

Exploring Sound with Kazoos

Description

By humming into a homemade kazoo, your child will see and feel how sound waves cause objects to vibrate and how vibration produces sound.

Instructions

1. Paint the cardboard tube, if desired, and let it dry.
 2. Cover one end of the cardboard tube with a square of wax paper. Secure it in place using a rubber band.
 3. Use a sharp pencil or other pointed object to poke a hole in the side of the tube.
 4. Hold the tube to your mouth and sing out a tune by saying, "Dooo dooo dooo" over and over to show how it works.
 5. Ask your child to try it, and then tell you what they experienced.
 6. Ask them to experiment with their kazoo, making loud and soft sounds, as well as high notes and low notes. Ask how those changes affect what they hear and feel.
 7. Explain that the wax paper is vibrating from the sound of your child's voice. When objects vibrate, they create sound. And in turn, sound creates vibrations.
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Materials Needed

- A cardboard tube (empty toilet paper or paper towel roll)
- Wax paper
- A rubber band
- A sharp pencil or other pointed object
- (Optional) Paint and paintbrush

Why is this a great thing to do?

By following directions to create and use a kazoo, your child will improve self-control and brain function, while learning about the science of acoustics.

Introduces children to acoustics.

From the time they discover their voices as babies, children have a natural affinity for sound. This activity introduces them to the key concept that sound and vibrations are intertwined. Mastering this concept allows your child to learn more about the behavior of sound waves.

Enhances brain function.

Musical activities—such as singing, playing an instrument, or just listening to the radio—stimulate brain activity. Increased brain activity leads to new neural connections and improved brain structure. This allows your child to learn new tasks faster and improves their comprehension.

Promotes self-control.

The kazoo must be used in the correct way to produce any sound. Following the instructions strengthens your child's ability to resist impulsive behavior.

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Make STEM Connections

Help your child develop a more in-depth understanding that things vibrate when they make sound, and that sound can also make things vibrate.

Feel the sound.

Turn a radio or television on and increase the volume. Have your child lay their hand on the speaker. Can they feel the vibrations from the sound? Walk around your house, finding things that make sound, such as instruments, a purring cat, or noisy toys. Have your child close their eyes and try to feel the sound vibrations in each. How loud does a sound have to be for them to feel the vibrations?

Watch a bat in flight.

Bats are nocturnal animals, which means they are awake during the night. They like to eat insects, but seeing a tiny bug in the dark is difficult. So bats use echolocation to send sound waves out from their nose and mouth. The bats hear these waves bounce off objects, and that lets them know what's in front of them. This helps them catch their food and find their way in the dark. Dolphins, whales, and some birds also use echolocation. Ask your child to think of ways this skill would be helpful for humans.

Make a sound recording.

What do sound waves look like? Find an app or website to make an audio recording that will show a visual representation of sound waves. Have your child make very loud sounds and very quiet sounds. How do the waves change? Tell your child to try talking like a baby—then talk like a giant. Do the waves change?

Next Generation Science Standards (NGSS) Correlation

1-PS4-1: Plan and carry out investigations to show that vibrating materials can make sound and that sound can make materials vibrate.

By crafting a kazoo from cardboard and wax paper and singing through the kazoo, your child will observe that the sound of their voice causes the wax paper to vibrate—showing that sound causes vibration and vibration causes sound. Expand this activity by placing a clear cup of water on a speaker. Play your child's favorite music and turn the volume up until the water in the cup starts to ripple from the vibration of the sound.

Talking Tips

"What do you hear when you use your kazoo?"

"Do you feel anything when you play your kazoo?"

"How are the sounds being made?"

"Sound is made with waves that we cannot see. In your kazoo, the sound waves from your voice are hitting the wax paper and making it vibrate."

"When things vibrate, they make sound. Sound can also make things vibrate."

Tips & Extensions

Other ideas for decorating the kazoo include covering the tube with washi tape, contact paper, or construction paper.

If your child struggles to produce sound with the kazoo, demonstrate the sound they need to make by encircling your lips with thumb and forefinger so they can hear and see what you are doing. Ask them to mirror you, and then have them do the same thing with the kazoo around their lips instead of their fingers.

Try using different sized tubes. Does it change the sound?

Try adding more holes to the side of the tube. Does that change the sound?

Change the type of material that covers the end of the tube. Plastic wrap, gift wrap, foil, and parchment paper are some suggestions. What happens to the sound with each of these?