

## DAY 16

# Make some noise

Today you'll perform two simple experiments to learn about sound.

### You will need

- String, elastic bands, spacers, today's box
- Metal spoon

### Here's how

#### Experiment 1

1. Knot the middle of the white string securely around the handle of the spoon. Ask an adult for help if you need it.
2. Wrap one end of the string around the tip of your left pointer finger and the other end around your right one. Stand in front of a chair or a table, and let the spoon swing against it.
3. Next, place your wrapped fingers in your ear, and let the spoon swing against the surface again.

#### Experiment 2

1. Punch the perforated circle out of the box, fold the box together, and close it up again.
2. Stretch the elastic bands around the box and pull them up over the spacers as shown below. Pluck on the rubber bands. Move the spacers and try it again.



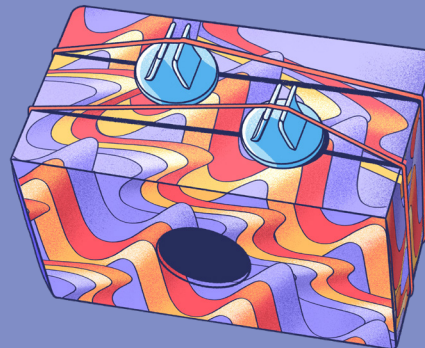
Scan this QR code with a smartphone or tablet with Internet connection to access these directions digitally.



### CHECK IT OUT!

You can see how the elastics vibrate when you pluck them. The vibration is transferred to the air, causing the air to compress and then decompress. Then the movement of air spreads out through its surroundings as a pressure wave. This is the sound that is picked up by your ears and translated to your brain as a nerve impulse. Sound spreads through different materials at different speeds. Through air, the speed of sound is about 1236 kilometers per second. Through your bones, it's about ten times faster.

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### WHAT'S HAPPENING?

In the first experiment, you only heard a soft clinking at first, but when you put your fingers in your ears, the soft clinking became a loud chime. The vibrations from the spoon travel faster through the solid string and reach your ears with more energy. In the second experiment, you made the elastics vibrate. The longer the length of elastic that can vibrate freely (without touching the box), the slower the vibration, and the lower the pitch.

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