Year 8: Metals and Acids

- Metals and non-metals react with oxygen to form oxides.
- Some metals react with acids to produce salts and hydrogen.
- Carbon dioxide is released when acids react with metal carbonates.
- A pure substance consists of only one type of element or compound and has a fixed melting and boiling point.
- Most substances are not pure elements, but compounds or mixtures containing atoms of different elements. They have different properties to the elements they contain.
- Acids have a pH below 7, neutral solutions have a pH of 7, alkalis have a pH above 7.
- Mixing an acid and alkali produces a chemical reaction, neutralisation, forming a chemical called a salt and water.

Keywords

Atom: the smallest particle of an element that can exist.

Chemical formula: shows the elements present in a compound and their relative proportions.

Chemical change: new substances are made and the change is not easily reversed, for example, candle wax becomes water and carbon dioxide when it is burnt.

Compound: pure substances made up of two or more elements strongly joined together.

Elements: what all substances are made up of, and which contain only one type of atom.

Metals: shiny, good conductors of electricity and heat, malleable and ductile, and usually solid at room temperature.

Molecules: two or more of atoms joined together.

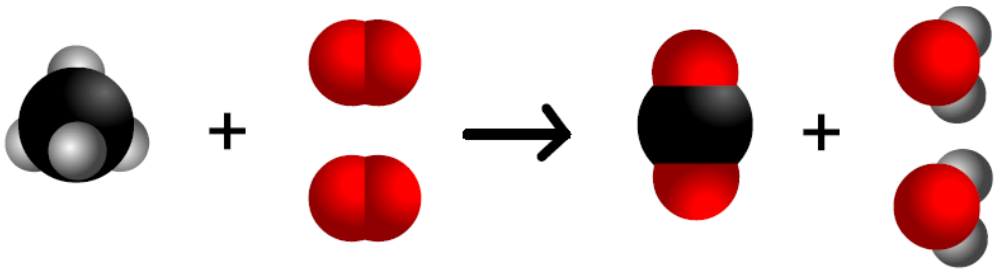
Non-metals: dull, poor conductors of electricity and heat, brittle and usually solid or gaseous at room temperature.

Oxidation: reaction in which a substance combines with oxygen.

Periodic table: shows all the elements arranged in rows and columns.

Physical change: no new substances are made and the change is often easily reversed, for example, melted wax changes back to solid wax when it cools down.

Chemical reactions



methane **compound** + oxygen **element** → carbon dioxide **compound** + water **compound**

One molecule of methane (CH_4) reacts with two molecules of oxygen (O_2) to form one molecule of carbon dioxide (CO_2) and two molecules of water H_2O).

Notice how all the atoms on the left side of the arrow also appear on the right side of the arrow. They are just rearranged to form different molecules.