

# Sound Wave

---> Sound waves are longitudinal mechanical waves.

---> According to their frequency range, longitudinal mechanical waves are divided into the following categories :

**1. Audible or Sound Waves** : The longitudinal mechanical waves which lie in the frequency range 20 Hz to 20000 Hz are called audible or sound waves. These waves are sensitive to human ear. These are generated by the vibrating bodies such as tuning fork, vocal cords etc.

**2. Infrasonic Waves** : The longitudinal mechanical waves having frequencies less than 20 Hz are called Infrasonic. These waves are produced by sources of bigger size such as earth quakes, volcanic eruptions, ocean waves and by elephants and whales.

**3. Ultrasonic Waves** : The longitudinal mechanical waves having frequencies greater than 20000 Hz are called ultrasonic waves. Human ear can not detect these waves. But certain creatures like dog, cat,, bat, mosquito can detect these waves. Bat not only detect but also produce ultrasonic. Ultrasonic waves can be produced by Galton's whistle or Hartman's generator or by the high frequency vibrations of a quartz crystal under an alternating electric field ( Piezo - electric effect) or by the vibrations of a ferromagnetic rod under an alternating magnetic field (Magnetostriction)

## Applications of Ultrasonic Waves

1. For sending signals.
2. For measuring the depth of sea.
3. For cleaning cloths, aeroplanes and machinery parts of clocks.
4. For removing lamp-shoot from the chimney of factories.
5. In sterilizing of a liquid.
6. In Ultrasonography.