



UNIT 8 Changes to materials

1 Which of the following is a chemical change?

Tick (/) **one** box.

Ice melting.

☐

Iron filings heated with sulfur to produce iron

☐

sulfate.

Steam rising from a cooking pan.

☐

Sugar dissolves in a hot drink.

☐

2 Here are some properties of Substance X.

- It is a soft grey solid with a dull surface.
- When cut with a knife, the cut surface is shiny. The surface does not stay shiny for long because substance X reacts with the oxygen in the air to form an oxide.
- It reacts violently with water and gives off the gas hydrogen.
- It has a melting point of 63.5°C .
- It burns with a violet-coloured flame.

a Write down three properties of Substance X, and state whether each property is a physical property or a chemical property.



b. Is Substance X a metal or a non-metal? Give a reason for your answer. [1]

Metal or non-metal: _____

Reason: _____

3 Make a list of the equipment and chemicals you would use to find the pH of a soil sample. [2]

4 A gas was tested with a lighted splint and it made a popping sound. Which gas was it?

Tick (✓) **one** box.

[1]

oxygen ☐

hydrogen ☐

air ☐

carbon dioxide ☐

5 Complete the following equations:

a zinc + hydrochloric acid → _____ + hydrogen [1]

b potassium hydroxide + _____ → potassium sulfate + water [1]



6 Sort these words and statements into the correct column.

[2]

feels soapy	pH 4	turns litmus blue	turns universal indicator red	potassium hydroxide
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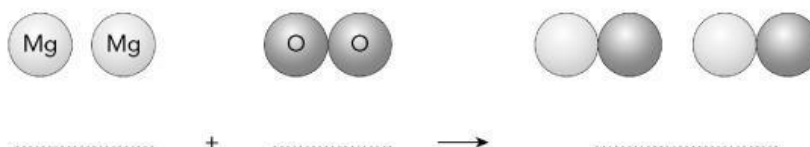
Acid	Alkali

7 Complete the equation by adding:

[2]

a the names of the reactants and product: _____

b the symbols of the product.



8 Draw **one** line between each material and the correct statement.

[2]

material

statement

metal

found on the left of the Periodic
Table

gas

low melting point

alloy

can be compressed

non-metal

a mixture of two or more
metals



1 Look at these symbols and formulae.

Na	O ₂	Ca	CO ₂	NaOH	KCl	CaCO ₃
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a Name **one** of the substances that is a compound. [1]

b Name **one** of the substances that is a gas. [1]

c Name the **one** substance that contains a metal and carbon. [1]