

The Beginnings of Industrialization

INDUSTRIAL REVOLUTION BEGINS IN BRITAIN

How did the Industrial Revolution begin?

The **Industrial Revolution** was the great increase in production that began in England during the 18th century. Before the Industrial Revolution, people made most goods by hand. By the middle of the 1700s, more and more goods were made by machines.

The Industrial Revolution began with an *agricultural revolution*. In the early 1700s, large landowners in Britain bought much of the land that had been owned by poorer farmers. The landowners collected these lands into large fields closed-in by fences or hedges. These fields were called **enclosures**. Many of the poor farmers who lost their lands became *tenant farmers*. Others gave up farming and moved to the cities.

New farm methods made farmers more productive. For example, Jethro Tull invented a seed drill that made planting more efficient. Farmers also practiced **crop rotation**. Crop rotation is the practice of planting a different crop in a different field each year.

The increase in farm *output* made more food available. People enjoyed better diets. The population of Britain grew. Fewer farmers were needed to grow food. More people began to make goods other than food. The growth in the number of people in cities to work in factories helped create the Industrial Revolution.

For several reasons, Britain was the first country to industrialize. **Industrialization** is the process of developing machine production of goods.

Great Britain had all the resources needed for industrialization. These resources included coal, water, iron ore, rivers, harbors, and banks. Britain also had all the **factors of production** that the Industrial Revolution required. These factors of production included land, labor (workers), and capital (wealth).

1. Why was Britain the first country to industrialize?

(WRITE ANSWER ON
← SEPARATE ANSWER SHEET)

INVENTIONS SPUR INDUSTRIALIZATION--*What inventions helped change business?*

The Industrial Revolution began in the *textile* industry. Several new inventions helped businesses make cloth and clothing more quickly. Richard Arkwright invented the water frame in 1769. It used water-power to run spinning machines that made yarn. In 1779, Samuel Compton invented the spinning mule that made better thread. In 1787, Edmund Cartwright developed the power loom. The power loom was a machine that sped up the cloth-making process.

These new inventions were large and expensive machines. Business owners built large **factories** to house and run these machines. These factories were built near rivers because these machines needed water-power to run them.

2. How was the textile industry changed by the new inventions?

(WRITE ANSWER ON
← SEPARATE ANSWER SHEET)

IMPROVEMENTS IN TRANSPORTATION; THE RAILWAY AGE BEGINS

The invention of the steam engine in 1705 brought in a new source of power. The steam engine used fire to heat water and produce steam. The power of the steam drove the engine. Eventually steam-driven engines were used to run factories.

At the same time, improvements were being made in transportation. Robert Fulton, an American, invented the first steam-driven boat. This invention allowed people to send goods more quickly over rivers and canals. Starting in the 1820s, steam brought a new burst of industrial growth. George Stephenson, a British engineer, set up the world's first railroad line. It used a steam-driven locomotive. Soon, rail-roads were being built all over Britain. The railroad *boom* helped business owners move their goods to market more quickly. It created thousands of new jobs in several different industries. The railroad had a deep effect on British society. For instance, people could now travel through- out the country more quickly.

3. What effects did the invention of the steam engine have?

(WRITE ANSWER ON
← SEPARATE ANSWER SHEET)

TERMS AND NAMES

Industrial Revolution Great increase in machine production that began in England in the 18th century

enclosure Large closed-in field for farming

crop rotation Planting a different crop in a different field each year

industrialization Process of developing machine production of goods

factors of production Conditions needed to produce goods and services

factory Building where goods are made

entrepreneur Person who organizes, manages, and takes on the financial risk of a business enterprise

Industrialization

Case Study: Manchester

TERMS AND NAMES

urbanization City building and the movement of people to cities

middle class A social class of skilled workers, professionals, business people, and wealthy farmers

INDUSTRIALIZATION CHANGES LIFE

How did industrialization change people's ways of life?

Industrialization brought many changes to the British people. More people could use coal to heat their homes, eat better food, and wear better clothing.

Another change was **urbanization**—city building and the movement of people to cities. For centuries, most people in Europe had lived in the country. By the 1800s, more and more people lived in cities, where they had come to find jobs.

Living conditions were bad in crowded cities. Many people could not find good housing, schools, or police protection. Filth, garbage, and sickness were part of life in the *slums*. A person in a city could expect to live 17 years. In the countryside, a person could expect to live 38 years.

Working conditions were also bad. The average worker spent 14 hours a day on the job, 6 days a week. Many workers were killed or seriously injured in accidents.

1. What were major changes in living conditions and working conditions? ← (WRITE ANSWER ON SEPARATE ANSWER SHEET)

CLASS TENSIONS GROW; POSITIVE EFFECTS OF THE INDUSTRIAL REVOLUTION

Who were the members of the middle class?

Some people's lives were improved in the new economy. The Industrial Revolution created new wealth for the **middle class**, which included skilled workers, professionals, business people, and wealthy farmers. People in the middle class enjoyed comfortable lives in pleasant homes. This class began to grow in size. Some people grew wealthier than the nobles who had been in control for many centuries.

The Industrial Revolution had many good effects. It created wealth. It created jobs for workers and over time helped many of them live better lives. It produced better diets, better housing, and better clothing at lower prices.

2. What were three positive effects of industrialization? ← (WRITE ANSWER ON SEPARATE ANSWER SHEET)

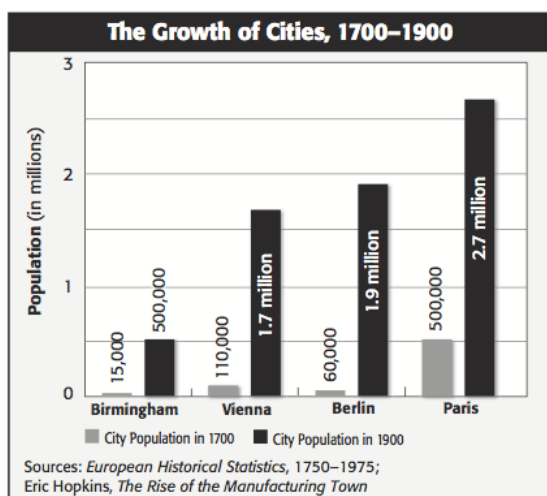
THE MILLS OF MANCHESTER--- *What changes occurred in Manchester?* ANSWER SHEET)

The English city of Manchester is a good example of how industrialization changed society. Rapid growth made the city crowded and filthy. The factory owners risked their money and worked long hours to make their businesses grow. In return, they enjoyed huge profits and built huge houses. The workers also worked long hours, but had few benefits. Many of these workers were children, some only six years old. The British government did not limit the use of children as workers until 1819.

The large amount of industry in Manchester caused environmental problems. Coal smoke and cloth dyes from the factories polluted the air and water. Yet, Manchester also created many jobs, a variety of consumer goods, and great wealth.

3. Why is Manchester a good example of how industrialization changed cities?

← (WRITE ANSWER ON SEPARATE ANSWER SHEET)



Skillbuilder

Use the graph to answer these questions.

1. How many years does this data cover?

(WRITE ANSWER ON SEPARATE ANSWER SHEET)

2. What was the rate of growth in Birmingham from 1700 to 1900?

(WRITE ANSWER ON SEPARATE ANSWER SHEET)

Industrialization Spreads

INDUSTRIAL Development in the United States---*How did industrialization begin in the United States?*

Other countries began to industrialize after Great Britain. The United States was one of the first. Like Britain, the United States had a great deal of coal and water to create power. There was also plenty of iron. In addition, the immigrants that came to the United States created a large supply of workers.

The United States also benefited from conflict with Britain. During the War of 1812, Britain stopped shipping goods to the United States. As a result, American industries began to make many of the goods that Americans wanted. In the United States, industrialization began in the textile industry. In 1789, Samuel Slater, a British worker, brought the secret of Britain's textile machines to North America. Slater built a machine to spin thread.

In 1813, a group of Massachusetts investors built textile factories in Waltham, Massachusetts. Just a few years later they built even more factories in the Massachusetts town of Lowell. Thousands of workers, mostly young girls, came to these towns to work in the factories.

American industry first grew in the Northeast. In the last decades of the 1800s, industrial growth spread to other areas of the nation. This boom was fueled by large supplies of coal, oil, and iron. New inventions, including the electric light, also helped. As in Britain, railroad building was also a big part of American industrial growth.

Businesses needed huge sums of money to do big projects. To raise money, companies sold **stock**. Stocks are shares of ownership in a company. All those who held stock were part owners of the company. This form of business organization is called a **corporation**.

1. How did industrialization begin in the United States?

(WRITE ANSWER ON
SEPARATE ANSWER SHEET)

CONTINENTAL EUROPE INDUSTRIALIZES---*Where did industrialization begin in Continental Europe?*

Industrial growth also spread from England to the European continent. Belgium was the first to industrialize. It was rich in iron and coal and had good waterways.

Germany was divided politically until the late 1800s. As a result, it did not develop much industry at first. However, the Ruhr Valley in Western Germany was rich in coal. The Ruhr Valley eventually became a leading industrial region. Across Europe, small areas began to change to the new industries. Industrial growth did not occur in France until after 1830. It was helped by the government's construction of a large network of railroads. Some countries, such as Austria-Hungary and Spain, faced transportation problems that held them back from industrializing.

2. Which nations industrialized first, and why?

(ANSWER ON SEPARATE ANSWER SHEET)

THE IMPACT OF INDUSTRIALIZATION---*How did industrialization change the world?*

The Industrial Revolution changed the world. Countries that industrialized gained more wealth and power than those that did not. The countries of Europe soon began to take advantage of lands in Africa and Asia.

The Europeans wanted to use these lands as sources of *raw materials* for their factories. European merchants saw the people on other continents as little more than markets for European goods. The European nations took control of the lands in many areas of the world outside of Europe. This practice is called *imperialism*.

The Industrial Revolution that took place in the 1700s and 1800s changed life forever in the countries that industrialized. Problems caused by industrialization led to movements for social reform.

3. How did industrialization lead to imperialism?

(WRITE ANSWER ON SEPARATE ANSWER SHEET)

Reforming the Industrial World

THE PHILOSOPHERS OF INDUSTRIALIZATION---*What is capitalism?*

Industrialization led to new ways of thinking about society. Some economists thought that the government should leave business owners alone. Their view is called **laissez faire**.

Adam Smith argued that governments should not put limits on business. He believed this freedom would help a

TERMS AND NAMES

stock Right of ownership in a company called a corporation

corporation Business owned by stockholders who share in its profits but are not responsible for its debts

nation's economy grow. He and others, including British economists Thomas

Malthus and David Ricardo, supported a system called **capitalism**. In a capitalist economy, people invest their money in businesses to make a profit. Smith and the others believed that society would benefit over time from this system. Supporters of *laissez faire* opposed laws to protect workers.

1. How does capitalism work?

← (WRITE ANSWER ON SEPARATE ANSWER SHEET)

RISE OF SOCIALISM; MARXISM; RADICAL SOCIALISM---

What is socialism?

Other thinkers challenged capitalist ideas. One group was called the utilitarians. According to **utilitarianism**, an idea or practice is good only if it is useful. The utilitarians thought it was unfair that workers should work so hard for such little pay and live in such poor conditions. They thought the government should work to end great differences in wealth among people.

Some thinkers wanted society as a whole to own businesses. This way a few people would not grow wealthy at the expense of everyone else. Instead, all people would enjoy the benefits of increased production. This view—called **socialism**—grew out of a belief in progress and a concern for justice and fairness.

A German thinker named **Karl Marx** proposed a form of socialism that became known as *Marxism*. He said that factory owners and workers would struggle for power. Over time, he said, the capitalist system would destroy itself. The great mass of workers would rebel against the wealthy few.

Marx wrote *The Communist Manifesto*. It described **communism**, a form of socialism in which production is controlled by the people. In the early 1900s, these ideas would bring revolution.

2. How are capitalism and socialism different?

← (WRITE ANSWER ON SEPARATE ANSWER SHEET)

LABOR UNIONS AND REFORM LAWS --- *How did workers take action to improve their lives?*

While thinkers discussed these different ideas, workers fought to improve their lives. Many workers joined **unions**. A union is a group of workers that tries to bargain with employers for better pay and better working conditions.

When employers *resisted* these efforts, the workers went on **strike**, or refused to work. British and American workers struggled for a long time to win the right to form unions. By the late 1800s, workers in both countries had made some progress.

The British Parliament and reformers in the United States also tried to fix other social problems. Britain passed laws to limit how much work women and children could do. Groups in the United States pushed for similar laws.

3. How did both the government and workers themselves try to improve workers' lives?

← (WRITE ANSWER ON SEPARATE ANSWER SHEET)

THE REFORM MOVEMENT SPREADS---*What other reforms were taking place at this time?*

Another major reform movement of the 1800s was the effort to *abolish* slavery. The British Parliament ended the slave trade in 1807. It then abolished slavery throughout British territories in 1833.

Slavery was finally abolished in the United States in 1865, after the Civil War. Spain ended slavery in Puerto Rico in 1873 and in Cuba in 1886. In 1888 Brazil became the last country to *ban* slavery.

Women were active in many reform movements. As they fought for the end of slavery, many women began to fight for equal rights for women. The movement for equality began in the United States in 1848. In 1888, women from around the world formed a group dedicated to this cause.

Reformers took on other projects as well. Some pushed for—and won—improved education. Others tried to improve conditions in prisons.

4. Name two major reform movements of the 1800s.

← (WRITE ANSWER ON SEPARATE ANSWER SHEET)

TERMS AND NAMES

laissez faire Economic theory that argues that governments should not interfere with business affairs

Adam Smith Philosopher who defended *laissez faire* economics

capitalism Economic system in which people invest money to make a profit

utilitarianism Belief that an idea is only as good as it is useful

socialism Belief that businesses should be owned by society as a whole

Karl Marx Economic thinker who wrote about a radical form of socialism

communism Form of socialism in which all production is owned by the people

union Organized groups of workers that bargain with business owners to get better pay and working conditions

strike Organized refusal to work