Nova’s Night-time Sound Lab

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

Use the drawing space provided to create a scientific diagram showing how a guitar string creates sound. Follow the steps below to complete your diagram, ensuring you include all the labels from the word bank.

Draw: Draw a clear, scientific diagram of a guitar string being plucked. Style: Clean, labelled technical drawing. Include: A vibrating string, concentric 'ripples' in the air to show sound waves, and a human ear positioned to catch the waves. Ensure the perspective shows the sound travelling from the source (the string) through the air to the receiver (the ear).

Label words: Vibrations · Sound waves · Outer ear · Guitar string · Medium (air)

Steps:

1. Step 1: Draw a guitar string being plucked. Use small, blurred lines to show it moving back and forth rapidly. Label this as 'Vibrations'.
2. Step 2: Draw a series of expanding curved lines moving away from the string to represent 'Sound waves'. Which medium are these waves travelling through to reach the listener?
3. Step 3: Draw an ear on the right side of your page. Label the visible part as the 'Outer ear'. Explain briefly how the sound waves enter the ear.

4. Step 4: If you placed your hand on the guitar body while it was being played, what would you feel? Why does this happen?

5. Step 5: If you played this guitar in a room where all the air had been removed (a vacuum), would you hear the sound? Explain why based on how sound travels.