

6.1.1 Transverse and Longitudinal Waves

- Waves are either **transverse** or **longitudinal**.
- Waves transfer energy from one place to another without transferring matter.

transverse - the oscillations are perpendicular to the direction of energy transfer
- have crests (peaks) and troughs ; e.g. light waves, EM waves, radio waves

longitudinal - the oscillations are parallel to the direction of energy transfer
- have compressions and rarefactions ; e.g. sound waves, seismic P waves

For any wave, the wave moves and not the medium it passes through

-> i.e. ripples in water move, but the water doesn't move with it

-> i.e. sounds in air moves, but the air doesn't move with it

6.1.2 Properties of Waves

amplitude - the maximum displacement of a point on a wave away from its undisturbed position
wavelength - the distance from a point on one wave to the equivalent point on the adjacent wave
frequency - the number of waves passing a point each second
period - the time it takes for one entire oscillation of a wave
wave speed - the speed at which the energy is transferred (or the wave moves) through the medium

$t = 1 / f$ time period (s) = 1 / frequency (Hz)

$v = f\lambda$ velocity (m/s) = frequency (Hz) x wavelength (m)



By [genius_elffo](#)
cheatography.com/genius-elffo/

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