

SOUND EFFECTS

Principles of Sound



Elementary Activity

Activity Overview

In this activity, students will learn about the basic principles of sound and how to amplify and reduce sound volume. Students will construct a string instrument to amplify sound and then find a solution to reduce the volume.

STEPS:

- 1 Stretch a rubber band between your thumb and forefinger, then pluck it. Can you hear the sound it makes? How loud is it? Does the sound change when you stretch the rubber band tighter?
- 2 Stretch 3-5 rubber bands of different sizes and thickness over the opening of the container, making sure they are evenly spaced. Tape the rubber bands to the side and/or bottom of the container so they stay on.
- 3 Pluck the rubber bands. Is the sound louder than when you held it on your fingers? Do the different rubber bands make different sounds? Why do you think the sounds are different?
- 4 Put your muffling materials inside the container one at a time. How does each material change the sound of the rubber bands?



ASK:

- How do the added materials affect the sound?
- How can you change the design to make the sound louder or quieter?
- What sounds would you want to make quieter? Why would you want to make these sounds quieter?

Materials:

- Rubber bands of varying sizes and thickness
- Disposable plastic cups, a bucket, or other container
- Tape
- Muffling Materials (i.e. paper, fabric, towels, etc.)



Figure A. String instrument example with plastic cup.



Connections

Gas engines in cars make a LOT of noise! When hot gas exiting the engine meets the cooler outside air, it creates pulses of pressure and vibrations that we hear as loud noise.

Mufflers make cars quieter by absorbing and redirecting the vibrations from the engine. Different kinds of mufflers can change the way your car sounds, too!