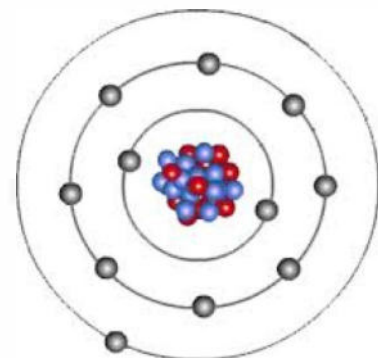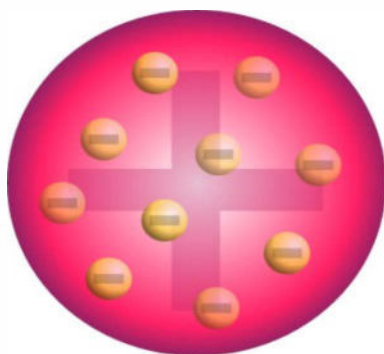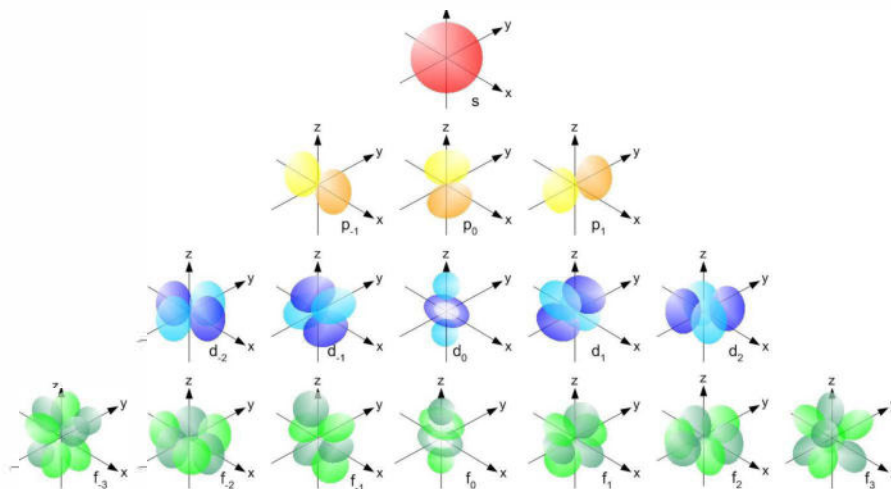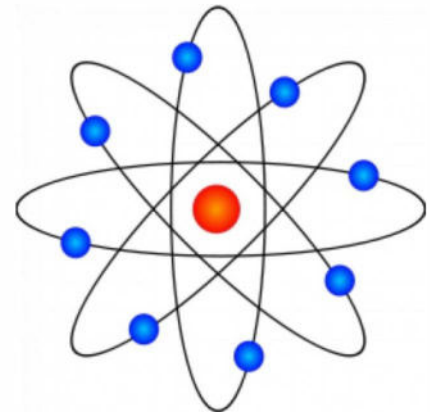Atoms in Carbon

Carbon atoms and Hydrogen atoms in Methane molecule.

Democritus:

John Dalton:

JJ Thompson:

Ernest Rutherford:

Neils Bohr:

Louise de Broglie:

Greek Philosopher who theorized that **all matter** was composed of **tiny indivisible particles** called **atoms** (or *atomos* in Greek, meaning **uncuttable***)*

British Schoolteacher who developed the **First Atomic Theory of Matter**. He said that **atoms combined to form elements** and that **elements combined in precise ratios to form compounds**.

British Physicist who performed the **Cathode Ray experiment**. He is credited with **discovering electrons** and said that they were sprinkled randomly throughout the positively charged atom like pieces of plums in **Plum Pudding Model**.

British Physicist who performed the **Gold Foil Experiment**. He found that most of the atom's mass was located in a **dense positive nucleus** with negative electrons orbiting around the nucleus. He realized that **most of the atom was empty space**.

Danish Physicist who proposed, based on his research, that **electrons orbit the nucleus** in **fixed energy levels**, like planets orbiting the sun (**Planetary Model**).

French Physicist who discovered the **wave nature of electrons** and suggested that **all matter has wave properties**. He said that electrons can be found in **orbitals,** a **three-dimensional region** within which there is a **95% percent** probability of finding the electron. Orbital have specific shapes: **s, p, d, f.**

Atomos - tiny uncuttable particles of matter

All matter is made of atoms

First Atomic Theory of Matter

Atoms combine to form the elements

Different elements combine to form compounds

Cathode Ray Experiment

Discovered Electrons

Plum Pudding Model

Gold Foil Experiment

Dense positive nucleus

Atoms are mostly empty space

Electrons travel in fixed energy orbitals

Planetary Model

All matter has wave properties

Electrons travel in probability waves

s-orbitals, p-orbitals, d-orbitrals, f- orbitals