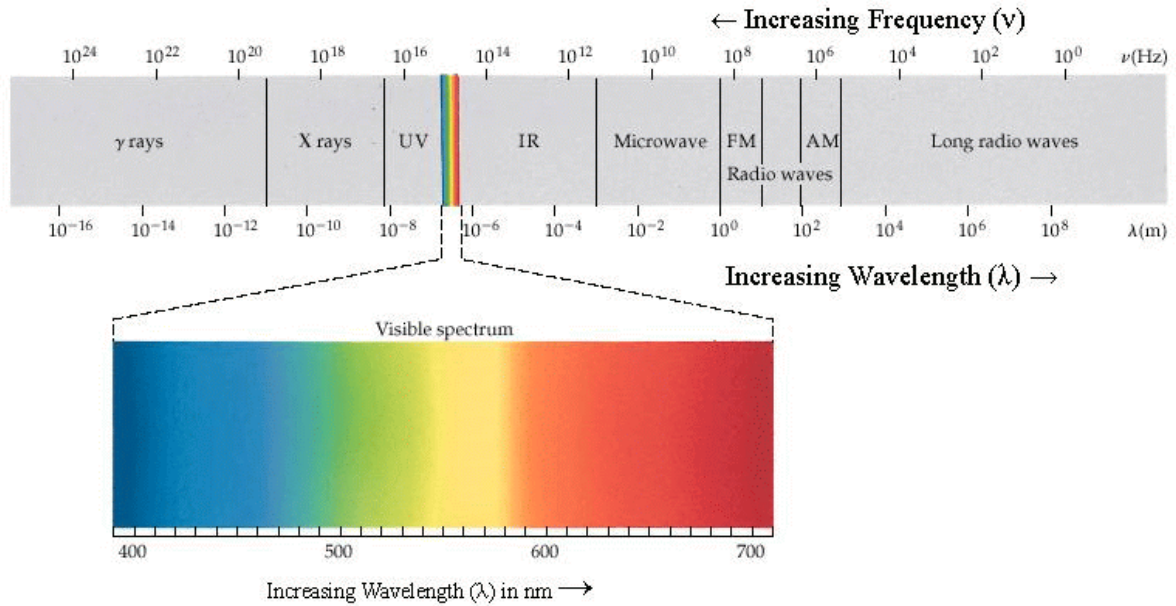


## Electromagnetic Radiation

- electromagnetic spectrum shows all different types of electromagnetic radiation
- light is a small portion of all electromagnetic radiation
- like sound, light has a frequency and wavelength
- travels fast ( $3 \times 10^8$  m/s), takes light 0.133 s to travel the distance around the earth, 8 min and 23 s to reach us from the sun
- electromagnetic radiation travels in a wave/particle package called a photon
- a photon has a wave/particle duality (could be thought of as a wavy particle)
- electromagnetic radiation can be thought of as a self propagating electromagnetic disturbance that follows the rectilinear propagation of light (i.e. light travels in straight lines)



← increasing energy

← increasing frequency

→ increasing wavelength

- this means that every photon has a specific energy, frequency and wavelength and corresponds to a particular colour of light or type of radiation

- in order of decreasing energy types of electromagnetic radiation are:
  - gamma rays
  - X-rays
  - ultraviolet
  - visible
  - infrared
  - microwaves
  - radiowaves
  
- for light order of decreasing energy is:
  - violet
  - blue
  - green
  - yellow
  - orange
  - red