

Traveling Waves



Mechanical waves travel in some medium.

Examples: sound wave, violin string, surface water wave.

While the wave propagates, the medium undergoes periodic motion.

Distinguish:

- (1) direction of wave propagation,
- (2) direction in which medium moves.

Transverse wave: (1) and (2) are **perpendicular** to each other.

Longitudinal wave: (1) and (2) are **parallel** to each other.

Electromagnetic waves are transversely oscillating electric and magnetic fields.

Electromagnetic waves travel in the vacuum. There is no medium.

Waves transport energy and, in some cases, information, but not the medium itself (if there is a medium).