

Nova's Sound Adventure

Learning objective: To understand how sounds are made, how they travel as vibrations, and how we hear them.

Read each question carefully. Use your scientific knowledge about sound waves and vibrations to answer in full sentences.

Nova the owl is listening to the sounds of the night forest. She knows that sound is created when an object vibrates. These vibrations travel through the air by bumping into air particles, eventually reaching our ears so we can hear them. As sound travels further from the source, the volume gets quieter because the energy of the vibrations spreads out.

Word bank: vibrations · medium · volume · pitch · ear canal · eardrum · particles

1. Nova taps a hollow log. Explain why this creates a sound using the word 'vibrations'. (2 marks)

2. If Nova moves further away from the sound, why does it become quieter? Use the idea of energy in your answer. (2 marks)

3. Sound needs a medium to travel through. Can sound travel through a vacuum (space where there are no particles)? Explain why or why not. (2 marks)

4. Max the monkey is playing a drum. How could he change the pitch of the sound the drum makes? (1 mark)

5. Trace the path of sound: Put these parts of the human ear in the correct order: Eardrum, Outer Ear, Brain, Ear Canal. (2 marks)

Draw: Draw a diagram showing a sound wave moving from a ringing bell towards an owl's ear. Label the 'vibrations' travelling through the air.



Extension challenge: Research how different materials affect sound. If you were building a soundproof room for Nova to study in, which materials would you choose and why?