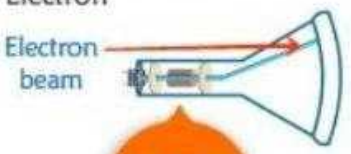
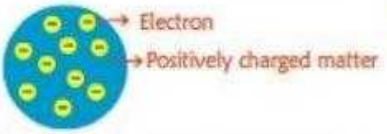
HISTORY OF ATOMIC MODEL

1885 Johann Balmer derived a formula for mathematically predicting hydrogen spectrum.

1897 J J Thomson discovered Electron



1904 J J Thomson proposed plum pudding model



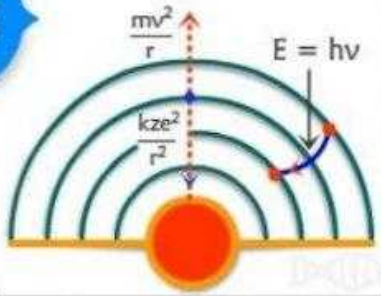
1911 Rutherford proposed a model where positive charge is at the center, and electron moves around in a spiral path and losses energy.

1913

Bohr's Atomic Model

$$r = 0.529 \times \frac{n^2}{z} \text{ Å}$$

$$\frac{kze^2}{r^2} = \frac{mv^2}{r}$$



- Bohr worked with J J Thomson and found flaws in his theory
- He proposed electron revolves around nucleus in orbits.
- Electron is stabilized by centripetal and electrostatic forces.
- Electron don't lose energy in an orbit.
- Electron losses or gains energy by moving across orbits.
- He proved Balmer was right by derving his formula theoretically.
- Only applicable for one electron systems.
- Failed to predict dual nature of electron.

1923 De Broglie introduced the concept of dual nature in electrons. He used Einstein's $E = mc^2$ and proposed any moving particle or object has an associated wave.