

CHEMISTRY

MODULE 2 – FOUNDATIONS IN CHEMISTRY

2.1 – ATOMS AND REACTIONS

Atomic structure and isotopes

- Describe the structure of an atom including the distribution of mass and charge.

	Protons	Electrons	Neutrons
Mass	1	1/2000th	1
Charge	+1	-1	0

- Mass is in nucleus (protons and neutrons) with electron cloud surrounding it.
- Describe the difference between mass (nucleon) number and atomic (proton) number
 - Mass number – the total number of protons and neutrons in the nucleus of an isotope
 - Atomic number – the total number of protons in the nucleus of an atom
- Explain what an isotope is.
 - Atoms of an element (same number of protons) with different numbers of neutrons and different masses.
- Define the term 'first ionisation energy'
 - The amount of energy needed to remove an electron from each atom in 1 mole of gaseous atoms of an element.

Relative masses

- State what is used as the standard measurement for relative masses
 - Carbon-12
- Define 'relative atomic mass' (A_r)
 - The weighted average mass of an atom, relative to 1/12th the mass of a carbon-12 atom.
 - THIS MEANS:
(The weighted average atomic mass of an element, relative to carbon 12, on a scale where carbon 12 is 12.)
- Define 'relative isotopic mass'
 - The mass of an isotope compared to 1/12th the mass of a carbon-12 atom.
 - THIS MEANS
(The mass of an isotope of an element relative to carbon 12 on a scale where carbon 12 is 12.)

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