

0	1
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The table below shows some properties of one of the groups in the periodic table.

Table 1 - Features of a group from the periodic table.

Element	Melting point (°C)	Boiling point (°C)	Electron structure
W	-220	-188	2, 7
X	-101	-35	2, 8, 7
Y	-7	58	2, 8, 18, 7
Z	114	183	2, 8, 18, 18, 7

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Name the group of the periodic table that is shown.

[1 mark]

Group 7 or the halogens [1]

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Explain why these elements are part of the group you have named.

[2 marks]

They have 7 electrons [1 mark]
In the outer or outermost shell [1 mark]

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Describe and explain the trend in reactivity of the elements in this group.

[4 marks]

The further down, the less reactive the element
or
the higher up the more reactive.

[1]

Atoms of the higher elements or elements near the top or W are smaller or outer electron closer (to nucleus) or have fewer electron shells / energy levels [1]

So have stronger/est attraction (to nucleus) or less screening [1]

[1]

So electron gained more easily [1]

[1]

REMEMBER:

You must write this as a comparison.

Students often make the mistake of talking about magnetic forces or intermolecular forces which is not relevant for this question.

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Use table 1 above to answer the following question.

Element X is reacted with an aqueous salt made from element Y.

The letters are not the correct symbols for the elements.

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1

Explain what would happen in the reaction between element X and an aqueous salt made from element Y.

[2 marks]

Element X would displace element Y or chlorine would displace bromine [1]

Because it (element X or chlorine) is more reactive or is higher up in the group [1]

REMEMBER:

You would also get a mark for talking about why element X (chlorine) is more reactive relating to its the distance of electrons from the nucleus.

(Total 9 marks)

End