

Atomic Structure

Chapter 12: Atomic Structure · Topic 1

Key Concept

Protons (positive charge) and neutrons (no charge) are found in the nucleus, while electrons (negative charge) orbit around it in shells.

The atomic number equals the number of protons, uniquely identifying each element, while the mass number is protons plus neutrons.

Electrons are arranged in shells around the nucleus, with the outermost shell (valence electrons) determining how an atom bonds with others.

Understanding atomic structure helps explain the periodic table's organisation and predict how elements will react chemically.

Quick Revision Notes

- Protons and neutrons are in the nucleus.
- Protons are positive; neutrons have no charge.
- Electrons are negative, orbiting in shells.
- Atomic number = number of protons.
- Mass number = protons + neutrons.
- Valence electrons are in the outermost shell.
- They determine bonding behaviour.
- Atomic structure explains the periodic table's organisation.

Practice Questions

- 1 Draw a simple atomic structure diagram.
- 2 Calculate the mass number given protons and neutrons.
- 3 Discuss what valence electrons do.
- 4 Research the atomic number of a common element.
- 5 Explain the difference between protons, neutrons and electrons.
- 6 Discuss how atomic structure relates to the periodic table.