

All About EM—Notes Outline

The Electromagnetic Spectrum

The EM Spectrum is the _____ range of EM waves in order of _____ frequency and _____ wavelength. This means as you go from left to right on the chart, the wavelengths get _____ and the frequency gets _____. An _____ relationship exists between size of the wave and frequency. Remember: all EM waves travel at the same _____. The equation for speed is _____ times the _____. So, for the answer to **always** be 300,000km/s, as one number goes _____, the other must go _____. All EM waves are _____. The higher the _____, the more _____ in the wave.

The Spectrum of Waves

- _____ have the _____ wavelength and _____ frequency; wavelength can go from 1000s of meters to .001 meters. (The shortest radio waves are the _____.) Radio waves are used for: _____.
- _____ waves-(heat) have _____ wavelengths, from .001 m to 700 nm, and _____ frequency. Infrared is used for: _____ and _____.
- _____ is what we can _____ in the EM spectrum. Wavelengths of visible light go from about 700 nm (_____ light) to 400 nm (_____ light); the frequencies are _____ than infrared.
- Ultraviolet wavelengths from about 400 nm to 10 nm; the _____ (and therefore the _____) is high enough with UV rays to _____ living _____ and cause _____. Too much UV can lead to _____ and _____. However, we _____ UV to produce _____ in our bodies. UV rays are _____ stopped. Although humans cannot see UV light, _____, butterflies, and _____ can.
- _____ -ray wavelengths are from 10 nm to .001 nm; they have enough _____ to penetrate _____ into tissues, but are _____ by _____ materials. They are used for: _____.
- Gamma _____ have the _____ wavelengths (less than one _____ of a meter), therefore the _____ frequencies, therefore carry the most _____. These are the most _____ to tissues. They are _____ to stop! You would need a _____ thick concrete wall to stop them.