



HISTORY

Year 8

Industrial Revolution

Key Words

Industrial Revolution	A time of great change in Britain between 1750 to 1900.
Population	The number of people living in a particular place.
Invention	Something new which is created, can be an object or an idea.
Economy	The system of how money is used within a particular country.
Agriculture	The process of producing food and fibres, by farming of certain plants or raising animals.
Poverty	The lack of basic human needs such as clean water, nutrition, healthcare, education and shelter.
Sanitation	Sanitation is the system that disposes of human waste.
Industry	The process of making products by using machines and factories.
Mass Production	The production of many products in one go e.g. textiles.

From 1750 Britain went through a process of change in a number of key areas:

- **Agriculture** - Charles 'Turnip' Townshend introduced the Norfolk four-course rotation of wheat– turnips–barley–clover to his farm and Robert Bakewell used selective breeding to develop the New Leicester sheep. Arthur Young promoted new methods to a wider audience.
- **Industry** - Richard Arkwright's Mill at Cromford heralded 'the Factory Age' of the textile industry; production of iron increased 30-fold and production of coal increased 20-fold. Newcomen and Watt contributed to the development of steam power to drive machinery more efficiently.
- **Transport and communications** - Thomas Telford built roads and canals in the 1700s and George Stephenson and Isambard Kingdom Brunel oversaw the 'Railway Mania' of the 1800s. There had previously been no very fast way of transporting goods and people around the country. However, canals did already exist and so most materials were transported by boat to towns and cities, which had to be located on canal routes.

There were also many scientific discoveries and technological inventions that changed society and industry.

Key Inventions

<p>The Water Frame -1769 Richard Arkwright invented a machine, powered by water, to spin cotton into yarn, quickly and easily. His machines did not need skilled operators so Arkwright paid unskilled women and others to work on them. This invention allowed factories and mills to be built.</p>	<p>The Steam Engine – 1717 Thomas Newcomen invents the first steam engine. It would later be improved by James Watt, which meant steam engines could replace water and horse power in a wide variety of industries, which in turn allowed factories to be built anywhere.</p>
<p>The Spinning Jenny - 1770 James Hargreaves, a British carpenter and weaver, invents the Spinning Jenny. The machine spins more than one ball of yarn or thread at a time, making it easier and faster to make cloth. This allows more workers to make cloth more cheaply, and increases the amount of factories built.</p>	<p>The Locomotive - 1814 Richard Trevithick was a pioneer in early steam engine technology. He developed a new high-pressure steam engine which could be used to reliably move goods and passengers. This invention made transport much easier and quicker.</p>

Living Conditions

In 1750, only about 15 per cent of the population lived in towns. By 1900 it was 85 per cent. This meant that there were far more people around to work in new industries, but also caused problems, because many more people needed foods and homes. This meant that poverty was increasing.

By 1900, London had 4.5 million inhabitants. The biggest other towns were Glasgow with 760,000 inhabitants and Liverpool with 685,000. Manchester and Birmingham had more than half a million people each. Much of the population had moved from the South-East to the industrialised coalfield areas in the North and the Midlands.

- **Pollution:** coal was used to heat houses, cook food and heat water to produce steam to power machines in factories. The burning of coal created smoke, which led to terrible pollution in the cities.
- **Overcrowding:** due to large numbers of people moving to the cities, there were not enough houses for all these people to live in. Low wages and high rents caused families to live in as small a space as possible. Sometimes whole families lived in one room.
- **Disease:** typhus, typhoid, tuberculosis and cholera all existed in the cities of England. Cholera reached England for the first time in 1830, and there were further major epidemics in 1832 and 1848. Overcrowding, housing of a low standard and poor quality water supplies all helped spread disease.
- **Waste disposal:** gutters were filled with litter and the streets were covered in horse manure, collected by boys to sell to farmers. Human waste was discharged directly into the sewers, which flowed straight into rivers. In London, Parliament had to stop work because the smell from the Thames became too much.
- **Poor quality housing:** houses were built very close together, so there was little light or fresh air inside them. They did not have running water and people found it difficult to keep clean. Houses often suffered from damp, due to their thin walls and roofs made out of cheap materials. Many households had to share a single outside toilet, that was little more than a hole in the ground.
- **Lack of fresh water:** people could get water from a variety of places, such as streams, wells and stand pipes, but this water was often polluted by human waste.

Factory Conditions

- **Long working hours:** normal shifts were usually 12-14 hours a day, with extra time required during busy periods. Workers were often required to clean their machines during their mealtimes.
- **Low wages:** a typical wage for male workers was about 15 shillings (75p) a week, but women and children were paid much less, with women earning seven shillings (35p) and children three shillings (15p). For this reason, employers preferred to employ women and children. Many men were sacked when they reached adulthood; then they had to be supported by their wives and children.
- **Cruel discipline:** there was frequent "strapping" (hitting with a leather strap). Other punishments included hanging iron weights around children's necks, hanging them from the roof in baskets, nailing children's ears to the table, and dowsing them in water butts to keep them awake.
- **Fierce systems of fines:** these were imposed for talking or whistling, leaving the room without permission, or having a little dirt on a machine. It was claimed that employers altered the time on the clocks to make their workers late so that they could fine them. Some employers demanded that their overseers raise a minimum amount each week from fines.
- **Accidents:** forcing children to crawl into dangerous, unguarded machinery led to many accidents. Up to 40 per cent of accident cases at Manchester Infirmary in 1833 were factory accidents.
- **Health:** cotton thread had to be spun in damp, warm conditions. Going straight out into the cold night air led to many cases of pneumonia. The air was full of dust, which led to chest and lung diseases and the loud noise made by machines damaged workers' hearing.
- **Parish apprentices:** orphans from workhouses in southern England were "apprenticed" to factory owners, supposedly to learn the textiles trade. They worked 12-hour shifts, and slept in barracks attached to the factory in beds just vacated by children about to start the next shift.

Key Individuals

Edward
Jenner

John
Snow

Isambard
Kingdom
Brunel

Seebohm
Rowntree