corner, or exploring, with the overseer’s permission, the mysteries of the carding-room, the dressing-room, and the weaving-room.

I never cared much for machinery. The buzzing and hissing of pulleys and rollers and spindles and flyers around me often grew tiresome. I could not see into their complications, or feel interested in them. But in a room below us we were sometimes allowed to peer in through a sort of blind door at the great waterwheel that carried the works of the whole mill. It was so huge that we could only watch a few of its spokes at a time, and part of its dripping rim, moving with a slow, measured strength through the darkness that shut it in. It impressed me with something of the awe which comes to us in thinking of the great Power which keeps the mechanism of the universe in motion . . . .

When I took my next three months at the grammar school, everything there was changed, and I too was changed. . . . We were not occupied more than half the time. The intervals were spent frolicking around the spinning-frames, teasing and talking to the older girls, or entertaining ourselves with games and stories in the corner, or exploring, with the overseer’s permission, the mysteries of the carding-room, the dressing-room, and the weaving-room.

I never cared much for machinery. The buzzing and hissing of pulleys and rollers and spindles and flyers around me often grew tiresome. I could not see into their complications, or feel interested in them. But in a room below us we were sometimes allowed to peer in through a sort of blind door at the great waterwheel that carried the works of the whole mill. It was so huge that we could only watch a few of its spokes at a time, and part of its dripping rim, moving with a slow, measured strength through the darkness that shut it in. It impressed me with something of the awe which comes to us in thinking of the great Power which keeps the mechanism of the universe in motion . . . .

When I took my next three months at the grammar school, everything there was changed, and I too was changed. . . . It was a great delight to me to study, and at the end of the three months the master told me that I was prepared for the high school.

Differentiated Instruction

Further Reading

English Language Learners

Understanding Sentences Provide a page protector to place over the text. Have students read the literature selection. Ask students to mark each sentence with a ? if they don’t understand the sentence, a * if they understand the sentence, and a ! (for “wow”) if they find the information new or interesting. Review any sentences students have with a question mark. Pair students to compare their “wow” sentences.
Monitor Progress
Discuss with students how Lucy’s life changed when she went to work at the mill. Ask: If Lucy had not gone to work at the mill, what do you think her life would have been like? (Answers will vary but should show an understanding that her life would have been hard.)

History Background
Child Labor In 1836, Massachusetts became the first state to pass a child labor law. The law prohibited children under age 15 from being employed unless they had attended school for at least three months in the last year. The first federal child labor law was passed in 1916, but it was overturned by the Supreme Court. It was not until the Fair Labor Standards Act of 1938 that basic child labor reforms were instituted nationally.

Lowell girls weaving in a Massachusetts textile mill in the 1850s

But alas! I could not go. The little money I could earn—one dollar a week, besides the price of my board—was needed in the family, and I must return to the mill. . . .

At this time I had learned to do a spinner’s work, and I obtained permission to tend some frames that stood directly in front of the windows, with only them and the wall behind me, extending half the length of the mill. . . .

The last window in the row behind me was filled with flourishing houseplants—fragrant-leaved geraniums, the overseer’s pets. . . . The perfume and freshness tempted me there often. . . . On the whole, it was far from being a disagreeable place to stay in. The girls were bright looking and neat, and everything was kept clean and shining. The effect of the whole was rather attractive to strangers. . . .

Still, we did not call ourselves ladies. We did not forget that we were working girls, wearing coarse aprons suitable to our work, and that there was some danger to our becoming drudges. I know that sometimes the confinement of the mill became very wearisome to me. In the sweet June weather I would lean far out of the window, and try not to hear the unceasing clash of the sound inside. Looking away to the hills, my whole stifled being would cry out, “Oh that I had wings!”


Checkpoint Why did Larcom return to the mill after finishing three months at grammar school?

Analyze LITERATURE
Lucy Larcom’s words describe a mill in New England during the 1800s. Consider the sights and sounds around her, and how working in the mill made her feel. Write a paragraph in which you describe what it is like to work in a mill.

Background
The wages paid for mill work offered new opportunities to many women and girls, but workers lived apart from their families and often felt lonely.

Analyze Setting
Lucy’s attitude toward the mill changes somewhat over the course of this excerpt. How does setting contribute to this change?


Answers
Reading Skill She began to feel confined indoors and longed to be outside.

Checkpoint Her family needed the money she earned at the mill.

Writing Rubrics Share this writing rubric with students.

Score 1 Paragraph does not contain any details and is poorly organized.
Score 2 Paragraph contains few details or impressions.
Score 3 Paragraph presents many details.
Score 4 Paragraph presents a vivid picture of a factory.

Analyse LITERATURE Students should describe the details of the daily life in a mill. When would they report for work? How long was the workday? Did they get breaks? They should also describe the physical layout of the factory and their impressions of the workplace. The more details they can provide in their account, the better.