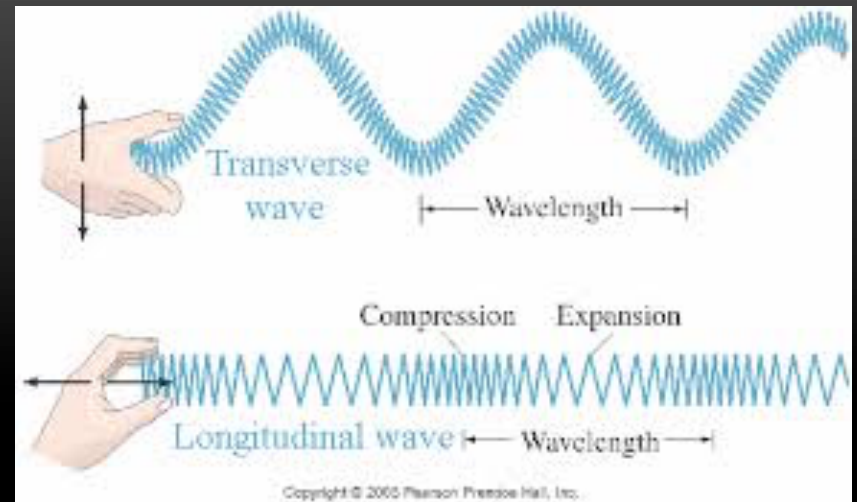


WAVES

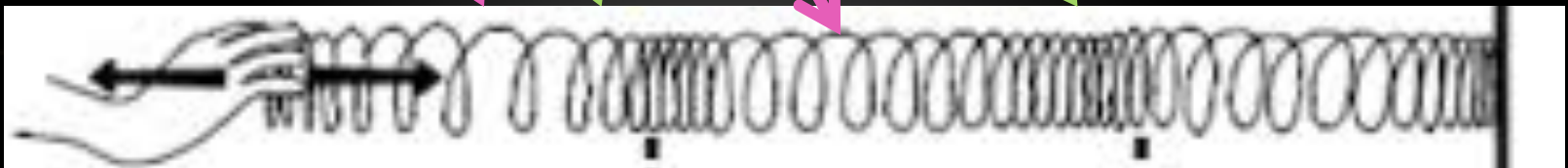


*Write what is in **WHITE**. You will do this as an outline format*

- 1. Wave
 - a disturbance that transfers energy from one place to another.
 - 1a: energy – ability to do work
- 2. Medium
 - any substance that a wave moves through
 - Examples: can be a solid liquid or gas
 - Can you hear sound in space?
 - Sound in space

- 3. Mechanical Waves-
 - waves that require a medium
 - Ex: Sound
- 4. Electromagnetic Waves-
 - waves that do not require a medium
 - Ex: visible light, radio waves

- 5. Longitudinal Wave
 - wave particles vibrate back and forth along the path that the wave travels.
 - Also known as a : Compressional Wave
 - 5a. Compressions
 - The close-together part of the wave
 - 5b. Rarefactions
 - The spread-out parts of a wave

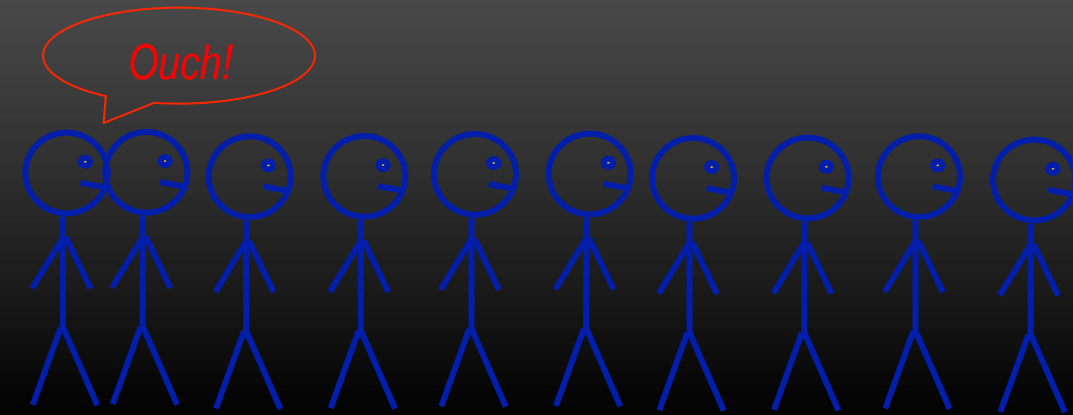


LONGITUDINAL WAVES (CONT.)

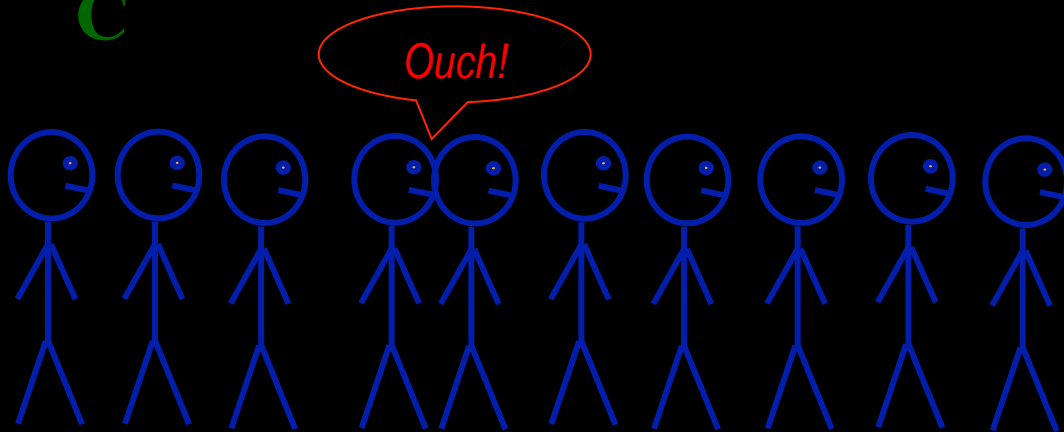
C = Compression (high kid density)

R = Rarefaction (low kid density)

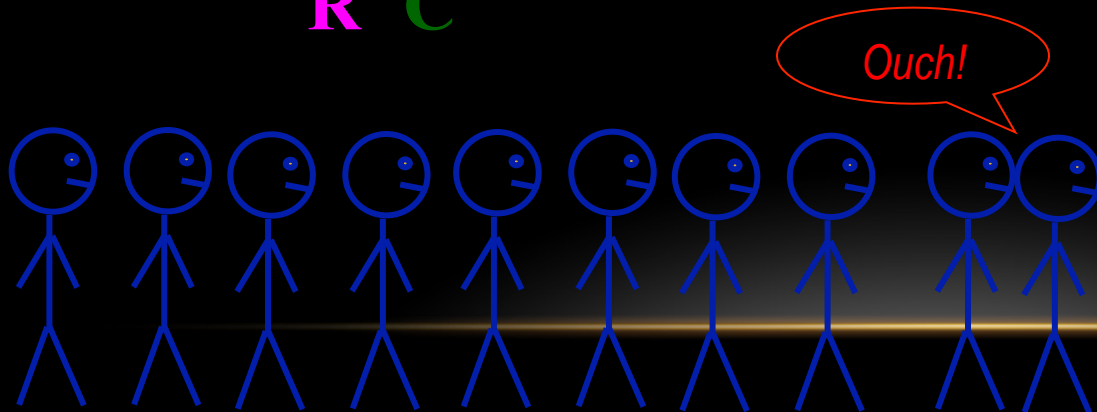
The compression (the pulse) moves up the line, but each kid keeps his place in line.



C



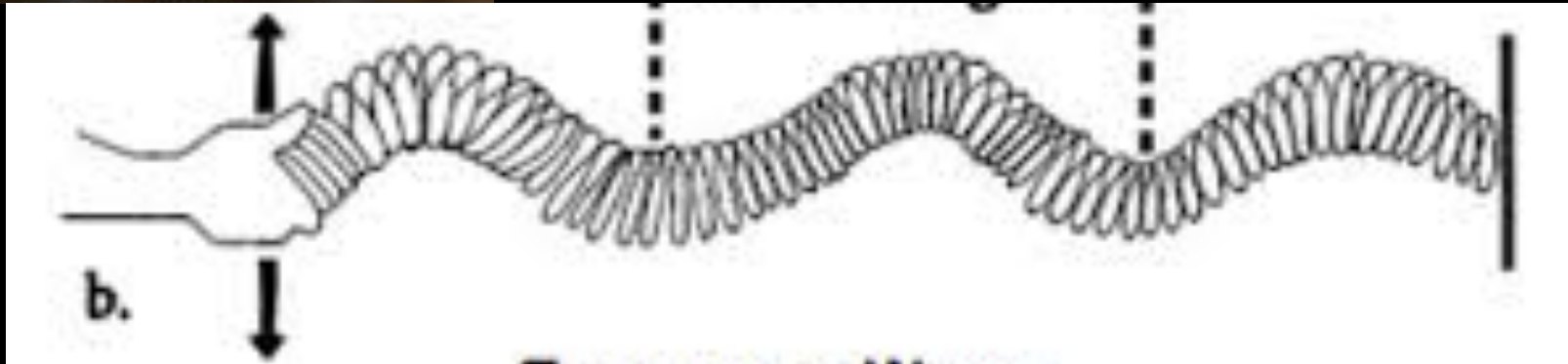
R C



R C

I hope Godzilla eats that bully!

- 6. Transverse waves
 - wave particles vibrate in an up-and-down or side-to-side motion



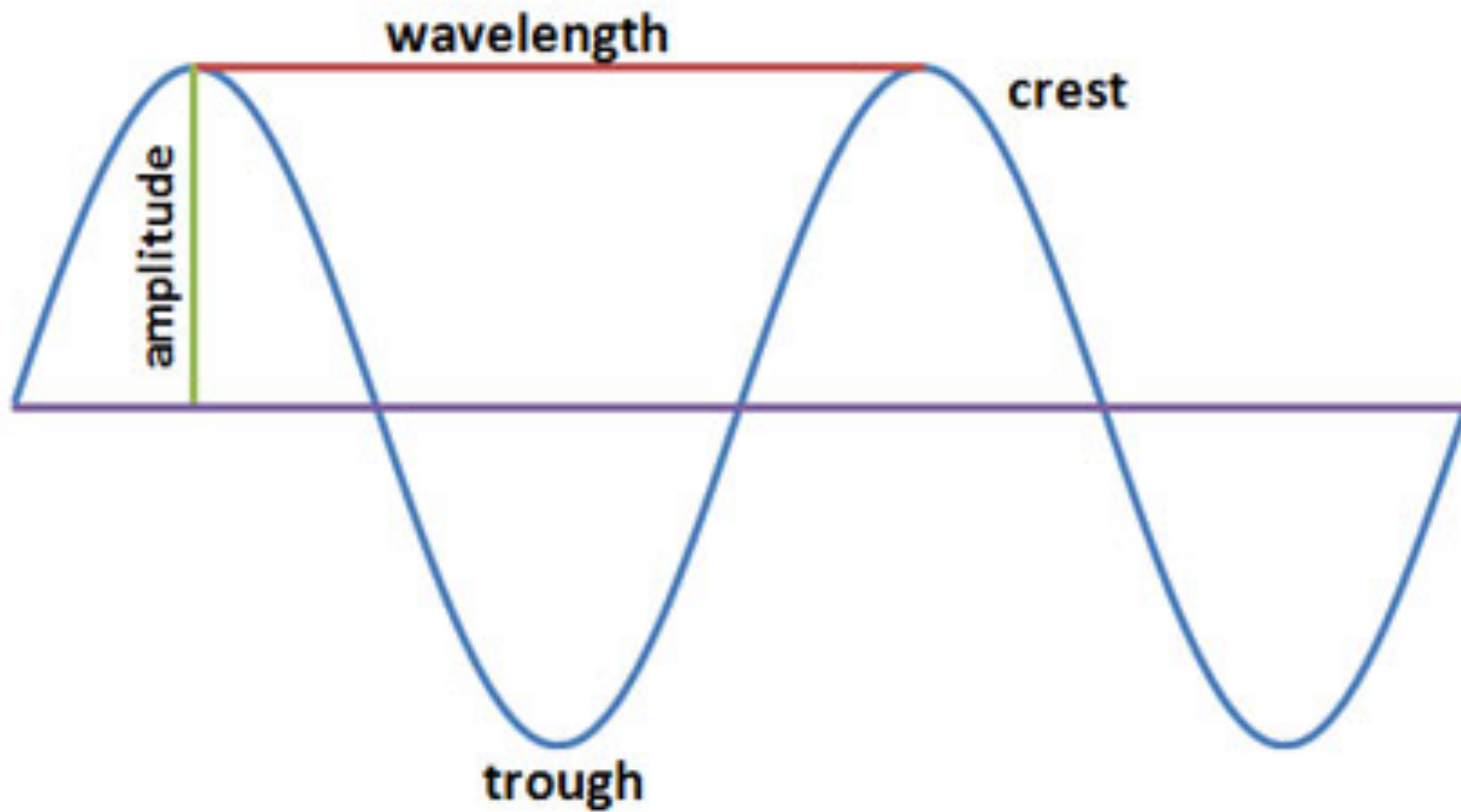
7. **Wavelength**- the distance between two successive points in the wave. (measured in meters)

8. **Crests**- Highest part of a wave

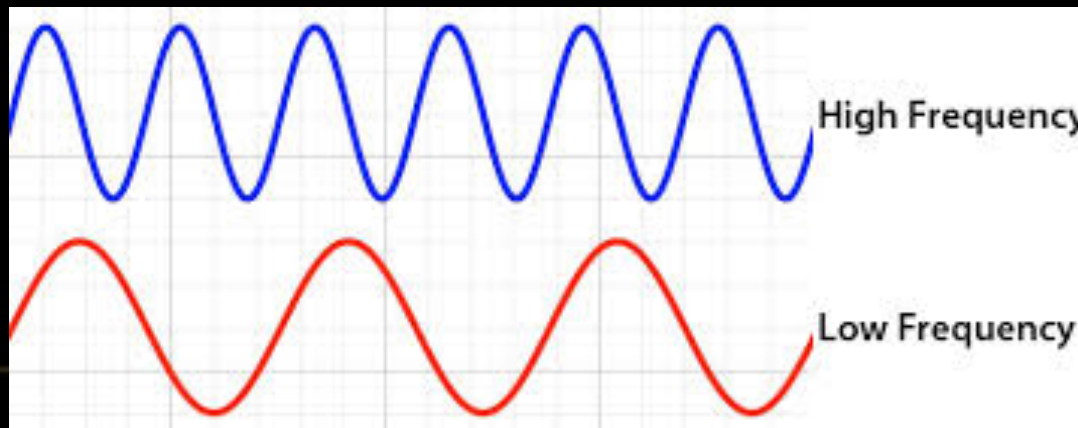
9. **Troughs**- The low points of the wave

10. **Amplitude**- is the maximum distance in a wave from its rest position. (height- in meters)

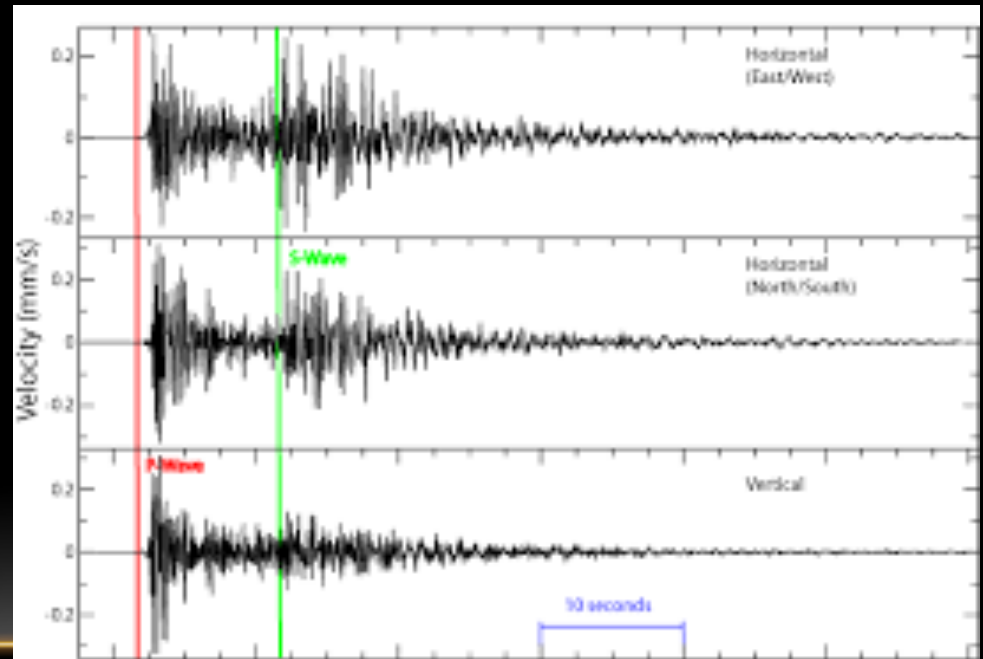
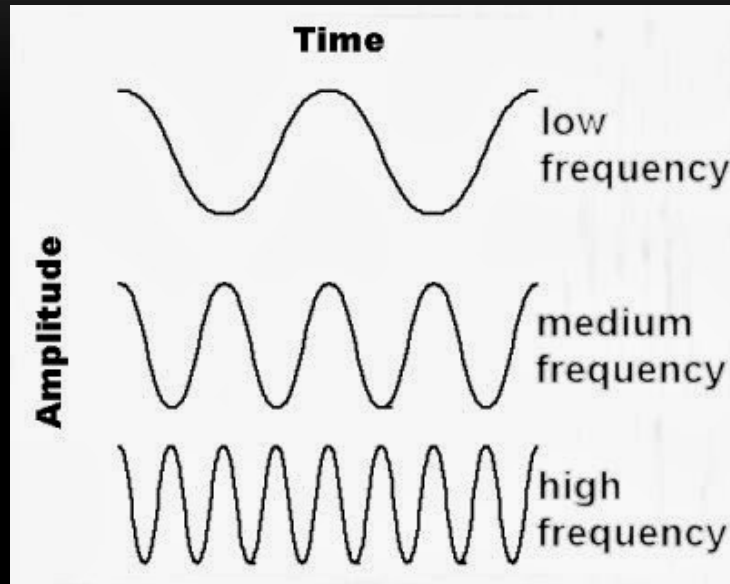
LABEL DRAWING IN EXAMPLE



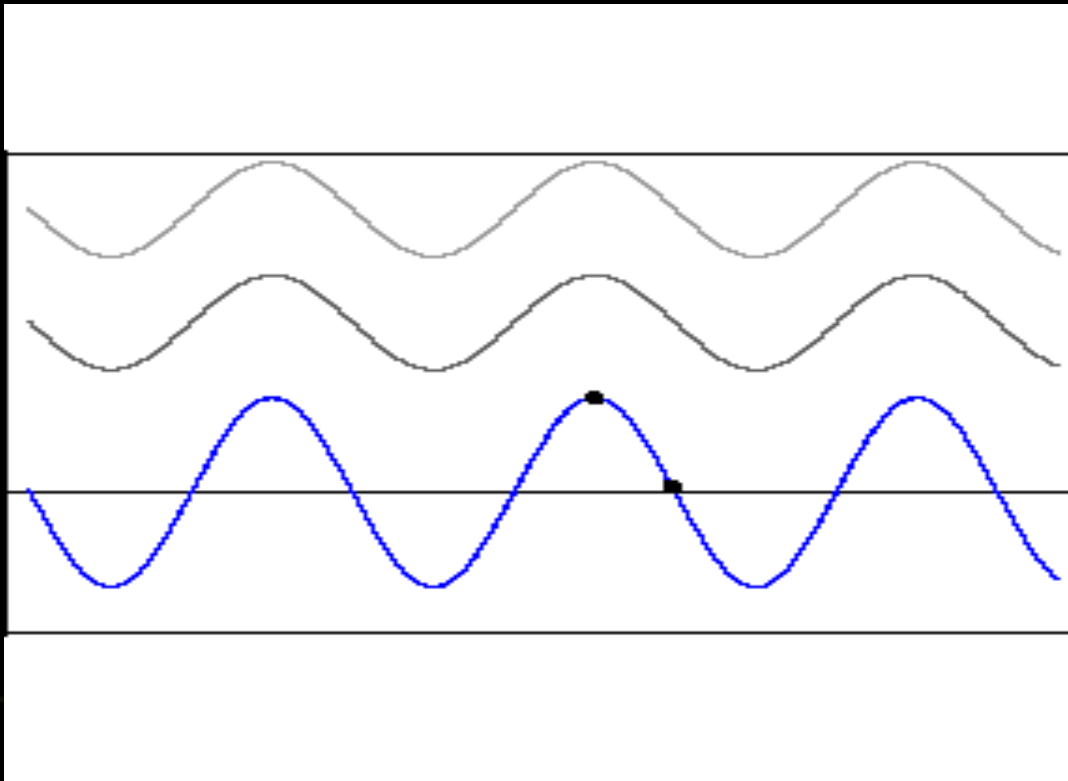
11. Frequency- the number of waves produced in a given time
a) Unit= measured in Hertz, Hz



12. Wave Speed - Frequency \times Wavelength



13. Interference- the result of two or more sound waves overlapping



INTERFERENCE

Destructive



+



=



Constructive



+



=



14.BASIC PROPERTIES :AMPLITUDE, WAVELENGTH, PERIOD, FREQUENCY, SPEED,

- <https://www.youtube.com/watch?v=X1OGiWPq5j8>
- <https://www.youtube.com/watch?v=jmYemuXCC6Y>

16. PERIOD – THE TIME IT TAKES FOR 1

- Photon-Massless “no rest” particle
 - Travels 186,282 miles per second (Speed of light)
- Vacuum-Space entirely devoid of matter
- Radiation- The process in which energy is emitted as particles or waves

JUST A FEW MORE (ABOUT WAVE PROPERTIES)

15. Vibration: An oscillation, or repeating back and forth motion, Also known as "period"

16. Period: the time it takes for one complete wave to pass a given point (measured in seconds)

1/Frequency

Speed = wavelength/period =
wavelength X frequency

YOU TUBE WAVES

https://www.youtube.com/watch?v=1M8ciWSgc_k

<https://www.youtube.com/watch?v=yVkdfJ9PkRQ>

https://www.youtube.com/watch?v=iqpV1236_Q0&t=151s

https://www.youtube.com/watch?v=pk1y_qIAQ-w

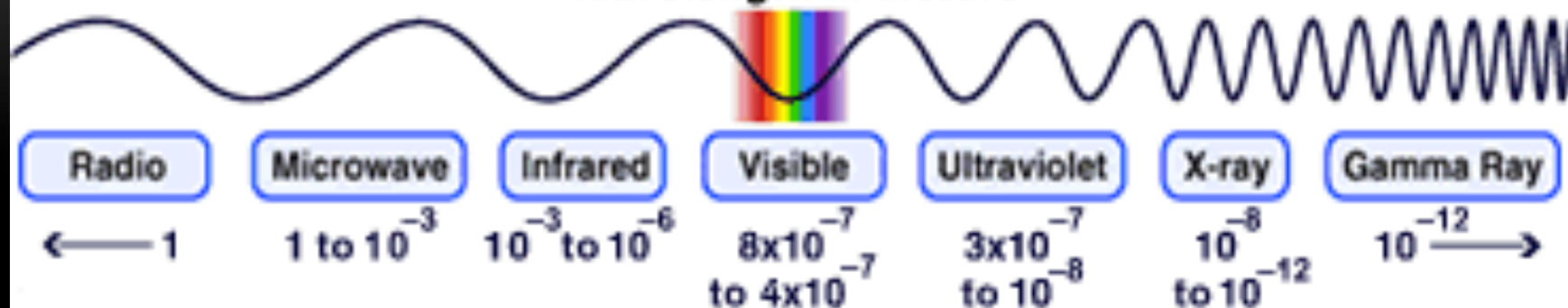
BASIC PROPERTIES OF A WAVE

Quizlet

[https://quizlet.com/14360014/
properties-of-waves-flash-cards/](https://quizlet.com/14360014/properties-of-waves-flash-cards/)

The Electromagnetic Spectrum

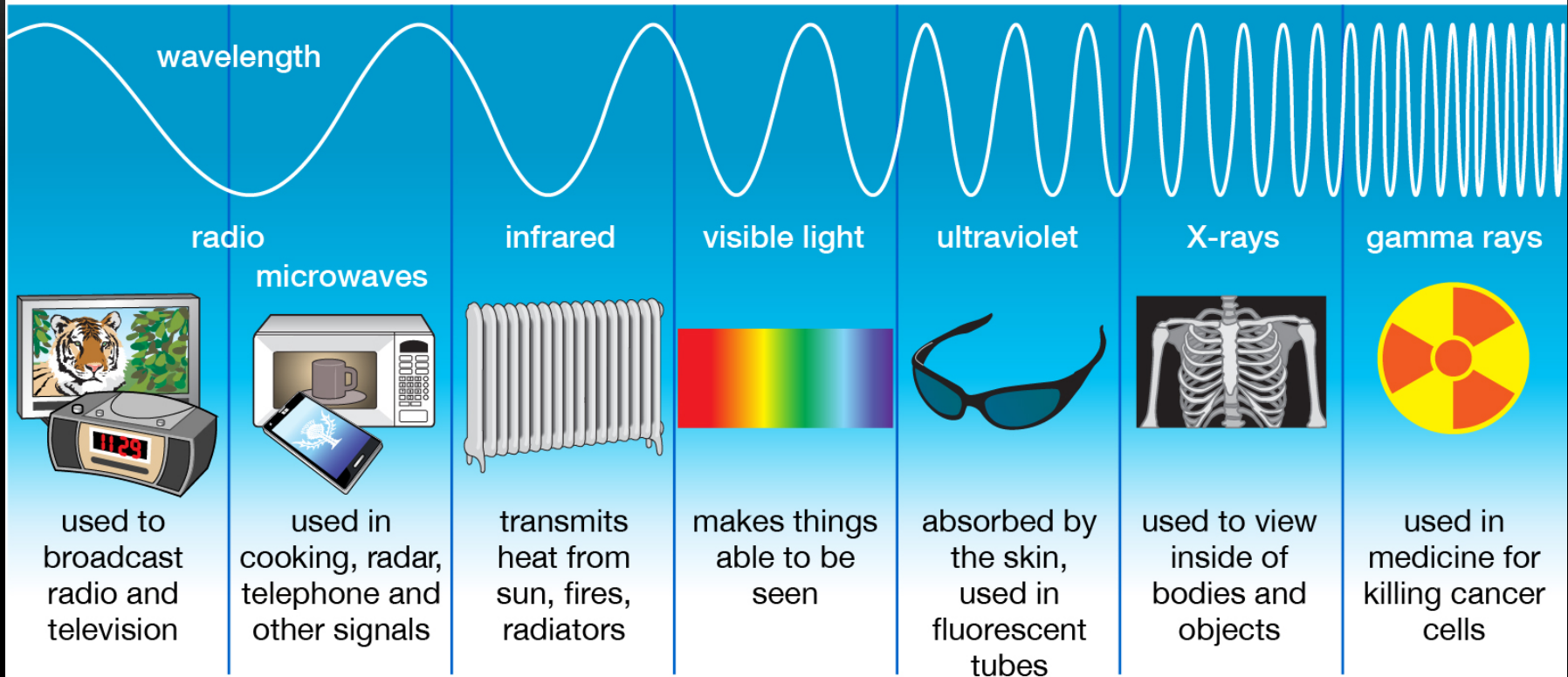
Wavelength in meters



About the size of:



Types of Electromagnetic Radiation



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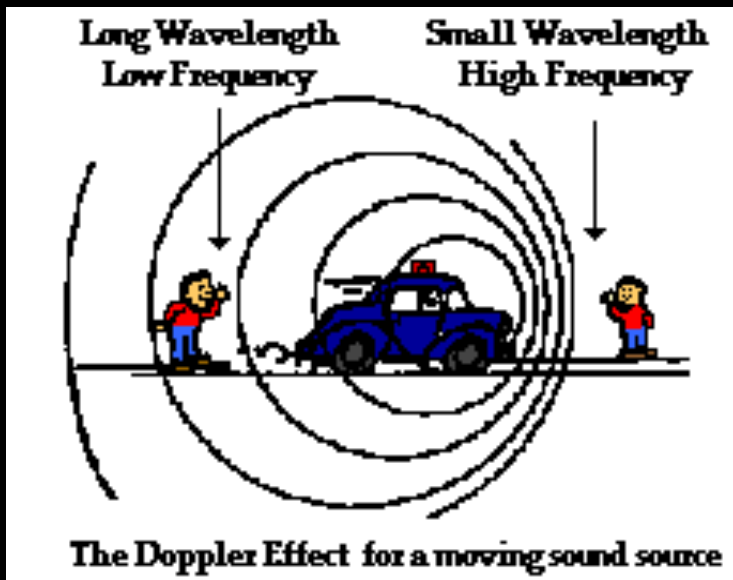
- <http://www.pbslearningmedia.org/resource/nvsl.sci.space.spectrum/the-electromagnetic-spectrum/>

EM SPECTRUM

- Radio Waves
 - Infrared
 - Visible Light
 - Ultra Violet
 - Xrays
 - Gamma Rays
- Low end of spectrum, mile long wavelength, low frequency
 - Heat rays, used to determine temperature of stars
 - 3% of light, red →
 - Causes chemical change (sunburn)
 - Shorter wavelength/higher frequency than UV, depends on voltage
 - Highest frequency/shortest wavelength
Most dangerous, found in universe

- Doppler Effect

is the apparent change in the frequency of a sound caused by the motion of either the listener or the source of the sound.



<https://www.youtube.com/watch?v=a3RfULw7aAY>

<http://www.animations.physics.unsw.edu.au/jw/doppler.htm>

A sonic boom sounds very much like the pressure wave from an explosion



- Resonance

the frequency of sound waves
exactly matches the natural
frequency of an object.

Tacoma narrow bridge

<https://www.youtube.com/watch?v=3mclp9QmCGs>

<https://www.youtube.com/watch?v=nFzu6CNtqec>