The making of the modern world and Australia →

The Stage 5 curriculum provides a study of the history of the making of the modern world from 1750 to 1945. It was a period of industrialisation and rapid change in the ways people lived, worked and thought. It was an era of nationalism and imperialism, and the colonisation of Australia was part of the expansion of European power. The period culminated in World War I (1914–1918) and World War II (1939–1945).

KEY INQUIRY QUESTIONS

- What were the changing features of the movement of peoples from 1750 to 1918?
- How did new ideas and technological developments contribute to change in this period?
- What were the origin, development, significance and long-term impact of imperialism in this period?
- What was the significance of World Wars I and II?

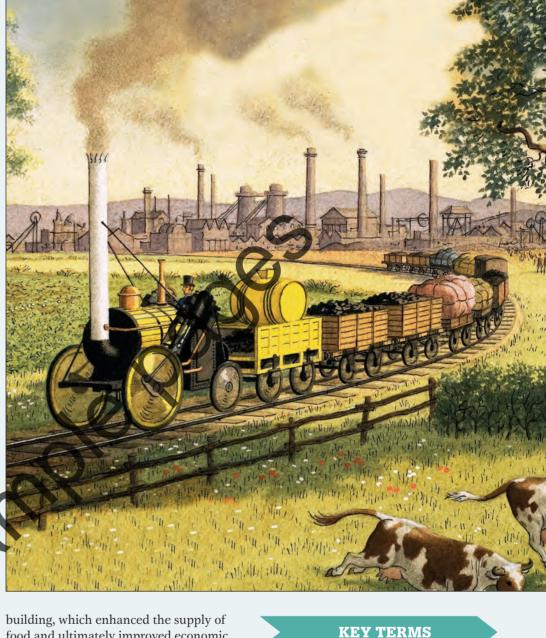
INTRODUCING THE CHAPTER

Depth study 1: 'Making a better world?'

As part of Depth Study 1: 'Making a better world?' teachers may elect to study 'The Industrial Revolution'.

Chapter content

Unit 1 'The agricultural revolution describes the history of agriculture and it connection with the Industrial Revolution. Unit 2 'The beginning of the Industrial Revolution' explains the links between developments in eighteenth-century coal mining and the Industrial Revolution. Unit 3 'The British Empire and raw materials' looks at the dual aspects of Britain's expansive nineteenth century empire and the raw materials it produced. Unit 4 'Inventions of the industrial age' includes explanations of the move from the centuries-old spinning wheel to the spinning jenny as well as the developments of metallurgy and the use of steam. Unit 5 'Rise of the middle class' links changes in class structure, increase in crime and the establishment of the colonies in Australia. Unit 6 'Impacts of the Industrial Revolution' explains improvements in road-



building, which enhanced the supply of food and ultimately improved economic growth. Unit 8 'Consequences of the Industrial Revolution' considers the eventual global population explosion and consumerism. Unit 9 'Investigating history: The Industrial Revolution' suggests a range of activities to support understanding of the Industrial Revolution.

Using sources and evidence

Unit 7: 'Working conditions' addresses the problems that arose, such as unregulated child labour and the dangers of working with machines.

Industrial Revolution—long period of rapid economic growth beginning in the eighteenth century that transformed the economies of Europe from agricultural to industrial

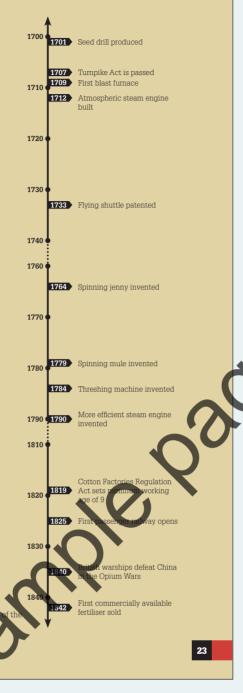
mass consumption—large scale buying of goods and services by a population

CHAPTER 2

The Industrial Revolution

Introduction

The Industrial Revolution, which began in Britain in about 1760, saw a number of factors—population growth, increasing world trade, innovations in technology and new business practices—combine to cause an explosion in industrial output and massive upheaval in people's lives. The Industrial Revolution was the start of the modern world of expanding economies and mass consumption.



Source 2.0.1 The new steam trains made transportation of goods much easier.

PREPARATION FOR TEACHING

Suggestions for introducing the Industrial Revolution

- Revolution' means and search the internet for definitions. Students discuss changes that the Technology Revolution has brought about in terms of employment, communication and interaction. Students should be encouraged to consider the positives and negatives of these changes and which groups in our society have embraced these changes and which have found them difficult.
- Present students with four images of the Industrial Revolution not in the Student Book. Students brainstorm what is being represented.
- Read an extract from a novel about life during the Industrial Revolution, such as *Hard Times* by Charles Dickens. Use the reading to generate discussion.

Historical skills: Analysis and use of sources

The Industrial Revolution's impact on the countryside

MI: visual-spatial, verbal-linguistic Students refer to Source 2.0.1.

1 What changes, brought about by the Industrial Revolution's factories and

PREPARATION FOR TEACHING CONVINUED

the invention of the train, can be observed in this painting?

Answer

1 Sample answer: There are factories in the background, with smoke billowing out of them, while previously this would have been countryside; the train is emitting undesirable smoke, polluting the environment; two cows are running from the train.

IN A NUTSHELL

The Industrial Revolution began in Britain and spread first to Europe and North America and later to the rest of the Western world. There were transformations from 'cottage industry' (where goods were hand-produced in homes and rudimentary agricultural systems) to mass-produced factory merchandise. Mechanised agriculture had its greatest impetus from the introduction of coal fuelled steam power. The changes brought about by the Industrial Revolution greatly impacted on social and economic aspects of day-to-day living and are largely responsible for the development of cities of today.

Digital Resource Web Destinations Information about releving is available on eBook. It is students may search for



Information about relevant websites is available on eBook. In addition, students may search for websites using specific search terms.

Pre-test

Students complete the Review Quiz available on eBook to gather pre-existing knowledge on The Industrial Revolution

PEARSON history NSW 9 A.B. Chapter 2: The Industrial Revolution

Outcomes >>

A student:

- explains and assesses the historical forces and factors that shaped the modern world and Australia
- explains and analyses the causes and effects of events and developments in the modern world and Australia
- uses relevant evidence from sources to support historical narratives, explanations and analyses of the modern world and
- applies a range of relevant historical terms and concepts when communicating an understanding of the past
- selects and uses appropriate oral, written, visual and digital forms to communicate effectively about the past for different audiences

Content ▶▶

The technological innovations that led to the Industrial Revolution, and other conditions that influenced the industrialisation of Britain (the agricultural revolution, access to raw materials, wealthy middle class, cheap labour, transport system and expanding empire) and of Australia

Students:

- describe key features of the agricultural revolution in Britain, including the emergence of a cheap labour force
- identify key inventors and their inventions and discuss how some of these inventions affected transport and manufacturing in this period

Historical skills ▶▶

Comprehension: chronology, terms and concepts

- read and understand historical texts
- sequence historical events to demonstrate the relationship between different periods, people and places

Analysis and use of sources

 process and synthesise information from a range of sources as evidence in an historical argument

Explanation and communication

 select and use a range of communication forms, such as oral, graphic, written and digital, to communicate effectively about the past for different audiences and different purposes



A growing business

There was a direct relationship between agricultural changes and the Industrial Revolution. New ideas and technologies enabled farmers to produce more food. More food allowed the population to grow, shown in 2.1.1. More people meant more workers to fill factories, and more consumers for the goods those factories produced. In turn, more factories produced more machines, which helped farmers grow more food, which led to an even higher population.

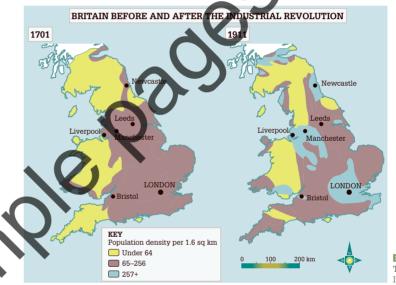
Finding a starting point for this spiral of increasing demand is difficult. There is agreement that an important factor was the **enclosure** of common land, which had been going on for at least 100 years before the Industrial Revolution, and resulted in fewer but larger and more efficient farms. The other factor was a series of technological breakthroughs.

Sowing the seeds

Prior to the eighteenth century, seed planting in Europe meant scattering seeds by hand along shallow trenches in the soil called furrows. This was quite wasteful because many seeds did not end up at the required depth, or were too spaced out or too crowded, with the result that only about one in five grew into a harvestable plant.

The seed drill

The answer was a seed drill, a tube-like device that poked into the ground to the ideal depth and then released a seed. Simple seed drills had been in use for since 3000 BCE, but it wasn't until 1701 that the English inventor Jethro Tull produced a refined version of this old idea, and seed sowing in Britain was transformed (see Source 2.1.2).



Source 2.1.1
The impact of the
Industrial Revolution

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KEY CONCEPTS

- There was a direct link between changes in agriculture and the Industrial Revolution
- Improvements in agricultural production meant there was more food, which allowed the population to expand and population growth provided more factory workers as well as more consumers

KEY TERMS

common land—term used in medieval England for land that belonged to the lord of the manor who allowed local people free use of land for their farming enclosure—process lasting from the 1500s to the 1800s of enclosing formerly common lands and creating large, privately owned farms

harrow—implement with a flat base and long teeth, which smooths the ground after ploughing or digs up the ground, depending on how it is attached hoe—long-handled implement with a flat blade at the end used to dig up weeds



Source 2.1.2 Plough invented by Jethro Tull, Diderot Encyclopedie, Paris 1751-80

Tull's horse-drawn device cut furrows, deposited seeds through hollow tubes and then smoothed the soil over with a harrow attached to its rear. This not only made sowing much faster, it also assisted with weeding. This is because weeds growing next to crops planted in neat rows can be easily and efficiently dug up with a hoe without damaging the plants

The threshing machine

Invented in 1784, Meikle's first threshing machine was about the size of a piano, and cereal stalks had to be fed into it by hand. The design was gradually improved, until the invention of the combine harvester, which travels through cereal crops, cutting stalks and separating grain at the same time.

The Swing Riots

The threshing machine's impact was so great it is credited with causing the Swing Riots of the 1830s. Whereas hundreds of workers used to be needed to thresh, cereal automation reduced that to a handful. Vast unemployment resulted and some of those

unemployed formed into gangs who roamed the countryside and destroyed more than 100 threshing machines. Authorities responded by hanging nine rioters (hence 'Swing' Riots) and transporting 450 to Australia.

Fertiliser use

During the seventeenth century scientists came to understand how fertiliser helped plants grow. This led to the invention of more effective synthetic fertilisers. which combined naturally occurring substances such as sodium nitrate, phosphate and potash. English agricultural scientist John Lawes developed a phosphate-rich substance, which he called 'superphosphate'. Superphosphate became the first commercially available fertiliser in the world in 1842.

A turning point

Historians estimate that in 1720, a typical British farm yielded 19 bushels of wheat per acre (a bushel of wheat weighs just over 27 kilograms), and that by 1850 this had risen to 30 bushels. Increases in yield were essential to support a population that grew from nearly nine million in 1800 to nearly seventeen million in 1851.

ACTIVITIES

Remembering and understanding

- 1 Why do many historians regard the enclosure of common land as the start of the Industrial Revolution?
- 2 What is superphosphate, and why was it important to the agricultural revolution in

Applying and analysing

- 3 Write a concise essay that iden discusses key changes over t a result of the agricult
- 4 Study Source 2.1.1 and in population dens

Chapter 2 The Industrial Revolution

TEACHING AND LEARNING STRATEGIES

Extension activity

Impacts of changes in agriculture MI: verbal-linguistic

- 1 Students research the 1700s Enclosure Acts and construct a table to record the positive and negative effects.
- Which of the inventions listed in Unit 1 still have an impact on agriculture today? Are the original inventions still in use?

Answers

Sample answer:

Positive impacts

- Because animals could now be fenced they were contained and less likely to spread diseases to other animals.
- Farmers who now had larger plots of land began crop rotation to improve the soil.
- The land was more fully utilised; prior to enclosure, common land often included strips of land that were not used.

Negative impacts

- After enclosure poorer farmers were allocated small plots of land, sometimes without access to waterways. They couldn't compete with the farmers who were now working large farms.
- Many farmers, who had been working alone on small plots of land, were evicted, even though their ancestors had worked the land for generations.
- Farmers who were evicted from their farms were often forced to live in cities and work in factories with very poor working conditions.

TEACHING AND LEARNING STRATEGIES CONTINUED

2 Sample answer:

- Jethro Tull's seed drill: seed drills have been further developed over time but are still based on the seed drill machine invented by Tull.
- Andree Meikle's threshing machine: by 1880 the first combine harvesters were available. These were a combination of Meikle's threshing machine and a reaper invented by Cyrus McCormick early in the nineteenth century.
- John Lawes' Superphosphate fertiliser: today superphosphate is used in domestic gardens. In commercial farming Lawes' superphosphate has largely been replaced by triple aperphosphate and ammonium phosphate, both developed from Lawes' fertiliser.

ACTIVITY ANSWERS

Remembering and understanding

- Because it was the main starting point for increase in food production
- It is a fertiliser made by digging up fossilised dinosaur droppings (coprolites) and treating them with sulphuric acid, which produces a phosphate-rich substance. It was the first commercially available fertiliser in the world and helped increase the quality and quantity of harvest yields.

Applying and analysing

- **3** Answers may include the following points:
 - Agricultural revolution was an essential part of the growth spiral that characterised the Industrial Revolution
 - Agricultural revolution also caused suffering and unrest amongst agricultural workers
 - The period from the mid-1700s marked a turning point, after which agricultural output kept climbing
- **4** By 1901, there were several large areas of Britain with an increased population density of 257+ per 1.6 sq km. These were centred around the manufacturing cities of Liverpool, Manchester, Newcastle, Bristol and the capital city, London. This shows the impact of the Industrial Revolution both on population size and distribution.

Outcomes by

A student:

- explains and assesses the historical forces and factors that shaped the modern world and Australia
- sequences and explains the significant patterns of continuity and change in the development of the modern world and Australia
- explains and analyses the causes and effects of events and developments in the modern world and Australia
- uses relevant evidence from sources to support historical narratives, explanations and analyses of the modern world and Australia
- applies a range of relevant historical terms and concepts when communicating an understanding of the past
- selects and uses appropriate oral, written, visual and digital forms to communicate effectively about the past for different audiences

Content ▶▶

The technological innovations that led to the Industrial Revolution, and other conditions that influenced the industrialisation of Britain (the agricultural revolution, access to raw materials, wealthy middle class, cheap labour, transport system and expanding empire) and of Australia

Students:

- outline the main reasons why the Industrial Revolution began in Britain
- describe key features of the agricultural revolution in Britain, including the emergence of a cheap labour force
- identify key inventors and their invention and discuss how some of these inventi affected transport and manufacturing in this period

Historical skills ▶▶

Comprehension: chronology, terms and concepts

- read and understand historical texts
- use historical terms and concepts in appropriate contexts
- sequence historical events to demonstrate the relationship between different periods, people and places

Analysis and use of sources

a range of sources as evidence in an historical argument



King coal

For thousands of years wood provided the energy needed for Britain's homes and workshops. But by the 1700s forests were shrinking, meaning wood had to carried even further to where it was needed. Coal, which produces three times as much energy as wood when burned, had been used as a fuel by humans since prehistory. But it was not widely used because it was hard to dig out of the ground.

Among the materials that are dug because they are useful.

Source 2.2.1 Ancient Greek scientist Theophrastus describing coal

Horse versus steam

By the early 1700s, horse-powered pumps we draining groundwater from mine shafts about 30 metres deep, but beyond that of groundwater was too much for pu The first commercially viable st by Thomas Newcomen in 17 twenty horses and could pur of metres underground (se meant the output of coal m The engine enabled coal to v increased. nined from much al to b deeper underground, a plentiful and cheap energy source

plentiful and close to the sea oved to cities by boat (then the of transport). By 1790, Scottish Watt's steam engine had replaced lewcomen engine. Due to an apparently ıstible supply of cheap energy, Britain was o lead the world into the Industrial Age.

Power from ideas

The century leading up to the Industrial Revolution was known as the Age of Reason, or the Enlightenment. During that time many vital scientific discoveries were made. For example, Isaac Newton found out how gravity worked and Robert Boyle identified the physical properties of air and gas. But more than just individual discoveries, this period produced the idea of progress. The Enlightenment was a time when society started to question religious explanations for the world and increasingly believed that the world was controlled by human will and reason.



Source 2.2.2 The atmospheric steam engine, invented by

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- plan historical research to suit the purpose of an investigation
- identify, locate, select and organise information from a variety of sources, including ICT and other methods

Explanation and communication

select and use a range of communication forms, such as oral, graphic, written and digital, to communicate effectively about the past for different audiences and different purposes

KEY CONCEPTS

- By the eighteenth century, supply of wood from forests was less plentiful and more efficient methods of coal mining were needed so coal could replace wood as the more viable fuel
- The invention of the steam engine was the key impetus for improvements in mining, industry and transport
- The era of the Enlightenment encouraged new ideas
- Compared to European countries, Britain's more liberal and democratic society provided people the freedom to pursue wealth through new means

process and synthesise information from

Freedom to make money

At the beginning of the Industrial Revolution, Britain was a more liberal and democratic society than most of Europe. The British were relatively free to think and do what they wanted compared to people in countries still dominated by dictatorial monarchs or conservative churches. This extended to the freedom to become an entrepreneur, which is to set up a business with the aim of becoming rich.

Two men who took advantage of this situation were Matthew Boulton, who owned an engineering works in Birmingham, and a self-taught Scottish scientist named James Watt. Together they formed Boulton & Watt, which built increasingly efficient steam engines. Initially, Boulton & Watt supplied the coal-mining industry. But as other entrepreneurs saw the opportunities this new power-source presented, steam power spread into industries such as distilling, flour making, paper manufacturing, and cotton and iron mills, massively increasing the output of each.

Power from the people

These new industries needed a cheap labour force, and Britain had a surplus of workers due to the trend towards the enclosure of formerly common land. In late medieval times, farming peasants had cultivated small strips of land that they owned, and shared large areas of common land with other farmers for activities such as grazing. But from the 1500s, in a drive for efficiency, this system was replaced. Common land was fenced off by rich landowners and worked for their personal benefit. Many farming peasants could not survive on the land they owned and were forced to find new sources of income. Many left their farms to find jobs in the new industries.

Enclosure. for better or worse

Some historians have argued that the enclosure process, which was supported by Acts of Parliament, was little more than on-going theft from villagers by wealthy landowners. Others have argued that Parliament's enclosure acts had little impact due to the fact there had been land closures happening for centuries before. The trend towards individual ownership of land was inevitable because it was more productive. Enclosure produced a large number of former farmers, who converged on the cities and the emerging factories seeking work.

'But I do not think that this necessity of stealing arises only from hence; there is another cause of it, more peculiar to England.' 'What is that?' said the Cardinal: 'The increase of pasture,' said I, 'by which your sheep, which are naturally mild, and easily kept in order, may be said now to devour men and unpeople, not only villages, but towns; for wherever it is found that the sheep of any soil yield a softer and richer wool than ordinary, there the nobility and gentry, and even those holy men, the abbots not contented with the old rents which their farms yielded, nor thinking it enough that they, living at their ease, do no good to the public, resolve to do it hurt instead of good. They stop the course of agriculture, destroying houses and towns, reserving only the churches, and enclose grounds that they may lodge their sheep in them.

Source 2.2.3 Sir Thomas More describes the early impact of land enclosure in *Utopia*, published in 1516

ACTIVITIES

Remembering and understanding

- In a paragraph, identify two reasons why coal was not used as a major energy source until the Industrial Revolution.
- Industrial Revolution.

 2 Summarise why entrepreneurs were important to the Industrial Revolution.

Applying and analysing

- 3 In an extended paragraph, appraise the following statement: Ideas were as important as technology in bringing about the Industrial Revolution.
- 4 a Demonstrate how the land exclosure created a cheap labour force
 - **b** The benefits of land enclosure outweights the negatives.

Chapter 2 The Industrial Revolution

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KEY TERMS

Age of Reason (Enlightenment)-

eighteenth-century intellectual movement that promoted rational thought as the basis of knowledge

groundwater—water that collects below the ground

ACTIVITY ANSWERS

Remembering and understanding

- 1 Answers should include the following points: there was plenty of wood available close by, coal had to be dug up from under the ground, it was only possible to dig a short distance underground before groundwater flowed into the mine faster than hand- or horse-powered pumps could take it out.
- 2 Britain allowed freedom to its citizens to set up businesses and try to get rich. Scientists, engineers and business people invented new products and set up new companies with the aim of meeting a need in the market, selling their products, and making money for themselves. This produced a wave of innovation that no nation in the world could match.

Applying and analysing

- Technology is based on science.
 Scientists had to first understand things such as physics and chemistry before inventors could come up with new devices that worked according to these newly-discovered principles.
- The century leading up to the Industrial Revolution was known as the Age or Reason, or the Enlightenment, and during this period many key scientific discoveries were made, for example, Isaac Newton discovered how gravity worked, and Robert Boyle discovered the physical properties of air and gas.
- The Enlightenment led to the idea of progress. Society 'attached itself firmly to the notion that the world is increasingly controllable by human will and reason'.
- 4 a Prior to the enclosure of common land, peasants had cultivated small strips of land they owned and shared large areas with other farmers. From the 1500s this common land was fenced off for grazing. Many peasant farmers locked out of these areas struggled to survive. Many were forced to leave their farms and find new sources of income.
 - **b** Answers should include:
 Benefits: more food produced; new labour force; rise of factories; start of Industrial Revolution
 Negatives: peoples' lives changed; poverty; forced to move to cities

Outcomes **>>**

A student:

- sequences and explains the significant patterns of continuity and change in the development of the modern world and Australia
- applies a range of relevant historical terms and concepts when communicating an understanding of the past
- selects and uses appropriate oral, written, visual and digital forms to communicate effectively about the past for different audiences

Content ▶▶

The technological innovations that led to the Industrial Revolution, and other conditions that influenced the industrialisation of Britain (the agricultural revolution, access to raw materials, wealthy middle class, cheap labour, transport system and expanding empire) and of Australia

Students:

- locate the growth and extent of the British Empire from 1750 to 1900
- identify the raw materials Britain obtained from its empire, eg sugar from Jamaica, wool from Australia, and cotton and tea from India

The short- and long-term impacts of the Industrial Revolution, including global changes in landscapes, transport and communication

Students:

- assess the short-term and long-term impacts of the Industrial Revolution including:
 - global changes in landscape
 - transport
 - communication

Historical skills ▶

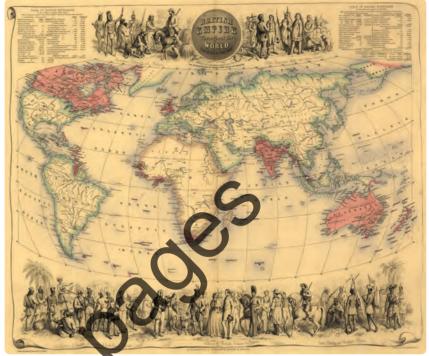
Comprehension: chronology, terms and concepts

- read and understand historical texts
- use historical terms and concepts in appropriate contexts
- sequence historical events to demonstrate the relationship between different periods, people and places

Empathetic understanding

• interpret history within the context of the actions, values, attitudes and motives of people in the context of the past





Source 2.3.1 An 1850 map celebrating the British Empire—marked in pink—and its diverse peoples

ea strength

Dring the Industrial Revolution, Britain's growing empire, shown in Source 2.3.1, fed industry with materials and new markets. In return, industry gave the impire the technologies it required to navigate, exploit and conquer a large portion of the world. The result was the largest **free trade** area in the world, serviced by a commercial shipping fleet that grew from 3300 vessels in 1702 to 9400 in 1776.

This commercial shipping fleet brought goods and foods flooding into Britain, and fed the further growth of industry and the British population—from six million people in 1760 to nine million people in 1801. In turn, increasing economic dependence on imports and exports between Britain and its colonies necessitated the building of an ever-more-powerful navy to protect Britain's colonial possessions and the shipping lanes to and from them.

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Explanation and communication

 select and use a range of communication forms, such as oral, graphic, written and digital, to communicate effectively about the past for different audiences and different purposes

KEY CONCEPTS

- During the Industrial Revolution, Britain's growing empire provided new markets for the products of the expanding industries
- The agricultural system changed with the enclosure system

KEY TERMS

British Empire—one of the largest empires of its time, making Britain a global power that dominated world politics over 100 years during the mid-sixteenth to mid-seventeenth centuries. It consisted of British-controlled colonies and territories on every continent, hence the saying 'The sun never sets on the British Empire.' enterprise—business or company imperialists—those relating to or supporting empire-building. Imperialism is the policy of extending the authority of a nation over other countries.



Source 2.3.2 Slaves cut ripe sugar cane in the British colony of Antigua in the West Indies, in a painting by William Clark. 1823

Sugar rush

In 1640, British settlers on the Caribbean island of Barbados, having failed in their attempts to grow cotton or tobacco, found sugar cane springing up in its place. Sugar cane was required to make sugar and only grew in the tropics, so a huge enterprise developed to feed Europe's insatiable appetite for sweetened foods. The labour needed to grow such large amounts of cane soon outstripped the available population. In response to the labour shortage, unscrupulous traders started shipping in slaves from Africa—in total, about six million over 100 years. The result, along with death and misery for the slaves, was a British **monopoly** on sugar that lasted a century (see Sources 2.3.2 and 2.3.3).

Source 2.3.3 A monument by artist Clara Sornas in the former slave market in Stonetown, Zanzibar, Africa. Here African prisoners were sold to slave traders from Britain and other nations.



Chapter 2 The Industrial Revolution

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KEY TERMS CONTINUED

pounds sterling—basic monetary unit of the United Kingdom, equal to 100 pence **shipping lanes**—routes regularly used by ships

TEACHING AND LEARNING STRATEGIES

Historical skills: Comprehension: chronology, terms and concepts/analysis and use of sources/perspectives and interpretations/research/explanation and communication

A 'Jack Tar' and Napoleon MI: visual-spatial, verbal-linguistic Students refer to Source 2.3.4. They complete further research and explain the symbolism used in the source.

TEACHING AND LEARNING STRATEGIES CONTINUED

Answer

Sample answer: The British sailor is protecting England, stormy clouds are indicating troubled times, Napoleon is wearing a tricolour rosette popular during the French Revolution symbolising the republic he is representing, the British sailor has a more secure position indicating that he holds the power, while Napoleon is about to topple off.

Historical skills: Analysis and use of sources/explanation and communication

Sea Strength graphs

MI: visual-spatial, logical-mathematical

- 1 Students read 'Sea Strength' and produce bar graphs indicating the following.
 - a Increase in Britain's commercial fleet between 1702 and 1776
 - b Increase in Britain's population between 1760 and 1801

Answers

Bar graphs to show:

- a 1702: Britain's commercial fleet was at 3300
 1776: Britain's commercial fleet was at 9400
- **b** 1760: Britain's population was six million 1801: Britain's population was nine million