

Waves Outline

Creating Waves

- The source of all waves is a vibration
- Most waves move through a medium
- The wave energy is invisible; the wave medium is what we see as a wave

Characteristics of Waves

- The number of times per second that a vibration passes a point is called the **frequency**
- The amount of time between vibrations is the **period**
- The distance from one vibration to the next is the **wavelength**
- The intensity of the wave, which can be measured in different ways, is the **amplitude**

Transverse Waves

- If the medium moves perpendicular to the wave energy, that is a transverse wave
- **Crest** - The high point of the wave
- **Trough** - The low point of the wave
- A wavelength can be measured from a crest to a crest or from a trough to a trough
- Examples are ocean waves and light

Longitudinal Waves

- If the medium moves in a direction parallel to the wave energy, that is a longitudinal or compression wave
- **Compression** - The high pressure, high density part of the wave
- **Rarefaction** - The low pressure, low density part of the wave
- An example is sound waves

Speed of a Wave

- Period - the amount of time between vibrations of a wave ($\tau=1/f$; $f=1/\tau$)
- Speed = wavelength / period; or
Speed = wavelength • frequency
- The speed of a wave depends on the medium it moves through