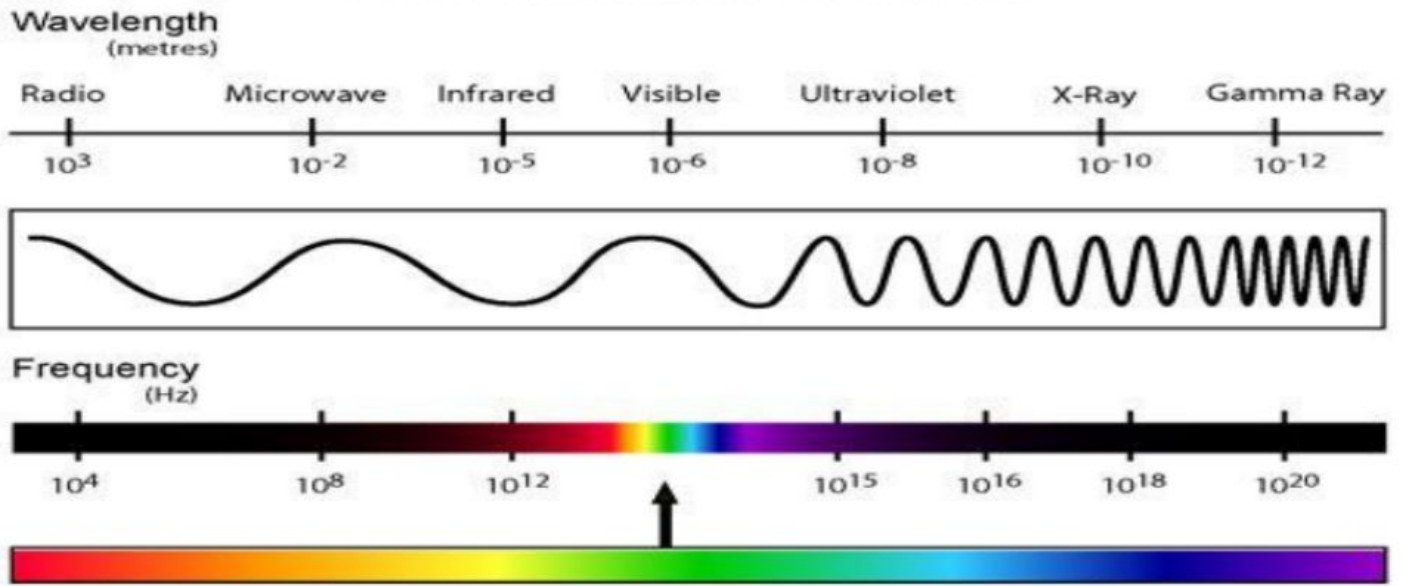


## THE ELECTRO MAGNETIC SPECTRUM



### Terms to know

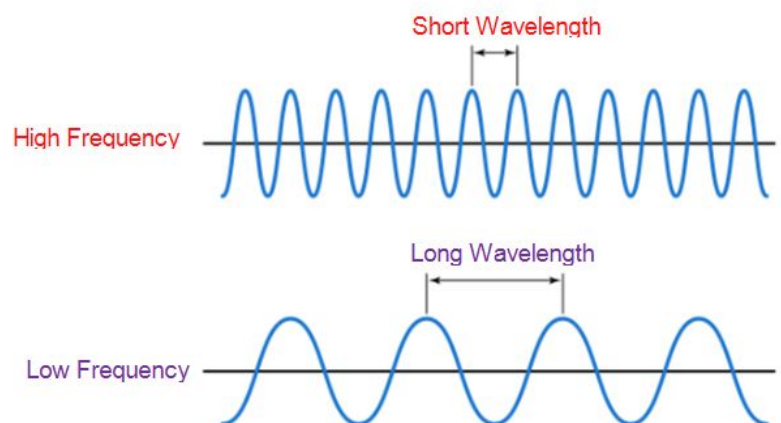
**Frequency** - the number of waves that pass a fixed point in a given amount of time.

**Wavelength** - the distance between two crests in a wave. (How far apart each wave is)

**Energy** - Each wave carries energy. Energy is related to a wave's frequency.

Waves that have a short wavelength have a higher frequency. Waves with a long wavelength have a low frequency.

Waves with a higher frequency also have more energy. Waves with a lower frequency have less energy.



Name \_\_\_\_\_

Date \_\_\_\_\_

## Electromagnetic Spectrum Practice

1. According to the diagram, radio waves have wavelengths of \_\_\_\_\_ m.
2. According to the diagram, gamma rays have wavelengths of \_\_\_\_\_ m.
3. Which one has the smallest wavelength?
  - a. Radio
  - b. Gamma
  - c. Ultraviolet
4. Which of the following waves carries the most energy?
  - a. Visible light
  - b. Ultraviolet
  - c. Microwaves

### Fill in the blanks below with the words “increases” or “decreases.”

5. As the wavelength of a wave increases, it's energy \_\_\_\_\_
6. As the frequency of a wave increases, it's energy \_\_\_\_\_
7. Energy decreases as wavelength \_\_\_\_\_

### Choose the correct answer

8. If you have a telescope that can detect frequencies of around  $10^8$ , what kind of wave could you observe?
  - a. Microwave
  - b. Ultraviolet
  - c. Visible light
  - d. X-Ray
9. A wave that has a frequency higher than  $10^8$  but less than  $10^{15}$  could be a(n)...
  - a. Infrared wave
  - b. Gamma wave
  - c. Radio wave