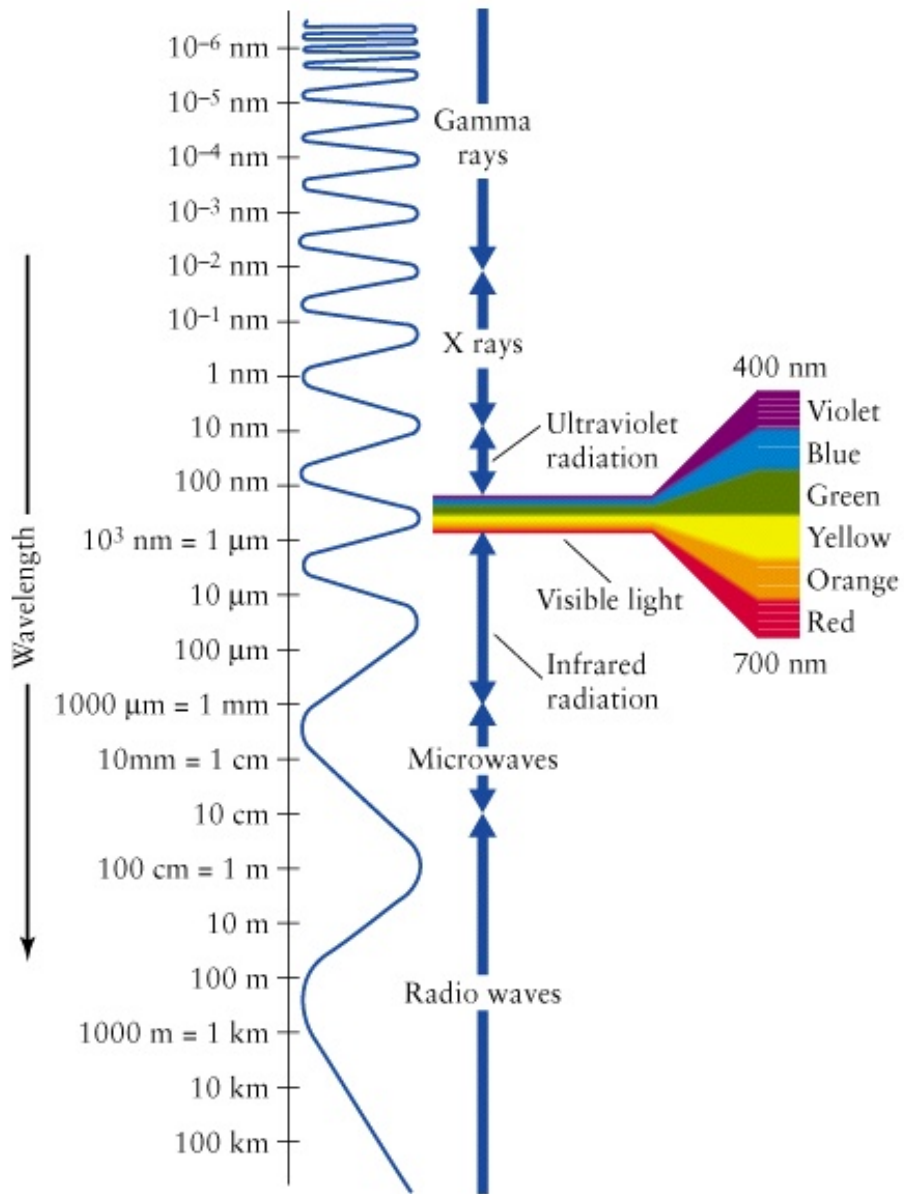


The Electromagnetic Spectrum

Bromfield Chemistry CP





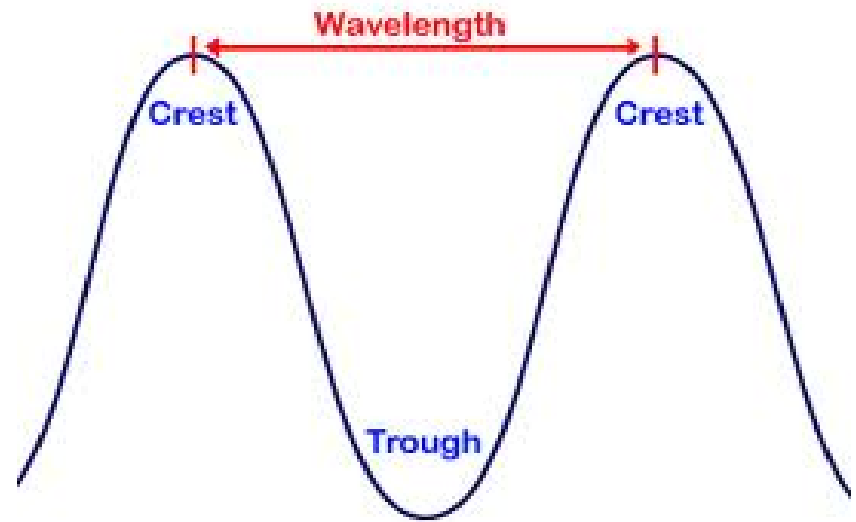
Electromagnetic Spectrum

Video: [Infrared](#)

Wavelength

- ▶ Distance between two successive crests (or troughs)

λ



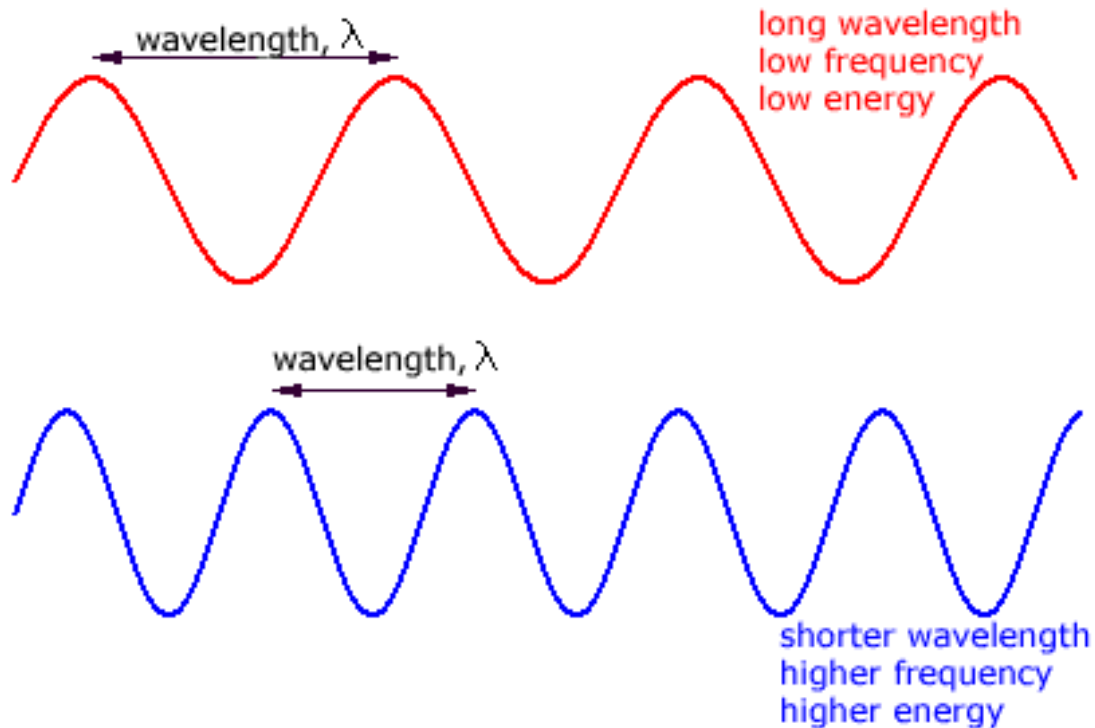
Frequency

- ▶ The number of crests that pass a certain point in space in a given amount of time
 - Cycles per second
 - Hertz (s^{-1})

- ▶ Animation #1
- ▶ Animation #2

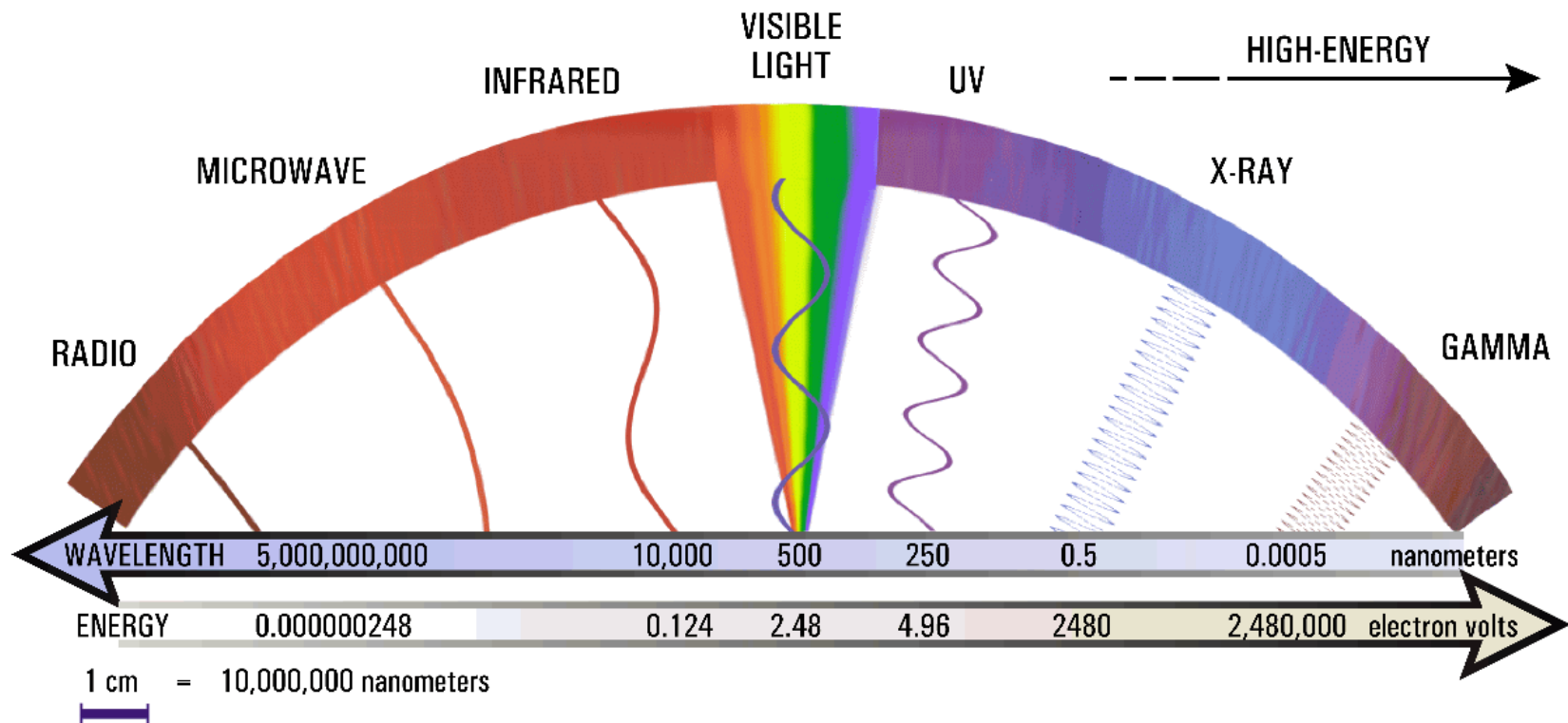
ν

Wavelength vs. frequency



Electromagnetic Waves

Wavelength vs. Frequency



Relationship

- ▶ Frequency and wavelength are inversely proportional.

As wavelength increases,

As wavelength decreases,

Which of the following waves has the longest wavelength?

▶ A.



▶ B.



▶ C.



Which of the following waves has the longest wavelength?

▶ A.



▶ B.



▶ C.



Which of the following waves has the highest frequency?

▶ A.



▶ B.



▶ C.



Which of the following waves has the highest frequency?

▶ A.



▶ B.

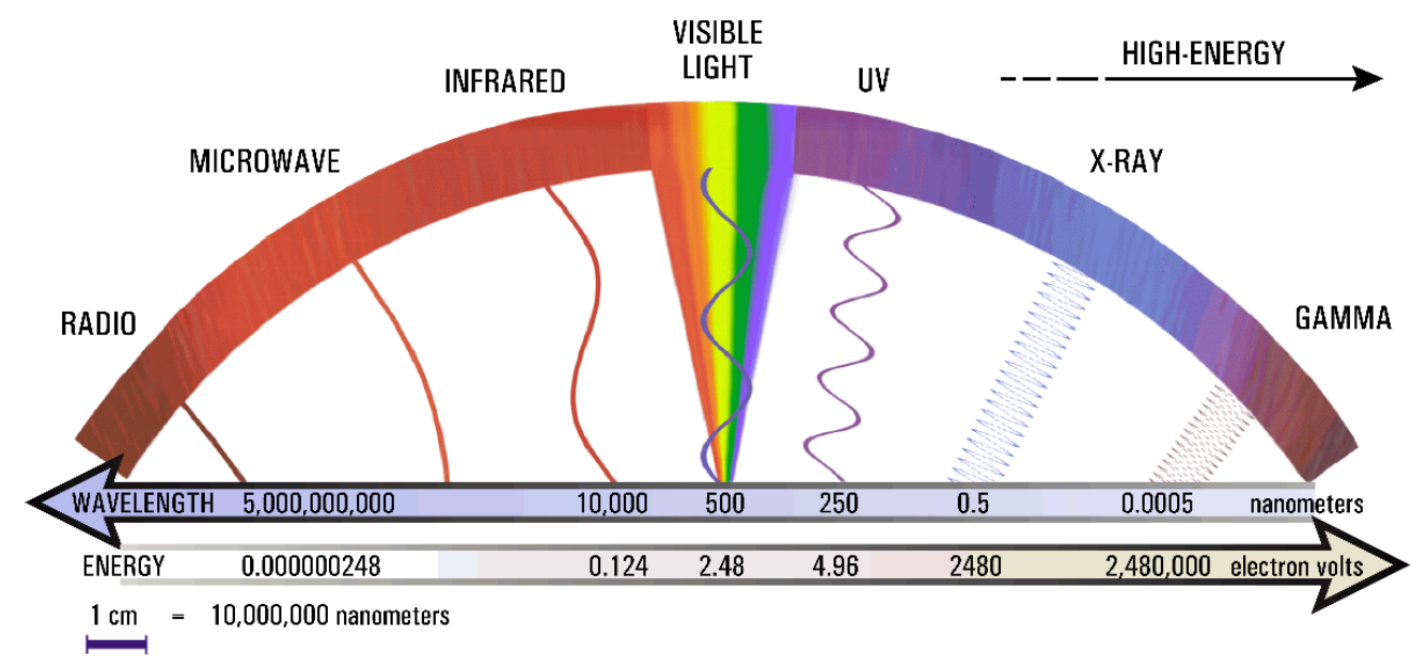


▶ C.



Energy vs. wavelength

[video](#)



Energy

- ▶ As wavelength increases, energy....
- ▶ As frequency increases, energy...

Which of the following waves has the lowest energy?

▶ A.



▶ B.



▶ C.



Which of the following waves has the lowest energy?

▶ A.



▶ B.



▶ C.

