

There are 2 types of waves

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graph TD; A[There are 2 types of waves] --> B[Mechanical]; A --> C[Electromagnetic]; B --> D[Sound]; C --> E[Light];
```

Mechanical

Electromagnetic

Example of which is...

Example of which is...

Sound

Light

There are 2 waves that waves propogate
(or move)

Transverse

think....

Perpendicular

Like....

ocean waves

Longitudinal

think.....

Parallel

Like....

sound waves

Matching:

Mechanical Wave

Electromagnetic Wave

Transverse Wave

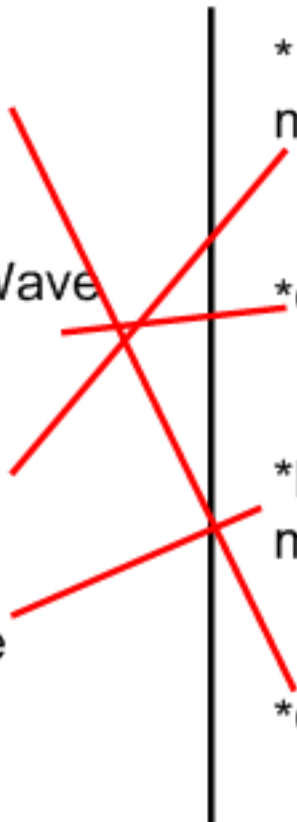
Longitudinal Wave
(Compressional)

* Medium moves perpendicular to the motion!!

* Can travel through empty space!!

* Medium moves parallel to the motion!!

* Cannot travel through empty space!!



Matching:

Frequency

Period

Amplitude

Wavelength

Wave Velocity

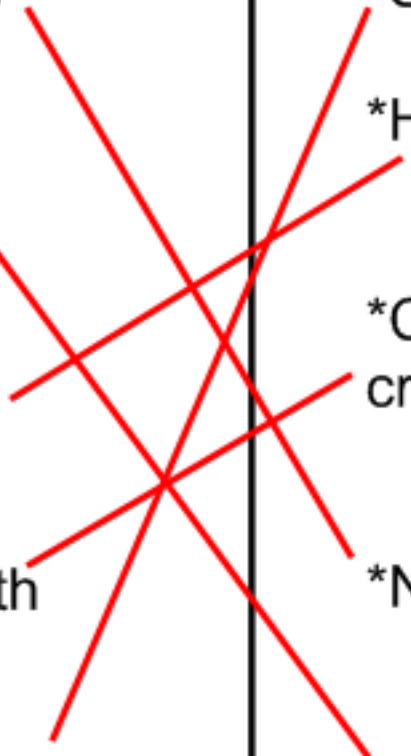
*Speed of a wave!!

*Height of wave!!

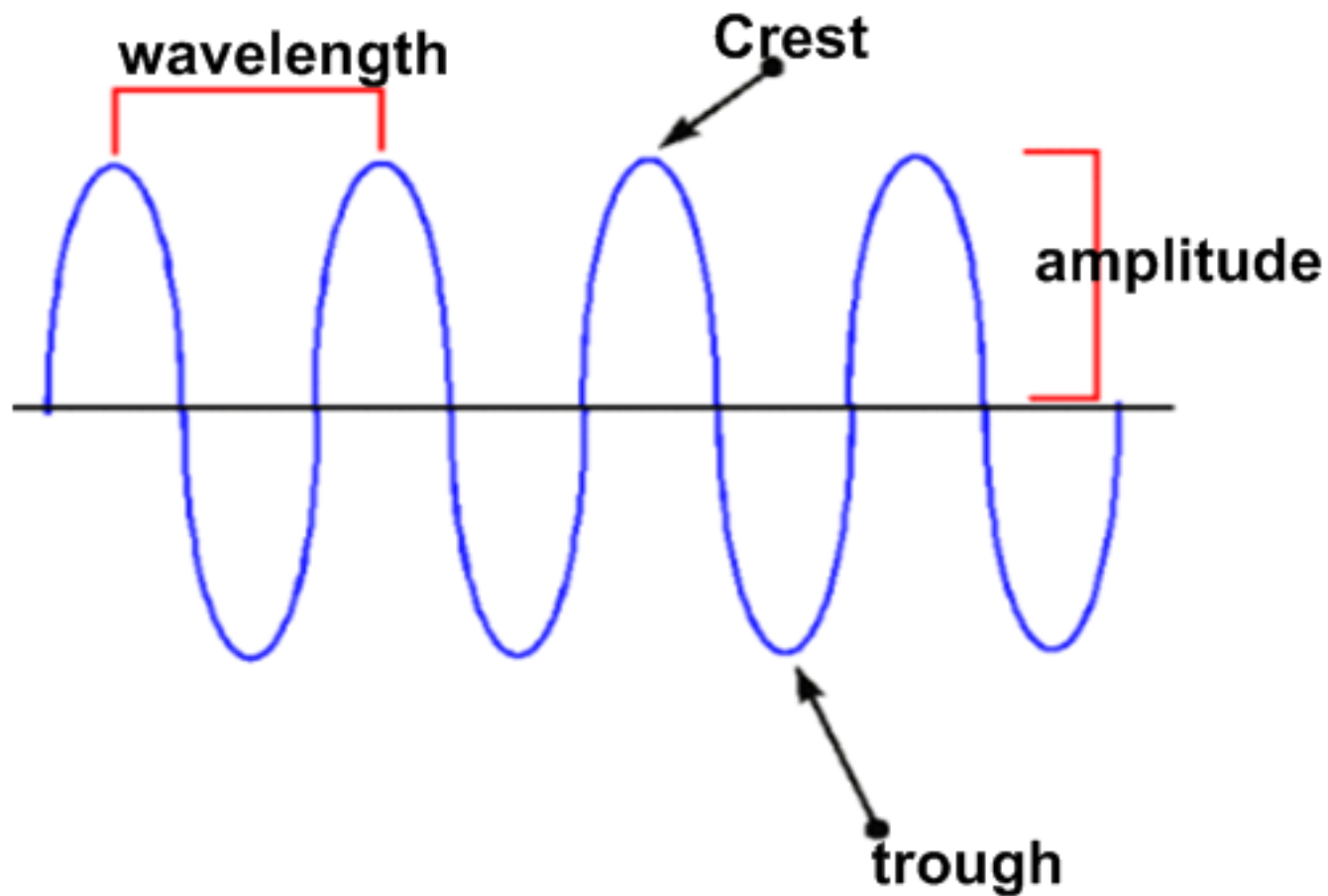
*Can be measured from crest to crest!!

*Number of waves per time!!

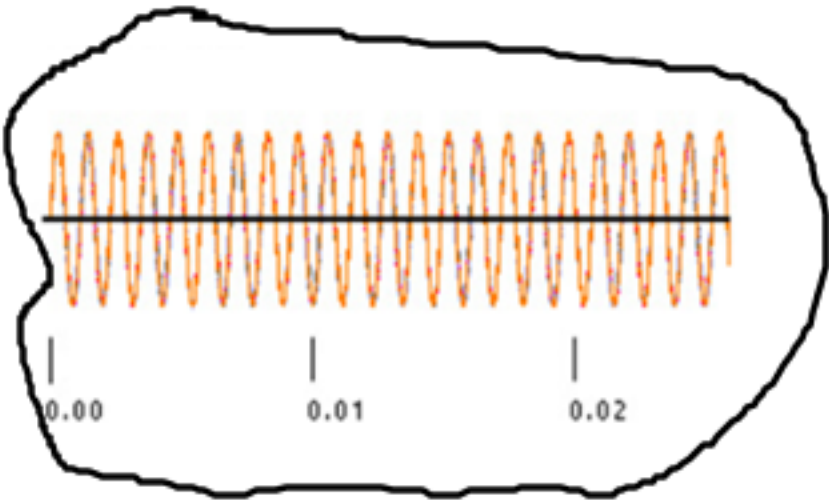
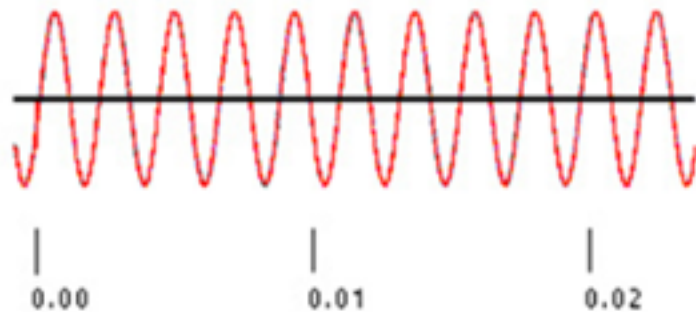
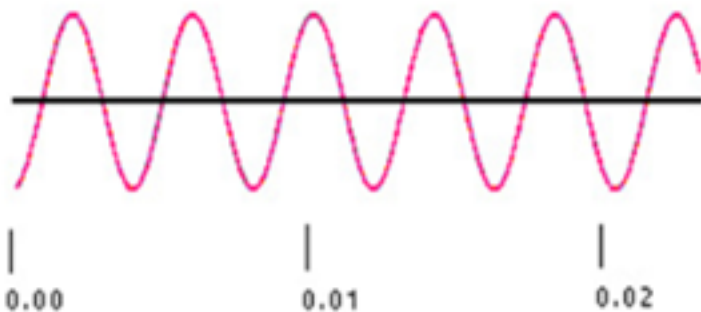
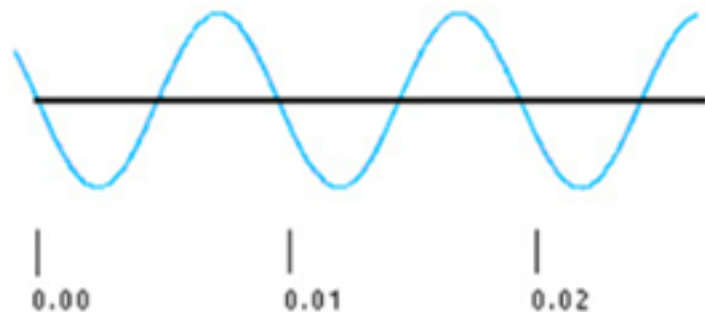
*Time per wave!!



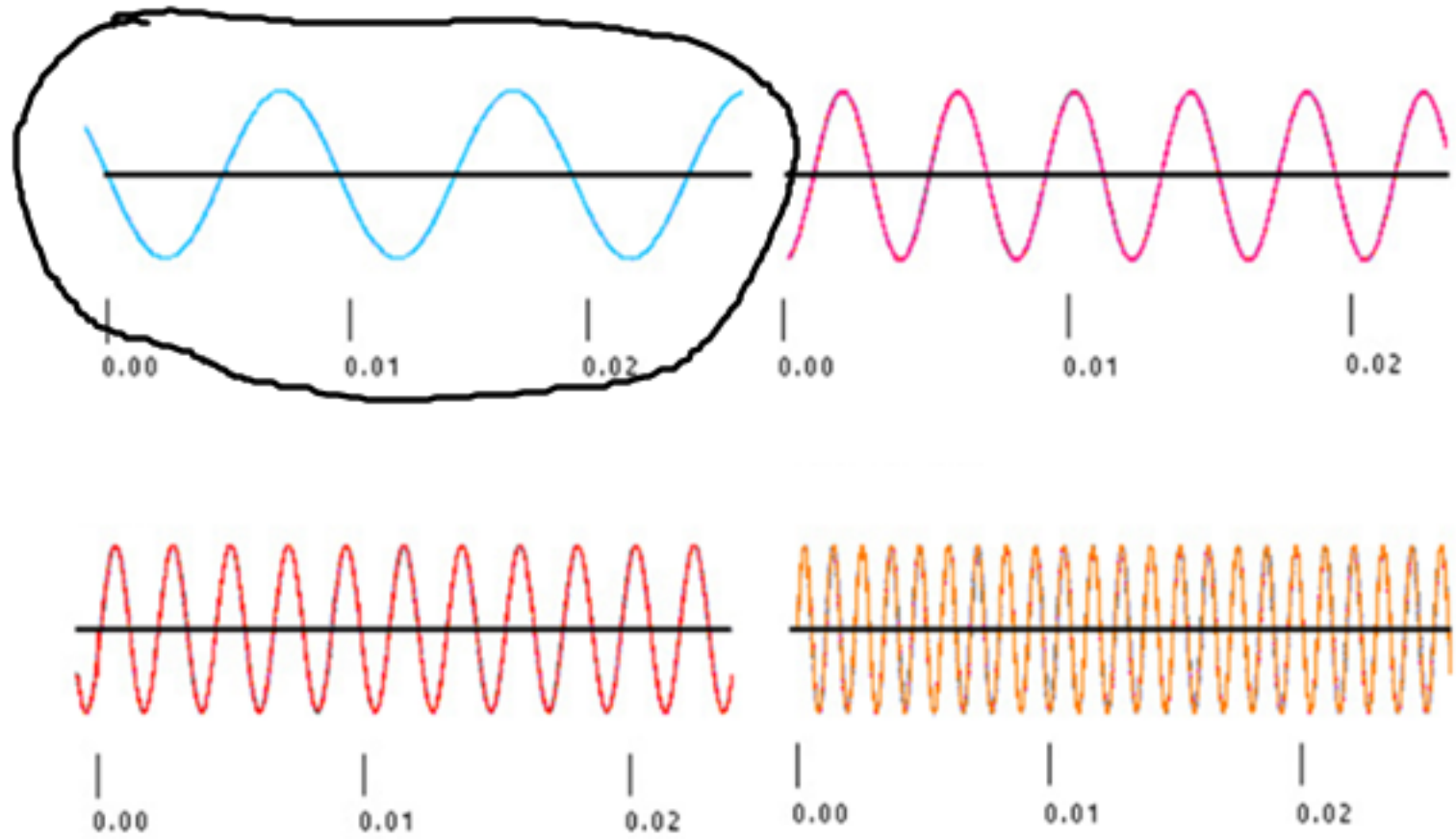
Drag the terms to the correct location:



Circle the wave with the highest frequency:



Circle the wave with the lowest frequency:



Matching:

Frequency

*Corresponds to amount
of energy carried!!

Amplitude

*Corresponds to pitch!!

Matching:

Quantity:

Frequency

Amplitude

Wavelength

Period

Wave Velocity

Unit:

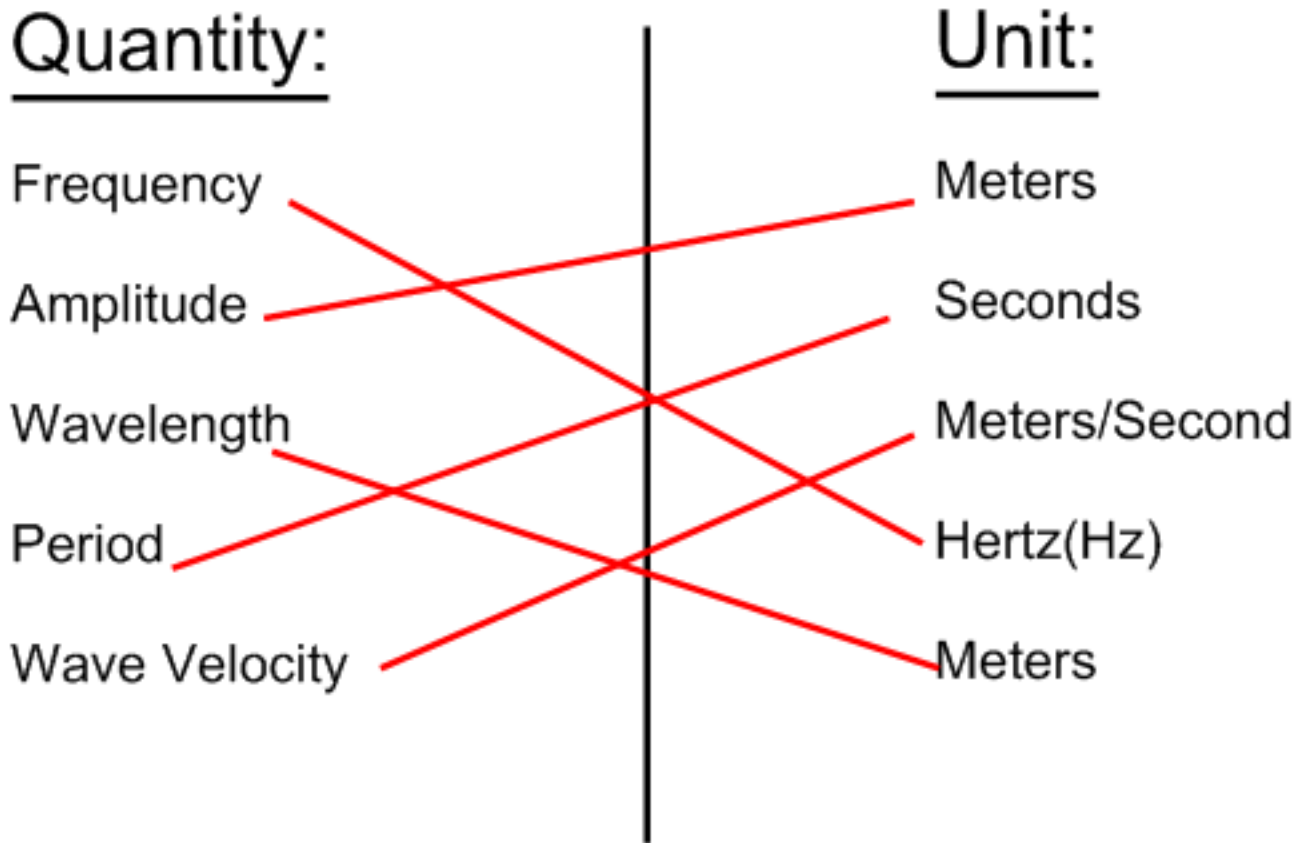
Meters

Seconds

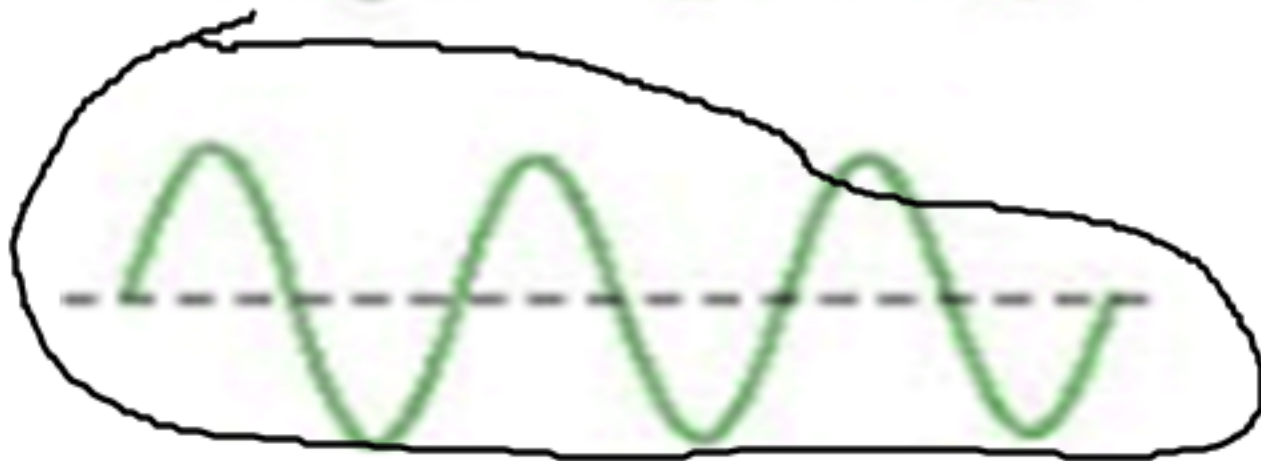
Meters/Second

Hertz(Hz)

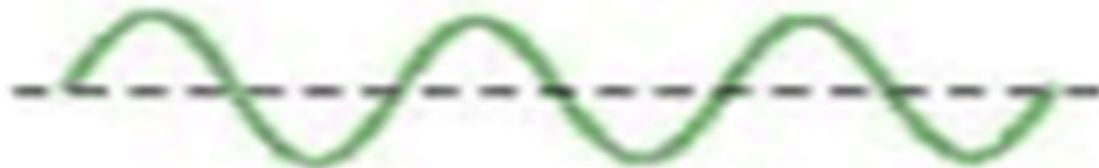
Meters



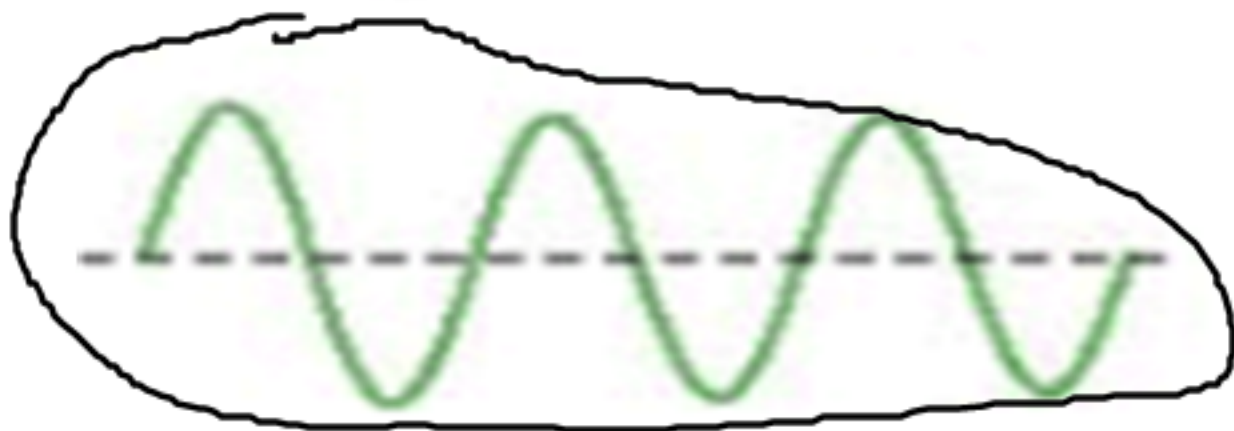
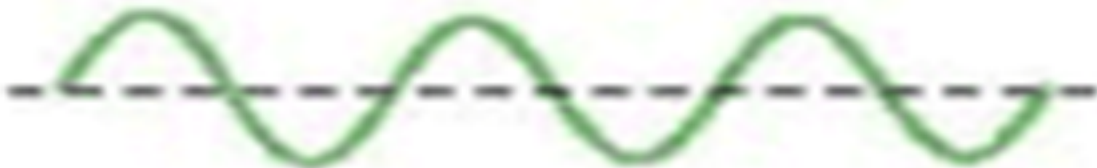
Circle the wave with the highest amplitude:



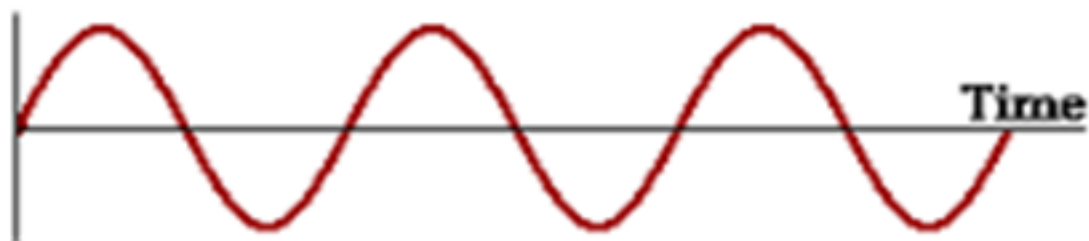
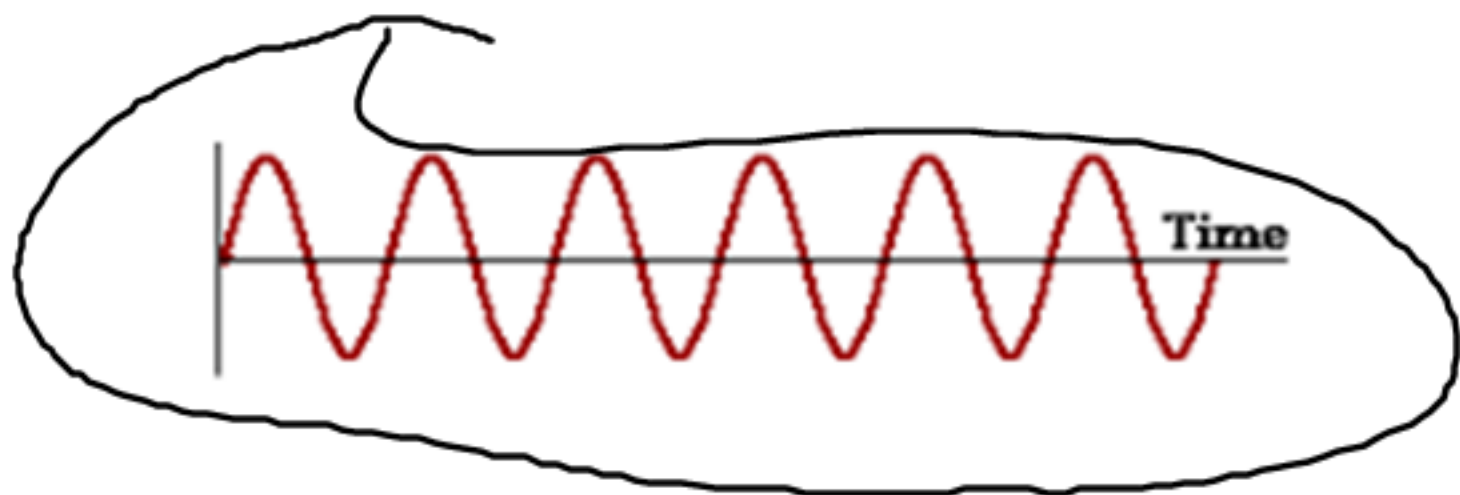
Circle the wave that carries the least amount of energy:



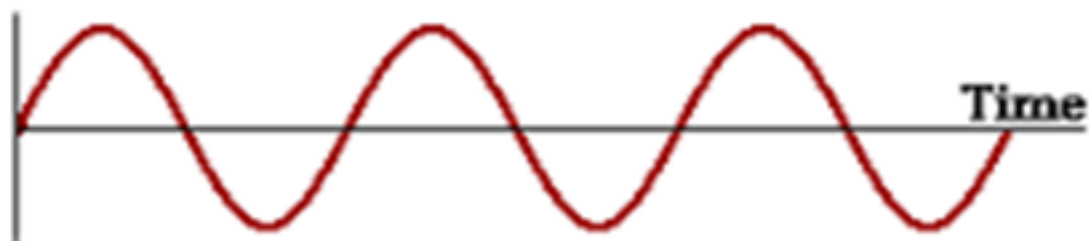
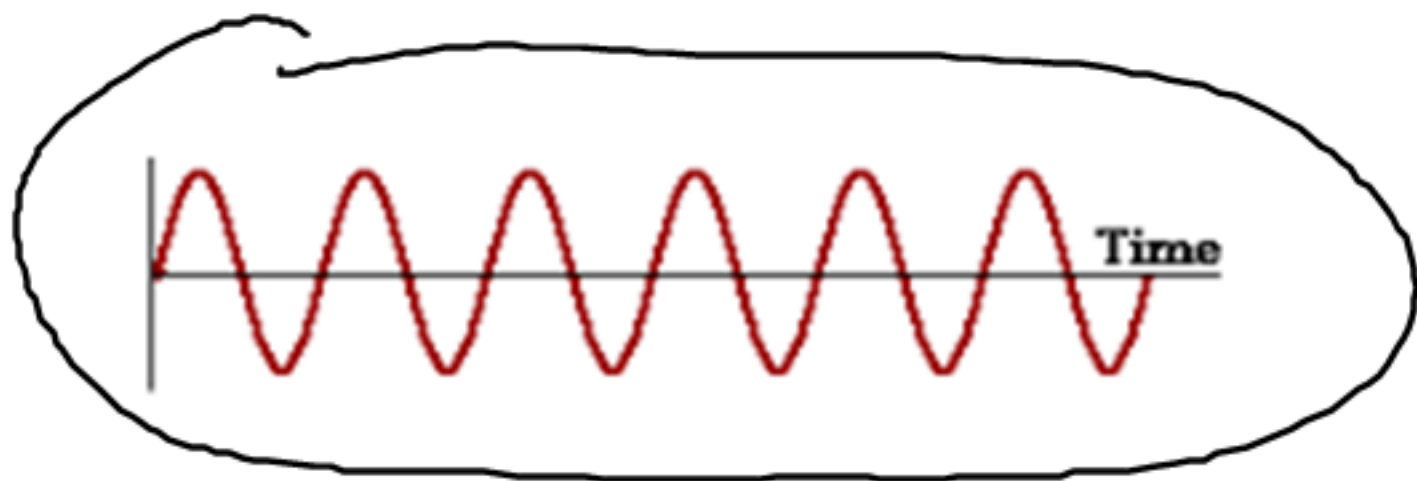
Circle the wave that carries the most energy:



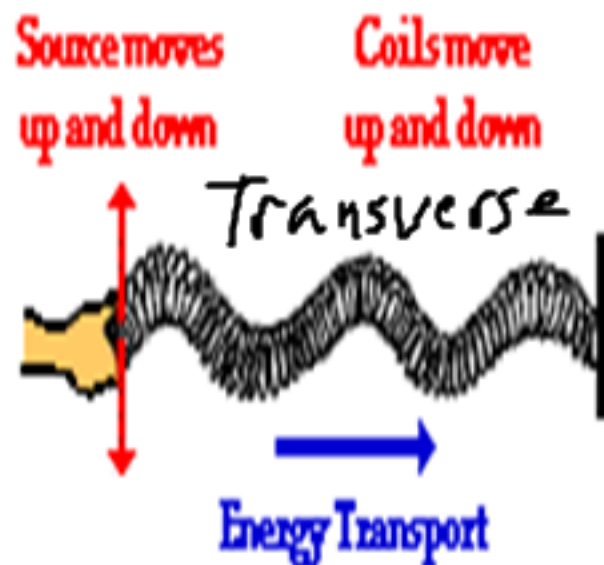
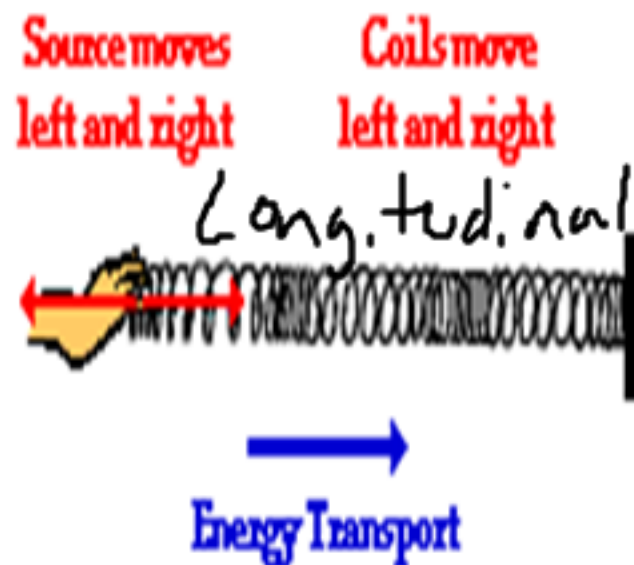
Which of these waves has the highest frequency?



Which of these waves has the shortest wavelength?



Which type of wave propagation is shown below:



The subsequent direction of motion of individual particles of a medium is the same as the direction of vibration of the source of the disturbance.

Solve for the Unknown:



Wavelength	Frequency	Speed
1.75 m	2.0 Hz	3.5 m/s
0.90 m	5 Hz	4.5 m/s
1.19 m	2.1 Hz	2.5 m/s
0.6 m	4.2 Hz	2.52 m/s
0.95 m	2.2 Hz	2.1
1.82 m	1.54 Hz	2.8 m/s

Match:

Ray of light strikes a mirror

Ray of light moves from less dense to more dense

Ray of light moves from more dense to less dense

*Refracts toward the normal

*Refracts away from the normal

*Reflects



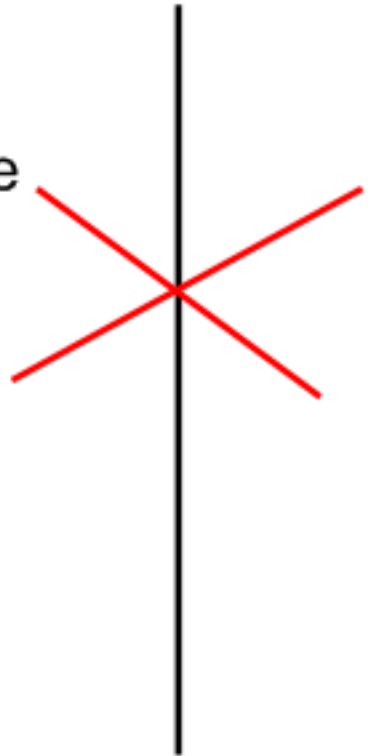
Match:

Mechanical Wave

Light

Electromagnetic
Wave

Sound



Match:

Mechanical Wave

Electromagnetic
Wave

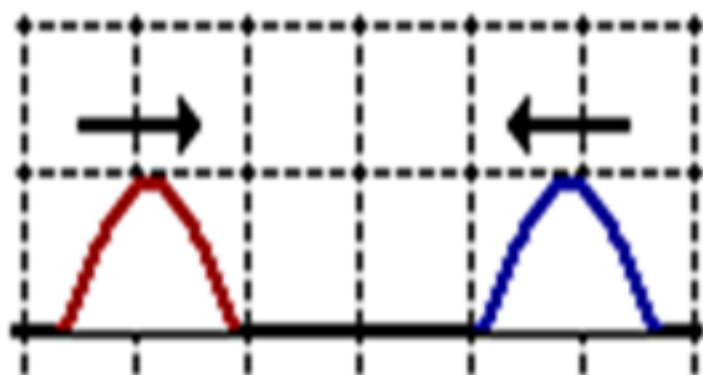
Travel faster through less
dense medium!!!

Travel faster through
more dense medium!!!

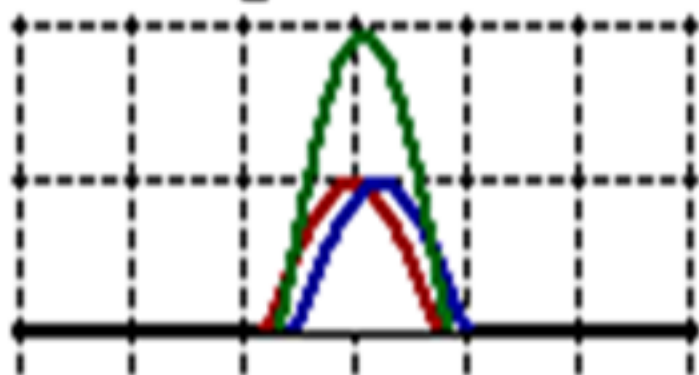


Which type of interference is shown below:

Before Interference



During Interference

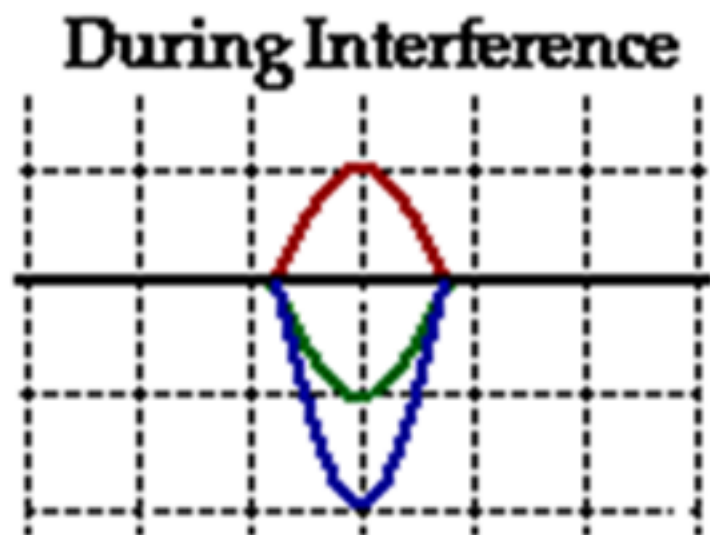
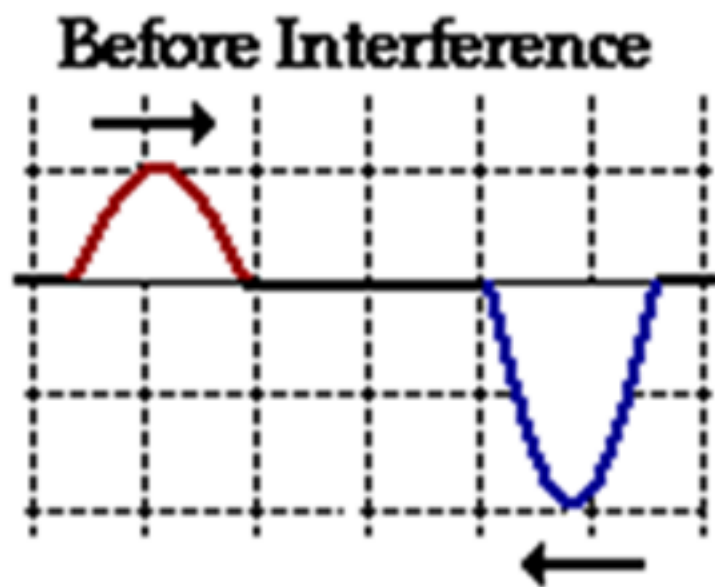


constructive

or

destructive

Which type of interference is shown below:

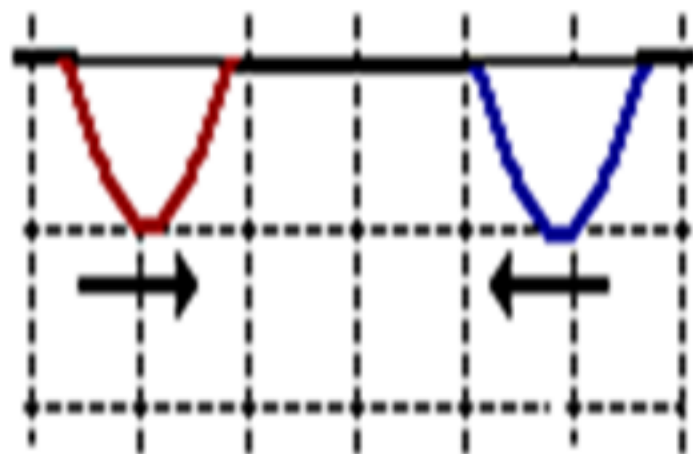


constructive or

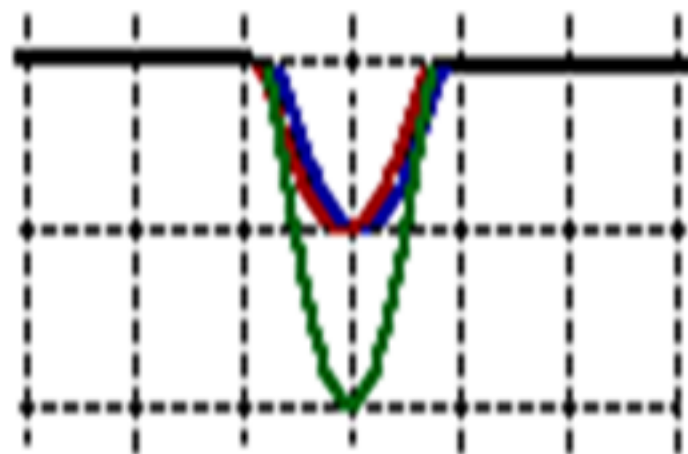
destructive

Which type of interference is shown below:

Before Interference



During Interference

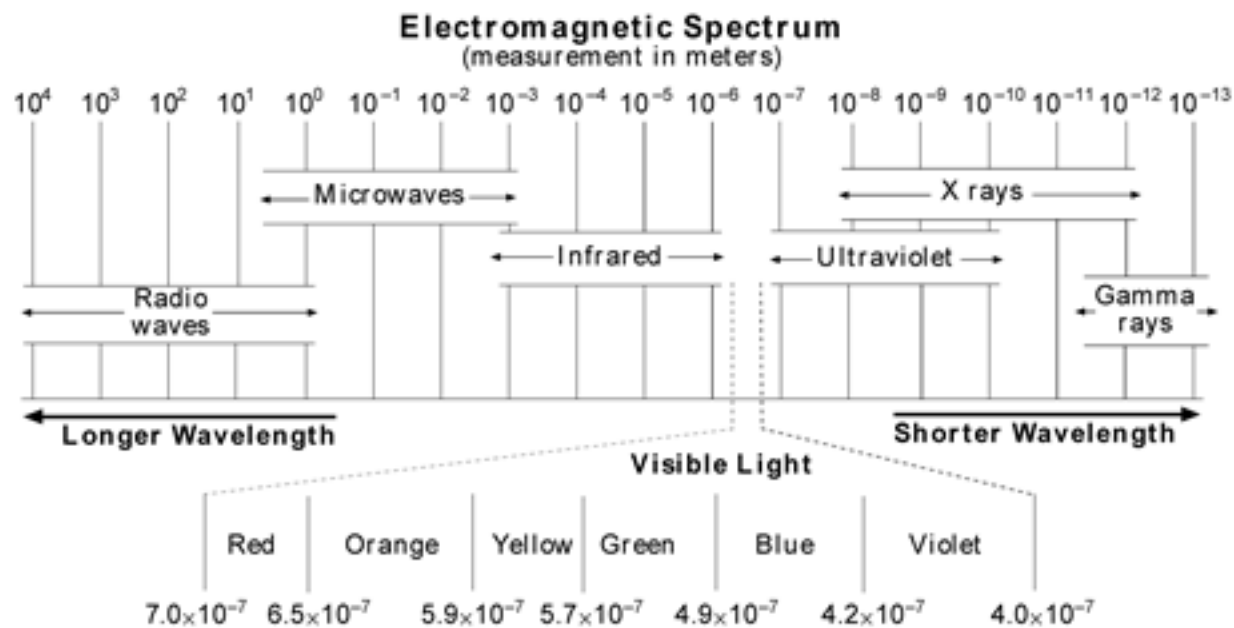


constructive

or

destructive

Place the following electromagnetic radiations in order from longest wavelength to shortest wavelength:

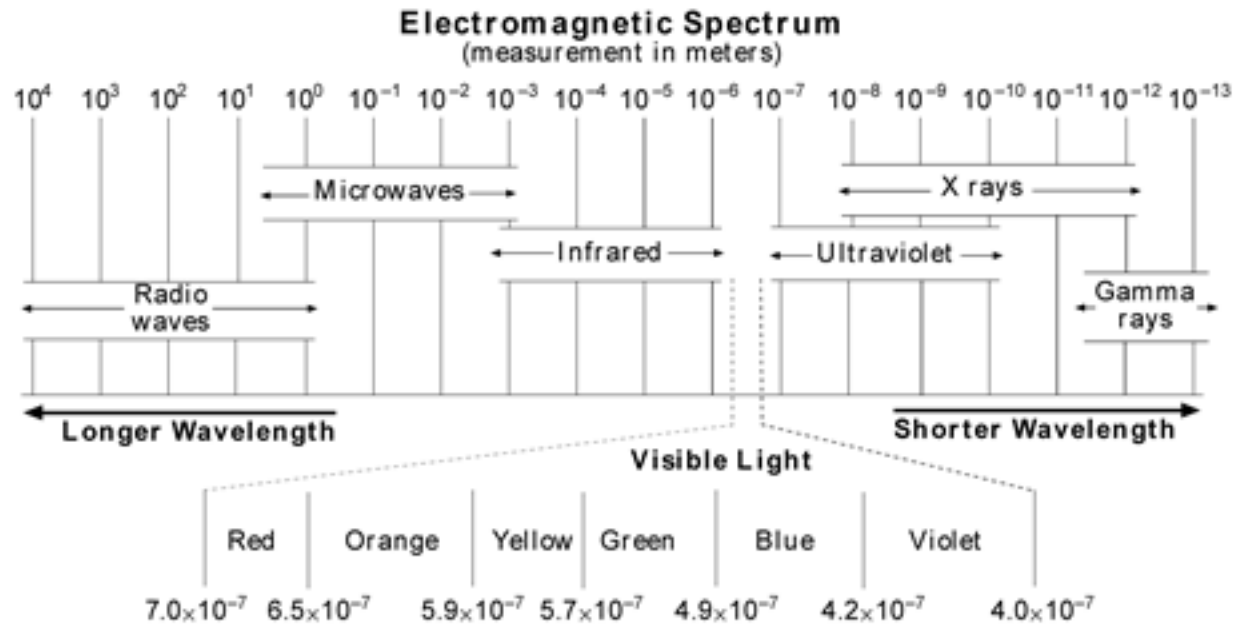


radio waves → microwaves → Infrared → ultraviolet → x rays → Gamma rays

longest

shortest

Place the following "colors" in order from longest wavelength to shortest wavelength:

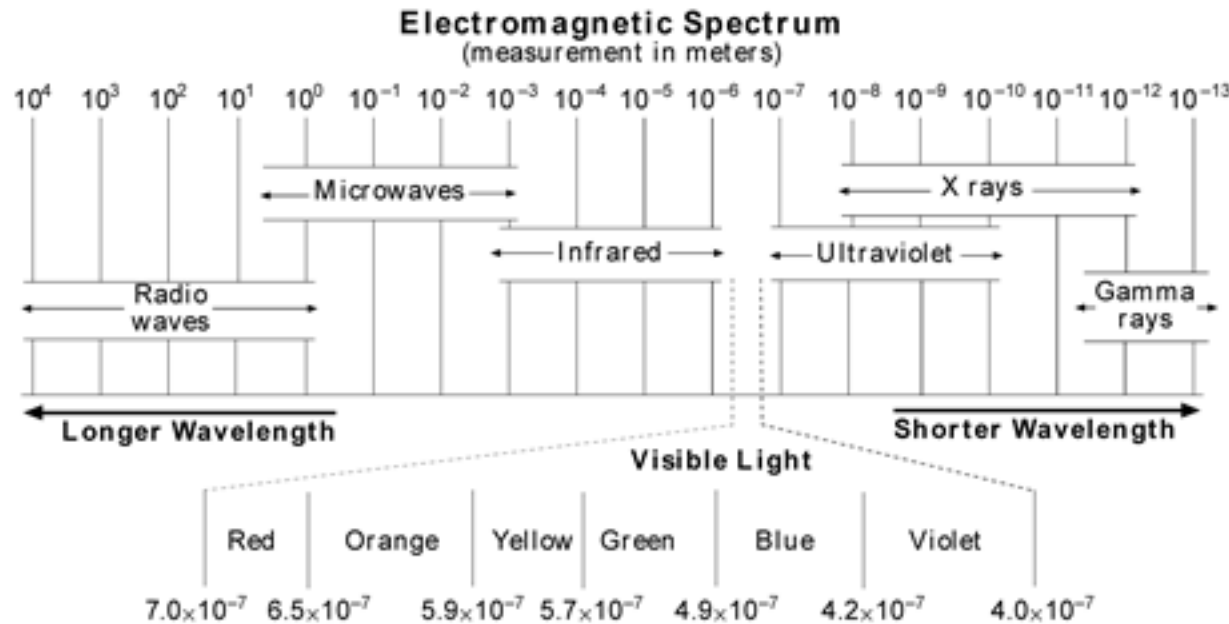


Red → Orange → Yellow → Green → Blue → Violet

longest

shortest

Place the following electromagnetic radiations in order from highest frequency to lowest frequency:

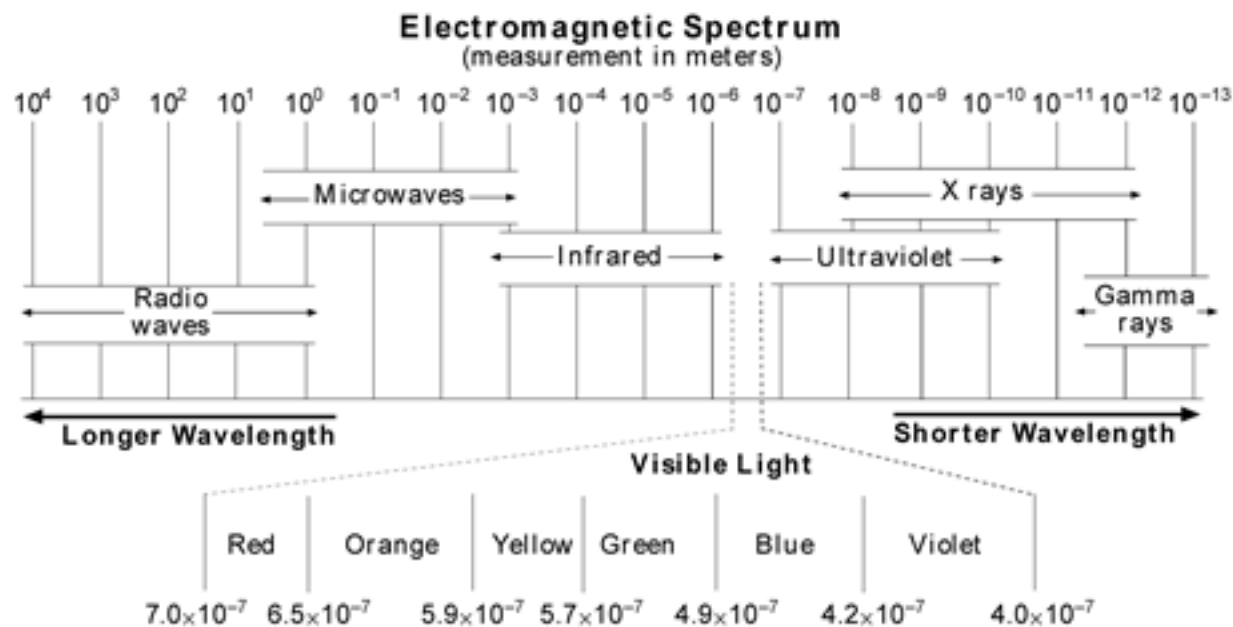


Gamma rays → x rays → ultraviolet → Infrared → microwaves → radio waves

highest

lowest

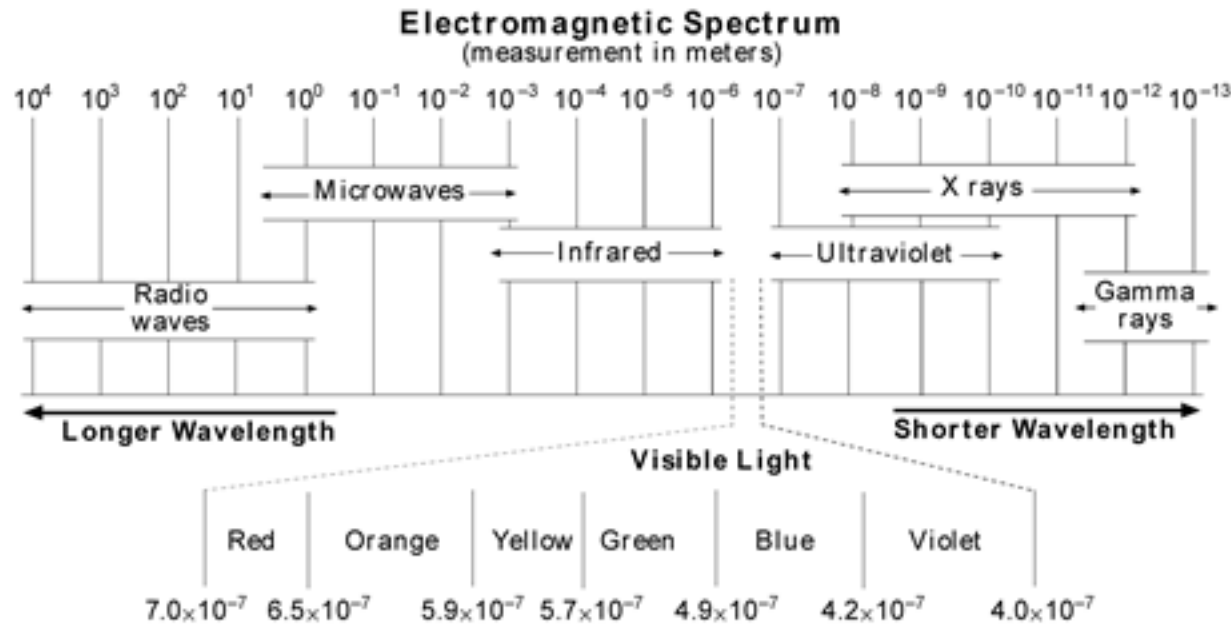
Place the following "colors" in order from highest frequency to lowest frequency:



Violet → Blue → Green → Yellow → Orange → Red

highest **lowest**

Place the following electromagnetic radiations in order from most energy to least energy:

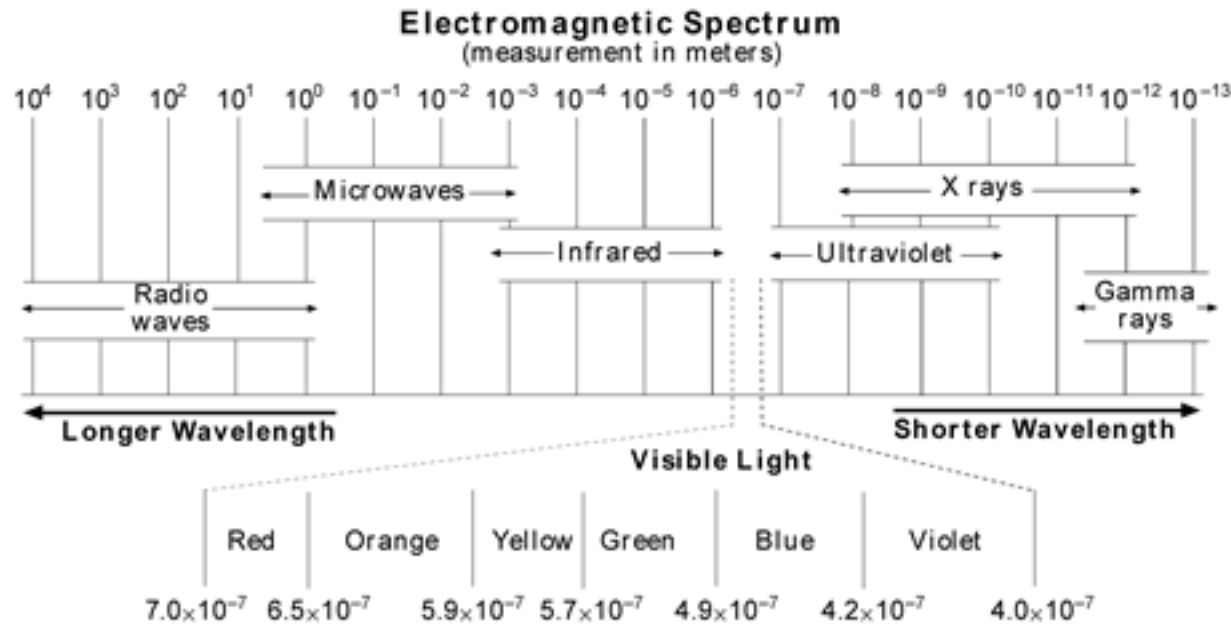


Gamma rays → x rays → ultraviolet → Infrared → microwaves → radio waves

Most

least

Place the following "colors" in order from most energy to least energy:



Violet → Blue → Green → Yellow → Orange → Red

Most

least

The index of refraction is directly related to the density of the substance!! Place the following substances in order of the speed of light through them, from fastest to slowest:

Air	1.00
Alcohol	1.36
Corn Oil	1.47
Diamond	2.42
Glass, Crown	1.52
Glass, Flint	1.61
Glycerol	1.47
Quartz, Fused	1.46
Water	1.33

air → water → alcohol → corn oil → flint glass → diamond

Fastest

slowest

The index of refraction is directly related to the density of the substance!! Place the following substances in order of the speed of sound through them, from fastest to slowest:

Air	1.00
Alcohol	1.36
Corn Oil	1.47
Diamond	2.42
Glass, Crown	1.52
Glass, Flint	1.61
Glycerol	1.47
Quartz, Fused	1.46
Water	1.33

diamond → flint glass → corn oil → alcohol → water → air

Fastest **slowest**

1. Repeating disturbances that transfer energy through matter or space are waves
2. Light is one type of wave that can travel through empty space to transfer energy.
3. If the frequency of a water wave changes, its velocity must also change.
4. The symbol λ (lambda) stands for wavelength.
5. Refraction and diffraction both involve the bending of waves.
6. Constructive interference occurs when the trough of one wave passes through the trough of another wave.

When a ray of light passes from a less dense medium to a more dense medium, it **slows down** and is refracted **toward** the normal.

When a ray of light passes from a more dense medium to a less dense medium, it **speeds up** and is refracted **away from** the normal.