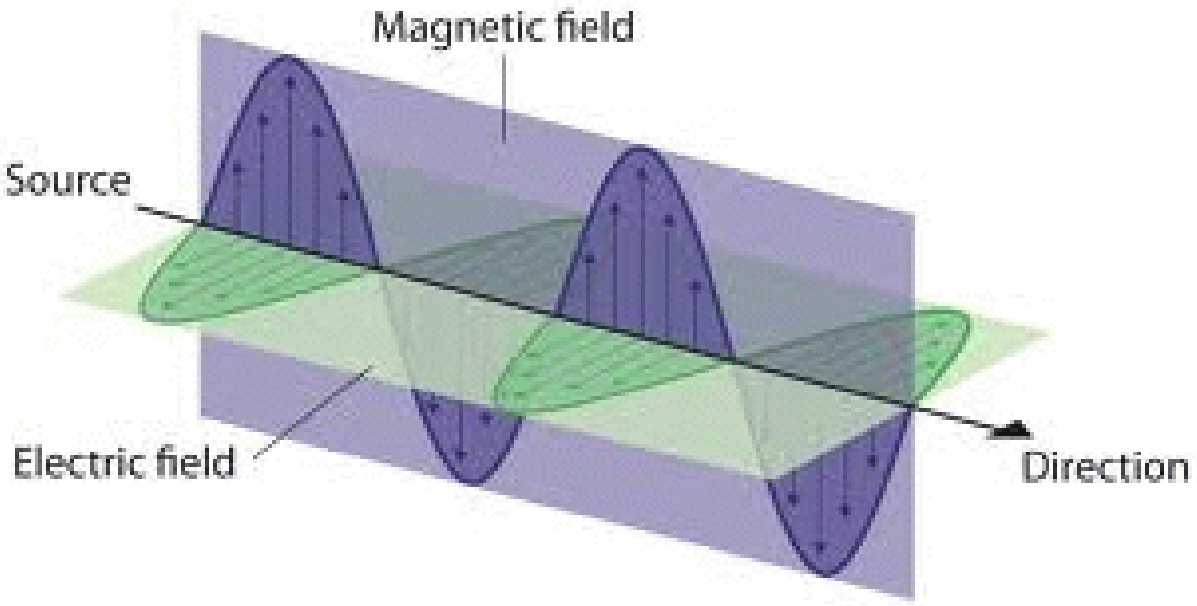
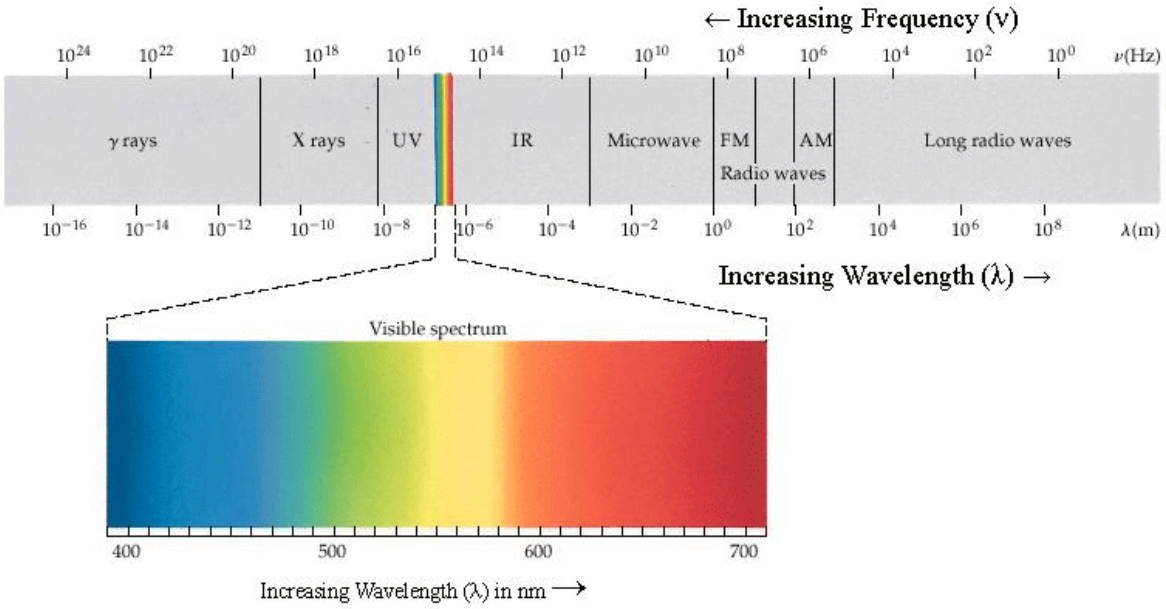
Light

Light: is a form of electromagnetic radiation that is visible to our eyes.

Electromagnetic Radiation: a self propagating electromagnetic fluctuation that travels in straight lines at a speed of 3×10^8 m/s. An individual fluctuation is referred to as a *quanta of light or a* single photon of light.



The electromagnetic fluctuation is similar to sound in that it has a wavelength and a frequency. The wavelength and frequency determines the type of electromagnetic radiation.



All types of electromagnetic radiation are used to understand the universe!!! Astronomy is Awesome!!!

Dangers and Uses of Electromagnetic Radiation

Low Energy ↓ **ENERGY** ↑ High Energy

Low Frequency ↓ **FREQUENCY** ↑ High Frequency

Long Wavelength ↓ **WAVELENGTH** ↑ Short Wavelength

Type of Radiation	Uses and/or Dangers
Gamma Rays	– very dangerous radiation, cancer causing, radiation poisoning – gamma ray knife used for brain surgery, radiation therapy to cure cancer
X-Rays	– dangerous radiation, cancer causing – used for medical imaging – used to test critical metal structures for weakness
Ultraviolet Light	– dangerous radiation, causes skin cancer and sunburns – used to initiate some chemical processes
Visible Light	– good to see with!
Infrared	– only dangerous in high concentrations – provides heat (heat radiant energy)
Microwaves	– only dangerous at specific wavelengths – used for microwave ovens – used for telecommunications
Radiowaves	– used for telecommunications (TV, radio, satellite signals, cell phones, satellite phones, GPS signals)