

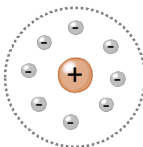
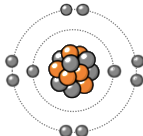
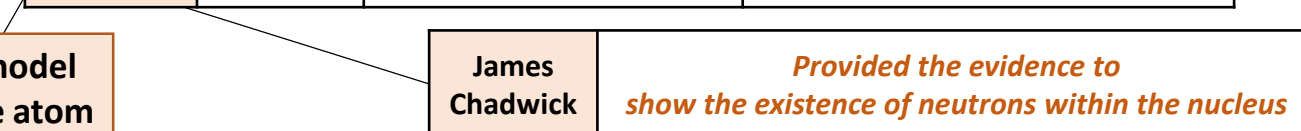


Pre 1900		<i>Tiny solid spheres that could not be divided</i>	Before the discovery of the electron, John Dalton said the solid sphere made up the different elements.
1897 'plum pudding'		<i>A ball of positive charge with negative electrons embedded in it</i>	JJ Thompson 's experiments showed that showed that an atom must contain small negative charges (discovery of electrons).
1909 nuclear model		<i>Positively charge nucleus at the centre surrounded negative electrons</i>	Ernest Rutherford's alpha particle scattering experiment showed that the mass was concentrated at the centre of the atom.
1913 Bohr model		<i>Electrons orbit the nucleus at specific distances</i>	Niels Bohr proposed that electrons orbited in fixed shells; this was supported by experimental observations.



Electronic shell	Max number of electrons
1	2
2	8
3	8
4	2

The model of the atom

Edexcel Topic 1: Key concepts in chemistry

<p>Elements arranged in order of atomic number</p>	<p><i>Elements with similar properties are in columns called groups</i></p>	<p>Elements in the same group have the same number of outer shell electrons and elements in the same period (row) have the same number of electron shells.</p>
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The periodic table

Metals	<i>To the left of the Periodic table</i>	Form positive ions. Conductors, high melting and boiling points, ductile, malleable.
Non metals	<i>To the right of the Periodic table</i>	Form negative ions. Insulators, low melting and boiling points.

Before discovery of protons, neutrons and electrons	<i>Elements arranged in order of atomic weight</i>	Early periodic tables were incomplete, some elements were placed in inappropriate groups if the strict order atomic weights was followed.
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<p>Isotopes</p>	<p><i>Atoms of the same element with the same number of protons and different numbers of neutrons</i></p>	<p>^{35}Cl (75%) and ^{37}Cl (25%)</p> <p>Relative abundance =</p> $\frac{(\% \text{ isotope 1} \times \text{mass isotope 1}) + (\% \text{ isotope 2} \times \text{mass isotope 2})}{100}$ <p>e.g. $(25 \times 37) + (75 \times 35) \div 100 = 35.5$</p>
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1	2	<div><div>Non metals</div><div>To the right of the Periodic table</div><div>Form negative ions. Insulators, low melting and boiling points.</div></div>										3	4	5	6	7	0		
H												B	C	N	O	F	Ne		
Li	Be											Al	Si	P	S	Cl	Ar		
Na	Mg											K	Ca	Sc	Ti	V	Cr	Mn	Fe
Rb	Sr	Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn	Sb	Te	I	Xe		
Cs	Ba	La	Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg	Tl	Pb	Bi	Po	At	Rn		
Fr	Ra	Ac	Rf	Db	Sg	Bh	Hs	Mt	?	?	?								

Mendeleev	<i>Left gaps for elements that hadn't been discovered yet</i>
	Elements with properties predicted by Mendeleev were discovered and filled in the gaps. Knowledge of isotopes explained why order based on atomic weights was not always correct.