Name _____ Pd _____ Date _____

Properties of Sound

Directions: Read pages 42-47 in your "Light and Sound" text book. As you read, fill in key concepts in the blank spaces below.

What kind of wave is a sound wave? Longitudinal Wave

How do you know?

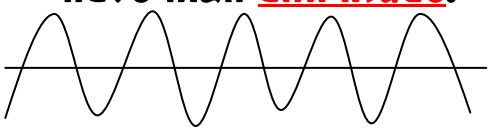
We know because the energy of the wave and the medium travel in the same direction (parallel to one another). You can hear someone who is speaking to you better when they are facing you because their sound waves are traveling directly to your ears. If they are facing the opposite direction, their sound waves are going to go away from your ears.

* Loudness – your perception of the energy of a sound.

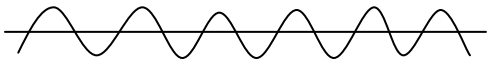
  It depends on...

  - The amount of energy it takes to make a sound
  - distance from the source of the sound.

Loud sound waves have high amplitude.



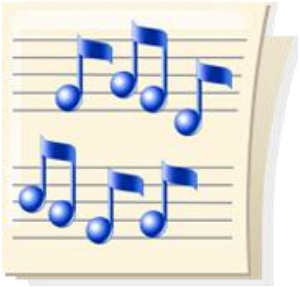
Soft sound waves have small amplitude.



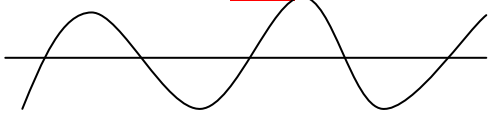
Loudness is measured in decibels (abbrv: dB)

* Pitch – how high or low the sound seems to a person's ear. Pitch depends on the frequency of a sound wave.

High frequencies (fast vibrations) have a high pitch.



Low frequencies (slow vibrations) have a low pitch.

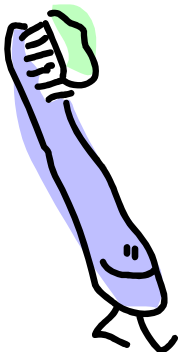


* Most people can hear frequencies between 20 Hz and 20,000 Hz.
  (Hz = "Hertz" // 1 Hz = 1 vibration per second)

* Ultrasound – sound waves with frequencies above the normal human range of hearing.

Some things that create ultrasound:

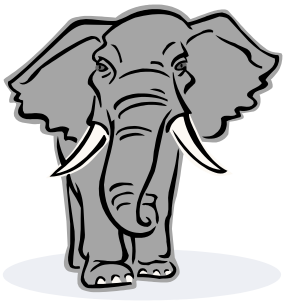
- Ultrasound machines: used to see pictures of a baby in the womb
- Electronic toothbrushes
- Jewelry cleaners
- Bats & Dolphins
- Dog whistles



* Infrasound – sound waves with frequencies below the normal human range of hearing.

Some things create infrasound:

- Elephants use it to communicate by stomping on the ground
- Giraffes produce it when stretching their necks
- Airplanes
- Earth Quakes
- Thunderstorms
- Whales



* The change in frequency of a wave as its source moves in relation to an observer is called the Doppler Effect.