

**Theme: 3**  
**Key Stage: 2**

# 'Cutting Edge' Technology

Dear Time Traveller,



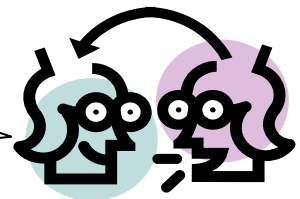
You have been chosen by your teacher to be transported back in time between the years:

**1756 up to 1885**

Your mission is to gather information. You will need to report back to your teacher when you return to the present time.

Go to the wall display called **The Age of Steel**. Andrew Carnegie was a very rich man who made a fortune by making steel - a type of iron. Over a 100 years ago he paid Sidney Gilchrist Thomas 250 thousand pounds for permission to use his invention which he developed with the help of his cousin called Percy Gilchrist at Blaenavon. When Andrew Carnegie spoke about Sidney and Percy he said that, "These two men did more for Britain's greatness than all the Kings and Queens put together". What do you think he meant by this?

Who you think were some of the greatest people in Britain? Why do you think they were important? Discuss this with your group.



Write down some of your group's ideas here:

**Theme: 3**

**Key Stage: 2**

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In the past, an invention often led to important changes taking place. What happened across the World because of Sidney Gilchrist Thomas' invention? Clue: Check the timeline date of 1885.

Some events and inventions caused lasting changes. Draw arrows between the boxes below to show how certain events and the changes which followed them were linked or connected in some way. Use the timeline to help you.

In 1774, John Wilkinson invented an accurate way of making cannons and cylinders made of iron.

The number of coal mines in South Wales grew very quickly to meet the increased need for coal.

In 1815, the Battle of Waterloo ended many years of fighting between Britain and France.

The design of steam engines improved which helped power the Industrial Revolution.

By 1875, many ironworks closed and those that remained open cut wages to reduce their running costs.

The Cyfarthfa Ironworks in Merthyr Tydfil grew to be the largest ironworks in the World.

In 1784, Henry Cort invented a way of turning pig (brittle) iron into wrought (strong, flexible) iron.

More iron is needed to make cannons which the British navy needs to fight battles.

In 1851, the British Navy decided to use coal from South Wales to power the steam engines in all its ships.

62 children die in 3 months in Blaenavon. Many people leave South Wales in search of better lives.

In 1756, the seven years war began between Britain and France.

A year later the price of iron fell. Wages were cut and workers rioted in protest across South Wales.

**Theme: 3**

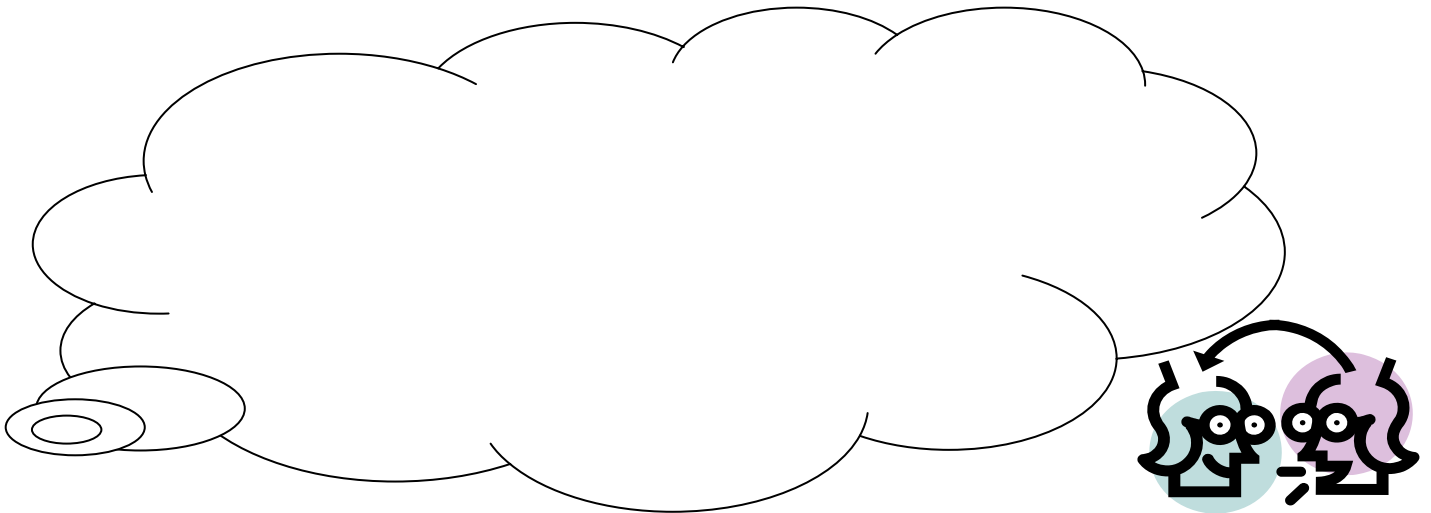
**Key Stage: 2**

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Railways changed the way that people and goods moved across in Britain during the 19<sup>th</sup> century. Read the wall display called **Rails around the World**.

Why was South Wales so important for the railways during the 19<sup>th</sup> century?

Clue: think about what was needed to power railway engines and build railway lines.



There are important events marking the growth of railways. Use the timeline to make notes about these events and any changes you think which may have followed them.

1804 - Trevithick

1829 - Stephenson

1841 - Brunel

**Theme: 3**

**Key Stage: 2**

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Below on the left are some more events which caused huge changes. Draw arrows to show how these events and the changes which followed them were linked to each other. Use the timeline to help you. Be careful, these are a bit trickier than before.

In 1856, Henry Bessemer invented a converter which turned iron into steel.

People and goods could move quickly around Britain in the 19<sup>th</sup> century as the steam railways grew rapidly.

In 1869, William Siemens invented a new way of making steel at Landore, Swansea.

Iron could be made into steel in bulk (large quantities at once) for the first time quickly and cheaply.

In 1804, Richard Trevithick invented a way of using high pressure steam to move an engine

Half of Blaenavon's workers became unemployed forcing many people to scavenge coal from waste tips.

In 1841, the Great Western Railway between London and Bristol is completed.

The iron industry grew up quickly in areas like Blaenavon where there was plenty of coal available.

In 1709, Abraham Darby invented a way of making iron using coal as a fuel instead of wood.

The need for iron rails for Britain's rapidly growing railways increases.

In 1921, the world demand for coal fell and many coal mines closed because less coal was now needed.

The 'open-hearth' method became the most common way of making steel in the World until the 1970s.