

Golden Concepts

Asking scientific questions and making observations

Planning an investigation

Collecting, presenting and interpreting data

Errors and uncertainty

Science in our world

Key Vocabulary

Reactivity	The word reactivity describes how easily a chemical will react with another chemical
Conservation of mass	The idea that reactants and products in a chemical reaction will have the same mass
Reactant	The substances you start with in a chemical reaction. Before the arrow in a word equation
Product	The substances at the end of a chemical reaction. After the arrow in a word equation
Exothermic	A chemical reaction that gives out energy. E.g. gets hot
Endothermic	A chemical reaction that takes in energy. E.g. cools down
Combustion	Fire. A chemical reaction where by a fuel reacts with oxygen in the air
Displacement	A chemical reaction where a more reactive element takes the place of a less reactive element in a compound.
Neutralisation	When an acid and an alkali react together to form a neutral substance
Rates of reaction	How fast a reaction occurs
Collision theory	The way particles bump into each other randomly, this can cause a chemical reaction.

Chemical Reactions Stage 89 - Knowledge Organiser

Reactivity Series:

- Understanding the reactivity series of metals.

Chemical Equations:

- Introduction to writing and balancing chemical equations.
- Understanding the conservation of mass in chemical reactions.

Types of Reactions:

- Different types of chemical reactions (e.g., combustion, displacement, reparation and photosynthesis ).

Chemical Energy:

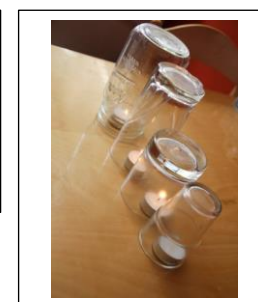
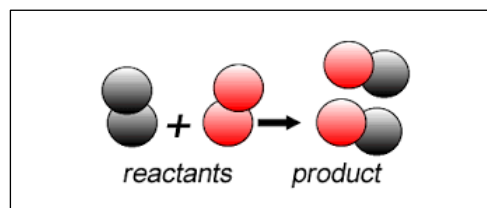
- Introduction to exothermic and endothermic reactions.

Rates of reaction:

- Describing factors that effect the rate of a reaction

**Exothermic Reactions**  
A reaction that releases energy from the system in the form of heat.

**Endothermic Reaction**  
A reaction that the system absorbs energy from its surrounding in the form of heat.



**Group 1's Experiment**

**Photosynthesis**

WATER + CARBON DIOXIDE (+LIGHT) → GLUCOSE + OXYGEN

$H_2O + CO_2 \xrightarrow{\text{LIGHT}} C_6H_{12}O_6 + O_2$

**Cellular Respiration**

GLUCOSE + OXYGEN → WATER + CARBON DIOXIDE (+ENERGY)

$C_6H_{12}O_6 + O_2 \rightarrow H_2O + CO_2 + \text{ENERGY}$

**Neutralisation**

Salt + Water

Increasing reactivity ↑

- Potassium
- Sodium
- Lithium
- Calcium
- Magesium
- Aluminium
- Carbon
- Zinc
- Iron
- Hydrogen
- Copper
- Silver
- Gold