

Mesleki Yabancı Dil 1 Dersi

Ankara Üniversitesi Elmadağ Meslek Yüksekokulu

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Hafta 1

THE STRUCTURE OF MATTER

- Our world consists of many things that we call matter.
- Matter means anything that has weight and takes up space. It has four forms: solid, liquid, gaseous and plasma, such as electrical arcs produced by tesla coils.
- In the nineteenth century, John Dalton stated that all matter is made up of small indivisible particles, and he called them atoms, and this theory had been accepted for a long time.
- Scientists found 92 different atoms from which all matter in nature was composed.
- An atom is the basic unit of matter and it consists of a nucleus around which smaller particles orbit. These particles are electrons and have a negative electric charge. The nucleus is made up of protons and neutrons. Protons are positively charged whereas neutrons have no net charge.
- Each atom contains an equal number of electrons and protons but may have a different number of neutrons.

- Mass number is the sum of protons and neutrons of an atomic nucleus, while atomic number is the number of elementary positive charges in the nucleus when an atom is in its normal condition.
- The atomic number varies for each element, 92 for uranium, which is the heaviest element in nature, but the number is even higher for the new artificial elements.
- We can compare the structure of an atom to the Solar system.
- Electrons, which orbit at a very rapid speed around the nucleus, somewhat in the same manner as the Earth and the other planets orbit around the Sun. These are planetary electrons and they revolve around the positively charged nucleus of their atom.
- Besides planetary electrons, due to their negative charge strongly attracted to the positively charged nucleus, there is another type of electrons. These are free electrons.
- They move freely in matter or a vacuum when external electric or magnetic fields act on them.