

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

### What is Light?

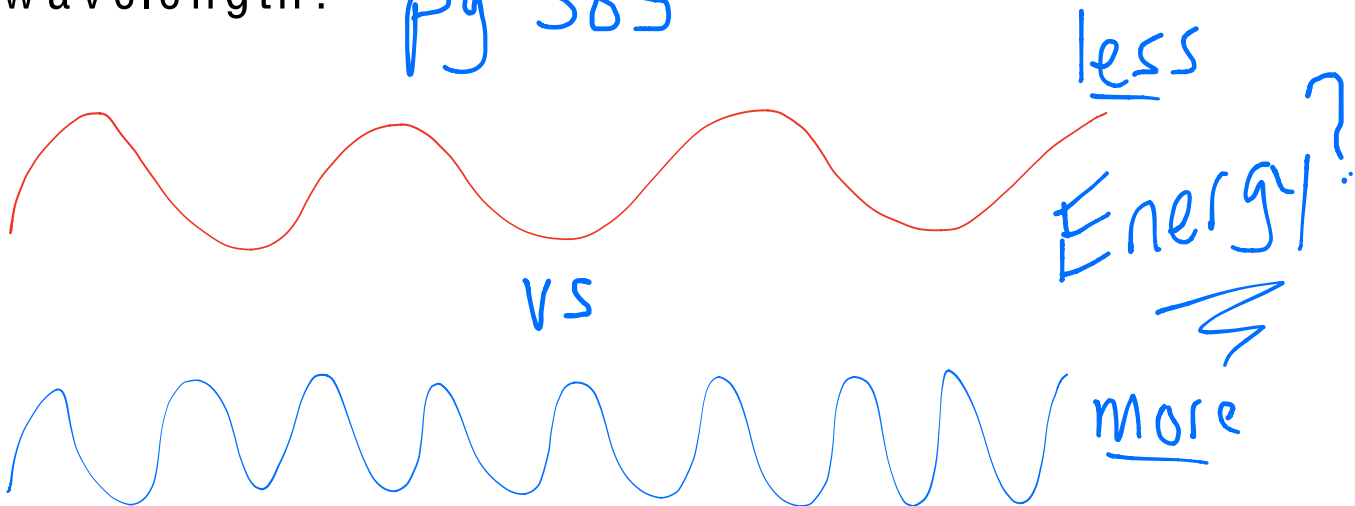
- Light is a form of energy – it can do work like cook a hot dog or run a calculator
- Light travels in straight lines
- Light travels very fast ( $c = 3.00 \times 10^8 \text{ m/s}$  or 300000000.0 m/s) *speed of light*
- Nothing travels faster than the speed of light
- When we talk about “light” we 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?

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## The Electromagnetic Spectrum

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

Type of Radiation	Frequency, wavelength and energy	Uses

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## 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