Rutherford scattering

This experiment demonstrated the existence of a small, dense and positively-charged nucleus

Alpha particles were fired at thin gold foil, and a detector recorded how many particles are deflected at different angles

Alpha particles are the nucleus of a helium atom and are positively charged

Most of the particles went straight through = **atom is mainly empty space**

Some particles were deflected at different angles = **positive nucleus at the centre**

A small number were deflected straight back = **the nucleus is small and is where the mass/charge of an atom is concentrated**

History of the atom model

Atomism - Democritus (All matter made of small indivisible particles called atoms)

Sphere model - Dalton (Atoms of the same element are identical, cannot be broken down and rearrange during reactions)

Plum Pudding Model - J.J. Thomson (Atom is a positive sphere with negative charges embedded in it)

Nuclear Model - Rutherford (Electrons orbit a positive nucleus in set, predictable paths)

Planetary Model - Bohr (Electrons are arranged in specific orbits around the nucleus)

Quantum Model - Schrödinger (An atom is surrounded by an cloud containing all the possible places an electron could be)

α, β and γ radiation

Radiation is where an unstable nucleus emits energy in the form of EM waves, or subatomic particles

It does this in order to become more stable

By **amstoffel** (amstoffel)
cheatography.com/amstoffel/

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