Chemistry Notes

Edexcel IGCSE

Chapter 1d – The Periodic Table

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1.18 – Understand how elements are arranged in the Periodic Table:	• **In order of atomic number**
	• **In groups and periods**
	  ▪ Ordered in terms of increasing atomic number – eg Helium (2) after Hydrogen (1)
	  ▪ Groups represent no. of **valence electrons** (electrons in outer shell)
	  ▪ Periods are rows. Represents how many shells of electrons the element has

1.19 – Understand how to deduce the electronic configurations of the first 20 elements from their positions in the Periodic Table	• Group number = no. of valence electrons (electrons in outer shell) • Each period = new row, new electron 'shell' • Hydrogen dif property from rest of group one – it is non-metal w/ 1 outer electron • Eg Fluorine Group 7, period 2. Thus two shells, 7 in outer shell and 2 in inner shell (full shell) ▪ Atomic number = 9 = 2+7 so this checks out.
1.20 – Understand how to use electrical conductivity and the acid-base character of oxides to classify elements as metals or non-metals	• Metals conduct electricity, non-metals (except graphite) do not • If react both w/ oxygen then metal oxides usually solid, non-metal is gaseous • These oxides dissolve in water (metal forms base, non-metal forms acid – eg Sodium hydroxide and Sulfur dioxide
1.21 – Identify an element as a metal or non-metal according to its position in the Periodic table	• Metals on left side more than halfway, non-metals on right. B, Si, Ge, As, Sb, Te, Po, and At are metalloids – shares properties of both sides
1.22 – Understand how the electronic configuration of a main group element is related to its position in the Periodic Table	• From 1.19 • Remember, max electrons in each shell (for GCSE) is 2,8,8
1.23 – Understand why elements in the same group of the Periodic Table have similar chemical properties	• Same amt of electrons in outer shell = similar reactivity – affects boiling, melting pt. Ex Alkali metals are reactive, soft, low density while halogens (7) are diatomic and have low boiling/melting pt. Brittle when solid.
1.24 – Understand why the noble gases (Group 0) do not readily react	• Full shells = stable electron configuration. However, can do covalent bonds – eg Xenon tetrafluoride