



# Tongue Depressor Harmonica

**Suggested Grades:** 3-8

## Activity Overview

In this activity, you will build a harmonica using tongue depressors (or popsicle sticks) and rubber bands. You will explore how vibrations create noise.

**Time:** 15 minutes

### Materials

- 2 Tongue depressors (craft sticks will also work)
- 1 Thick rubber band
- 2 Thin rubber bands
- Straw
- Scissors

## Steps

1. Cut two pieces off the straw so that they are each about 1 inch (2.5 centimeters) long as shown in Figure 1.



Figure 1. Gather supplies and cut two 1 inch long pieces off the straw

2. Stretch the thick rubber band lengthwise across one of the tongue depressors as shown in Figure 2.



Figure 2. Tongue depressor with a thick rubber band stretched lengthwise across it

3. About one inch from the end of the tongue depressor, place one piece of the straw between the rubber band and the tongue depressor as shown in Figure 3.



*Figure 3. Place one piece of the straw between the rubber band and the tongue depressor*

4. About one inch from the other end of the tongue depressor, place the second piece of the straw on top of the rubber band. Place the second tongue depressor on top of the first as shown in Figure 4.



*Figure 4. Place the second piece of the straw near the other end and then put the second tongue depressor on top*

5. To hold the tongue depressors together, wrap one of the thin rubber band around two tongue depressors between one of the straw pieces and the end of the tongue depressor as shown in Figure 5.



*Figure 5. Wrap one of the thin rubber band around the tongue depressors to hold them together*

6. Repeat step 5 with the other thin rubber band near the other piece of the straw. The completed harmonica should look like Figure 6.



*Figure 6. The completed harmonica*

7. Put the harmonica up to your mouth and blow so that the air moves between the two tongue depressors. You should hear a buzzing noise!

8. Experiment with the harmonica to see how changes affect the noise it makes. Try moving the straw pieces closer together or further apart. Or, try blowing harder or softer.
9. The harmonica can also be made using craft sticks instead of tongue depressors as shown in Figure 7.



*Figure 7. The harmonica can be made using craft sticks instead of tongue depressors*

## **Background Information**

**Sounds are vibrations:** All sounds are produced by vibrating objects. One of the reasons there are so many different sounds is that there is an endless variety of materials that can vibrate and produce them. If these vibrations are combined together, it can increase the loudness of the noise being created.

NASA engineers are working to make aircraft quieter to help reduce noise pollutions. Understanding how sound is created allows them to design planes which operate at lower noise levels. This is beneficial to both people and wildlife.