

Firedamp and Davy Lamps

How coal is formed

Coal is a type of fossil fuel formed from dead plants and trees that lived around 300 million years ago.



1 The remains of dead plants and trees sink to the bottom of a swamp and are covered by a layer of sediment.



2 The sediment squashes the remains of dead plants and trees together to make peat.



3 More layers of sediment cover and squish the peat, which is now deep in the Earth.



4 Over millions of years, the sediment turns to rock and the peat turns to coal.

Coal mining

Coal has been used since Roman times. At first, coal was collected from drift mines where it was available near the surface. As this coal was used, miners dug further down through the Earth's surface. Deep mineshafts were sunk in the Victorian era to access large amounts of coal in coal seams. Coal seams are found in bands across the British Isles, mainly in the Pennines, South Wales and the Midland Valley of Scotland. Since the 1700s, machinery has been used to allow miners to work deep underground.



Need for coal

The Industrial Revolution started in about 1760. Engineers designed machines that made products much faster and more cheaply than by hand. Many of these machines were powered by steam engines that used huge amounts of coal. The British coal industry became incredibly important as it provided fuel to power iron and steel works, mills, factories and railways, as well as providing heat at home.



Coal mining during the Industrial Revolution

During the Industrial Revolution, miners worked long hours in cramped spaces that were sometimes only 60–120 cm high. Miners worked in complete darkness unless they could afford a candle or lamp. Sometimes, entire families worked in the mines, including children. In 1842, the law was changed to make it illegal for women and girls to work underground, and boys under the age of 10.



Health, safety and disasters

Mining was a very dangerous job during the Industrial Revolution. Over 1000 miners were killed every year in accidents underground. Pockets of gas deep underground suffocated miners and caused explosions that killed hundreds of people. Collapsing tunnels and flooding were also dangerous and the thick coal dust that miners inhaled caused chest infections, asthma, pneumonia and silicosis. Over time, laws were passed to improve working conditions for miners and provide regulations for mine owners to follow. Safety equipment, including the Davy lamp, was also introduced.

Timeline of coal mining since the Industrial Revolution

- 1760** The Industrial Revolution begins and coal mining expands.
- 1816** The Davy lamp is used for the first time.
- 1842** The Mines and Collieries Act is passed.
- 1866** An explosion at the Oaks Colliery kills 388 people
- 1911** Canaries are used to detect gas for the first time.
- 1914** The government takes control of coal mining to help the war effort.
- 1924** Pithead baths and canteens come into general use
- 1926** The General Strike begins.
- 1943** Bevin Boys work in coal mines during the Second World War
- 1945** The National Union of Mineworkers is formed
- 1950** Coal mining in the UK begins to decline
- 1972** The National Union of Mineworkers strike against wage cuts.
- 1984** The National Union of Mineworkers strike against pit closures.
- 2015** The last deep coal mine in the UK closes.
- 2017** Britain goes a full day without using coal power for the first time since the Industrial Revolution.

Coal and war

Miners were recruited into the army during the First World War because they were able to use their skills to dig trenches that went under enemy lines. However, this caused a lack of miners in the UK, which led to coal shortages and rationing. During the Second World War, government minister Ernest Bevin introduced a 'no choice' lottery. This meant that one in 10 conscripted men were sent to work in the mines. They were known as the Bevin Boys.



General Strike 1926

In 1926, British miners went on strike because mine owners wanted them to work longer hours for less money. People from other industries supported the miners, which caused massive disruption. The miners returned to work nine days later.

End to mining in the UK

The British coal mining industry went into decline in the 1950s. Coal imported from abroad was cheaper, and gas and oil were replacing coal as cleaner sources of power. In 1984, 187,000 miners went on strike to protest against the government's plans to close 20 mines. After a year, the strike ended and many miners went back to work. The last deep mine in the UK, Kellingley Colliery in North Yorkshire, closed in 2015.

Glossary

colliery	A coal mine, its buildings and machines.
Davy lamp	A safety lamp designed to be used in mines to reduce the risk of fires or explosions.
fossil fuel	Natural fuels, such as coal or gas, that were formed millions of years ago from animal and plant remains.
general strike	A strike that includes workers from all or most industries.
Industrial Revolution	A period of time when more work was done by steam-powered machines than by hand.
natural gas	A flammable fuel that is found underground.
non-renewable energy	A source of energy that comes from fuels that cannot be replaced once it has been used, such as oil, coal and gas.
renewable energy	A source of energy that can be produced as quickly as it is used, such as wind or solar power.
sediment	Stones and sand grains that form a soft, wet substance.
strike	To refuse to work as a form of protest against an employer, usually due to working conditions, pay or job losses.