



PopStick Harmonica

Make a fun musical instrument using just a few simple materials.

Materials

- 2 popsticks (large is better)
- 2 small rubber bands
- 1 straw
- 1 wide rubber band
- Scissors

Instructions

1. Cut two pieces of straw about 4cm long each.
2. Stretch the wide rubber band over one of the popsticks.
3. Slip one piece of straw under the rubber band, a few centimetres from one end.
4. Place the other popstick on top and wrap one of the small rubber bands around the end where the straw is. The rubber band must be outside the straw.
5. Place the other piece of straw between the two popsticks a few centimetres from the other end, but this time on top of the wide rubber band. Secure with a small rubber band.
6. To play your harmonica, put the popsticks in your mouth (between the straws) and blow. The large rubber band vibrates between the popsticks to create the sound. (You might need to squeeze the popsticks together a little bit.)

Further investigation...

- What happens to the pitch if you slide the straws closer together or further apart?
- What happens if you blow harder or softer? How does the sound change?
- Try making another harmonica using larger or smaller popsticks. How does this one sound different from the first one you made?



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What's happening?

When you blow through the harmonica, the rubber band vibrates and you hear a sound.

When the straws are closer together a smaller length of the rubber band is vibrating. This makes the rubber band vibrate faster, and you hear a higher pitch.

When the straws are further apart, more of the rubber band can vibrate. This slower vibration allows us to hear a lower pitch.

How fast or slow something is vibrating is called the **frequency**.

Check your understanding

1. Which part of the harmonica is vibrating to make the sound?
2. How does moving the straws change the sound of the harmonica? How would you describe the sound?
3. Explain your understanding of these scientific terms: vibration, pitch, frequency