

Feb. 13

## Wavelengths

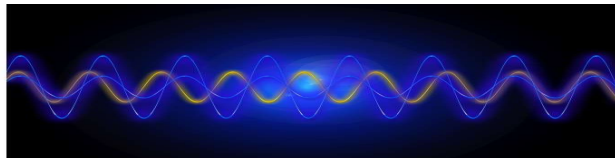
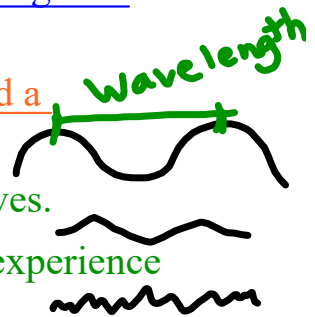


The electromagnetic spectrum takes all the electromagnetic waves and lines them up based on their wavelengths. So what is a wavelength? If you have ever been to the beach and watched the water move, you have seen a wavelength. Electromagnetic waves move similarly to the rising and falling of water waves.

From the top of one wave to the top of the next wave is called a wavelength.

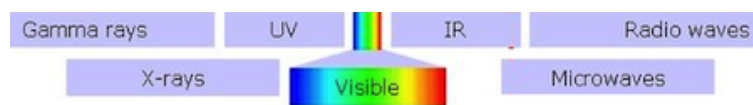
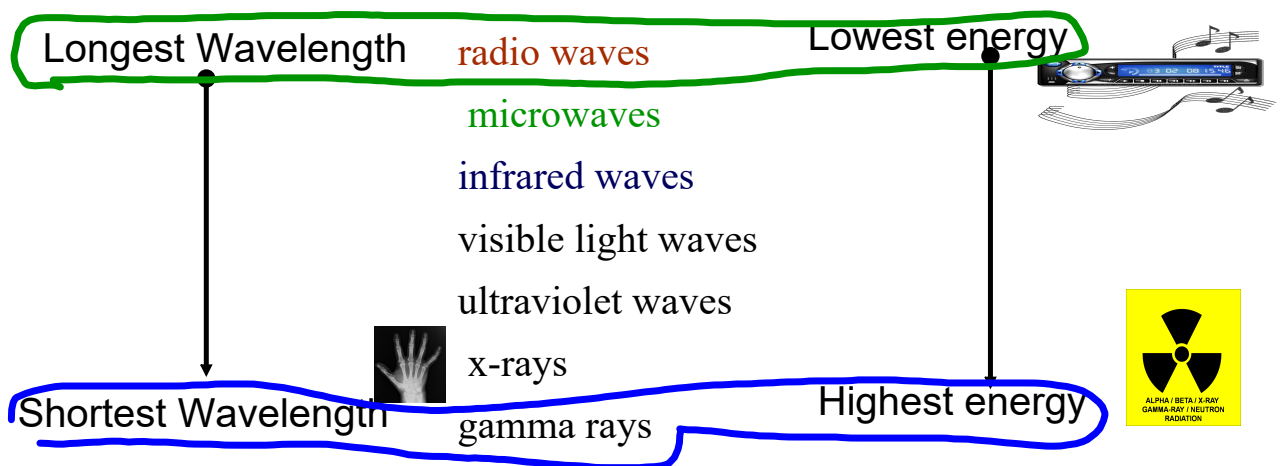
If the wavelength is long, you will experience less waves.

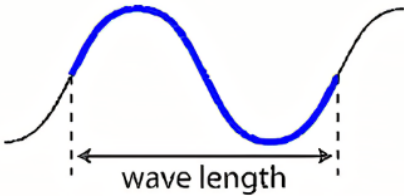
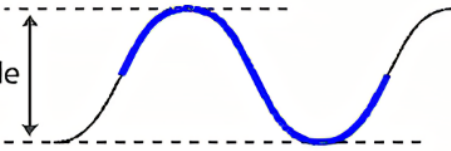
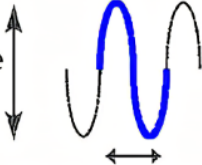
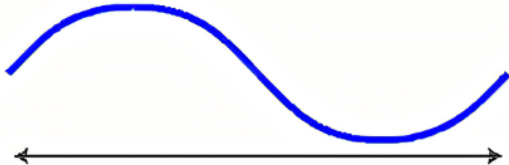


If the wavelength is short or closer together, you will experience more waves.

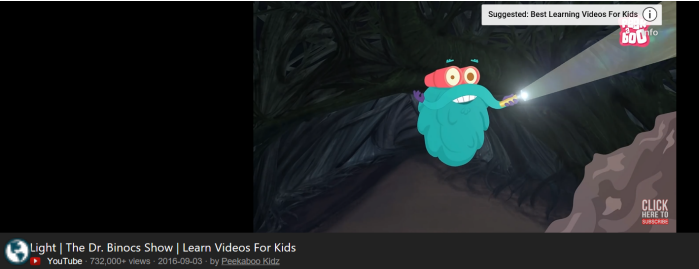


The electromagnetic spectrum is set up based on wavelengths.

The order is:



 <p>Diagram of a wave with a horizontal double-headed arrow below it labeled "wave length".</p>	 <p>Diagram of a wave with a vertical double-headed arrow to its left labeled "amplitude".</p>
 <p>high amplitude = loud sound</p> <p>short wave length = high frequency = high pitch</p>	 <p>long wave length = low frequency = low pitch</p>
 <p>low amplitude = weak or soft sound</p> <p>short wave length = high frequency = high pitch</p>	 <p>long wave length = low frequency = low pitch</p>



Light - is the form of energy that you can see and the reason why we can see objects around us. Light travel in straight lines.

Natural light sources are:

1) The Sun is a star with the most abundant and the least expensive in the world

2) Flames or Sparks from Fire

The sun and other stars emit light in all directions using waves or rays (similar to spokes on a bicycle). This is known as radiation. Energy such as light that travels by radiation, like the sun, is known as **radiant energy**.

emit  $\Rightarrow$  means give off light

Since we do not always have the light from the sun, we have developed artificial light sources Examples: light bulb, flashlight

Interesting fact - less than 0.0000001% of the sun's energy actually reaches the earth

[Light: Crash Course Astronomy #24 - YouTube](#)

