

Honors Freshmen Physics

Wave Motion 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.

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.

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

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.

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.

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.

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.

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