Atomic theory states that matter is composed of discrete units called atoms, as opposed to the obsolete notion that matter could be divided into any arbitrarily small quantity. It began as a philosophical concept in ancient Greece (Democritus) and India and entered the scientific mainstream in the early 19th century when discoveries in the field of chemistry showed that matter did indeed behave as if it were made up of particles.
Dipole Moments

Gray: The Structure of Atoms

Hydrogen's Atomic Emission Spectrum

Ionization Energies of Diatomic Molecule

Isotopes

Nuclide, Atomic Number, mass number
Postulates of Dalton's atomic theory

Simple View of Atomic Structure

The Atom

The Mole and Avogadro's Constant