The periodic table and group trends

Pearson Edexcel 1CH0 Separate Chemistry · Foundation and Higher

Answer on your own paper. Show your working where needed.

1. Read a position

A neutral atom has electronic configuration 2,8,7. Give its period and GCSE group number. Explain what each number tells you.

2. Why leave a gap?

Mendeleev left a gap in his periodic table and predicted the properties of the missing element. Explain how a later discovery could support his table.

3. Helium and neon

Helium, with electronic configuration 2, and neon, with configuration 2,8, rarely react. Explain why using their electronic configurations.

4. Alkali metals and water

A teacher reacts separate pieces of lithium and sodium with water. Predict which metal reacts more vigorously. Name the substances produced by the reaction of sodium.

5. Halogen states

The boiling points of chlorine, bromine and iodine are −34 °C, 59 °C and 184 °C. Iodine melts at 114 °C. State iodine’s physical state at 20 °C and describe the trend in boiling point down Group 7.

6. Halogen displacement

A student adds bromine to potassium iodide solution. Predict any new halogen formed. Predict what happens when iodine is added to potassium bromide solution. Explain your predictions.

7. Sodium and potassium

Which reacts more vigorously with water, sodium or potassium? Explain your choice using electronic structure.

8. Compare reactivity trends

Predict the change in reactivity from lithium to potassium and from chlorine to iodine. Explain the two trends using electronic structure.

9. Extra challenge · Identify an unknown halogen

A halogen is a dark solid at room temperature. In a separate test, its solution fails to displace bromine from potassium bromide. A student identifies it as iodine. Evaluate the identification using both results and suggest a comparison that would strengthen it.

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