

- Warm-up:

Isotopes

The atomic mass of each element is given on the periodic table and is actually a weighted average of all the naturally occurring isotopes of an element. An isotope is a type of atom that has the same number of protons but a different number of neutrons. For example, all carbon atoms have six protons, but may have six, seven, or eight neutrons, so there are isotopes of carbon-12, carbon-13, and carbon-14. Because carbon-13 and carbon-14 occur in much smaller amounts than carbon-12, they don't change the atomic mass of carbon very much, but it is still 12.0111 u and not exactly 12 u.

If fluorine has an atomic mass of 18.998 and there are isotopes of both fluorine-18 and fluorine-19, which of the two isotopes occurs in larger numbers naturally?

- Max Planck [1900's]: he studied light → Why does iron change color when you heat it? Black → red → yellow → white → blue

★ Can be explained by assuming that each color represents a certain energy level → energy is proportional to frequency of radiation

↳ Bohr found that electrons at certain levels of energy emit photons of light that correspond to the energy drop when electrons relax

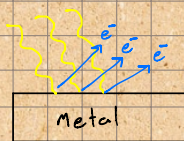


- Photon: a small particle/package of light

Photo Electric Effect:

↳ Light acts as a particle and a wave

- Photo electric effect: metals eject electrons when light shines on them



- In theory: ↑ light intensity [amount] → ↑ electrons
- In reality: no matter how weak the light, electrons were still emitted
 - ↳ Higher Frequency → ↑ electrons [ie higher energy]

★ Photo voltaic Cells → light is converted into electricity