3 Burning

When something burns, gases, and sometimes ash or soot, are produced.

When something **BURNS**, it breaks down into new substances which cannot be brought together later to remake the original substance again. Here are some examples of burning.

When a candle flame burns, most of the wax turns into a vapour and disappears (Picture 1).

When a match burns through the wood of the matchstick, it leaves only a thin, burned stump behind, and all that remains of a coal or wood fire is a small pile of ashes.

Burning produces gases

Where have the wax, coal and wood gone? Nearly all of it has been turned into a gas, and this has literally disappeared into the air. When something burns, it gets very hot, and combines with the oxygen in the air, to make new gases. One of these gases is called carbon dioxide.

◀ (Picture 1) As a candle burns, the wax turns partly to vapour and also burns. The gas carries tiny particles of soot up with it. The soot glows almost white hot and this is what actually gives off the light we see. To prove there is soot, just place a plate a few centimetres above the flame. After a few seconds, the soot will be deposited on it.

▲ **(Picture 2) As a fire burns it sends up gases into the air. When it has gone out, the fire leaves behind a grey ash and pieces of partly-burned wood.**

Burning releases heat

Anything we burn for heat is called a **FUEL**. Fuels include wax, wood, coal and oil.

A fuel gives out heat when it changes into a gas and the gas combines with the oxygen of the air.

Burning leaves ash or soot

Because burning changes a solid fuel into a gas, the amount of solid becomes smaller (Picture 2). This is why the amount of material left when burning is finished is much smaller than the amount of fuel at the start of burning. The material that remains is mostly made of **CARBON**. It may be made of tiny particles which are carried up into the air with the flame. We call these tiny particles of carbon, soot. This is what happens when a candle burns.

If material remains behind after burning is complete, we call it ash. This is what you get from a bonfire, or a coal fire.

Summary

- **When a fuel burns, it changes mainly into a gas.**
- **During burning, tiny particles of carbon may be carried up as soot.**
- **Any carbon that remains after burning is called ash.**