

## Year 4 Science Assessment: The Science of Sound

*Learning objective: To identify how sounds are made, how they travel, and how we hear them.*

Read each question carefully. Answer in full sentences where required. Use the word bank to help you with your spelling.

Nova the owl is out in the forest at night. She hears the rustle of leaves, the hoot of her friends, and the quiet flowing of a nearby stream. She knows that every sound she hears starts with a movement that sends invisible waves through the air.

*Word bank: vibration · particles · pitch · volume · ear canal · eardrum · amplitude · medium · solid · liquid · gas*

**1. What is the scientific name for the rapid back-and-forth movement that creates a sound? (1 mark)**

**2. Nova taps on a hollow tree trunk. Explain why the sound is louder when she taps harder. (2 marks)**

---

**3. Sound needs to travel through something to reach our ears. Name two different states of matter that sound can travel through. (2 marks)**

---

**4. Max the monkey is playing a drum. He notices that when he hits the drum skin, it creates a lower sound than when he uses a smaller, tighter drum. Explain how the size or tension of an object affects its pitch. (3 marks)**

---

---

**5. Describe the journey of a sound wave from the moment it enters the outer ear until it reaches the eardrum. (4 marks)**

---

---

---

**6. If you are standing 100 metres away from a friend who is shouting, why does the sound get quieter the further away you walk? (3 marks)**

---

---

**7. Imagine you are an engineer helping Pip the caterpillar design a quiet home. Write a short report (5 sentences) explaining which materials would be best to stop sound from travelling into his room, and why those materials work well. (5 marks)**

---

---

---

---

**8. Does sound travel faster through air or through a solid metal pipe? Explain your choice. (3 marks)**

---

**Draw: Draw a diagram showing how a guitar string vibrates to make a sound. Use arrows to show the movement of the string.**



*Extension challenge: Total: /25. Challenge: Research how animals like bats use echoes to 'see' in the dark. Write one sentence explaining this process.*