



Coal

A Teaching Resource Pack

Introduction

How to use this resource:

This resource has been created to stimulate independent investigation of coal and coal mining in the South Wales coalfield. This also supports the '*From Pithead to Sickbed and Beyond*' travelling exhibition.

This resource is divided into five separate investigations that help prompt your own classroom enquiry around the history of mining in Wales.

Intended outcomes:

At the end of this investigation it is expected that pupils will have increased knowledge and understanding of changes in daily life during the nineteenth century. The investigation will also be relevant for all skills across History as well as Science and Geography.

You may choose to carry out one, or all investigations during your study.

An iBook resource is also available with accompanying images and video to support your learning.



Two miners ready for work. *Amgueddfa Cymru*

Investigation 1

COAL

When was coal formed?

Most of Britain's coal seams were formed from the remains of plants growing 280-300 million years ago in forests. Similar forests are found today in places like the Everglades (Florida, U.S.A) but many of the plants are different. The forests formed in Britain's coal seams, existed in the period called the CARBONIFEROUS period.

Some coal seams (in Australia and parts of Europe) formed **BROWN COAL** which took much less time to develop, and is only about 80 million years old.

How was coal formed?

The coal mined in Wales was formed millions of years ago and is made up of layers of trunks and branches of trees which grew in vast swamps.

When a tree dies on dry land it is soon rotted by bacteria. In order to break down the wood, the bacteria needs **oxygen** from the air; but if the tree falls into swampy water, it cannot rot away completely because there is not enough oxygen. Therefore in swampy areas, thick layers of wood can accumulate below the



Reconstruction of the levee of a river that flowed through the tropical wetlands 300 million years ago. The plants growing on these levees are often found as fossils in the rocks associated with coals in Wales. *Painting: Annette Townsend*

water, and the weight gradually squeezes out the water from the rotting plants. Over millions of years many layers of different types of coal are formed.

The deeper the coal seam, the better the quality of coal. This is because the deeper levels are older and have been squashed more, leaving higher concentrations of a substance called carbon which means that the coal gives off more heat when it is burned.

Investigation 1

Coal is a **fossil fuel**. This means that it is a material which can be burned and has been made from the remains of plants which lived millions of years ago.

Sometimes you can find the remains of these plants in a piece of coal showing the imprints of delicate ferns and leaves, and perhaps the patterned imprints of the great ancient tree trunks.

What was found in Coal?

Scientists have identified a number of plant remains in coal, these include: bark, leaves, seeds, stems and twigs as well as spores (pollen). The bark, leaves and seeds were often found in the rock on top of the coal. The stems, twigs and spores were most often found underneath the coal.

Since these plants have been dead a long time their preserved remains are called **fossils** thus fossil roots, fossil stems and fossil leaves.

It is thought that around 10m of plant material forms just 1m of coal.

The leafy shoot of a giant lycophyte from the Upper Carboniferous Llantwit Beds of Beddau, south Wales.

Amgueddfa Cymru



Reconstruction of giant lycophytes growing in tropical wetlands of Wales, about 300 million years ago. Note that there are plants in different stages of their life-cycle. Painting by Annette Townsend. *Painting: Annette Townsend*

Investigation 1

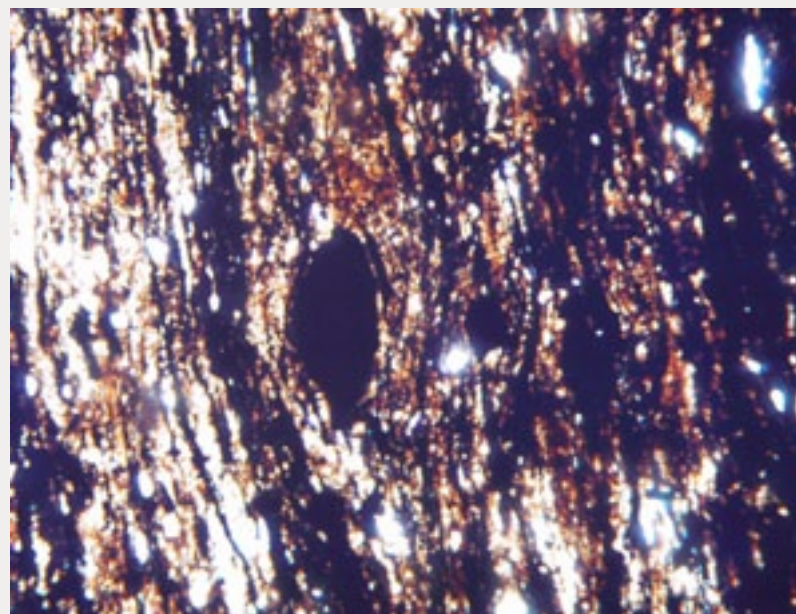
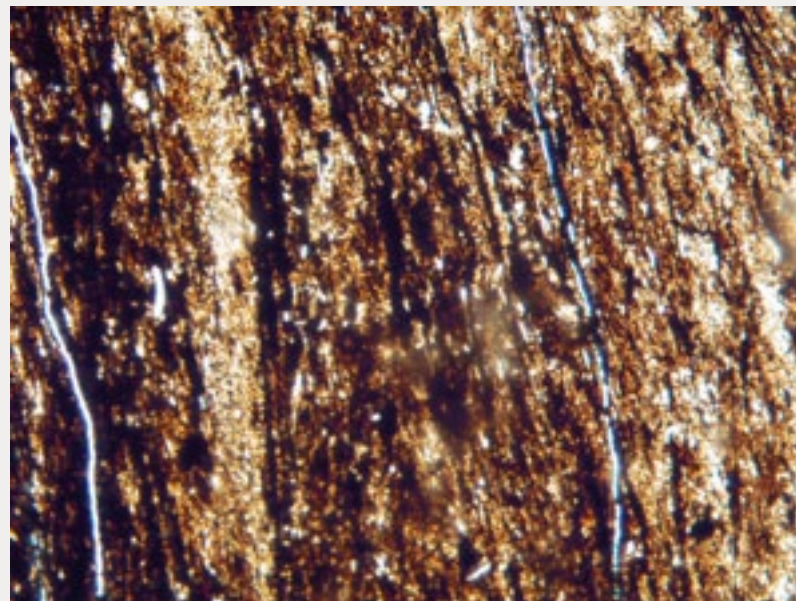
Different types of coal

Peat or Lignite – is the first stage in the formation of coal. It can form within a few hundred years of the dead plants being buried. It is soft because it has not been buried under heavy layers of mud, sand and rocks. It is the poorest form of 'coal' as it contains the least carbon. In some areas of Wales peat was cut and dried and used for cooking and heating.

Brown coal or Subitumous – is a slightly better fuel than peat. These have been buried and hardened and so contain more carbon. It is a soft, black coal often used on fires in homes.

Bituminous Coal – is found at deeper levels and so is much harder and richer in carbon. It is a medium-hard, black coal often used on fires in homes.

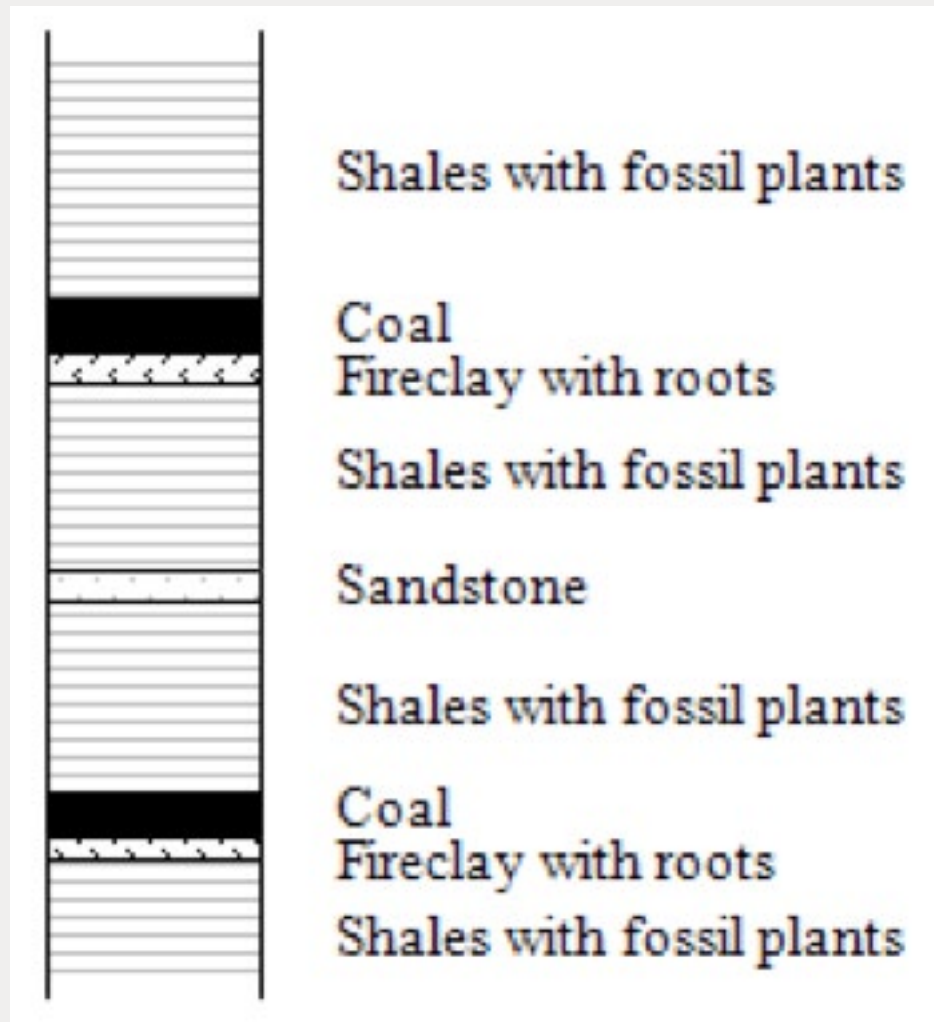
Anthracite – is the hardest coal and is usually found at the deepest levels. It is a hard, shiny, black coal and contains the highest levels of carbon. It was mined in south-west Wales and was primarily used in central heating systems and by industry. The Anthracite coal mined in Wales was most sought after.



Thin sections of coal magnified x 6.3 showing how the specimens are made up of organic layers. *Amgueddfa Cymru*

Investigation 1

A common sequence through the Carboniferous Coal Measures area is:

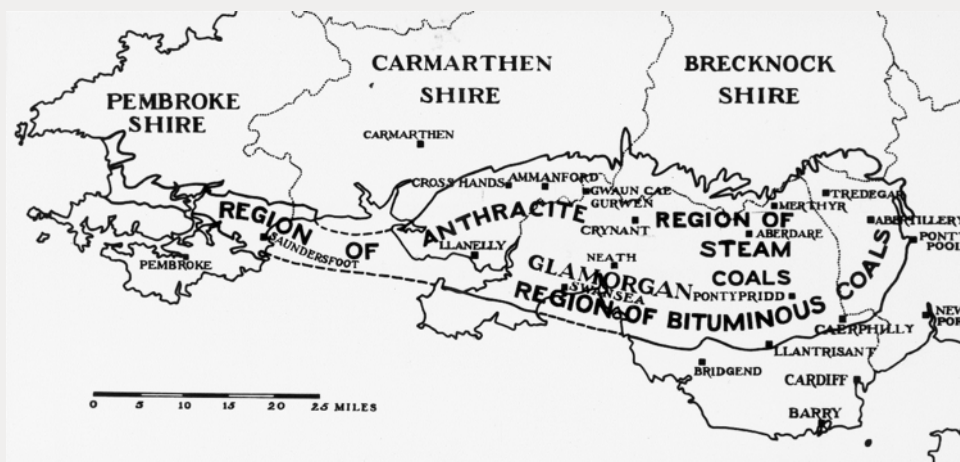


Covering an area of about 1,000 square miles, the South Wales Coalfield is the largest continuous coalfield in Britain. This region has played a very important role in the development of Britain and the world. Used for smelting metals and powering steam engines, Welsh coal helped fuel the Industrial Revolution.

Coal was mined in South Wales long before the Industrial Revolution, but it was during the nineteenth century that coalmining really began to expand. Welsh coal was famous for its steam producing qualities. The rise of steam-powered technology in the second half of the nineteenth century, increased the demand considerably. To meet this need, new collieries opened, more miners were employed and mines were driven deeper than ever before.

At its peak in 1913, the South Wales Coalfield was the most productive in Britain and employed nearly a quarter of a million men.

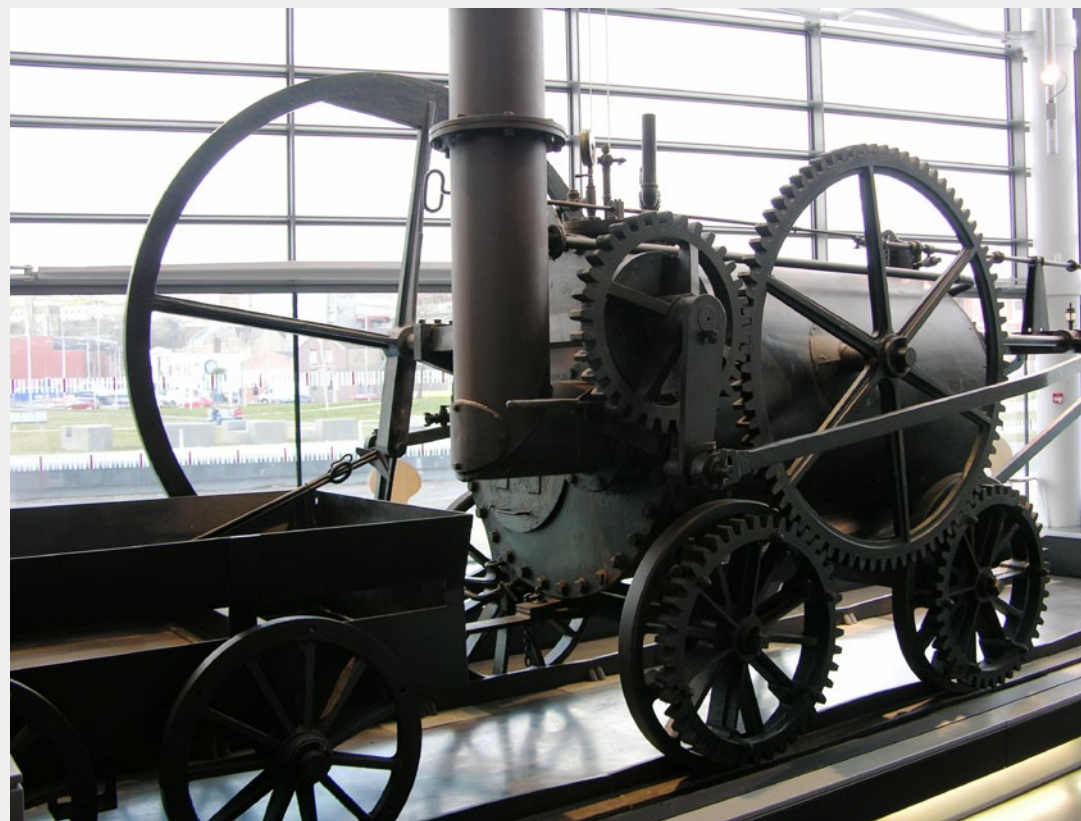
Investigation 1



A map showing the South Wales coalfield. *Amgueddfa Cymru*

SUGGESTED ACTIVITIES:

- Draw a diagram showing the life cycle of plants and how they form coal.
- Using maps identify the coalfield areas. (Map included)
Move on to identify mines in your local area – Investigation 2.
- Identify the main uses of coal. Investigate other types of energy and what they are used for.
- Visit Mr Trevithick at the National Waterfront Museum and learn more about his steam locomotive.



Replica of the Penydarren Steam locomotive. *Amgueddfa Cymru*

USEFUL LINKS:

www.bbc.co.uk/nature/history_of_the_earth/Carboniferous

Investigation 2

Where is coal mined?

During the Roman period, coal, gold, copper, silver and Zinc was mined in Britain.

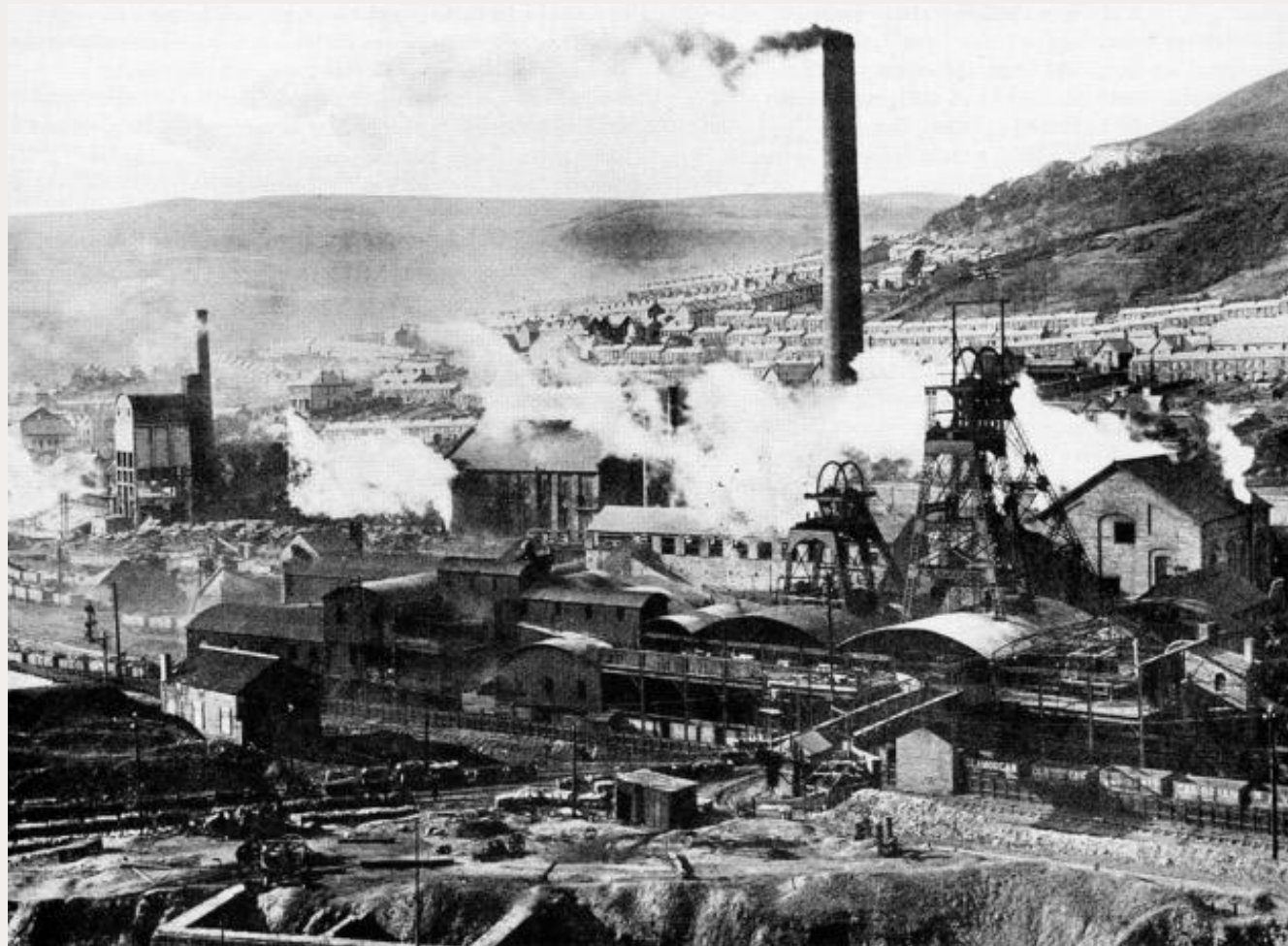
There is evidence of mining in the Blaenafon area going back to the 14th century, and of mine workings at Mostyn dating as far back as 1261.

In the very first mines the coal had to be carried out to the shaft in baskets or pushed or dragged out on wheeled carts by workers using a belt and chain. When there was a particularly heavy load a winch system would be used to haul material through the shafts and up steep gradients of the mine.

Once larger scale metal smelting began, areas such as Swansea grew to be major trading areas. Metal ores from mines in Cornwall were brought to Swansea to be smelted using the local coal.

USEFUL LINKS:

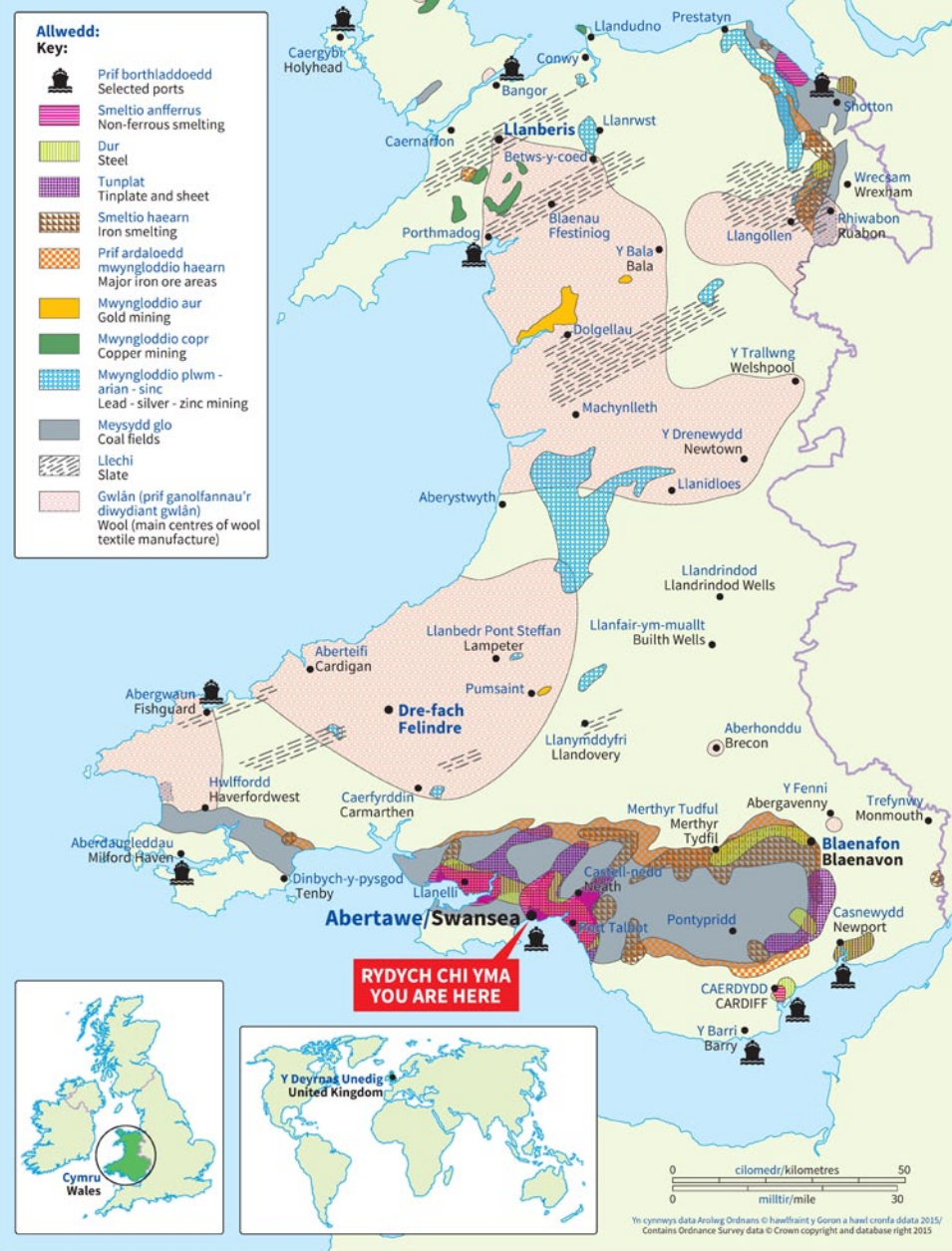
www.nmrs.org.uk/mines/coal/maps/wales2.html



Glamorgan Colliery, Llwynypia about 1920. *Amgueddfa Cymru*

SUGGESTED ACTIVITIES:

- Mae'r map hwn yn dangos lle'r oedd prif ddiwydiannau Cymru**
This map shows where the major Welsh industries were situated



Investigation 3

EMPLOYMENT – WORKING IN A MINE

Jobs in the Mine

Collier - These are the miners who cut the coal from the coalface. For hundreds of years they did this by hand using only a mandrel (coal pick). Today coal face workers use drills, explosives and high powered machinery to do the work.



Miner at work. *Amgueddfa Cymru*



Haulier and pit pony. *Amgueddfa Cymru*

Hauliers – Hauliers worked with a horse and dram to haul out the coal which the colliers had cut. Usually each haulier kept to the same horse and the two worked together day after day for years and years. They grew to understand each other very well and horses often knew what they should do next without having to be told by their hauliers. Hauliers were proud of their horses' intelligence and became very fond of them. However this was not always true, if the haulier was young and inexperienced and not used to working with horses they could be very badly treated, if the horse didn't do what the haulier wanted they often resorted to cruelty.

In 1913 there were over 70,000 ponies working underground in this country.



Horse rescued from Senghennydd disaster 1913. *Amgueddfa Cymru*

Horse keepers – These looked after the horses when they were in the stables. They looked made sure the ponies were well groomed and given plenty of good food and fresh drinking water. There were rows of stables underground, each divided into separate stalls. Each pony had their own stall with its name above the manger. The ponies quickly learned which their own stall was and, at the end of a hard day's work, they trotted through the stable into the correct stall without help.

DID YOU KNOW?

Welsh colliery horses were usually over 15 hands high and not technically ponies, although some of 13 hands were kept for working in very low areas. Visitors to mines who saw them working commented on how big these animals were – in fact Shire horses were used in the main roadways of some major collieries!

Investigation 3

The Blacksmith – Blacksmiths made iron shoes for horses in the forges above ground and took them down to the stables in the pit. When the ponies' shoes wore thin and broke, the blacksmith took them off, trimmed the hooves and nailed on the thick new shoes. Shoeing does not hurt (it is like cutting your nails). The Iron shoes protected the ponies' hooves from being broken on the rough underground roadways. When a new horse was recruited, a set of shoes to fit him was made and kept as a pattern in the blacksmiths' shop. When he needed new shoes a set was made from the pattern and sent underground to be fitted 'cold'.



A blacksmith shoeing a horse at Lewis Merthyr Colliery, about 1910.

Amgueddfa Cymru

The Veterinary Surgeon – This man is usually called the 'vet'. Each big coalmine employed a vet because there were often as many as 600 horses working underground in one pit. Before the National Coal Board was established, each colliery company employed their own vet – they weren't part of the colliery workforce itself. The vet took care of any ponies injured whilst working. The vet checked their diet to make sure they had enough good food to keep them fit for their hard work. He checked their harness to make sure it fitted properly and did not rub their skin. In the twentieth century horses began coming up for an annual holiday of two weeks when miners had their holidays. The vet was the person who arranged their holidays in good safe fields near the collieries. Horses often worked from ten to twenty years in coalmines. If well looked after horses could stay fit and strong until they were quite old. As with the collier horses also faced the danger of the mines, in 1914 the RSPCA stated that, out of 70,396 animals in UK mines, 2,999 were killed and 10,878 received non-fatal injuries.

Many horses suffered from lacerations, 'grease heel', which came from working in wet conditions, chest ailments from breathing dust, cataracts and many other problems. Before the National Coal Board, horses which became too old or ill to work were sent to the 'knackers yard' for horse meat. When mining became more mechanised in later years and the need for horse power decreased, horses might be luckier and sent to a 'rest' home.

Investigation 3

Children in the Mine

Door attendants or Trappers – opened and closed the large wooden doors that let air into the mine tunnels.

Putter – The putter would push drams (truck) of coal along the mine tunnels.

Dram – This was what the putter pushed along the mine tunnel, the dram carried coal from the seam to the surface.

Curling box – This was used by workers to scoop up coal and loaded into a dram. Coal was carried and placed in drams very carefully to avoid breaking up lumps – there was no profit for either collier or owner in coal dust and small coal. If a collier was caught using a shovel to fill the curling box he would be fined! Once full it would be emptied into the dram until it was full.

Many children were employed to work underground. Boys and girls as young as 6 years old would work as ‘door boy’ or ‘door girls’ opening and closing the air doors that regulated the air flow. They would sit for hours in the cold and dark with one candle for light. If the candle went out it was expected that a child would wait until someone else came along to the candle again. This was not always the case however, children often wandered off to talk with other children working in the mine.

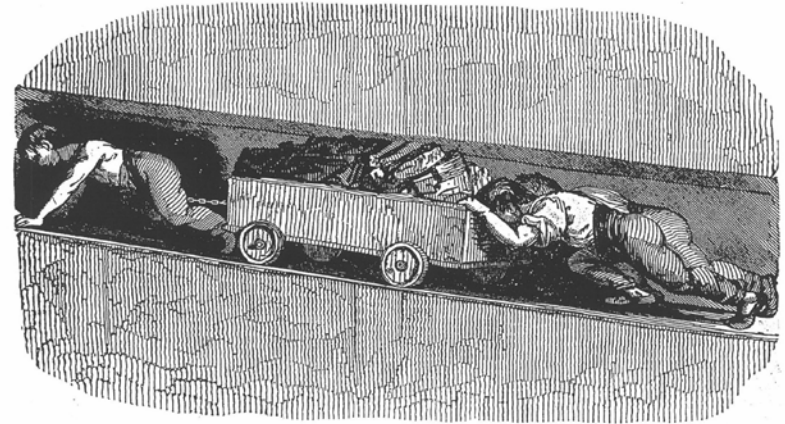


Illustration from the mines Report 1842

Children also work as drammers, they were small enough to go in the lowest areas of the mine roads – places where adults were too big to fit. There was hardly any mine that had rules that stopped young child from working underground. However, in some mines this was not the case. In a mine near Llansawel children under eight years old weren't employed, similarly in Margam the mine didn't employ children under nine years old.

DID YOU KNOW?

In this period the roads were made in the seams so were only the height of the particular seam which could be only a few feet high. Therefore most roadways in mines were very low.

Investigation 3

During the 1840s the Government began to look into the employment of children. Inspectors were sent to the coal mines to talk to the owners and the children about their work and pay. Many told lies because a lot were worried they would lose their job, the mine owner was happy to go along with it because he had cheap labour.

A lot of people were against bringing child labour to an end, but the Mines Act was passed without too much opposition in 1842. After the Act was passed in Parliament, it was against the law to employ anyone under the age of 10 to work underground in the mine. Although it was unlawful, and inspectors called regularly, many people still sent and employed children to work underground. Later on the Act was changed and it then became unlawful to employ anyone under the age of 12.

DID YOU KNOW?

In 1872 the Mines Regulations Act, also stipulated a half days schooling for boys between 10 and 13 years of age.

Evidence from the Mines Report, 1842

"We are door-keepers in the four foot level. We leave the house before six each morning and are in the level until seven o'clock and sometimes later. We get tuppence a day and our light costs us tuppence ha'penny a week. Rachael (her sister, aged 12)... was run over by a tram a while ago and was home ill a long time, but she has got over it."

Elizabeth Enoch, age 10, who worked underground with her sister for one year.

"I have been down about three years. When I first went down I could not keep my eyes open; I don't fall asleep now, I smoke my pipe."

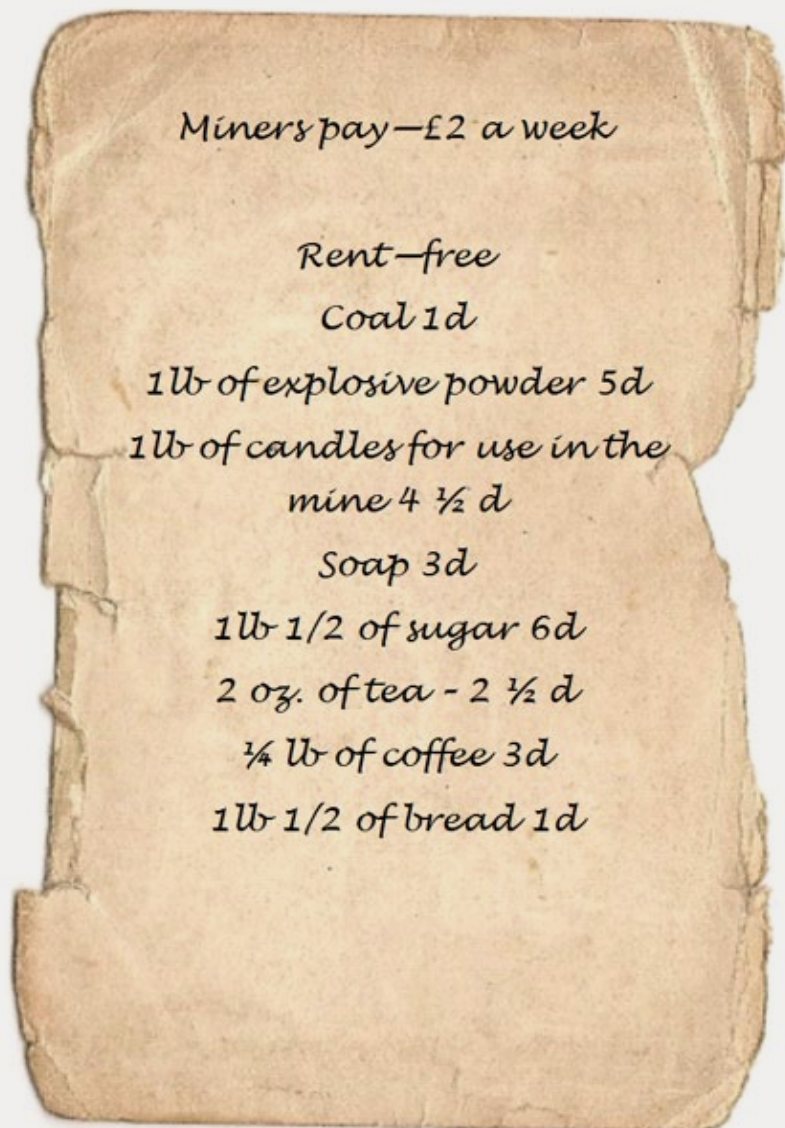
William Richards, 7 years old. Draft door boy, he was paid 8 pence a day when there was work for him.



Young boy working underground.
Amgueddfa Cymru.

Investigation 3

Example of the weekly spending of a mining family in Victorian Wales:



Remember there are 240 pennies in a £1 (pennies was usually written as d.)
There are 12 pennies in 1 shilling and 20 shillings in £1.

SUGGESTED ACTIVITIES:

- Use the information from the job descriptions that were recorded in the mines report 1842, as a stimulus for creative writing.
www.cmhrc.co.uk/cms/document/1842_S_Wales_2.pdf
- Use the family shopping list to investigate how spending has changed. Compare modern day prices of common goods such as sugar, tea or coffee and find their cost today. Record your findings in a table. To find the modern value of pre-decimal prices follow the external link to the Measuring Worth website.
www.measuringworth.com/ppoweruk
- To see an example of an original miners wage slip from Coytrahen Park Colliery, follow this link to the People's Collection Wales website.
www.peoplescollection.wales/items/434778
- Research modern examples of child employment across the world.
- Horses often suffered as much as the collier in its everyday work in the mine. Investigate modern examples of animal cruelty in the workplace.
- Use the learning resources for 'Children of the Revolution' on Big Pit: National Coal Museum website.
www.museumwales.ac.uk/childrenoftherevolution/

Investigation 4

WHAT WERE THE DANGERS OF WORKING IN A MINE?

Unfortunately there were many disasters, places such as Senghenydd, Morfa or Aberfan became infamous. A miner could be injured carrying out his daily work and families were always anxious and dreaded the news of an explosion or collapse that meant a loved one would not be returning home.

The work that children did in the mines was very dangerous and the fact that there were often few safety rules resulted in many serious injuries and deaths.

Children were affected by working long hours in poor conditions for up to twelve hours a day, six days a week. In winter sometimes they would not see daylight from one day to the next. With only one day off a week on Sunday, they had little time to rest or play and could not go to school.

DID YOU KNOW?

As children were usually responsible for transporting coal cut by the adults out of the pit, they usually worked longer hours than the colliers!



Picture taken after the Senghenydd mine disaster in 1913.

The sub-commissioners of the Mines Act report were very interested in children's health and how they were affected by working in coal mines. Their report includes tables of information about the children's height, weight and 'physical condition'. On one of them it was reported that a child was 'sadly deformed in spine and shoulder'.

As well as dangers from working in a mine, there was also dangerous gases that could accumulate underground.

Investigation 4

When people were mining coal before the 19th century the only way of knowing that gas was present was by watching the open flame of the candle used to light up the darkness. The flame of the candle would change its colour and shape when there were explosive gases present and grow dimmer if there were choking gases present.

In the simplest early pits (around the medieval period) it was usually the job of a an adult called a 'penitent' or 'fireman' to go in before the men started work in order to 'fire' off any explosive gases present that had accumulated overnight. This was usually done by using an open flame to light the gas!

Before the first half of the 20th century if there had been any accidents in the mine, the rescue team sent in would often carry a mouse – preferably a wild one - with them. Canaries later became most commonly associated with detecting poisonous gases. These small animals often breathe much faster than humans. They get affected quicker by the gas, giving the miners plenty of warning to get out.

Mice and canaries were usually used to detect choking gases such as Carbon Monoxide.

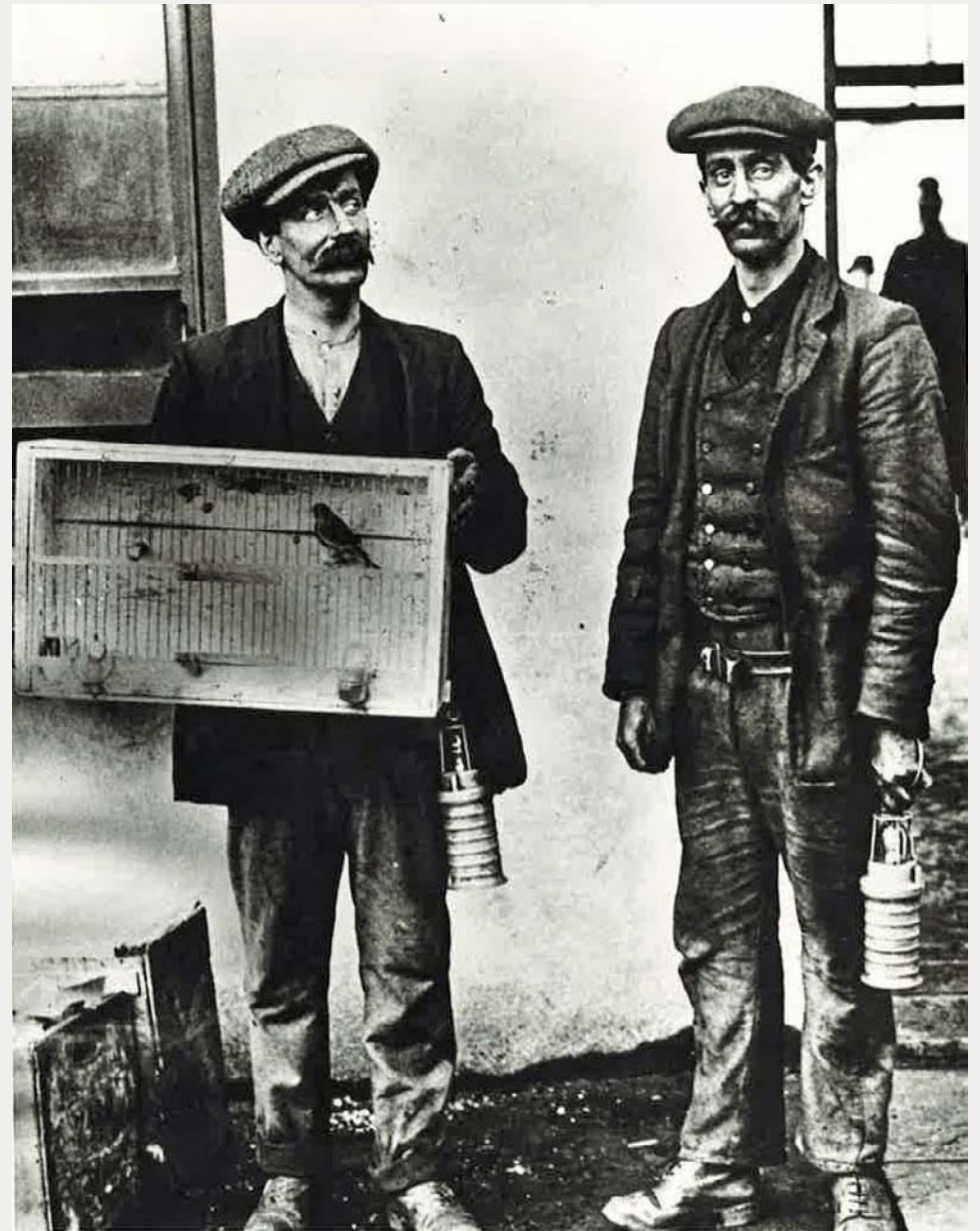


Image of miners with canary in cage. *Amgueddfa Cymru*

Investigation 4

Lamps were also used to detect gas in a mine. The flame of a lamp would change colour and shape if there were explosive gases around, and would grow dim or go out if choking gases were present. Before the Flame Safety Lamp was introduced, using open candles would have been very dangerous. The flame from the candle could cause an explosion.



Amgueddfa Cymru

This is the 'Haldanes Humane Canary Cage'. If the bird did pass out, some mine rescue teams would use a respirator box to save it from the effects of gas.

Types of Gas found underground

'Firedamp' – Methane – Produced when coal is cut, this could cause explosions.

'Blackdamp' – This is a mixture of Carbon Dioxide and Nitrogen, this could cause lamps to go out and miners to suffocate.

'Whitedamp' – Carbon Monoxide. Very poisonous. Not often found underground except after an explosion.

'Afterdamp' – A mixture of gases found in a mine after an explosion. This was a very dangerous gas, you couldn't see it or smell it. This would also cause people to suffocate.

'Stinkdamp' – Hydrogen Sulphide. A poisonous gas occasionally found in mines. It smells like rotten eggs.

A good ventilation current is needed to get rid of these gases. In order to achieve this the fresh air is brought down the downcast shaft and is removed by means of an up cast shaft. This can be achieved in a few ways but, in later years, is done by sucking the air up the up cast shaft by powerful mechanical fans. The air is circulated around the workings by using 'air doors' which regulate which way the air is directed.

Investigation 4

The miners and drams (wheeled carts) could travel up and down the shafts in cages. The banksman (at the top of the pit) or the onsetter (underground) were in charge of the movement of the cages. The winding engine man would operate the engine to move the cage once he had received a signal from the banksman or onsetters.

USEFUL LINKS:

www.parliament.uk/about/living-heritage/transformingsociety/livinglearning/19thcentury/overview/coalmines/

www.hansard.millbanksystems.com/lords/1842/jul/14/mines-and-collieries#s3v0065p0_18420714_hol_51

SUGGESTED ACTIVITIES:

- Plan a visit to the National Waterfront Museum and meet our colliery doctor to learn more about the danger of working in a mine or visit Big Pit: National Coal Museum.
- Use the information from the travelling 'From Pithead to Sickbed and beyond' exhibition to find out what dangers there were when working underground.
- Use the Children's Employment Commission to gather information about children who worked in the mines.

Conduct a classroom investigation to compare if children's statistics are the same e.g. height. This can be done as a classroom activity, record your findings in a table.

- Many children would not have had the opportunity to attend school. Discuss the value of education.



Children in Rowe Square, Cardiff, 1892. *Amgueddfa Cymru*

Investigation 5

HEALTH SERVICE BEFORE THE NHS

The south Wales coalfield was one of the most dangerous coalfields in Britain, this was mainly due to the complicated structure of the rock formation and the dangerous gases deep within the mines.

Falling under a moving wagon, a kick from a colliery horse, or a mishap with machinery or sharp tools could also injure workers. The cramped, dark, damp and dusty conditions in which miners worked, weakened their bodies. After a lifetime underground many men miners developed problems seeing or even breathing normally. Disabled people were a common sight within coalfield communities.

Before 1948 there was no National Health Service (NHS) and after an accident mineworkers were often seen by the colliery's doctor. First aid was sometimes given underground and further treatment usually had to wait until the wounded were brought to the surface. Even then, medical help was rarely able to cure or heal completely. Once the miner was taken home, often it was his family who had to take care of him. This would include finding money to pay for medicine or a visit from the doctor. Once a miner could no longer work, there was no income for the family. This meant no money for food or clothes.

Amgueddfa Cymru



Mineworker George Preece (born 1880) worked in Abercynon until he was hurt in an accident involving a coal tram that ran over his legs. After the accident, he was carried on a board to Abercynon train station and then taken to Cardiff Infirmary. Although he is pictured wearing artificial legs, George preferred to use a wheelchair for most of his life because he found the legs uncomfortable to wear. He never returned to mining.

This is a picture of George Preece, disabled miner from around 1909.

However, mining villages were often close-knit communities that would rally round the wounded. Raffles and collections would be held to help replace lost income. Those without friends, family or other communal ties, were usually assisted by the local authorities as paupers.

Investigation 5

Common Health problems in Victorian Wales

The rapid growth of industrial communities brought serious social problems. Houses were built cheaply, had no clean water and only basic sanitation. There was no refuse collection and rubbish was allowed to pile up on open ground.

Sewerage ran into open cesspits or was allowed to pollute river water which was used downstream for washing and drinking. At this time people didn't make the connection between poor sanitation and living conditions with poor health. Below are some of the most common diseases around Victorian Wales.

Typhoid or typhus was spread by lice that lived in hair and clothes. This disease caused the skin to turn black, the face to swell and made the sufferer smell badly.

Scarlet fever - red skin rash, strawberry colour tongue, severe headaches and high temperature. It was highly contagious.

Tuberculosis or TB was called consumption as it consumed its victims. It was a result of living in dark unventilated housing and spread by coughing or close contact. It damaged lungs and could be fatal.

Cholera – it was the most feared of all. It was very infectious and spread quickly through industrial settlements. Half of those who caught it, died. For many years people did not

know it came from drinking unclean water, polluted by the surrounding industries and the unsanitary living conditions.

In 1870s and 1880s parliament passed laws to encourage local authorities to implement public health measures. Improvements did come, but their effect was not felt until well in the 1920s.



Image of a trambulance. *Amgueddfa Cymru*

This is called a 'trambulance' and was used to carry injured miners underground in Big Pit. It was vital to get an injured worker back to the surface of the pit as quickly as possible. Without this rail mounted piece of equipment, it would take four men to carry a stretcher with two others to take a turn as the carriers tired.

Investigation 5

Ideally, about one underground worker in ten would carry a first aid box. These men often had a great interest in first aid, including taking part in local and UK wide competitions.



Image of a First Aid Box. *Amgueddfa Cymru*

SUGGESTED ACTIVITIES:

- Investigate how the National Health Service was established.
- Visit your local record office to find newspaper reporting mining accidents or disasters.
- Investigate health and disease in Victorian Wales.

Investigation 6

HOUSES AND HOMES

Houses in mining communities were usually built in long rows. Rows upon rows would wind across the valleys of South Wales. Many of the 'new' houses built from 1850s were usually rented out by the local mine owners or by private landlords. In some areas of South Wales, 'Building Clubs' were established as a co-operative between workers. Usually a group of workers would establish an agreement to build a number of houses in an area. After collecting an initial payment to begin the work, the rest of the money owed would be paid by a mortgage, these were monthly payments made over many years to pay back the money spent on building these houses. Until the mortgage was paid, the bank owned the house. 'Building clubs' were not a practice that was common, but was certainly something that happened in some areas of South Wales.

Despite the houses that were being built, it was a time of mass immigration of workers, so there was still a shortage of houses. One of the ways that people dealt with this shortage was to take in a lodger. The rent paid by this lodger went towards supporting the family.

Inside these houses, it was typical that there would be between two and five rooms. The earlier houses usually had one large room downstairs and one large room upstairs. The row of workers

cottages at St Fagans: National History Museum is a good example of this type of early house. Some others might have had three rooms downstairs and two upstairs.

The kitchen was the most important room, and you would usually have a small room off it called a pantry. All of the cooking would be done in an iron grate with an open, coal fire. To the side of the main fire would be a small oven used for cooking bread. The whole grate and surround would be made of iron, with all of the coal soot it was a difficult job to keep everything clean. The fire grate and oven would have to be black leaded at least once a week to make sure it didn't rust.

The one room that would not be in the house was the toilet. The toilet would be situated outside and usually in a brick building. Many didn't have running water. People would either have to carry a bucket of water with them or there might be a waste collector who emptied the toilets for the street. These outside toilets were mostly shared between a number of houses. They would not have had a bath or a shower with plumbed water inside the house. Instead a weekly wash was done in a tin bathtub in front of the fire, the water usually came from the nearest river or well.

Investigation 6



Rhyd-y-Car Cottages

This small terrace was built by Richard Crawshay around 1795 to provide housing for the workers in his iron-ore mine. Originally there were two rows of houses, at right angles to each other, these being the first six houses to be built. Each dwelling contains a living room with bedroom above, accessed by a steep circular staircase next to the fireplace. A second bedroom and small pantry are located at the back beneath a 'cat-slide' roof.

The six houses have been displayed at different periods of their history, namely 1805, 1855, 1895, 1925, 1955 and 1985. In this way the changes in the buildings, their contents and their gardens

can be shown. Merthyr was the largest town in Wales between 1800 and 1860 but there were no basic facilities like piped water and toilets.

From about 1850 living conditions improved; coal took over from iron as the most important industry.



Miner washing in front of the fire. *Amgueddfa Cymru*

Investigation 6

SUGGESTED ACTIVITIES:

- Plan and visit a trip to St Fagans: National History Museum to see the changes in houses. Compare the differences in Rhyd-y-Car to those of your own houses and homes.
- Investigate different materials that are used to build houses e.g. wood, brick, wattle and daub.
- Investigate different houses and homes around the world.



Rhyd-y-Car
Amgueddfa Cymru