

Year 6 Science Assessment: The Science of Sound

Learning objective: To demonstrate understanding of how sound is produced, how it travels, and how we hear.

Read each question carefully. Use your scientific knowledge to provide clear and accurate answers. Ensure you use the correct terminology.

Nova the barn owl is perched in the old oak tree, observing the forest at night. She hears a faint rustle in the leaves from a distance, then a loud 'hoot' from a friend nearby. Max the monkey is nearby, tapping on a hollow log to create a rhythm. They are both exploring how sounds move through the air to reach their ears.

Word bank: vibration · medium · decibels · pitch · frequency · volume · ear canal · eardrum · amplitude · particle

1. Explain how sound is created. Use the word 'vibration' in your answer. (2 marks)

2. Max taps a log softly, then hits it very hard. Describe how this change affects the volume and the amplitude of the sound wave. (3 marks)

3. Sound travels through different states of matter. Does sound travel faster through air, water, or solid rock? Explain why. (3 marks)

4. Nova hears a high-pitched whistle and a low-pitched rumble. Describe the difference in the frequency of the sound waves for these two sounds. (3 marks)

5. Trace the path of a sound wave from the moment it enters the ear. Name at least three parts of the human ear involved in the process. (3 marks)

6. Design a fair test to investigate which material is the best at soundproofing a classroom. Include your independent variable, dependent variable, and one control variable. (6 marks)

7. Write a short paragraph (5 marks) explaining why we cannot hear sounds in the vacuum of space. Include what is needed for a sound wave to travel. (5 marks)

Draw: Draw a diagram of a sound wave. Label the 'peak' (crest) and the 'trough'.



Extension challenge: Total: /25