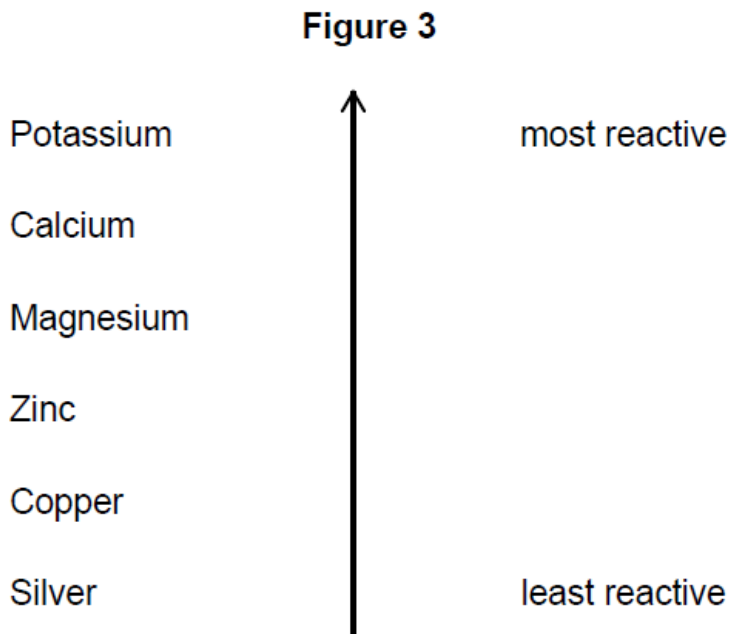


Reactivity of metals – GCSE Combined Science Chemistry**1. No.2.4-2.6**

The more reactive the metal added to copper sulfate solution, the greater the temperature change.

Figure 3 shows a reactivity series.



The student repeated the experiment.

The student added:

- magnesium to copper sulfate solution
- an unknown metal **A** to copper sulfate solution.

Table 2 shows the results.

Table 2

Metal	Temperature change in °C
Magnesium	12
Metal A	8

The student concludes metal **A** is zinc.

Give **one** reason why the student is correct.

Use **Figure 3** and **Table 2**.

[1 mark]

The student did the experiment with silver and copper sulfate solution.

What happens to the temperature of the mixture?

Use **Figure 3**.

[1 mark]

Tick (✓) **one** box.

Decreases

☐

Increases

☐

Stays the same

☐

Suggest **one** reason why the student should **not** add potassium metal to copper sulfate solution.

[1 mark]

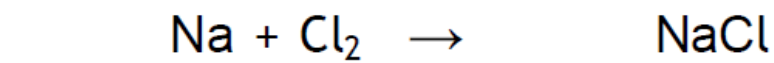
2. No.4.0-4.6

This question is about Group 1 elements.

Sodium reacts with chlorine to produce sodium chloride.

Balance the equation for the reaction.

[1 mark]



4.6 g of sodium reacts with chlorine to produce 11.7 g of sodium chloride.

What mass of chlorine reacted?

[1 mark]

Mass of chlorine = g

A teacher puts hot sodium into a gas jar of chlorine.

The changes seen before, during and after this reaction were observed.

Complete the sentences.

Choose the answers from the box.

[4 marks]

colourless	green	lilac	silver	white	yellow
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Sodium is a solid.

Chlorine is a gas.

The hot sodium burns with a flame.

The product sodium chloride is a solid.

Sodium chloride (NaCl) is an ionic compound.

Write the formulae of the ions in sodium chloride.

[2 marks]

Sodium ion _____

Chloride ion _____

Complete the sentence.

Choose the answer from the box.

[1 mark]

an atom

an electron

a neutron

a proton

Potassium is more reactive than sodium.

This is because potassium loses _____ more easily than sodium.

How does the size of a potassium atom compare with the size of a sodium atom?

Give a reason for your answer.

[2 marks]

Reason _____

3. No.1.4

Predict the reactivity of beryllium compared with magnesium.

Give a reason for your answer.

Use the periodic table.

[2 marks]

Reason

4. No.6

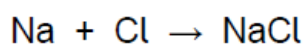
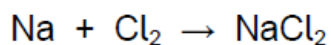
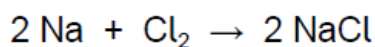
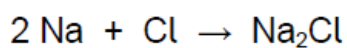
This question is about sodium.

Sodium reacts with chlorine.

What is the balanced equation for the reaction?

[1 mark]

Tick (✓) **one** box.

☐☐☐☐

Hot sodium is put in a gas jar of chlorine.

Describe the observations made before, during and after the reaction.

[3 marks]

Before reaction _____

During reaction _____

After reaction _____

Explain why sodium is less reactive than potassium.

[4 marks]

Chlorine reacts with sodium and with hydrogen.

Compare the structure and bonding in sodium chloride and hydrogen chloride.

[6 marks]
