Types of chemical reaction diagram

Combustion

Burning! Oxygen combines with another substance to produce heat and light.

Fuel + oxygen → carbon dioxide + water

Thermal decomposition

Uses HEAT to BREAK a compound down

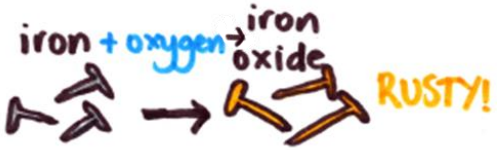
Copper carbonate → Copper oxide + Carbon dioxide

Oxidation

When oxygen is added to a substance.

Iron + oxygen → Iron oxide

Copper + oxygen → Copper oxide



Displacement

A more reactive element takes the place of a less reactive element

iron + copper chloride → iron chloride + copper

B has been 'displaced' by A

A + BC → B + AC

!BULLY!

1. **For each equation below, decide what type of reaction it is and then complete the table.**

Keywords

combustion	thermal decomposition	oxidation	displacement

Equation	Type of chemical reaction	Reason for choice
petrol + oxygen → carbon dioxide + water		
sodium + magnesium chloride → magnesium + sodium chloride		
magnesium carbonate → magnesium oxide + carbon dioxide		
ethane + oxygen → carbon dioxide + water		
magnesium + oxygen → magnesium oxide		

2. For each reaction below complete the word equation.

a. Type of reaction: combustion

wood + oxygen → .... + ...

b. Type of reaction: oxidation

..... + ... → silver oxide

c. Type of reaction: thermal decomposition

sodium carbonate (+ heat) → .... + ...

d. Type of reaction: displacement

potassium + iron chloride → .... + iron

Keywords

silver	carbon dioxide	water	water
carbon dioxide	sodium oxide	oxygen	potassium chloride

3. Cut out the boxes below and complete the word equations for:

a. The combustion of diesel

..... → .....

b. The oxidation of sodium

..... → .....

c. The thermal decomposition of potassium carbonate

..... → .....

d. A displacement reaction between magnesium and copper sulphate

..... → .....

Keywords

potassium carbonate	sodium oxide	sodium + oxygen
diesel + oxygen	magnesium sulphate + copper	carbon dioxide + water
magnesium + copper sulphate	potassium oxide + carbon dioxide	

Teaching notes

These questions were designed to be used with the 'Types of chemical reaction' diagram. However, they could be used with other information about the same types of reaction (combustion, oxidation, thermal decomposition, displacement). Some modification of the questions may be necessary in this case.

Suggested answers (the reasons will be varied):

1.

Equation	Type of chemical reaction	Reason for choice
petrol + oxygen → carbon dioxide + water	*combustion*	*burning a fuel*
sodium + magnesium chloride → magnesium + sodium chloride	*displacement*	*an element has taken the place of another*
magnesium carbonate → magnesium oxide + carbon dioxide	*thermal decomposition*	*a compound has been broken down*
ethane + oxygen → carbon dioxide + water	*combustion*	*burning a fuel*
magnesium + oxygen → magnesium oxide	*oxidation*	*oxygen has been added*

2.

a. Type of reaction: combustion
wood + oxygen → carbon dioxide + water

b. Type of reaction: oxidation
silver + oxygen → silver oxide

c. Type of reaction: thermal decomposition
sodium carbonate (+ heat) → sodium oxide + carbon dioxide

d. Type of reaction: displacement
potassium + iron chloride → potassium chloride + iron

3.

a. The combustion of diesel
diesel + oxygen → carbon dioxide + water

b. The oxidation of sodium
sodium + oxygen → sodium oxide

c. The thermal decomposition of potassium carbonate
potassium carbonate → potassium oxide + carbon dioxide

d. A displacement reaction between magnesium and copper sulphate
magnesium + copper sulphate → magnesium sulphate + copper