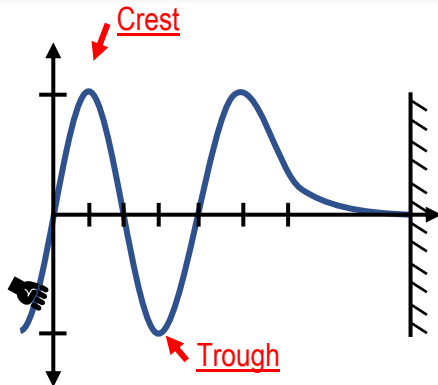


CONCEPT: INTRO TO WAVE TYPES AND WAVE SPEED

- A wave is a **disturbance in space** that travels through a **medium**, or _____ (like a string, water, or even air).

TRANSVERSE → Whip slinky up & down

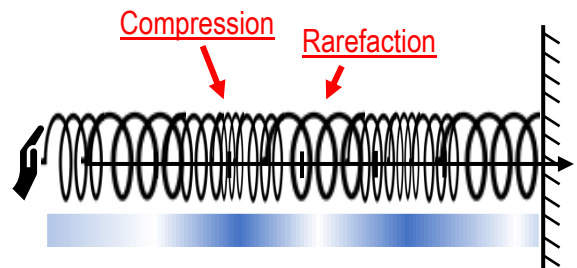
Displacement is [Perpendicular | Parallel] to wave motion



- Wavelength λ : horizontal distance from crest to crest
- Period T : time to complete cycle. Frequency $f = \frac{1}{T}$
- Amplitude A : $\frac{1}{2}$ vertical distance from crest to trough

LONGITUDINAL → Push slinky back & forth

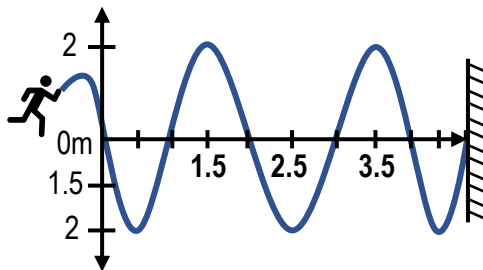
Displacement is [Perpendicular | Parallel] to wave motion



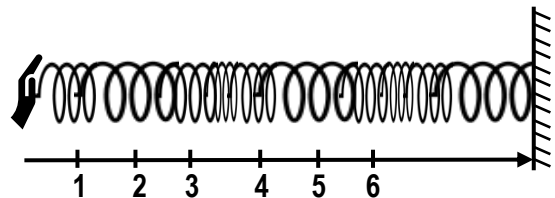
- Wavelength λ : distance from compression to compression
- Period T : time to complete cycle. Frequency $f = \frac{1}{T}$
- Amplitude A not important

EXAMPLE: For each of the waves below: determine the Amplitude & wavelength.

a) determine the Amplitude & wavelength



b) determine the wavelength



- ALL** types of waves have the same speed relationship:

$$v = \text{---} = \text{---} = \text{---}$$

EXAMPLE: Sound is a longitudinal wave which travels through air with a speed of 343m/s. What is the wavelength of a sound wave with a frequency of 260 Hz?

PROBLEM: A wave has a wavelength of 10mm and moves at a speed of 50mm/s. What is the frequency of this wave?

- A) $f = 50 \text{ Hz/s}$
- B) $f = 5 \text{ Hz}$
- C) $f = 500 \text{ s}$

PROBLEM: A wave travels along a stretched horizontal rope. The vertical distance from *crest* to *trough* is 15cm, and the horizontal distance from *crest* to *trough* is 20cm. What are the amplitude and wavelength for this wave?