

Group 0 Group 1

GCSE Chemistry · Written to the shared content for AQA, Edexcel and OCR

Name _____ Class _____ Date _____

1. Worked example

Explain why the noble gases are unreactive. (2 marks)

Step 1 · Electronic structure

They have a full outer shell (helium 2; the others 8).

Step 2 · Consequence

They have a stable arrangement, so they do not easily lose, gain or share electrons.

Answer: Full outer shell, so stable

Check: Use 'outer shell', not just 'shell'.

2. Now try one with the steps

Describe what you would see when a small piece of sodium is added to water. (3 marks)

Step 1 · Movement

Step 2 · Gas

Step 3 · Heat

Answer:

3. Practice

Show your working. The marks tell you how much is expected.

1. State the number of electrons in the outer shell of an argon atom. [1]

2. State why helium is in group 0 even though it has only 2 outer electrons. [1]

3. The boiling points of helium, neon, argon and krypton are $-269\text{ }^{\circ}\text{C}$, $-246\text{ }^{\circ}\text{C}$, $-186\text{ }^{\circ}\text{C}$ and $-153\text{ }^{\circ}\text{C}$. Describe the trend in boiling point down group 0. [1]

4. Explain why group 1 elements are called alkali metals. [1]

5. Name the gas produced when lithium reacts with water and give the test for it. [2]

6. Give the colour of the flame when potassium reacts with water. [1]

7. State why group 1 metals are stored under oil. [1]

8. Balance the equation for lithium burning in oxygen: $\text{Li} + \text{O}_2 \rightarrow \text{Li}_2\text{O}$ [1]

9. Write a balanced symbol equation for sodium reacting with chlorine to form sodium chloride. [2]

10. Calculate the relative formula mass of lithium hydroxide, LiOH . ($\text{Li} = 7$, $\text{O} = 16$, $\text{H} = 1$) [1]

11. Rubidium is below potassium in group 1. Predict how rubidium reacts with water compared with potassium. [2]

12. Explain why the noble gases are used to fill light bulbs and shield gas in welding. [1]

13. Explain why reactivity increases down group 1. [3]

14. The melting points of Li, Na, K, Rb and Cs are 181, 98, 63, 39 and 28 °C. Describe the trend down group 1 and predict whether francium, below caesium, melts above or below 28 °C. [2]
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4. Before you hand it in

"Group 1 metals get less reactive down the group because they get bigger."

Reactivity INCREASES down group 1: the outer electron is further from the nucleus and less strongly attracted.

Listing 'hydrogen is made' observation

Say 'fizzing' or 'bubbles'. Name the gas only when asked what it is.

"Noble gases have 8 electrons in total."

Noble gases have a full OUTER shell.