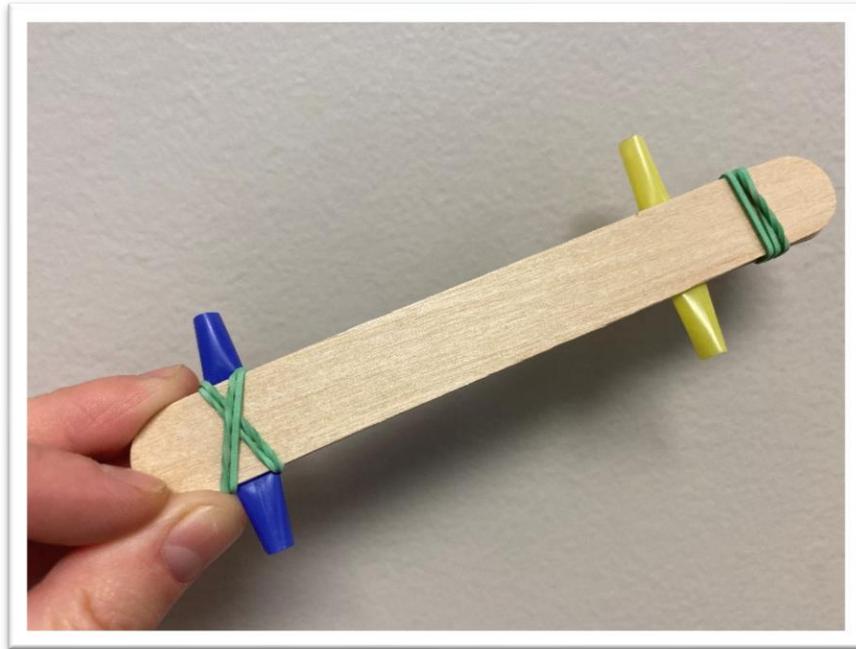


## **Kooky Kazoos**



### **Description**

Use energy to produce sound from your homemade kazoo! Explore how this tool produces vibrations that travel through the air and how your ears can interpret this energy as sound.

### **Background**

#### **Materials**

- 2 large craftsticks
- 1 thick rubber bands
- 2 thin rubber bands
- 1 straw
- scissors

#### **Procedure**

1. Stretch your thick rubber band length wise across one of your large craft sticks.
2. Cut 2, 2-inch pieces from your straw. About 1 inch from the end, place 1 piece of straw perpendicular (across) to the craft stick underneath the rubber band. The other piece will be placed perpendicular to the craft stick on top of the rubber band at the opposite end. Be sure to place the straw pieces about one inch inward from each end.

3. Place the other craft stick on top of the straws. Using one thin rubber band, wrap it around the end where the straw is lying on top of the thick rubber band. (Make an “X” pattern. See example photo.)
4. With a second thin rubber band, wrap the opposite end. (Do not use an “X” pattern here.) Make sure you wrap the rubber band until the straws and craft sticks are secure. Your kazoo should look like a sandwich with the two straws sticking out on either side.
5. Blow through the center of the kazoo. Experiment creating different sounds by pushing down on the craft sticks and releasing them. Try to create different pitches by sliding the straw positioned beneath the thick rubber band!

## **What’s going on?**

Humming and blowing between the craft sticks of your kazoo causes the membrane (large rubber band) to vibrate. These vibrations disturb the molecules in the air around the kazoo creating sound waves that travel through the air to your ears. Your brain interprets these sound waves in your ears as the music from the instrument!

The reason why you place one straw underneath the rubber band and the other on top of the rubber band is to allow the thick rubber band to have slight variations of space between the rubber band and the craft stick. That way, when you press down on the top craft stick, you can create a slightly different pitch (frequency) when you blow.

By sliding the free straw piece along the length of the kazoo, you can achieve shorter and longer wavelengths of sound. Shorter wavelengths produce higher pitches while longer wavelengths produce lower pitches of sound.

In many ways, your instrument is both a harmonica and kazoo mixed together!

## **Questions**

- How does the sound change when you squeeze the craftsticks together with your lips?
- What happens to the pitch of the sound when you slide the free straw piece along the length of the craft sticks?