

Honors Freshmen Physics

Sound Lingo

The following are the terms you should be familiar with in order to properly complete this unit. You are expected to be able to define each as well as apply these terms in any situation during this and subsequent units of study.

intensity/volume - The amount of energy in each wave; for sound waves, measured in decibels (dB).

doppler shift - The observed increase or decrease in wave frequency, caused by motion of the sound source or receiver relative to each other. If moving towards each other a higher frequency is observed.

resonance - Phenomenon that occurs when the frequency of forced vibrations on an object matches the object's natural frequency producing a dramatic increase in amplitude.

reverberation - The echoing effect produced by multiple reflections of sound.

interference - The ability of two or more waves to combine and form a new wave. Constructive interference results in an increased amplitude, while destructive interference results in a decreased amplitude.

beats - An alternating loud-soft pattern heard due to the interference of sound waves of different frequency.

sound - Longitudinal waves caused by vibration of object. It is what you "hear".

fundamental frequency - The frequency at which an object naturally vibrates.

overtone - A multiple of the fundamental frequency of an object.

sound quality – the distinct and unique property of the sound produced by an object due to the relative intensities of various overtones. This is why a flute and violin sound different even when playing the same fundamental frequency.

(Related Lingo Below)

Related Wave Lingo

oscillation - A repeating "to-and-fro" motion about an equilibrium position.

wave - A rhythmic disturbance that carries energy through matter or space.

medium - The material (solid, liquid, gas, or a combination of these) through which a wave travels.

propagation - the direction of travel of a wave and its energy.

transverse wave - A wave in which the medium is displaced perpendicular to the direction of wave itself. This wave is described by appearance of crests and troughs as in a water wave.

longitudinal (compressional) - A wave in which the medium is displaced parallel to the direction of travel of the wave itself. This wave is described in appearance by its compressions and rarefactions.

rest position - The natural condition of the medium before and after a wave travels through it. For example, the surface of a lake with no waves would be the rest position from which you could measure the amplitude of surface waves.

crest/trough - The highest or lowest point of a transverse wave. Where the amplitude is measured.

rarefaction - Part of a longitudinal wave in which the particles are spread apart.

compression - Part of a longitudinal wave in which the particles are close together.

amplitude - For a wave, the maximum displacement from the rest position of the medium.

wavelength - The distance between identical points on two adjacent waves; for example, the distance between two consecutive crests or troughs.

frequency - The number of waves that pass a fixed point in a given amount of time.

pitch - Term that refers to how high or low sound frequencies of sound appear to be.

hertz - The unit of measure for frequency. Equivalent to 1/s.

period - The time required for one complete wave (crest to crest) to pass a fixed point. Inverse of the frequency.

reflection - Occurs when a wave strikes an object and bounces off.

refraction - The bending of a wave caused by a change in speed as it travels from one medium into other.

diffraction - The bending of a wave around a barrier or through a narrow slit.