

## ACTIVITY 1

**Devise a question to assess the following specification statement:**

- 2.7 understand how displacement reactions involving halogens and halides provide evidence for the trend in reactivity in Group 7

## ACTIVITY 2

**Which specification point is the following question assessing?**

Malachite is an ore of copper containing copper(II) carbonate and several other compounds that are insoluble in water.

You are supplied with several pieces of malachite, these chemicals and items of apparatus.

Chemicals:        dilute sulfuric acid        magnesium powder

Apparatus:        beakers        filter funnel and paper        pestle and mortar

Describe how you would use the chemicals and the apparatus to obtain a sample of copper from the malachite.

## ACTIVITY 3

What are the essential points to include when answering these two questions?

$\text{SiF}_4$  and  $\text{SiCl}_4$  have simple molecular structures.

$\text{SiO}_2$  has a giant covalent structure.

(i) Explain why the boiling point of  $\text{SiCl}_4$  is greater than the boiling point of  $\text{SiF}_4$  (2)

(ii) Explain why the boiling point of  $\text{SiO}_2$  is very much greater than the boiling point of  $\text{SiCl}_4$  (2)

## ACTIVITY 4

What is the answer to the following question?

Hydrogen iodide can be manufactured from its elements using this reaction.



A temperature of 500 °C, a pressure of 4 atm and a platinum catalyst are used in this manufacturing process.

A manufacturer carries out this reaction using the same catalyst, a pressure of 4 atm, but a temperature of 400 °C.

State the effect of this change on the yield of hydrogen iodide.

Justify your answer.

(2)