

SuperScience

Name: _____ Date: _____

Rubber Band Guitar

In this activity, you will build an instrument and use it to test how different materials produce different sounds.

Observe: Different types of materials produce different sound waves.

Predict: How will the thickness of a guitar's strings affect the sound it produces?

Materials (per person): 1 empty tissue box • scissors
• 3 rubber bands of different thicknesses • pencil and paper
• unsharpened pencil • piece of paper

Procedure:

1. Use the scissors to remove any plastic around the hole in your tissue box.
2. Study the three rubber bands you have. What is the difference between them? Record your observations.
3. Carefully wrap the rubber bands around the length of the tissue box. Spread them apart so that they are evenly spaced over the hole in the box.
4. Slide the unsharpened pencil under the rubber bands so that it is perpendicular to them. Push it to one side so that it's just past the hole in the box. The rubber bands should hold the pencil in place.
5. Pluck the strings one at a time. How do the sounds they make differ? Record your observations.
6. Shift the pencil farther away from the hole in the box and try the strings again. How does the sound change?
7. Fold the piece of paper in half and slide it over the hole between the strings and the box. Try plucking the strings again. How is the sound different?

Results:

Which string produced the highest pitch? Which produced the lowest pitch?

Conclusions:

1. Use the word *wavelength* to describe how the thickness of the rubber bands affected the sounds they produced.
2. How did moving the pencil affect the sounds the rubber bands produced? Why do you think this happened?