

Arrangement of Electrons in atoms.

The emission of light is fundamentally related to the behavior of electrons

studied the development of atomic model.

An atom has protons + neutrons in the nucleus and electrons outside the nucleus and that was Rutherford's model.

Rutherford model of the atom was incomplete because it didn't explain how the atom's negatively charged e⁻s are distributed in the space surrounding the positively charged nucleus.

In the early 20th century a lot of studies revealed an intimate relationship between light and an atom's electrons. To know this relation we should learn about Properties of light.

1 - behaves as a wave and also has a particle like characteristics

Wave description of light

that means light travels through space in a wavelike behavior

Visible light is a kind of Elec. magnetic radiation. But there are more kinds of E.M. radiation like X-ray, radio wave + ~~gamma~~ ultraviolet radiation

pg. 98 the pic shows the electromagnetic spectrum that includes all the electromagnetic radiation.

use pointer fingers and let students read the radiations :-

- All forms of electromagnetic radiation move at a constant speed 3.0×10^8 m/s. in vacuum and slightly slower in matter

A significant features of wave motion are

- ① wave length: in meters.
- ② frequency: in s^{-1}

how we learned about λ and ν we also talked about c speed of light now these 3 are mathematically related as follows:

$c = \lambda \cdot \nu$

explain the units of $\nu = s^{-1}$

Particle description of light

German physicist Max plank suggested that when an object is heated it emits energy in small packets called (quanta)

So a quantum of energy is: read pg 99

ask if there is any misunderstanding of any statement + has going to help up reach our learning goals.