



Try This at Home Science: Popsicle Stick Harmonica

Activity Overview:

Learn about sound by making your own harmonica.

Materials:

- Paper
- Scissors
- Writing utensil
- Two popsicle sticks or tongue depressors
- Two rubber bands
- 1 plastic drinking straw or toothpick



Try this!

1. Place the popsicle stick on the piece of paper and trace the outline.
2. Cut out your outline and put it aside.
3. Cut a toothpick in half, or cut two $\frac{1}{2}$ inch pieces of straw and set aside.
4. Place one popsicle stick in front of you.
5. Take one piece of toothpick or straw and lay it across the popsicle stick, near the end.
6. Lay the precut sheet of paper on across the straw and popsicle stick.
7. Place the other piece of straw or toothpick across the paper on the opposite end.
8. Lay the second popsicle stick over top like bread on a sandwich.
9. Wrap the rubber bands around both ends of the harmonica to keep all the layers together.
10. Hold the harmonica at both ends, gently blow air through the popsicle sticks, and listen to the sounds! Blow harder or softer and observe what you hear.

What's happening?

When you blow into the harmonica, you make the strip of paper vibrate and that vibration produces sound waves. Sound is a vibration which will travel until it hits something where it can either bounce back or be absorbed. Every time we hear a sound our ears are collecting the vibrations of the sound waves and once the vibrations hit our ear drum our brain then interprets the vibrations as different sounds. In this case we are feeling the vibrations made by the sound of the harmonica.

All instruments use this principle of vibration to create sound. When air is blown across the instrument's reed or string, vibrations produce different frequencies of sound which equate to different musical notes!

Now try...

- Move the straws or toothpicks closer together, secure with rubber bands, and play again. What do you notice? Are the notes higher or lower than before?
- If your paper reed rips, you can easily replace it with a new piece. Try using different materials for your reed, like tin foil or plastic, to lay between the popsicle sticks to achieve different types of sounds.