

How sound travels and how we hear it

Grade 6 science (Year 7 · Class 6) · Lab answers

The sample data show that the frequency rises as the air column gets shorter, and that the relationship is a curve, not a straight line. Compare your readings with these answers and explain any differences.

Level: Grade 6 science (Year 7 · Class 6) · **Curriculum:** MS-PS4-1

Question 1 Pattern

The frequency **increases** as the air column gets shorter, so the pitch gets higher.

Question 2 Highest pitch

The shortest column, **4 cm**, gave the highest pitch at **1750 Hz**.

Question 3 Comparing two columns

$960 \div 410 = 2.34$, so the frequency is about **2.3 times greater**.

Question 4 Graph

The graph is a **curve that falls steeply and then flattens**, so frequency is not proportional to length: it rises faster at short lengths.

Question 5 Prediction

Below 410 Hz, because a longer column gives a lower pitch, so the frequency would be **lower than 410 Hz** (about 350 Hz).

Question 6 What vibrates

The **air inside the cylinder** vibrates. Keep the same cylinder and the same way of blowing (distance and strength).

Question 7 Uncertainty

$10 \div 410 \times 100 = 2.4 \%$; $10 \div 1750 \times 100 = 0.57 \%$. The high-frequency reading has a smaller percentage uncertainty.