

Key points to learn

1. Atom	Smallest part of an element that can exist
	Hydrogen atoms (4H)
2. Molecule	Two or more atoms chemically bonded
	Hydrogen molecule (H ₂) Water molecule (H ₂ O)
3. Element	Only one type or atom present. Can be single atoms or molecules
	Both examples of the Nitrogen element (N ₂) (N)
4. Compound	Two or more different elements chemically bonded
	Carbon dioxide (CO ₂) Methane (CH ₄)
5. Nuclear atom model	<ul style="list-style-type: none"> Electrons orbit Protons and neutrons in nucleus Number of protons = electrons
6. Nucleus	The centre of the atom. Contains neutrons and protons
7. Proton	Charge of +1. Mass of 1. Found inside the nucleus
8. Neutron	Charge of 0. Mass of 1. Found inside the nucleus
9. Electron	Charge of -1. Mass of almost 0. Found orbiting around the nucleus

Key points to learn

10. Mixture	Two or more chemicals not chemically bonded
11. Separation techniques	Used to separate mixtures. Ones you need to know: Filtration - get an insoluble solid from a liquid Crystallisation - get a soluble solid from a liquid by evaporating liquid off Distillation - get a pure liquid from a mixture of liquids Chromatography - separate mixtures of coloured compounds
	Where electrons are found. The shells can each hold this many electrons maximum: 2,8,8
	12. Electron energy levels
13. Periodic Table	A list of all the elements in order or atomic number. Columns called Groups . Rows called Periods
14. Conservation of mass	In a chemical reaction the total mass of reactants = total mass of products
15. Mass number	Number of neutrons + protons \Rightarrow $6 \text{ Neutrons} + 5 \text{ Protons}$
16. Atomic number	Number of protons \Rightarrow 5 Protons
17. Isotope	Same number of protons different number of neutrons
18. Ion	Atom where number of protons is not equal to electrons (+ve or -ve)
19. Plum pudding atom model	Early model: ball of positive charge with electrons in it

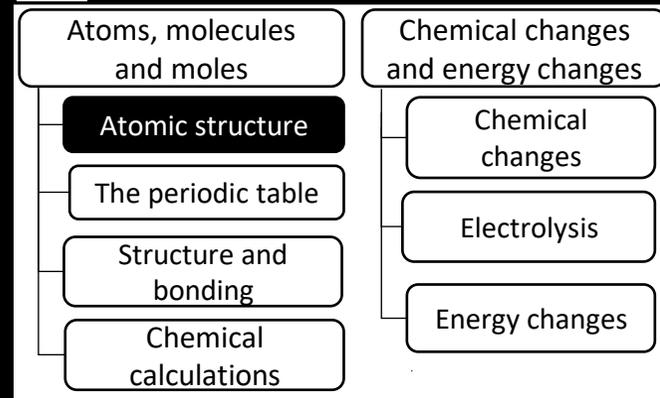
Trilogy C1: Atomic structure

Part of: Atomic structure and the periodic table

Knowledge Organiser



Big picture (Chemistry Paper 1)



Background

Atoms are the building blocks of us, our world and our universe. Everything that we can touch is made of atoms.

The Periodic Table organises them into a way that helps us make sense of the physical world.

Even though they make everything atoms are mostly (99.9%) empty space. If an atom was as big as Wembley, the nucleus would be pea-sized.

Additional information

A great deal of this topic is also covered in your Paper 1, Physics lessons during Electricity and Radioactivity.