SOUND…All you need to know!!!

Definition**:**

-Sound is nothing but a vibration that travels through a medium.

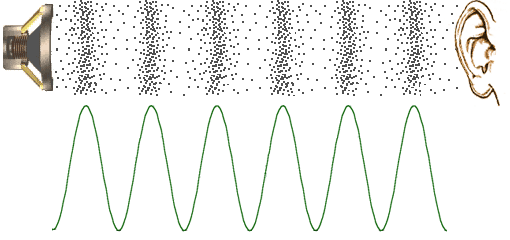
* A **vibration** is a rapid **back- and-forth** motion.

-Sound needs matter to transfer energy. Therefore sound is a mechanical wave.

**-**Sound travels in the same direction as the force. Therefore sound is a longitudinal   
 wave.

-Sound is a compression wave. Label the diagram below.

Rarefaction Compression



Loudness or Volume:

-Intensity or the amount of energy , determine a sounds loudness.

-Loudness is measured by a sounds amplitude.

Pitch:

-Pitch is the quality of highness or lowness in a sound. It is not loudness.

-Frequency determines pitch!

Sound Speed**:**

Sound speed is determined by the medium. The closer together the molecules are in a medium, the faster the sound. Think…How do particles move in matter?

-Therefore sound travels fastest in a solid . (especially elastic materials like metals)

-Sound travels second fastest in a liquid.

-Sound travels the slowest in a gas.

How Humans Hear Sound**:**

1. Your **outer ear** collects **vibrations** into the ear canal.
2. These sound waves enter the **middle ear** causing the **eardrum** to vibrate.
3. The eardrum makes the middle ear bones, **hammer**, **anvil**, and **stirrup**, vibrate.
4. These vibrations are passed onto the **inner ear**
5. The eardrum passes these vibrations to the **cochlea** of the inner ear.
6. Tiny **hair cells** in the **cochlea** of the inner ear vibrate.
7. These hair cells send a message to the brain through the **auditory nerve**!