

Waves & Electromagnetic Spectrum Worksheet

Directions: Use the word bank to answer the following questions. **Each word will be used only once.**

Crest	Frequency	Mechanical	Infrared
Trough	Transverse	Radio	Gamma
Wavelength	Longitudinal	Ultraviolet	X-Rays
Visible Light	Amplitude	Electromagnetic	

- _____ waves are used to penetrate solids and are used in doctor's offices and as airports.
- _____ is the distance between one point of a wave to the same point in the next wave.
- _____ is the number of waves per unit of time.
- Longitudinal waves occur when the motion of the medium is parallel to the direction of the wave.
- _____ waves have a color spectrum known as ROYGBIV.
- Mechanical waves disturb matter.
- The _____ is the top of a wave.
- The _____ is the bottom of a wave.
- _____ is the maximum distance that matter is displaced from the resting position.
- _____ waves are produced by stars and galaxies.
- Transverse waves occur when the motion of the medium is at right angles (perpendicular) to the direction of the wave.
- _____ waves are often used in heat lamps and occasionally in goggles for night vision.
- _____ waves are utilized by insects to locate nectar. These waves also cause sun-burn.
- _____ waves are transverse waves that disturb electromagnetic fields. And carry information in the form of sound.
- _____ waves have the shortest wavelength and the highest frequency.

Name _____

Period _____

Electromagnetic Spectrum Worksheet #1

- In each of the following pairs, circle the form of radiation with the LONGER WAVELENGTH:
 - red light **or** blue light
 - microwaves **or** radiowaves
 - infrared radiation **or** red light
 - gamma rays **or** UV radiation
- In each of the following pairs, circle the form of radiation with the GREATER FREQUENCY:
 - yellow light **or** green light
 - x-rays **or** gamma rays
 - UV radiation **or** violet light
 - AM radio waves **or** FM radio waves
- In each of the following pairs, circle the form of radiation with the LOWER ENERGY:
 - red light **or** blue light
 - microwaves **or** radiowaves
 - infrared radiation **or** red light
 - gamma rays **or** UV radiation
 - yellow light **or** green light
 - x-rays **or** gamma rays
 - UV radiation **or** violet light
 - AM radio waves **or** FM radio waves
- ~~4.~~ Springfield's "Classic Rock" radio station broadcasts at a frequency of 102.1 MHz. What is the length of the radio wave **in meters**? *SKIP*
- ~~5.~~ A beam of light has a wavelength of 506 nanometers. What is the frequency of the light? What color is the light? *SKIP*
- ~~6.~~ Blue light has a frequency of 6.98×10^{14} Hertz. Calculate the wavelength of blue light **in nanometers**. *SKIP*