

**Durham Miners Heritage Group  
Information and Activities Package**

# **Teaching Notes**

## **What is Coal?**

**C**oal is fossilized plant material. If deprived of oxygen, typically by being submerged in swamps, when they die plant remains initially turn into peat. Under the action of pressure and heat over thousands then millions of years, water and some other volatile components are driven out. As this happens the coal gets richer in its carbon content thereby becoming a more concentrated fuel and potentially burning at a higher temperature.

Most of Britain's coal formed from primitive plants, such as tree ferns, in swamps between 290 and 350 million years ago – the period referred to by geologists as the Carboniferous era, when much of the Pennine limestones and coarse sandstones (known as 'millstone grits') were also formed in shallow seas which then cover what today is Britain. At that time the land which today comprises the British Isles was situated at much lower latitudes. Consequently, climate was typically tropical or subtropical.

The final paragraph on the students' *What is Coal* sheet asks where the 'heat' (more formally, energy) stored in the coal came from. This is included to introduce the idea that nearly all our energy originally derives from light and heat absorbed from the sun – whether we use it in the form of coal, oil, natural gas, wood, wave, tide, ocean currents or wind, or directly using one of the forms of solar panel for heating or photoelectricity.

The only other sources of energy utilized by living things on Earth are nuclear, either in the form of geothermal energy or in nuclear power stations. The only life on earth completely independent of the sun lives by geothermal energy in hot springs or around hot oceanic vents. The sun itself is of course a giant thermonuclear reactor.