

Basic terms:

1. **Crest:** The position of maximum displacement above the mean position (equilibrium line) is called as crest.
2. **Trough:** The position of maximum displacement below the mean position (equilibrium line) is called as trough.

Crest and trough can be observed in transverse wave. In other words, transverse wave propagates in the form of crests and troughs.

[During the formation of crests and trough, there occurs change in shape of the medium. So, for the propagation of transverse wave, the medium should be rigid (should possess shear modulus of elasticity).

[The transverse wave is also called as Shear Wave]

3. **Compression:** The region of greater density (and also larger pressure) in the medium during the propagation of longitudinal wave through the medium is called as compression.
4. **Rarefaction:** The region of smaller density (and also smaller pressure) in the medium during the propagation of longitudinal wave through the medium is called as rarefaction.

Compressions and rarefactions can be observed in longitudinal waves. In other words, longitudinal wave propagates in the form of compressions and rarefactions.

[During the formation of compressions and rarefactions, there occurs change in pressure or density of the medium. So, for the propagation of longitudinal wave, the medium should be compressive (should possess Bulk modulus of elasticity).

[The Longitudinal wave is also called as pressure Wave]

5. **Wavelength (λ):** The distance travelled by a wave in one complete cycle is called as its wavelength.

It can also be defined as the distance between two successive crests or two successive troughs in a transverse wave.

It can also be defined as the distance between two successive compressions or two successive rarefactions in a longitudinal wave.

Wavelength of a wave depends upon the mechanical properties (nature) of medium.

The SI unit of wavelength is **meter (m)**

6. **Amplitude (a):** The maximum displacement of any vibrating particle above or below the mean position (equilibrium line) is called as amplitude.

It is a vector quantity.

The SI unit of amplitude is **meter (m)**.

7. **Time period (T):** The time taken to complete one cycle (one oscillation) is called as time period.

The SI unit of time period is **seconds**.

8. **Frequency (f):** The number of cycles (oscillations) made in one second is called as frequency.