

Nova's Night-time Sound Investigation

Learning objective: To understand how sounds are made, how they travel, and how they change.

Read the passage below carefully and answer the questions using full sentences where appropriate.

Nova the barn owl loves to stargaze, but she also uses her amazing hearing to explore the world. One quiet evening, Nova perched on a branch and tapped it with her talon. She noticed that the wood began to shake rapidly. This movement is called a vibration. Nova explained to her friend Bea the bee that these vibrations travel through the air as invisible sound waves.

When sound waves reach our ears, they cause our eardrums to vibrate, which our brains interpret as sound. Nova pointed out that sound does not just travel through air; it can move through solids and liquids too. If you tap a table, the sound travels through the wood to your ear. Nova also noticed that the faster an object vibrates, the higher the pitch of the sound becomes. A slow, gentle vibration makes a low, deep sound. As the sound wave travels further away from the source, it loses energy and becomes quieter. Nova loves learning how these patterns help her listen for scurrying creatures in the dark, proving that science is truly a wonderful symphony.

Word bank: vibration · medium · particles · pitch · volume · sound waves

1. What is the name for the rapid shaking movement that creates sound? (1 mark)

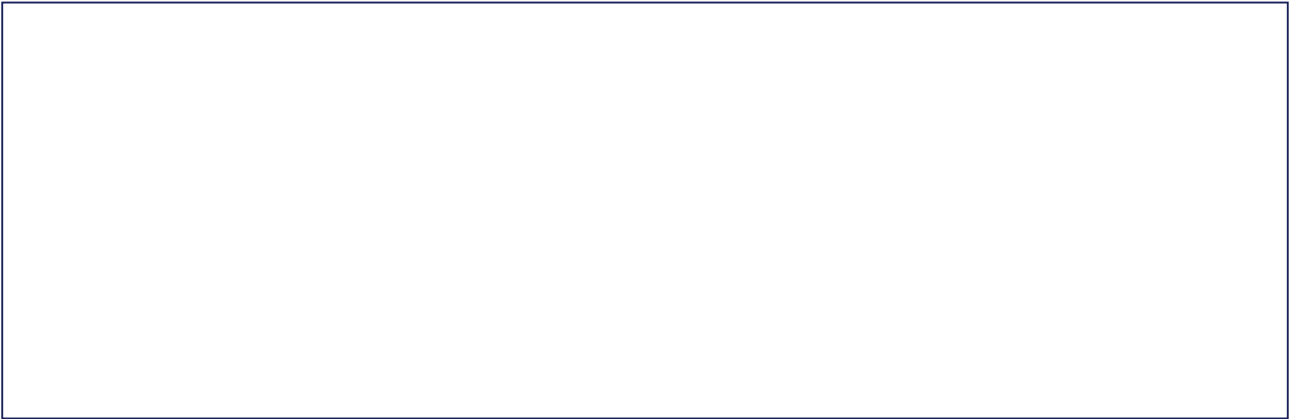
2. Apart from air, name two other states of matter that sound can travel through according to the passage. (2 marks)

3. Why does a sound become quieter the further away you move from the source? (2 marks)

4. Based on the text, what is the relationship between the speed of vibration and the pitch of a sound? (2 marks)

5. Nova says science is a 'symphony'. Why do you think she uses this word to describe the world around her? Explain your reasoning. (3 marks)

Draw: Draw a diagram showing a sound wave traveling from a vibrating drum towards a listener's ear. Label the 'vibration' and the 'sound waves'.



Extension challenge: Research how string instruments like a violin or guitar change the pitch of a note. Write two sentences explaining how the length or thickness of the string affects the sound.