

Unit 2: Light and Optics – ch. 10, 11, 12

What is Light?

- Light is a form of energy – it can do work like cook a hot dog or run a calculator
- Light travels in straight lines
- Light travels very fast ($c = 3.00 \times 10^8$ m/s or 300000000.0 m/s)
- Nothing travels faster than the speed of light
- When we talk about “light” we are actually talking about a form of electromagnetic radiation that our eyes can perceive
- There are many different types of electromagnetic radiation but all types are described the same way...in terms of waves
- We use a wave as a model for light because it behaves very similarly to wave in water

The Wave Model of light

- Draw and label figure 10.6 on page 383
- Define the terms that describe a wave
 - Wavelength
 - Amplitude
 - Frequency
 - Crest and trough
 - Rest position
- How is the frequency of a wave related to the wavelength?

The Electromagnetic Spectrum

- Define the Electromagnetic Spectrum
- Make a table in your notes

Type of Radiation	Frequency, wavelength and energy	Uses

White Light and Colour

- White light is actually a combination of all the colours of visible light merged together in our eyes.
- We can separate white light into the various colours by using a prism. (rainbow)
- A prism will not separate a single colour into other colours (red in → red out)
- Each colour has its own wavelength and frequency
- Red has the longest wavelengths and Blue has the shortest wavelengths
- Compare Additive and Subtractive Colour Theory
 - Spotlights vs paints
 - Mixing colours