

1. Wave Mechanics and Properties
2. Sound
3. Light and EM Spectrum

Waves carry _____

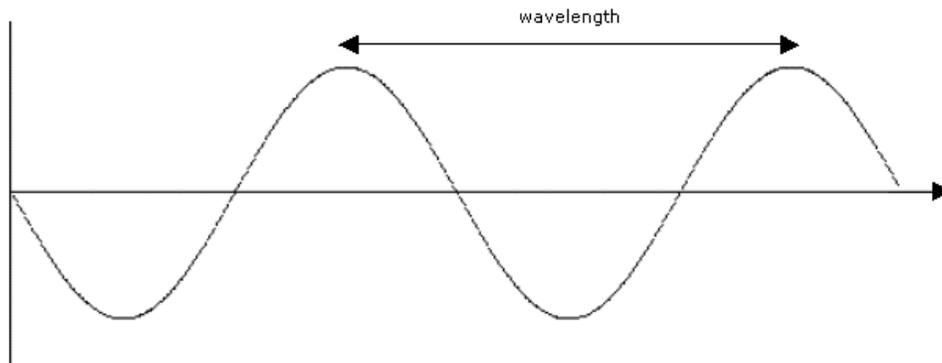
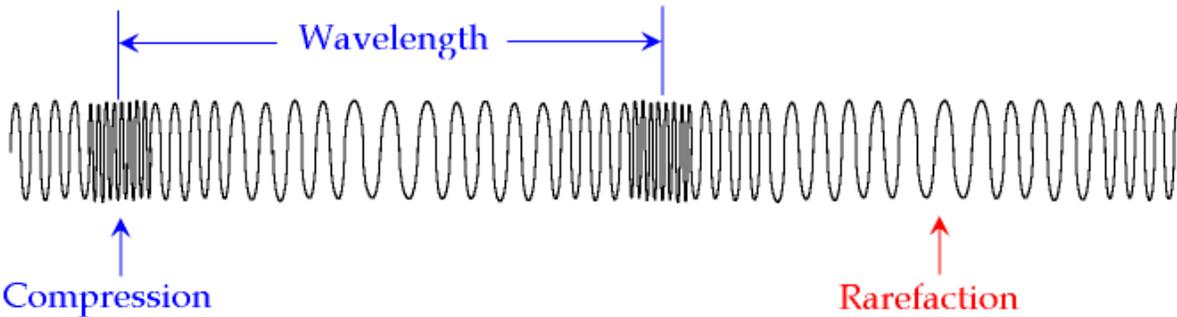
WAVE MECHANICS: Label wave components

crests, troughs, compressions, rarefactions, transverse wave , longitudinal wave,

λ = wavelength (m)

f = frequency (Hz : cycles per sec)

This wave is moving in this direction 



Wave Velocity:

Formulas:

v = velocity (m/s)

Light travels _____ than sound waves

Sound waves Sample problem:

If the velocity of a radio wave is 300 000 000 m/s (light speed) and its wavelength is 3.108 m, what is the frequency of the wave? (Remember Hz)

As frequency increases, wavelength _____ .

3 Types of Waves:

1. _____ require a material medium to travel (air, water, ropes). These waves are divided into three different types.
 - _____ cause the medium to move perpendicular to the direction of the wave.
 - _____ cause the medium to move parallel to the direction of the wave.

_____ :both transverse waves and longitudinal waves mixed in one medium.

2. _____ require a material medium to travel (air, water, ropes). These waves are divided into three different types.

_____ cause medium to move perpendicular to the direction of the wave.

_____ cause the medium to move parallel to the direction of the wave.

_____ : both transverse waves and longitudinal waves mixed in one medium.

3. _____ do not require a medium to travel (light, radio).

Sound is a _____ wave

Speed depends on the properties of the _____ in which it propagates
ex. put ears to the track and the ground to hear oncoming trains

Calculate speed of sound problems:

A sound wave traveling through a solid material has a frequency of 500 hertz. The wavelength of the sound wave is 2 meters. What is the speed of sound in the material?

RESONANCE

Demo diagram(s) and explanation

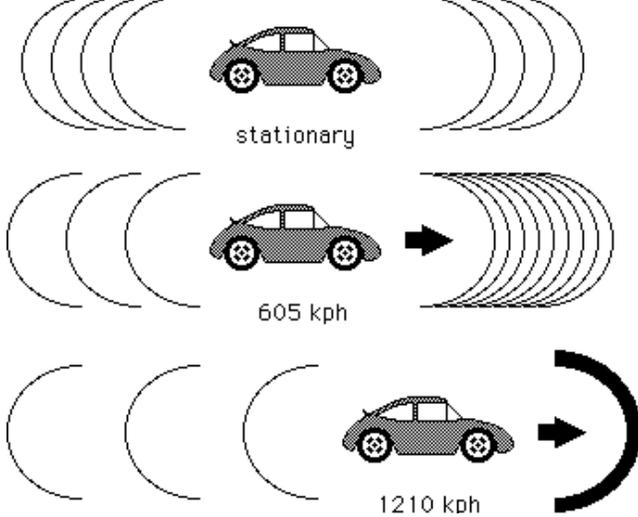
What is meant by natural frequency?

Why did the sounds get louder or resonate?

Give another example of resonance.

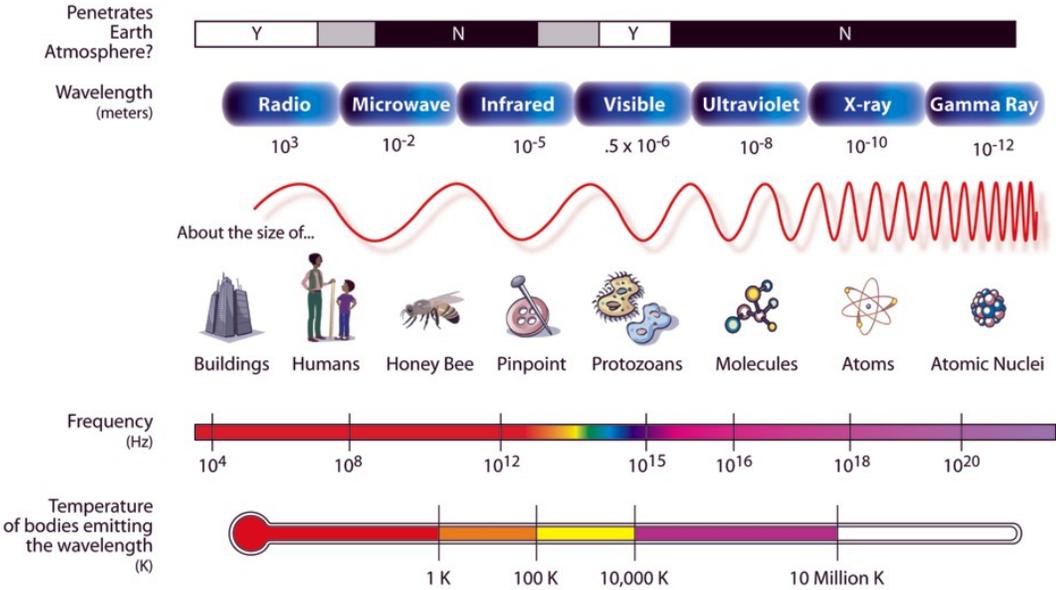
Doppler effect:

Describe the sound waves to an observer standing in front of the car



Examples of waves moving through different media

THE ELECTROMAGNETIC SPECTRUM



Describe the relationships between energy and EM Spectrum

Speed of light:

Speed of sound:

Why the lag time?

