Britain Takes the Lead

Prepare to Read Build Background Knowledge

Ask students to recall which of the events leading to the Industrial Revolution took place in Britain. (steam engine, improved iron) Then ask them to predict why Britain took the lead in the Industrial Revolution.

Set a Purpose

WITNESS HISTORY Read the selection aloud or play the audio.

Why did the ride seem so strange to Fanny Kemble? (There was no animal pulling them along—just a machine.) Ask students to predict why railways would be such an important development.

Focus Point out the Section Focus Question and write it on the board. Tell students to refer to this question as they read. (Answer appears with Section 2 Assessment answers.)

Preview Have students preview the Section Objectives and the list of Terms, People, and Places.

Note Taking Have students read this section using the Structured Read Aloud strategy (TE, p. T20). As they read, have students fill in the concept web showing factors that led to Britain’s early lead in industry.

Objectives

As you teach this section, keep students focused on the following objectives to help them answer the Section Focus Question and master core content.

■ Understand why Britain was the starting point for the Industrial Revolution.
■ Describe the changes that transformed the textile industry.
■ Explain the significance of the transportation revolution.

2

Britain Leads the Way

Objectives

• Understand why Britain was the starting point for the Industrial Revolution.
• Describe the changes that transformed the textile industry.
• Explain the significance of the transportation revolution.

Terms, People, and Places

capital
entrepreneur
enterprise
labor
natural resources

• Explain the significance of the transportation revolution.

Note Taking

Reading Skill: Identify Causes and Effects Fill in the circles of a concept web like the one below with the key factors that helped Britain take an early lead in industrialization. In a separate concept web, fill in the effects of Britain’s early lead.

When agricultural practices changed in the eighteenth century, more food was able to be produced, which in turn fueled population growth in Britain. The agricultural changes also left many farmers homeless and jobless. These two factors led to a population boom in the cities as people migrated from rural England into towns and cities. This population increase, in turn, created a ready supply of labor to mine the coal, build the factories, and run the machines. The start of the Industrial Revolution in Britain can be attributed to many factors. Population growth was just one of them.

Why Britain?

What characteristics of eighteenth-century Britain made it ripe for industrialization? Historians cite several reasons for Britain’s lead.

Natural Resources Abound Britain had the advantage of plentiful natural resources such as natural ports and navigable rivers. Rivers supplied water power and allowed for the construction of canals. These canals increased accessibility for trade and were instrumental in bringing goods to market. In addition, Britain was able to establish communications and transport relatively cheaply due to its easy accessibility to the sea from all points. Britain’s plentiful supply of coal was fundamental to its industrialization and was used to power steam engines. Vast supplies of iron were available to be used to build the new machines.
The Effects of Demand and Capital  

In the 1700s, Britain had plenty of skilled mechanics who were eager to meet the growing demand for new, practical inventions. This ready workforce, along with the population explosion, boosted demand for goods. In order to increase the production of goods to meet the demand, however, another key ingredient was needed. Money was necessary to start businesses.

From the mid-1600s to 1700s, trade from a growing overseas empire helped the British economy prosper. Beginning with the slave trade, the business class accumulated capital, or money used to invest in enterprises. An enterprise is a business organization in an area such as shipping, mining, railroads, or factories. Many businessmen were ready to risk their capital in new ventures due to the healthy economy.

In addition to the advantages already cited, Britain had a stable government that supported economic growth. While other countries in Europe faced river tolls and other barriers, Britain did not. The government built a strong navy that protected its empire, shipping, and overseas trade. Although the upper class tended to look down on businessmen, it did not reject the wealth produced by the new entrepreneurs. These entrepreneurs were those who managed and assumed the financial risks of starting new businesses.

**Checkpoint** What conditions in Britain paved the way for the Industrial Revolution?

**Resources and Industries in England, 1750**

Map Skills: plentiful supplies of coal, advancements in the textile industry, iron-smelting, and the manufacturing of iron goods contributed to Britain’s position as the world’s leading industrial nation in the late eighteenth century.

1. Locate (a) London; (b) Manchester; (c) Thames River
2. Region Identify the centers of the textile industry in England.
3. Draw Conclusions: What are the industrial advantages of the rivers during this time?

**Teach**

**Why Britain?**

**Instruct**

- **Introduce: Key Terms** Ask students to find the key term *entrepreneurs* (in blue) in the text and define it. Then ask what kinds of social and political conditions are favorable to entrepreneurs and new technology.
- **Teach** Discuss Britain’s resources. Use the Numbered Heads strategy (TE, p. T23) and ask students to define *capital*. Ask Where did British entrepreneurs get capital? (from trade) With whom did the British trade? (America, Canada, the Caribbean, Africa, India, China, the East Indies, Egypt) What were some of the items traded? (slaves, cotton, rum, tobacco, gold, tea, spices) Then ask them to recall what mercantilism was and how it benefited Britain.
- **Quick Activity** Have students access Web Code nbp-1921 to take the Geography Interactive Audio Guided Tour and then answer the map skills questions in the text.

**Independent Practice**

Have students fill in the Outline Map Industrial Cities in Great Britain and Ireland, 1800–1850. 

**Monitor Progress**

As students fill in their concept webs, circulate to make sure they distinguish major and minor factors. For a completed version of the concept web, see Note Taking Transparencies, T41.

Circulate to make sure students are filling in their Outline Maps accurately. Administer the Geography Quiz.

**Teach**

**Teaching Resources, Unit 2, p. 52**

**Answers**

- Britain’s natural and human resources, technological lead, demand for goods due to increased population, access to capital, and social and political conditions

**Map Skills**

1. Review locations with students.
2. Norwich, Ipswich, Exeter
3. Rivers were used to transport goods to and from factories and as power sources.

Chapter 7 Section 2 251
Transportation Revolution

The Textile Industry

The Industrial Revolution first took hold in Britain’s largest industry—textiles. In the 1600s, cotton cloth imported from India had become popular British merchants tried to organize a cotton cloth industry at home. They developed the putting-out system, also known as cottage industry, in which raw cotton was distributed to peasant families who spun it into thread and then were paid a toll, or fee, to use them. Goods traveled faster as a result, and turnpikes, toll roads of moving goods from place to place. Some capitalists invested in the towns then finished and dyed the cloth.

Inventions Speed Production

Under the putting-out system, production was slow. As the demand for cloth grew, inventors came up with a string of remarkable devices that revolutionized the British textile industry. For example, John Kay’s flying shuttle enabled weavers to work so fast that they soon outpaced spinners. James Hargreaves solved that problem by producing the spinning jenny in 1764, which spun many threads at the same time. A few years later, in 1769, Richard Arkwright patented the water frame, which was a spinning machine that could be powered by water.

Meanwhile, in America, those faster spinning and weaving machines presented a challenge—how to produce enough cotton to keep up with England. Raw cotton grown in the South had to be cleaned of dirt and seeds by hand, a time-consuming task. To solve this, Eli Whitney invented a machine called the cotton gin that separated the seeds from the raw cotton at a fast rate. He finished the cotton gin in 1793, and cotton production increased exponentially.

British Textile Inventions

- John Kay’s flying shuttle, 1733
- James Hargreaves’ spinning jenny, 1764
- Richard Arkwright’s water frame, 1769
- Eli Whitney’s cotton gin, 1793

The Transportation Revolution

As production increased, entrepreneurs needed faster and cheaper methods of moving goods from place to place. Some capitalists invested in turnpikes, private roads built by entrepreneurs who charged travelers a toll, or fee, to use them. Goods traveled faster as a result, and turnpikes became the basis for the railroad industry.

Engineering

Engineers apply science to designing products or processes that are useful to society. The engineering field is divided into four main branches: civil, electrical, mechanical, and chemical. Civil engineers build dams, bridges, highways, large buildings, and power plants. Mechanical engineers create everything from computers and electronics to missile guidance systems. Mechanical engineers work on engines, machinery, air conditioning and heating, automobiles, airplanes, and spacecraft. Chemical engineers help protect the environment and create products such as medicines, plastics, synthetic fibers, metals, and food. There are many other specialties. Engineering requires good math skills, mechanical ability, and an interest in taking things apart and solving problems.
soon linked every port of Britain. Other entrepreneurs had canals dug to connect rivers together or to connect inland towns with coastal ports. Engineers also built stronger bridges and upgraded harbors to help the expanding overseas trade.

Canals Boom During the late 1700s and early 1800s, factories needed an efficient, inexpensive way to receive coal and raw materials and then to ship finished goods to market. In 1761, when the Bridgewater canal opened, it not only made a profit from tolls, but it cut in half the price of coal in Manchester. The success of this canal set off a canal-building frenzy. Entrepreneurs formed companies to construct canals for profit. Not all the canals that were built had enough traffic to support them, however, and bankruptcy often resulted. Then, beginning in the 1830s, canals lost their importance as steam locomotives made railroads the new preferred form of transportation.

Welcome the Steam Locomotive It was the invention of the steam locomotive that made the growth of railroads possible. In the early 1800s, pioneers like George Stephenson developed steam-powered locomotives to pull carriages along iron rails. The railroad did not have to follow the course of a river. This meant that tracks could go places where rivers did not, allowing factory owners and merchants to ship goods swiftly and cheaply over land. The world’s first major rail line, from Liverpool to Manchester, opened in England in 1825. In the following decades, railroad travel became faster and railroad building boomed. By 1870, rail lines crossed over Britain, Europe, and North America.

One Thing Leads to Another As the Industrial Revolution got under way, it triggered a chain reaction. Once inventors developed machines that could produce large quantities of goods more efficiently, prices fell. Lower prices made goods more affordable and thus created more consumers who further fed the demand for goods. This new cycle caused a wave of economic and social changes that dramatically affected the way people lived.

Checkpoint Why was the development of railroads important to industrialization?