Unit 8: Waves  
**2 – Light and Sound**

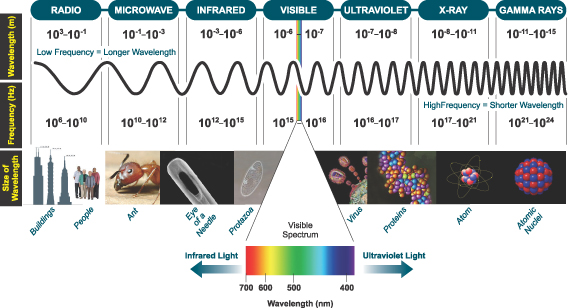
EM Radiation

- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ waves of energy

- The speed of light depends on the \_\_\_\_\_\_\_\_\_\_\_\_\_\_

(denser 🡪 \_\_\_\_\_\_\_\_\_\_)

- The speed of light in a vacuum is:



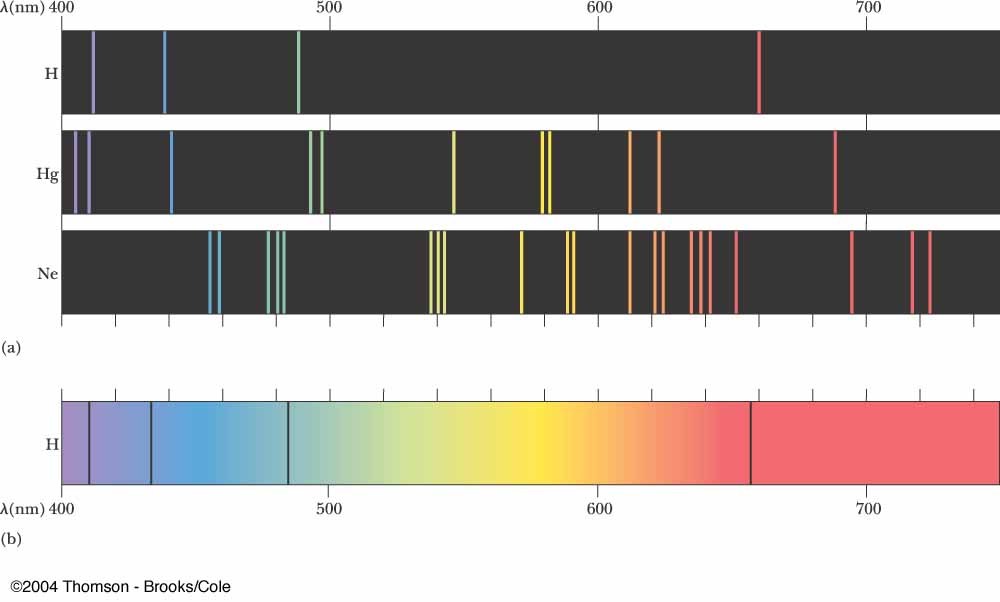
1) The Sun is 1.50x108 km from Earth. How long does it take for the light from the Sun to reach us?

2) Alpha Centauri is the nearest solar system to ours, at 4.07x1013 km away. How long does it take for light to travel from Alpha Centauri to us?

- White light is actually a mixture of many different colours (\_ \_ \_ \_ \_ \_ \_ \_)

- Different colours of light have different \_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_.   
Red has the \_\_\_\_\_\_\_\_\_\_\_\_ λ   
and violet the \_\_\_\_\_\_\_\_\_\_\_ λ

* EM radiation is emitted from \_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_.
* After energy is absorbed by matter is emitted as EM radiation.
* Each element emits very specific frequencies (\_\_\_\_\_\_\_ ) of light known as \_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.



How We See …

**Speed of Light Lab**

Purpose:

Procedure:

Calculations:

Discussion:

1) What is a **standing waves**? Give an example.

2) A microwave oven generates microwaves at a specific frequency that cause water molecules to **resonate**. This in turn heats the food. What is **resonance** (you may have to do some research)? Give an example of **resonance**.