

Vibration Sound Test

Plan a fair test to explore how vibrations make sound.

S4P2.a "Plan and carry out an investigation utilizing everyday objects to produce sound and predict the effects of changing the strength or speed of vibrations."

NAME _____

DATE _____

1 READ AND MARK _____ Read it twice

YOUR JOB Underline the words that tell what Maya changed, and circle the words that tell what she kept the same. These details show how she made her sound test fair.

Maya Tests a Rubber Band

- ① Sound begins when an object vibrates, or moves back and forth quickly. A rubber band can make this easy to observe. When you pluck a stretched rubber band, it shakes the air around it. The moving air reaches your ears as sound. A stronger pluck usually makes a bigger vibration and a louder sound than a gentle pluck.
- ② To investigate, Maya stretched one rubber band around an empty tissue box. She kept the same band, box, and stretching distance each time. First, she gave the band a gentle pluck. Next, she gave it a stronger pluck. She listened from the same place and asked a partner to listen too. This fair test changed only the strength of the pluck.
- ③ Maya predicted the stronger pluck would produce a louder sound because the band would vibrate with more strength. Her results matched her prediction. She also noticed that the band moved too fast for her eyes to count each vibration. Changing how tightly the band was stretched could change its speed of vibration and make a different pitch, or how high or low a sound seems.

2 ANSWER WITH EVIDENCE _____ Use the passage

1 How did Maya make the rubber band produce sound?

2 What was the one change Maya made in her fair test?

3 Name three things Maya kept the same during her test.

4 What did Maya predict would happen when she used a stronger pluck, and why?

3 YOUR TURN _____ Your own words

Use a plastic ruler and a desk edge to plan and carry out a fair sound test. Write 5 sentences: explain how you make sound, name the one change, name two things kept the same, predict the sound result, and report what happened.

PART 1 • READ AND MARK

Underline the words that tell what Maya changed, and circle the words that tell what she kept the same. These details show how she made her sound test fair. Accept any marking that follows this job and points at the right text.

PART 2 • ANSWERS

#	QUESTION	ANSWER
1	How did Maya make the rubber band produce sound?	She stretched a rubber band around an empty tissue box and plucked it.
2	What was the one change Maya made in her fair test?	She changed the strength of the pluck, from gentle to stronger.
3	Name three things Maya kept the same during her test.	She kept the same rubber band, tissue box, and stretching distance.
4	What did Maya predict would happen when she used a stronger pluck, and why?	She predicted a louder sound because the rubber band would vibrate with more strength.

PART 3 • YOUR TURN (SAMPLE ANSWER)

I held the same ruler over the same desk edge and flicked its free end to make sound. I changed the strength of each flick, using a gentle flick and then a stronger flick. I kept the length of ruler hanging over the edge and the place where I flicked it the same. I predicted that the stronger flick would make stronger vibrations and a louder sound. The stronger flick made a louder sound in my test.

Accept equivalent descriptions of plucking or flicking an object to make it vibrate. For the open task, accept any safe everyday-object investigation that changes one factor, controls other factors, includes a prediction, and reports an observation.