

Cardboard Kazoo

National Capital

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SUMMARY

Project Objective	Make your own Kazoo showcase how vibrations can produce sound waves when they vibrate a membrane.	
Project Supplies	• Cardboard Tube • Wax Paper	• Rubber Bands • Scissors

Introduction:

Do you love music? Have you ever wanted to make your own musical instrument? Using a few household materials, you can make your very own kazoo! Kazoos are membranophones, which produce sound by vibrating a stretched membrane. A membrane is the taut piece of wax paper that vibrates rapidly with your voice, and produces the kazoo's nasal buzzing sound. With this homemade instrument, the vibrations from your voice wiggle the wax paper of the kazoo, creating a buzzing sound.

Instructions:

1. Poke a hole in the side of the cardboard tube, about 2 inches from one of the ends.
2. Cut a square of wax paper that is 1 or 2 inches bigger than the diameter of the tube.
 - a. The wax paper should be large enough to cover the whole end of the tube with extra to be held down with a rubber band
3. Wrap the wax paper around the end of the tube where you poked the hole and secure it tightly with a rubber band.
4. Decorate the tube with markers (optional).
5. Bring the open end of the tube to your mouth.
6. Hum, sing, and talk into it!

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More:

If you want to explore your homemade kazoo even more, try blowing into it instead of humming and notice how the sound changes. You can also experiment with different materials in place of the wax paper—such as foil, tissue paper, or plastic wrap—to see how each one affects the vibration and tone. Another fun test is to make kazooos with longer or shorter tubes and compare the sounds they produce. By changing the way you play it and the materials you use, you can discover how each part of the kazoo helps create its unique buzzing sound.

What's Happening?

When you hum into your kazoo, your voice makes the air inside the tube vibrate. These vibrations cause the wax paper to buzz and shake, which creates the kazoo's unique buzzing sound. The wax paper acts like a tiny drumhead that changes the vibration of your voice into a new, louder, and buzzier sound. If you change the material, like switching to foil or plastic wrap, the way it vibrates will change too, which affects the sound you hear. The length of the tube also matters: a longer tube gives the sound more space to travel and can make the pitch lower, while a shorter tube makes the sound higher. By experimenting with the tube and the vibrating material, you're discovering how different objects change the way sound waves move and how musical instruments create sound!