

Y4 Volume Distance

KS2 Y4 Science · Follows the national curriculum

Name _____ Class _____ Date _____

1. Worked example

Why does hitting a drum harder make a louder sound?

Step 1 · What happens to the drum skin when you hit harder?

It vibrates more strongly — it moves further up and down

Step 2 · What do stronger vibrations do?

They make a louder sound

Answer: A harder hit makes stronger vibrations, and stronger vibrations make a louder sound.

Check: Volume depends on the strength of the vibrations.

2. Now try one with the steps

Readings from a buzzer: 1 m = 80 dB, 4 m = 68 dB, 16 m = 56 dB. What is the pattern?

Step 1 · What happens to the distance?

Step 2 · What happens to the reading?

Answer:

3. Practice

Have a go at each one. There is space underneath to work it out.

1. What does 'volume' mean when we talk about sound?

2. If you pluck a guitar string harder, is the sound louder or quieter?

3. Stronger vibrations make a _____ sound.

4. What happens to a sound walk away from it?

5. What unit is sound level measured in?

6. Name a piece of equipment that can measure sound level.

7. Why do people working with loud machines wear ear defenders?

8. Are soft materials like foam good or bad at muffling sound?

9. A reading was 80 dB at 1 m and 62 dB at 8 m. How many decibels quieter was it at 8 m?

10. Readings through materials: none 80 dB, newspaper 72 dB, wool 58 dB, bubble wrap 66 dB.
Which muffled the sound best?

11. Using question 10, put the materials in order from best to worst at muffling.

12. In a muffling test, why should the alarm be at the same volume each time?

13. Explain why a sound gets fainter the further it travels.

14. Is a loud sound always high-pitched? Explain.

4. Before you hand it in

Loud sounds are high and quiet sounds are low.

Volume = strength of vibrations. Pitch = how high or low.

A sound gets quieter far away because it slows down.

It gets fainter because the vibrations spread out and get weaker.

Hard, shiny materials are best for blocking sound.

Soft, thick materials such, wool and fabric are best at muffling.

Changing the distance AND the material in one test.

Keep the distance the same when comparing materials.