

Characteristics of Sound

Chapter 11: Sound · Topic 2

Key Concept

Frequency is measured in hertz (Hz), representing the number of vibrations per second, and the human ear can typically detect sounds between 20 Hz and 20,000 Hz — sounds below this range (infrasound) or above it (ultrasound) exist but are inaudible to humans, though some animals like dogs and bats can detect frequencies beyond human hearing range. Loudness is measured in decibels (dB), and prolonged exposure to very loud sounds (above about 85 dB) can cause hearing damage.

Quick Revision Notes

- Pitch depends on frequency (higher frequency = higher pitch); loudness depends on amplitude.
- Sound quality (timbre) distinguishes different sources producing the same pitch/loudness.
- Frequency is measured in hertz (Hz); humans hear roughly 20 Hz to 20,000 Hz.
- Loudness is measured in decibels (dB); prolonged exposure above ~85 dB can damage hearing.

Practice Questions

- 1 Explain the difference between loudness and pitch of a sound.
- 2 Why might prolonged exposure to loud sounds be harmful to hearing?
- 3 Explain how you can distinguish between a violin and a flute playing the exact same note.