



Vocabulary: Ripple Tank



Vocabulary

- Constructive interference – the combining of two waves to yield a greater amplitude than either wave has separately.
 - Waves interact most constructively when they are at the same points in their respective cycles.
- Crest – a point on a wave with a maximum upward displacement or amplitude.
- Destructive interference – the partial (or total) cancelation of one wave by another.
 - Waves interact most destructively when they are one-half cycle out of phase.
- Diffraction – the spreading out of a wave as it moves past an edge.
 - Diffraction is most pronounced when the *wavelength* is significantly longer than the gap through which the wave moves.
 - A diffracting wave spreads out approximately as quickly as it moves forward in its original direction, and this speed does not diminish as the wave moves away from the source wave.
- Huygens' Principle – the observation that each point on a wave front can be considered the source of a new wave, and the total effect of all these secondary waves is equivalent to the original wave.
 - Huygens' Principle can be used to explain diffraction and refraction.
- Interference – the superposition of two or more waves which results in a new pattern.
- Law of superposition – the observation that waves can be combined and decomposed using straight-forward arithmetic.
 - When two or more waves interfere, the net displacement of a point can be found by simply adding the displacement of each wave.
 - A complicated wave to be analyzed by decomposing it into simpler waves, determining the behavior of each of those waves separately, and then adding the waves back together to determine the behavior of the original wave.
- Node – a place in a wave pattern where the amplitude is at its equilibrium value.
 - For most wave diagrams, where amplitude refers to the departure from equilibrium, a node is visually recognized as a place where the wave curve crosses the x-axis.



- Refraction – the change in heading of a wave front that occurs when a wave changes from one medium to another.
 - The degree of refraction depends on the difference in the wave's speed in the two different media.
- Trough – a point on a wave with a maximum downward displacement or amplitude.
- Wave – a periodic disturbance that travels through space or matter and transfers energy.
 - *Mechanical waves*, such as water waves, sound waves, or waves in a spring, move through a medium such as water, air, or a solid.
 - Particles in the medium move up-and-down and/or back-and-forth as the wave passes through.
- Wavelength – the distance between consecutive crests, consecutive troughs, or any other consecutive equivalent points of a wave.

