



The Atom

Chemistry – Leaving Cert

Quick Notes

The Atom

All matter is composed of particles known as atoms, ions, or molecules. Atoms are very minute particles, they are considered to be the basic unit from which all substances are formed. John Dalton developed a theory known as the Atomic Theory, which states that matter is composed of tiny, indivisible particles called atoms which can be neither created nor destroyed. William Crookes discovered cathode rays by passing a current from the negative electrode to the positive electrode in a vacuum tube. JJ Thomson used another vacuum tube to show that cathode rays were negatively charged particles which then became known as electrons. Thomson also managed to calculate the ratio of the size of the charge on its electron to its mass, and as well as that, he proposed the plum pudding model. Robert Millikan used the Oil Drop experiment to measure the size of the charge on the electron, which meant the mass could be calculated. Ernest Rutherford discovered the nucleus and the proton by bombarding a thin leaf of gold foil with alpha particles. James Chadwick discovered the neutron by bombarding a sample of beryllium with alpha particles. Protons are positive sub-atomic particles found in the nucleus. Neutrons are neutral particles also found in the nucleus. Electrons are negatively charged particles found in shells outside the nucleus.