

LECTURE 11: SOUND WAVES & AUDITION

I. Sound

Waves

Definition:

Vibrations created by moving air.

These fluctuations (areas of compressed and rarefied air) give rise to a sound wave.

- **Formation:**

- When an object vibrates, surrounding air molecules:
- Condense (compress)
- Rarefy (pull apart)

- **Travel:**

Sound waves travel away from the object at approximately 700 mph.

II.

Audition (Hearing)

- **Process:**

The human ear transduces fluctuations in air pressure.

- **Pressure Fluctuation Range:**

17 mm to 17 meters.

- **Sound Generation Frequency:**

Sound waves are generated by vibrations between 20-20,000 per second.

Faster vibrations = smaller wavelengths

Slower vibrations = larger wavelengths

