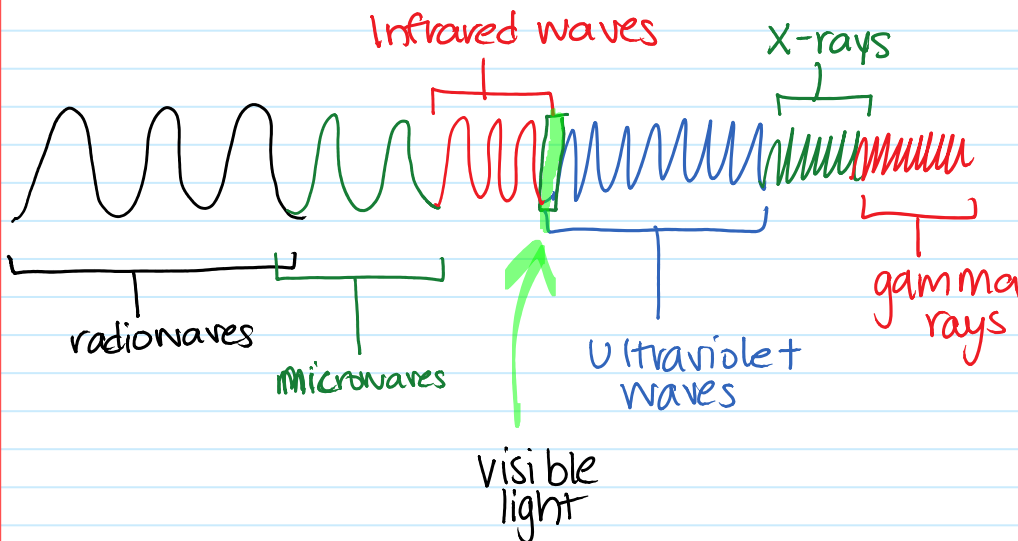


4.3 Light & the Electromagnetic Spectrum

November-09-16 1:00 PM

The visible light spectrum is a tiny portion of a much larger spectrum of radiation called the **electromagnetic spectrum**.

Electromagnetic radiation is transmission of energy from the longest radio waves → shortest gamma waves



Wavelengths longer than visible light:

Radio waves: - longest wavelength
- lowest energy and frequency
- MRI technology uses radio waves to see inside our body.

Microwaves: - slightly shorter wavelength
- highest frequency of all the radio waves
- radar uses short wavelength microwaves

Infrared waves: - wavelength longer than red light but shorter than that of radio waves.
- also referred to as heat
- used in remote controls, infrared cameras.

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Wavelengths shorter than visible light:

Ultraviolet waves: - just beyond the visible light spectrum.
- more energy than visible light
ex. UV waves striking your skin allows your body to make Vit. D.

...but over-exposure to UV can cause sunburns and possible skin cancer

X-rays: - shorter wavelength and higher frequency than UV rays
ex. photograph teeth/bones
airport security → photograph the inside of machines

Gamma Rays: - shortest wavelength
- highest energy and frequency of the electromagnetic spectrum.
ex. result from nuclear reactions
used in radiation therapy to kill cancer cells

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