

Nova's Nocturnal Sound Safari

Learning objective: To identify how sounds are made, associate some sounds with something vibrating, and recognise that vibrations from sounds travel through a medium to the ear.

Join Nova the owl on a night-time expedition! Read the questions carefully and use your knowledge of acoustics to help Nova understand how the forest comes alive with sound. Each question is worth 1 mark.

Answer Key: 1. B (vibrations), 2. True, 3. True, 4. B (the air), 5. False, 6. Vibration, 7. C (a solid), 8. True, 9. Higher, 10. They travel through the air to our ears.

Word bank: vibration · medium · pitch · volume · sound waves · ear canal · eardrum · solid · liquid · gas

1. 1. Nova notices that when a guitar string is plucked, it makes a sound. What is this movement called? A) Stillness B) Vibration* C) Floating D) Melting (1 mark)

2. 2. True or False: Sound cannot travel through a vacuum (empty space) because it needs particles to bump into. (1 mark)

3. 3. True or False: As a sound travels further away from the source, the volume gets quieter. (1 mark)

4. 4. What acts as the medium for the hoot of an owl to travel to your ears? A) A vacuum B) The air* C) Sunlight D) Starlight (1 mark)

5. 5. True or False: Sound travels faster through air than it does through water. (1 mark)

6. 6. When you drum on a table, what is the 'source' of the sound called? (1 word) (1 mark)

7. 7. Which material would sound travel through the fastest? A) Air B) A fluffy pillow C) A metal pipe* D) A cloud (1 mark)

8. 8. True or False: Our eardrum vibrates when sound waves hit it. (1 mark)

9. 9. If you tighten a drum skin, will the pitch of the sound be higher or lower? (1 mark)

10. 10. Explain briefly: How does the sound of Nova's 'hoot' reach your ears? (1 mark)

Draw: Draw a diagram showing a sound wave travelling from a singing bird to a child's ear. Label the 'vibrations' in the air.



Extension challenge: Greater Depth Challenges: 1. Explain why you might hear a train coming through the tracks before you hear it through the air. 2. Compare and contrast how a flute and a drum create sound. 3. Justify why astronauts in space cannot speak to each other without radios. 4. What might happen to our ability to hear if our eardrums were made of a different material, such as thick rubber? 5. If you were designing a quiet room, which materials would you use to stop sound reflecting? 6. Investigate and describe the relationship between the length of a vibrating object and the pitch it produces.