

Nova's Night-time Sound Investigation

Learning objective: To understand how sound is produced by vibrations and how it travels to our ears.

Read the passage below carefully and answer the questions using full sentences. Remember to refer back to the text to support your ideas.

Nova the barn owl loves to explore the night sky, but she knows that sound is just as important as sight. Every sound we hear is caused by a vibration. When an object vibrates, it bumps into the air particles around it, creating a chain reaction. These invisible sound waves travel through the air, acting like ripples in a pond, until they reach our ears. Once they arrive, they cause our eardrums to vibrate, which our brains interpret as sound. Sound needs a medium—like air, water, or solid objects—to travel through. This is why you cannot hear anything in the vacuum of space, where there are no particles to carry the vibrations. Nova often listens to the rustle of leaves as she glides. She knows that the faster an object vibrates, the higher the pitch of the sound produced. Whether it is the low hoot of a great owl or the high-pitched chirp of a cricket, sound is simply energy in motion. By understanding how these waves move, we can learn how to protect our hearing and appreciate the noisy world around us.

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

1. According to the text, what is the primary cause of every sound that we hear? (2 marks)

2. Why is it impossible to hear sound in the vacuum of space? (2 marks)

3. What does the author mean when they compare sound waves to 'ripples in a pond'? (2 marks)

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

5. Why might it be helpful for an animal like Nova to understand how sound travels? Justify your answer. (2 marks)

Draw: Draw a diagram showing a vibrating bell creating sound waves that travel through the air towards an ear, labelling the 'vibrations' and 'sound waves'.



Extension challenge: Research how sound travels through different materials, such as water or wood, and write a short paragraph explaining which material you think would carry sound the fastest.