

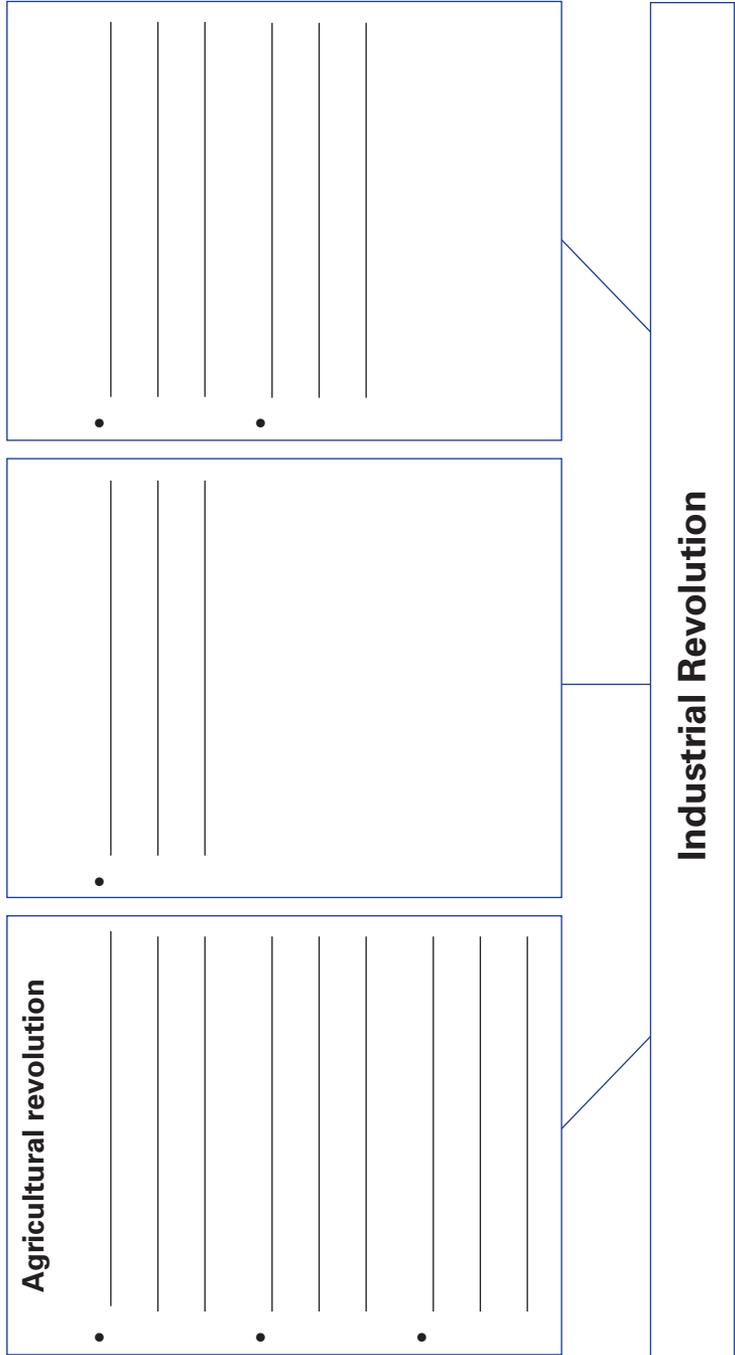
CHAPTER
19
SECTION 1

Note Taking Study Guide

DAWN OF THE INDUSTRIAL AGE

Focus Question: What events helped bring about the Industrial Revolution?

As you read this section in your textbook, complete the following flowchart to list multiple causes of the Industrial Revolution.



CHAPTER
19
SECTION 1

Section Summary

DAWN OF THE INDUSTRIAL AGE

READING CHECK

Who formed the growing labor force for the Industrial Revolution?

VOCABULARY STRATEGY

What does the word *statistics* mean in the underlined sentence? What prior knowledge do you have of this word? For example, think of where you may have seen statistics before. Use your prior knowledge and context clues in the sentence to help you learn what *statistics* means.

READING SKILL

Recognize Multiple Causes

Identify three events in the agricultural revolution that caused population and industry to grow.

The Industrial Revolution started in Britain. In 1750, most people worked the land, using handmade tools. They made their own clothing and grew their own food. With the onset of the Industrial Revolution, the rural way of life in Britain began to disappear. By the 1850s, many country villages had grown into industrial towns and cities. New inventions and scientific “firsts” appeared each year. Between 1830 and 1855, for example, an American dentist first used an **anesthetic** during surgery and a French physicist measured the speed of light.

A series of related causes helped spark the Industrial Revolution. It was made possible, in part, by another revolution—in agriculture—that greatly improved the quality and quantity of food. Farmers mixed different kinds of soils and tried out new methods of crop rotation to get higher yields. Meanwhile, rich landowners pushed ahead with **enclosure**, the process of taking over and consolidating land formerly shared by peasant farmers. As millions of acres were enclosed, farm output and profits rose. The agricultural revolution created a surplus of food, so fewer people died from starvation. Statistics show that the agricultural revolution contributed to a rapid growth in population.

Agricultural progress, however, had a human cost. Many farm laborers were thrown out of work. In time, jobless farm workers migrated to towns and cities. There, they formed a growing labor force that would soon operate the machines of the Industrial Revolution.

Another factor that helped trigger the Industrial Revolution was the development of new technology, aided by new sources of energy and new materials. One vital power source was coal, used to develop the steam engine. In 1764, Scottish engineer **James Watt** improved the steam engine to make it more efficient. Watt’s engine became a key power source of the Industrial Revolution. Coal was also used in the production of iron, a material needed for the construction of machines and steam engines. In 1709, Adam Darby used coal to **smelt** iron, or separate iron from its ore. Darby’s experiments led to the production of less-expensive and better-quality iron.

Review Questions

1. How did people’s lifestyles change in Britain with the start of the Industrial Revolution?

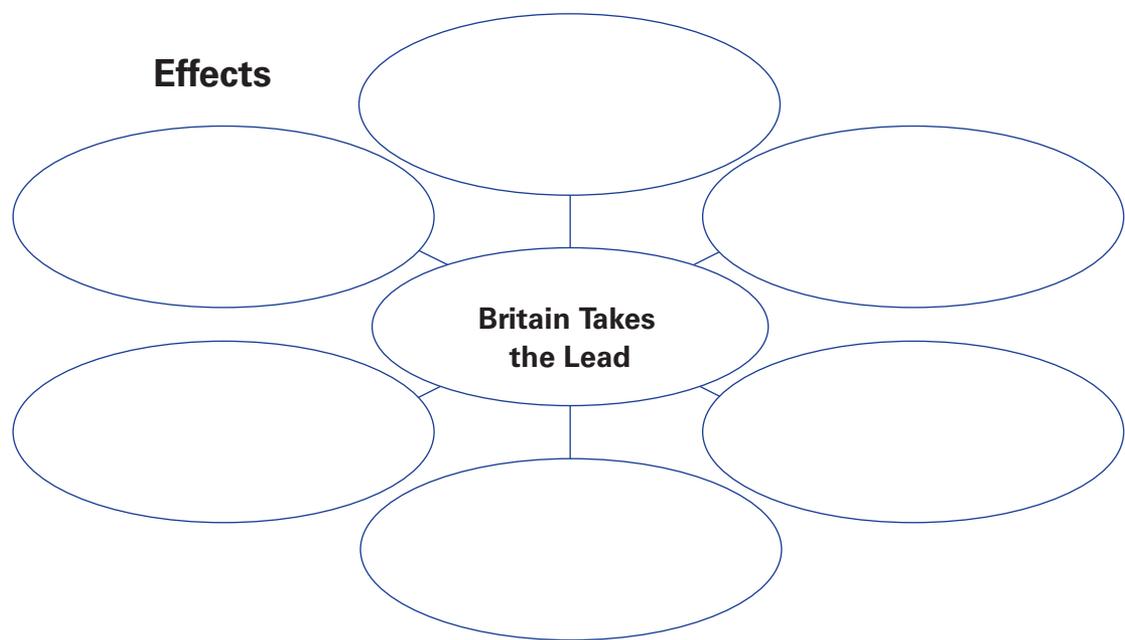
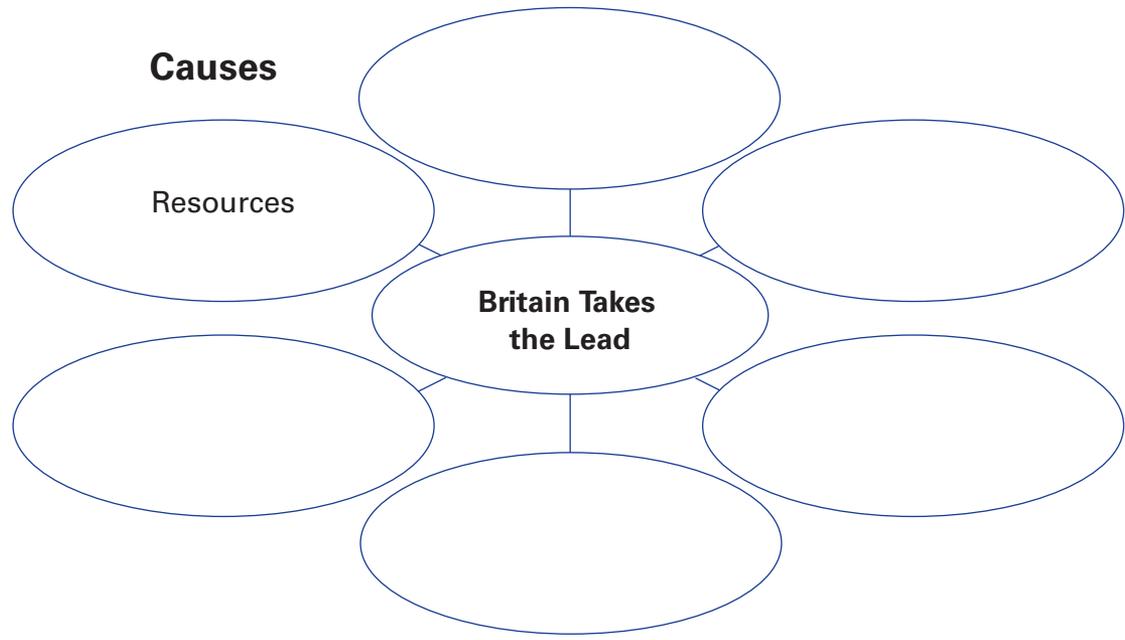
2. Why was the steam engine important to the Industrial Revolution?

CHAPTER
19
SECTION 2

Note Taking Study Guide
BRITAIN LEADS THE WAY

Focus Question: What key factors allowed Britain to lead the way in the Industrial Revolution?

As you read this section in your textbook, complete the following concept webs to identify causes and effects of Britain's early lead in industrialization. Fill in the first concept web with causes. Fill in the second concept web with effects.



CHAPTER
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Section Summary

BRITAIN LEADS THE WAY

READING CHECK

What machine did Eli Whitney invent?

VOCABULARY STRATEGY

What does the word *decades* mean in the underlined sentence? The word *decades* comes from the Greek word *deka*, which means “ten.” Use the meaning of the word *deka* to help you learn what *decades* means.

READING SKILL

Identify Causes and Effects
Identify causes and effects of the great revolution in transportation in England.

The start of the Industrial Revolution in Britain can be attributed to many factors, including population growth and plentiful natural resources. The growing population and ready workforce boosted demand for goods. To increase production to meet the demand, however, another key ingredient was needed—money to start businesses. Beginning with the slave trade, the business class accumulated **capital** to invest in enterprises. An **enterprise** is a business in areas such as shipping, mining, or factories. Britain had a stable government that supported economic growth. **Entrepreneurs** managed and assumed the financial risks of starting new businesses.

The Industrial Revolution first took hold in Britain’s largest industry—textiles. British merchants developed the **putting-out system**, in which raw cotton was distributed to peasant families. They spun it into thread and then wove the thread into cloth, working in their own homes. Under the putting-out system, production was slow. As demand for cloth grew, inventors came up with new devices, such as the flying shuttle and the spinning jenny, which revolutionized the British textile industry. Meanwhile, in the United States, these faster spinning and weaving machines presented a challenge—how to produce enough cotton to keep up with Britain. Cleaning the raw cotton by hand was time-consuming. To solve this, **Eli Whitney** invented a machine called the cotton gin. This greatly increased the production of cotton. To house these machines, manufacturers built the first factories, where spinners and weavers came each day to work and produce large quantities of goods.

As production increased, entrepreneurs needed faster and cheaper methods of moving goods. Some capitalists invested in **turnpikes**. Goods could be moved faster on these toll roads, and turnpikes soon linked every part of Britain. The great revolution in transportation, however, occurred with the invention of the steam locomotive, which made possible the growth of railroads. The world’s first major rail line began operating between the British industrial cities of **Liverpool** and **Manchester** in 1830. In the following decades, railroad travel became faster and railroad building boomed. The Industrial Revolution dramatically affected the way people lived.

Review Questions

1. What factors contributed to the start of the Industrial Revolution?

2. What changes revolutionized the textile industry?

CHAPTER
19
SECTION 3

Note Taking Study Guide

SOCIAL IMPACT OF THE INDUSTRIAL REVOLUTION

Focus Question: What were the social effects of the Industrial Revolution?

As you read this section in your textbook, complete the following table to understand the effects of industrialization.

Industrialization	Challenges	<ul style="list-style-type: none"> • Crowded cities • _____
	Benefits	<ul style="list-style-type: none"> • Created jobs • _____

CHAPTER
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SECTION 3

Section Summary

SOCIAL IMPACT OF THE INDUSTRIAL REVOLUTION

READING CHECK

Who made up the new middle class that emerged during the Industrial Revolution?

VOCABULARY STRATEGY

What does the word *contaminated* mean in the underlined sentence? What clues can you find in the surrounding words, phrases, or sentences? Circle the words in the paragraph that could help you figure out what *contaminated* means.

READING SKILL

Understand Effects How did the Industrial Revolution affect the lives of the working class?

The Industrial Revolution brought rapid **urbanization**, or the movement of people to cities. Changes in farming, soaring population growth, and a demand for workers led masses of people to migrate from farms to cities. Almost overnight, small towns that were located around coal or iron mines grew into cities. Other cities developed around the factories in once-quiet market towns.

Those who benefited most from the Industrial Revolution were the entrepreneurs who set it in motion. The Industrial Revolution created this new middle class, whose members came from a variety of backgrounds. While the wealthy and the middle class lived in pleasant neighborhoods, vast numbers of poor struggled to survive in slums. They packed into tiny rooms in **tenements** that had no running water and no sewage or sanitation system. Sewage rotted in the streets or was dumped into rivers, which created an overwhelming stench and contaminated drinking water. This led to the spread of diseases such as cholera.

The heart of the new industrial city was the factory. Working in a factory differed greatly from working on a farm. In rural villages, people worked hard, but the work varied according to the season. Some seasons were easier than others. The factory system imposed a harsh new way of life on workers. Working hours were long, with shifts lasting from twelve to sixteen hours, six or seven days a week. Exhausted workers were injured by machines that had no safety devices. Working conditions in the mines were even worse than in the factories. Factories and mines also hired many boys and girls. These children often started working at age seven or eight; a few were as young as five.

The early industrial age brought terrible hardships. In time, however, reformers pressed for laws to improve working conditions. **Labor unions** won the right to bargain with employers for better wages, hours, and working conditions. Despite the social problems created by the Industrial Revolution—low pay, dismal living conditions—the industrial age did have some positive effects. Wages rose. Also as the cost of railroad travel fell, more people could afford to travel further and faster than ever before.

Review Questions

1. What caused rapid urbanization to occur during the Industrial Revolution?

2. How did the factory system change the way people worked?

CHAPTER
19
SECTION 4

Note Taking Study Guide

NEW WAYS OF THINKING

Focus Question: What new ideas about economics and society were fostered as a result of the Industrial Revolution?

As you read this section in your textbook, complete the following outline to identify main ideas about the new economic and social theories.

<p>I. Laissez-faire economics</p> <p>A. Adam Smith and free enterprise</p> <p>1. _____</p> <p>2. _____</p> <p>II. Malthus on population</p> <p>A. _____</p> <p>1. _____</p> <p>2. _____</p> <p>3. _____</p> <p>B. _____</p> <p>1. _____</p> <p>2. _____</p> <p>III. _____</p> <p>A. _____</p> <p>1. _____</p> <p>2. _____</p> <p>IV. _____</p> <p>A. _____</p> <p>1. _____</p> <p>2. _____</p> <p>B. _____</p> <p>1. _____</p> <p>2. _____</p>
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(Outline continues on the next page.)

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SECTION 4

Note Taking Study Guide

NEW WAYS OF THINKING

(Continued from page 179)

V. _____

A. _____

1. _____

2. _____

VI. _____

A. _____

1. _____

2. _____

3. _____

B. _____

1. _____

2. _____

CHAPTER
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SECTION 4

Section Summary
NEW WAYS OF THINKING

Many thinkers tried to understand the staggering changes taking place in the early Industrial Age. These thinkers looked for natural laws that governed the world of business and economics. Middle-class business leaders embraced the *laissez-faire*, or “hands-off” approach, believing that a free market would eventually help everyone, not just the rich. However, one British *laissez-faire* economist, **Thomas Malthus**, felt that the population would grow faster than the food supply. As long as the population kept growing the poor would suffer. He opposed any government help including charity and vaccinations. He urged families to have fewer children.

Other thinkers sought to modify *laissez-faire* ideas to justify some government intervention. The British philosopher and economist **Jeremy Bentham** advocated **utilitarianism**, or the idea that the goal of society should be the “greatest happiness for the greatest number” of citizens. Bentham’s ideas influenced the British philosopher and economist John Stuart Mill. Although he strongly believed in individual freedom, Mill wanted the government to step in to improve the hard lives of the working class.

To end poverty and injustice, others offered a radical solution—**socialism**. Under socialism, the people, as a whole rather than as individuals, would own and operate the **means of production**—the farms, factories, railways, and other businesses that produced and distributed goods. A number of early socialists, such as **Robert Owen**, established communities where all work was shared and all property was owned in common. These early socialists were called Utopians.

Karl Marx, a German philosopher, formulated a new theory—a form of socialism called **communism**, in which the struggle between social classes would lead to the creation of a classless society. According to Marx, the modern class struggle pitted the bourgeoisie against the **proletariat**, or working class. In a classless, communist society, people’s struggles would end because wealth and power would be equally shared. In the 1860s, Germany adapted Marx’s beliefs to form a **social democracy** in which there was a gradual transition from capitalism to socialism.

Review Questions

1. Why did middle-class business leaders support *laissez-faire* economics?

2. How did utilitarians seek to modify *laissez-faire* ideas?

READING CHECK

Who were the Utopians?

VOCABULARY STRATEGY

What does the word *formulated* mean in the underlined sentence? What clue can you find in the base word, *form*? Use the meaning of *form* to help you figure out what *formulated* means.

READING SKILL

Identify Main Ideas Explain the main ideas of Karl Marx’s theory.
