

## 8.1 Physical and Chemical Changes

Which of the following describes a physical change?

- A) Burning a piece of wood
  - B) Cooking an egg
  - C) Melting chocolate
  - D) Baking a cake
- 

## 8.2 Zinc and Sulfuric Acid Experiment

a) When zinc metal is added to sulfuric acid, which gas is produced?

- A) Oxygen
- B) Carbon dioxide
- C) Nitrogen
- D) Hydrogen

b) What is the correct way to test for the gas produced in this reaction?

- A) It turns limewater cloudy.
- B) It relights a glowing splint.
- C) It produces a "squeaky pop" with a lighted splint.
- D) It bleaches damp litmus paper.

c) What are the chemical products of this reaction?

- A) Zinc sulfate and hydrogen
- B) Zinc oxide and water
- C) Zinc carbonate and oxygen
- D) Zinc chloride and hydrogen

d) How do you know when the sulfuric acid has finished reacting?

- A) The liquid turns green.
- B) Bubbles stop forming (effervescence ceases).
- C) The zinc metal turns into a liquid.

- D) The test tube starts to vibrate.
- 

### 8.3 Magnesium Ribbon Reaction

a) What is the chemical symbol for Magnesium?

- A) Ma
- B) Mn
- C) Mg
- D) M

b) Which element in the air reacts with magnesium when it burns?

- A) Argon
- B) Oxygen
- C) Carbon
- D) Hydrogen

c) What is the name of the compound formed after magnesium ribbon burns?

- A) Magnesium chloride
  - B) Magnesium sulfate
  - C) Magnesium oxide
  - D) Magnesium carbonate
- 

### 8.4 Identifying Reaction Types

Look at these reactions:

- A: Carbon + oxygen  $\rightarrow$  carbon dioxide
- B: Sodium hydroxide + hydrochloric acid  $\rightarrow$  sodium chloride + water
- C: Potassium + water  $\rightarrow$  potassium hydroxide + hydrogen
- D: Copper carbonate  $\rightarrow$  copper oxide + carbon dioxide

Which letter represents a neutralisation reaction?

- A) Reaction A
  - B) Reaction B
  - C) Reaction C
  - D) Reaction D
- 

### 8.5 Zara and Sofia's Neutralisation Experiment

Zara and Sofia put 50cm<sup>3</sup> of alkali into a conical flask with universal indicator. They added acid from a burette 10cm<sup>3</sup> at a time.

Volume of acid added in cm <sup>3</sup>	0	10	20	30	40	50
pH of solution	12	11	10	9	8	7

1. Based on the table, what was the initial pH of the alkali before any acid was added?

- A) 7
- B) 10
- C) 12
- D) 0

2. At what volume of added acid did the solution become neutral?

- A) 10cm<sup>3</sup>
- B) 30cm<sup>3</sup>
- C) 50cm<sup>3</sup>
- D) 0cm<sup>3</sup>

3. What color would the universal indicator be at  $0\text{cm}^3$  of acid?

- A) Red
- B) Green
- C) Purple/Blue
- D) Orange

4. If the girls added  $60\text{ cm}^3$  of acid, what would you expect the pH to be?

- A) 6
- B) 7
- C) 13
- D) 9

5. What is the Independent Variable?

*(The variable that the students choose to change)*

- A) The pH of the solution
- B) The volume of acid added from the burette
- C) The color of the indicator
- D) The size of the conical flask

6. What is the Dependent Variable?

*(The variable that is being measured as a result)*

- A) The starting volume of the alkali  $50\text{ cm}^3$
- B) The type of acid used
- C) The pH value recorded after each addition
- D) The speed of the stirring