Wave Energy

Wave- A disturbance that transfers energy from one place to the next.

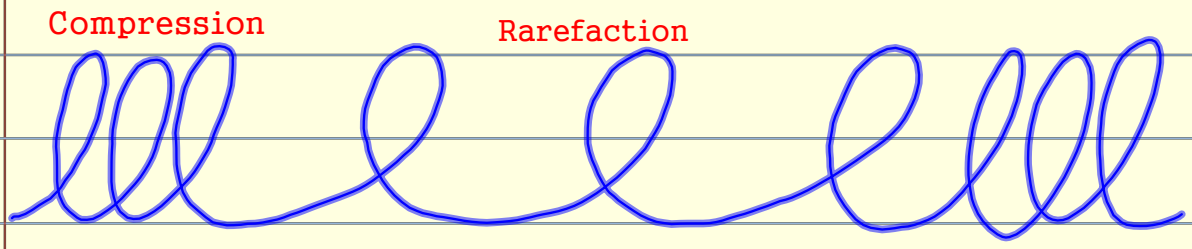
Sound- Energy that travels as a LONGITUDINAL wave, transferring energy through the molecules as they collide.

Medium- Any substance that a wave travels through.

Mechanical Waves- Waves that transfer energy through matter.

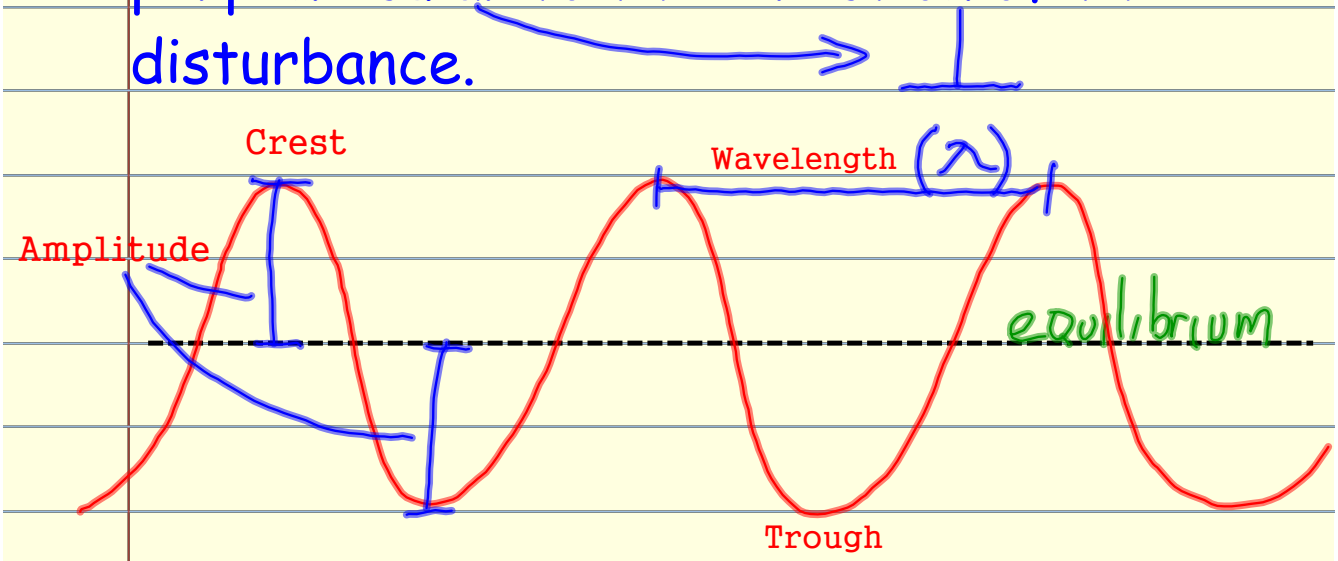
2 types of waves

Longitudinal Wave- Waves that travel in the same direction as the disturbance.



Ex) SOUND

Transverse Wave- Waves that travel perpendicular to the direction of the disturbance.



Ex) Light, RADIO, Infrared(heat), GAMMA, MICRO, X-RAY

Frequency- The number of waves passing per unit of time.

Measured in Hertz (Hz)= waves/sec

Wave Speed-

frequency X wavelength = speed

$f \times \lambda = \text{speed}$

Relationships

↑ frequency ⇒ ↑ pitch (Direct)

↑ volume ⇒ ↑ amplitude (Direct)

↑ frequency ⇒ ↓ wavelength (Inverse)

SONAR-

(Sound Navigation and Ranging)

Sends out waves and the sound waves bounce off objects and come back. Depending on how long it takes for the sound to come back, you can determine the distance of an object.

Interference- When 2 waves meet their amplitude is added together.

Constructive Interference- When the resulting amplitude of the 2 waves is greater.

Destructive Interference- When the resulting amplitude of the 2 waves is less.

Interference

http://www.youtube.com/watch?v=81nXb12m72A

http://www.youtube.com/watch?v=8IRZYOC7DeU&feature=related

http://www.youtube.com/watch?v=x_bUxiDadk8&NR=1