

## Fossil Fuels Summary

**You must be able to explain how the fossil fuels (coal, oil and natural gas) were formed.**

What's different?

- Coal was made from **plant** material; oil and natural gas were made from **animal** material.
- Coal is mostly **carbon**; oil and natural gas contain **hydrocarbons** (compounds of **hydrogen** and **carbon**).

What's the same?

After the living organisms died:

- They were covered by layers of sedimentary rock.
- They were heated ...
- under pressure ...
- without any air ...
- for millions of years.

**You must be able to say how we get the oil from the ground**

The key points

- We get crude oil from the earth's crust.
- Oil and gas are less dense than water, so they rise to the top of porous (sponge-like) rock layers.
- Oil and gas become trapped below a layer of non-porous rock.
- We have to drill through the non-porous layer of rock to get at the trapped gas or oil.

**You must be able to say what happens when fossil fuels burn**

What is burning?

- Burning is a chemical reaction.
- Burning also called **combustion**.
- When fuels burn, they react with **oxygen** in the air to make compounds called **oxides**.
- Burning is an **oxidation reaction**.

What is made when fuels burn?

- Many fuels contain **hydrogen**, so they make **water vapour** when burnt.
- Fuels also contain **carbon**, so they make **carbon dioxide** gas when burnt.

**You must be able discuss pollution from burning fossil fuels**

What gases cause pollution?

- Fuels may also contain some **sulphur**, which makes **sulphur dioxide** when the fuel is burnt.
- The **nitrogen** and **oxygen** in the air can react together in the **high temperatures** of a car engine or a furnace to make **nitrogen oxides**.
- Sulphur dioxide and nitrogen oxides dissolve in rain to make **acid rain**.
- Acidic fumes and acid rain can damage metalwork and stonework on buildings.
- If rivers and lakes become too acidic, the plants and animals in them will die.
- Carbon dioxide is a **greenhouse gas**, so burning fossil fuels may cause **global warming**.