

## Year 8: Metals and Reactivity

- Metals and non-metals react with oxygen to form oxides.
- Some metals react with acids to produce salts and hydrogen.
- Metals can be arranged as a reactivity series in order of how readily they react with other substances.
- 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.
- The elements in a group (a column in the periodic table) all react in a similar way and sometimes show a pattern in reactivity.

### 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.

**Displacement:** reaction where a more reactive metal takes the place of a less reactive metal.

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

**Groups:** columns of the periodic table.

**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.

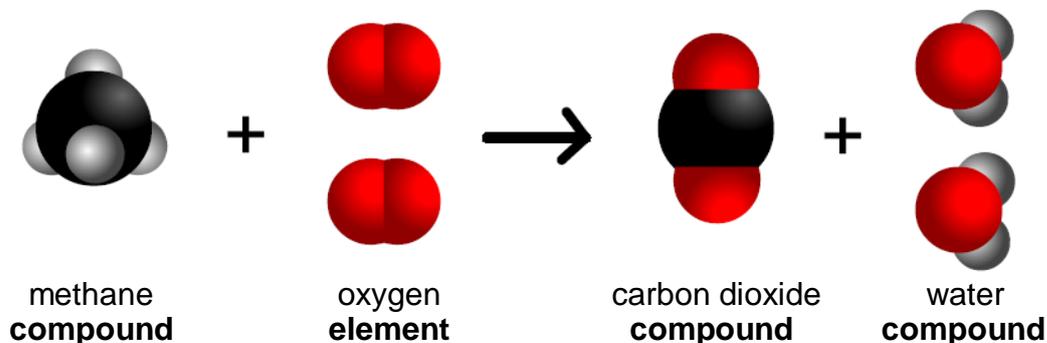
**Oxidation:** reaction in which a substance combines with oxygen.

**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.

**Reactivity:** the tendency of a substance to undergo a chemical reaction.

### Chemical reactions



One molecule of methane (CH<sub>4</sub>) reacts with two molecules of oxygen (O<sub>2</sub>) to form one molecule of carbon dioxide (CO<sub>2</sub>) and two molecules of water (H<sub>2</sub>O).

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.