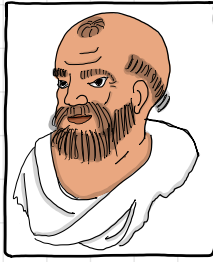


The history of the atom



Democritus 400BC

atom

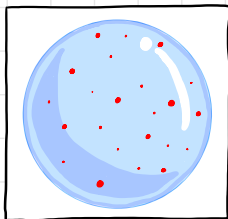
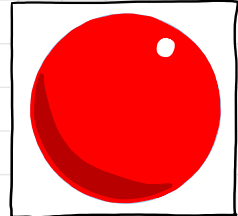
A Greek philosopher who reasoned that all materials are made from tiny indivisible particles called atoms. He never did any experiments to prove his ideas. However his ideas are very similar to modern scientific theories.

solid particles

Dalton 1808

Dalton's atomic theory states:

- 1) Elements are made from the same type of atom.
- 2) Different elements contain atoms with different sizes.
- 3) Atoms cannot be broken down.



J.J. Thomson 1897

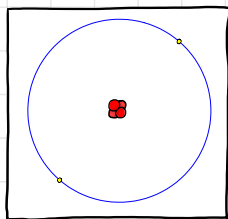
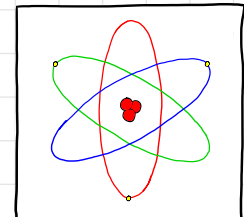
electrons

Thomson showed the atom contained tiny negatively charged particles called electrons. He said they were dispersed in a cloud or soup of positive charge. This model is called the plum pudding model.

nucleus

Rutherford 1911

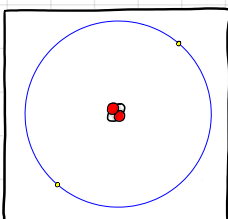
Using data from the alpha particle scattering experiment, Rutherford suggested positive particles called protons formed a small nucleus containing all the mass of the atom. He thought the electrons orbited the atom like moons around a planet.



Niels Bohr 1913

electron shells

Bohr said electrons orbit the nucleus in orbits at a discrete set of distances from the nucleus. These orbits are associated with defined energies and are called shells.



James Chadwick 1932

neutrons

Chadwick discovered the neutron, which is a neutral particle with the same mass as a proton. This discovery explained why the mass of atoms was greater than could be accounted for by the mass of protons. The neutron explains why different isotopes exist.



[watch video](#)