



# The Coal Industry



## Why did the demand for coal increase ?

- From 1750 the demand for coal went up for three main reasons :
  - i) There was a shortage of wood
  - ii) Coal was being used to heat more homes
  - iii) More industries were using coal such as iron making and steam engines.

## What problems did the increased demand for coal cause ?

- Mine shafts would have to dug deeper to reach the coal seams.
- Miners would have to travel a lot further to reach the coal face

## What were the main problems / dangers mining coal ?


### Problem One

- **How do you get the coal out without causing the roof of the mine to cave in ?**
- Old solution** - Wood posts ( pit props) were used to hold the roof up but these rotted
- New solution** - Iron and steel pit props were used. These lasted a lot longer.

### Problem Two

- **How do you avoid flooding in the mines ?**
- As the mine shafts got deeper and deeper they started to fill up with water and flooding would happen very quickly
- Old solution** - Leather buckets were filled with water and carried up to the surface
- New solution** - **Thomas Savery** in 1698 invented a steam pump
- **James Watt** in 1776 invented a steam engine this was used to pump the water out of mines

### Problem Three

- **How do you avoid 'bad air in the mine ?**
- As mine shafts got deeper miners were at risk from two gases
- a) Fire Damp** – would explode on contact with a flame, the problem was that miners carried candles for light
- b) Choke Damp** – would suffocate the miners
- Old solution** - For Fire Damp – ventilation shafts were dug to let fresh air in
- For Choke damp – miners carried a canary in a cage
- New Solution** - **For Fire Damp** – . The main help for the miners was the  Safety Lamp. This was invented in 1815 by **Sir Humphrey Davy**. This lamp had a fine gauze around the candle and so it didn't give off enough heat to light the gas.
- **For Choke Damp** – Exhaust fans ( which sucked the bad air out of the mine shaft) were tried but didn't work well



### Problem Four

- **How do you get the coal to the surface ?**
- Coal is heavy to carry so how do you get it along the mine shaft and then out of it ?
- Old solution** - Trucks were pushed along the mine shafts on wooden rails, but the rails buckled.
- Baskets were carried up the mine shafts ( normally by women !)
- New Solution** - Iron rails were used instead of wooden ones and pit ponies would pull the truck.
- By 1780 horse powered winding gear was used to pull the coal to the surface.