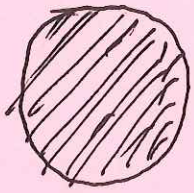
Atomic Theory

Intro: The current model of the atom is a scientific model that has been refined over the years as new evidence is provided. The Bohr model is not the current accepted model but it does provide an easy way to qualitatively describe many properties of an atom.

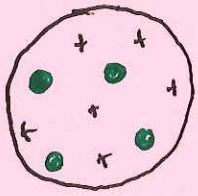


Dalton, 1808

- First to describe atoms in a modern, scientific sense

positive: idea of "atoms"

negative: doesn't explain electricity or isotopes

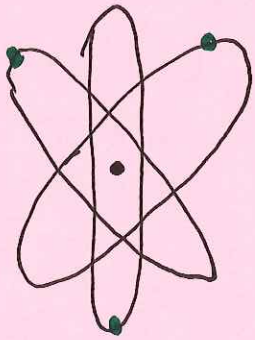


Thomson, 1897

- proposed plum pudding model
- model based on cathode Ray tube experiment
  - ↳ discovered negative "electrons"

positive: idea of positive and negative atom components

negative: doesn't explain why alpha particles bounced back

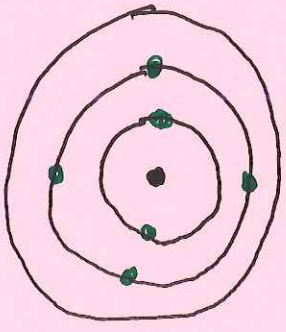


Rutherford, 1911

- proposed idea of small, dense, positively charged atom "centers"
- model based on gold foil experiment
  - ↳ discovered what later known as nucleus

positive: idea of positive, small nucleus

negative: doesn't explain why negative electrons not drawn in and "captured" by nucleus



Bohr, 1913

- proposed idea of e^- residing in energy shells with specific energies
- model based on absorption and emission spectrums of Hydrogen

positive: idea of quantized energy shells

negative: doesn't explain quantum mechanics

Schrödinger, 1926

- Used Quantum mechanics and wave functions to describe location of electron location probability

positive: energy subshells, electron orbitals

negative: doesn't explain why some atoms of same element are heavier

Chadwick, 1932

- Uses Mass Spectrometry to propose neutrons and explain isotopes

positive: Isotope abundance

Models: used to explain observed phenomena

* As new technology makes new data available current models some times need to be revised