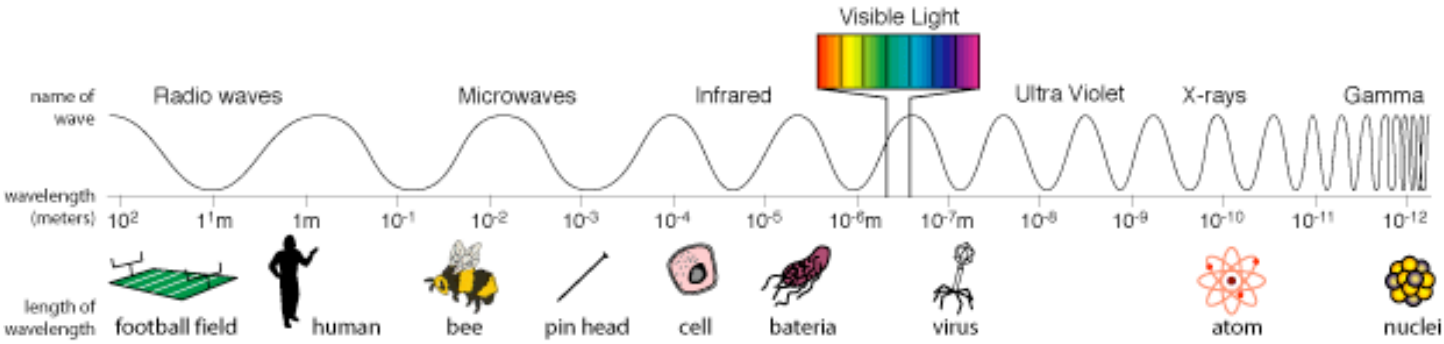
SNC 2D
J. Kropac

Physics: Optics and Light

The Electromagnetic Spectrum:

- Light travels as an electromagnetic wave. However ***visible light*** (electromagnetic waves that the eye can detect) make up a very small range of the ***electromagnetic spectrum***.



Type of Wave	Use
Radio Waves	
Microwaves	
Infrared Light	
Visible Light	
Ultraviolet Light	
X-Rays	
Gamma Rays	

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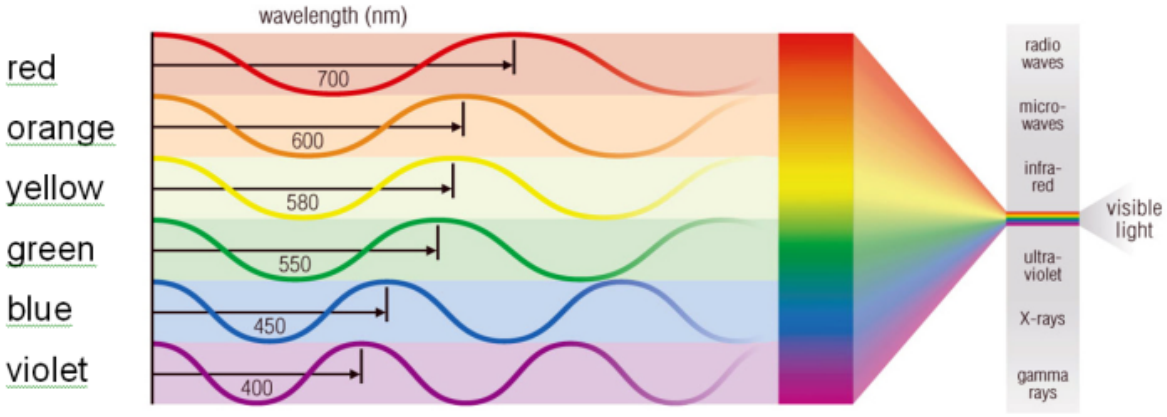
Colour Theory

- Colour is light, which travels to us in waves from the sun, on the same electro-magnetic spectrum as radio and television waves, microwaves, x-rays etc.
- White light is actually composed of a combination of many colours - all the colours of the rainbow.
- What distinguishes colours of light is the different wavelengths of light.



- White light is made up of shades of Red, Orange, Yellow, Green, Blue, Indigo and Violet.
- This can be demonstrated when you shine white light through a triangular prism. The different wavelengths will be ***refracted*** at different angles, and you will see the full spectrum of colours.
  - ROY G BIV is a mnemonic to help you remember the spectrum.

- When light strikes any coloured object, the object will absorb only the wavelengths that exactly match its own atomic structure and reflect the rest - which is what we see.
  - For example: An apple appears red to us because all other wavelengths of light were absorbed by the object. The red wavelength is ***reflected*** back at us, and that is the colour we perceive.

- The human eye contains three types of colour sensors, which are sensitive to light energy in three specific bands of frequency.
  - One of these bands we call green, one blue, one red.
  - All other colours are the brain's interpretation of the mixture of these three colours reaching the eye.