Sound

- Translational motion
- Rotational motion → Earth revolves around sun
- Vibrational motion. → Moon revolves around the earth.

oscillatory motion

wave motion

To and fro motion

A ⟷ B

→ No particle of the medium actually displaces

→ All particles of medium vibrate and transfer their energy to adjacent particle.

Based on Vibration of particles:

- Longitudinal
- Transverse. (Mexican wave)

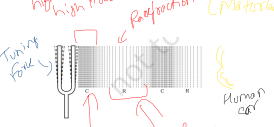
(Slinky)

Based on medium on Propagation

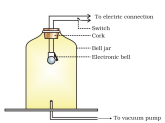
Mechanical wave	Non mechanical wave
(Material medium is required)	(Material medium is not required).
→ Solid, liquid, gas etc.	→ They can even travel through vacuum
water waves, Sound waves, slinky.	→ Radiation Radio EM waves

Sound waves – longitudinal wave + Mechanical wave (Material med)

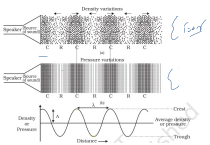
Collision b/w two particles (Vibration) ⇒ Wave Energy



12.2.1 SOUND NEEDS A MEDIUM TO TRAVEL



12.2.3 CHARACTERISTICS OF A SOUND WAVE

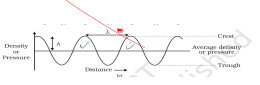


Will type Structure – compression (Air particles crowded)

Valley type structure – Rarefaction. (Not crowded)

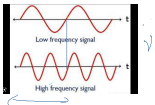
Peak of compression – Crest.

Peak of Rarefaction – trough.



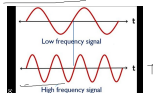
Wavelength – (λ) m

Frequency – (ν) – SI units · hertz



$\nu_2 > \nu_1$

Time Period

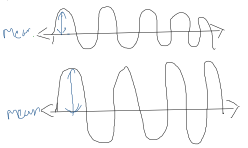


$T_1 > T_2$

$\nu \propto \frac{1}{T}$

Amplitude (A) – magnitude of the maximum displacement of a vibrating particle from its mean position.

unit m



$A_2 > A_1$