

Toot Zoom Pop Bang



The Science of Sound

Playful experiments to learn about how sound is made, and how we hear

How is sound made?

Sound is all around us, but how is it made? Sound is made by vibrations. When something vibrates it moves back and forth incredibly fast, sometimes too fast for our eyes to see.

Close your eyes. What can you hear?

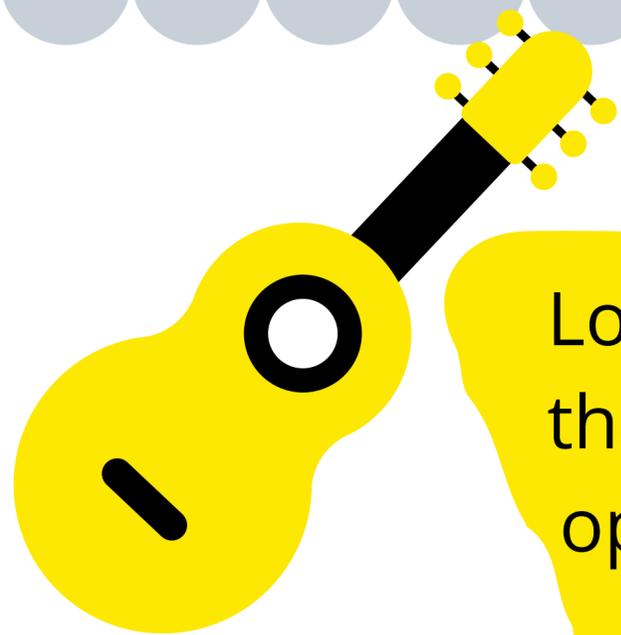


When a bell rings, the metal of the bell vibrates which makes a sound. When a musician plays a guitar, the strings vibrate, and the body of the guitar makes the sound louder (this is called **amplifying!**).

The stronger the vibrations, the louder the sound.

Make a kitchen guitar!

Loop several elastic bands around a bowl, so that the bands are stretched across the bowl opening. Strum the bands with your fingers. The bands vibrate and make a sound.

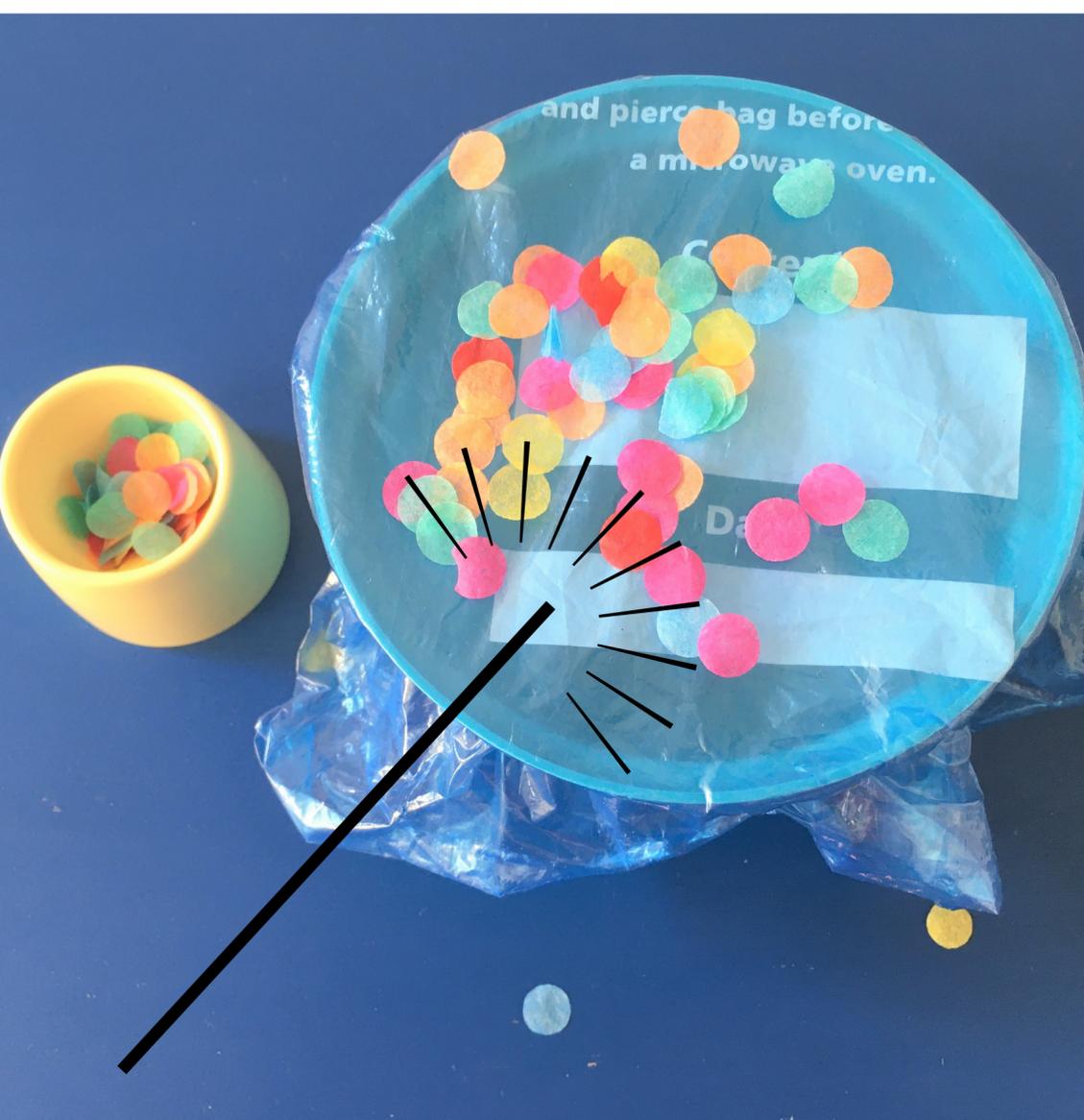


Make a drum!



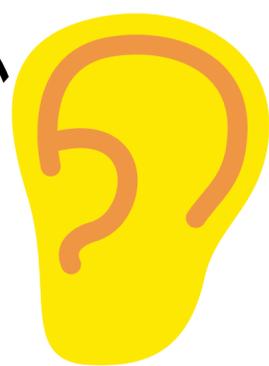
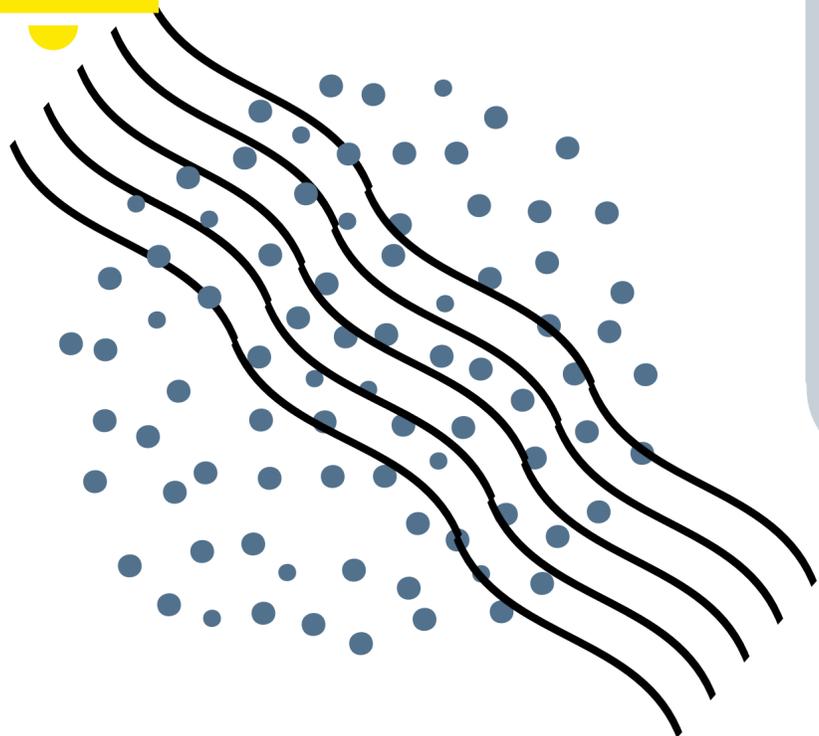
You will need:

- A bowl
- A balloon or plastic bag
- An elastic band
- A 'drum stick' (we used a fork)
- Materials for your experiments (we tried rice, popping corn, and confetti)



Pull your balloon or bag over the top of your bowl, and secure with an elastic band. It will need to be pulled taught. This is your drum skin. Place your experiments on top of the drum skin and tap with your drum stick. See how the different materials bounce. The drum stick is making vibrations travel across the drum skin, causing the materials to bounce.

How do we hear?



The air around us is made up of tiny particles. When something makes a sound the vibrations made cause the air particles around it to vibrate. These make the next air particles vibrate and so on. This is called a sound wave, which makes the sound travel to our ears.

Make your own sound wave!

Make a wave with friends or family. Stand in a line holding hands with the person next to you. Starting with the person on the end, wiggle your arms, 'passing' the wiggle to the next person, and then the next.

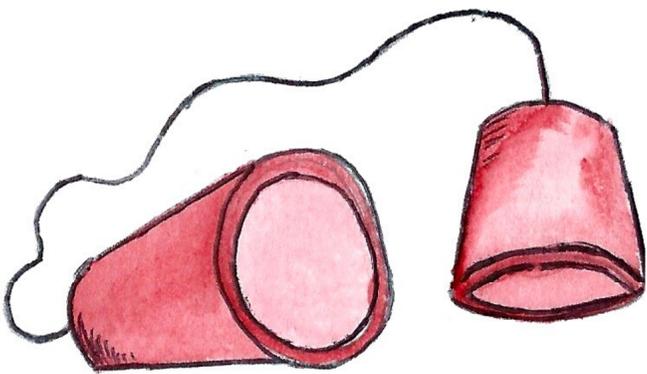
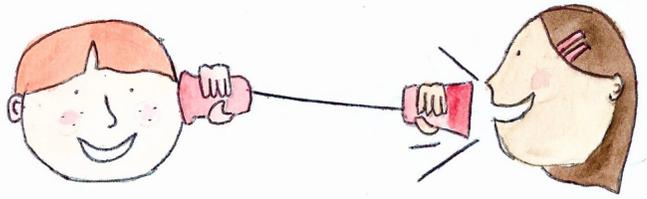
If you have them, play with dominoes, making a long line of dominoes standing up and spaced slightly apart. Push the end domino over and watch the movement travel across the rest of the line.

Sound experiments!



Make a call on a cup and string phone!

Pierce a hole in the bottom of two paper/plastic cups. Thread one end of a piece of string through the bottom of one of the cups, tying a knot inside the cup. Thread the other end of the string inside the second cup and repeat. Hold one of the cups and give the other to a friend. Walk slowly apart until the string is straight and tight. Talk into your cup while your partner places theirs next to their ear to listen.



Make a water xylophone!

Ask your adult to help you arrange different drinking glasses of different sizes in a line. Fill each glass with a different amount of water. Gently tap the edge of each glass with a spoon.

Do they sound different? Experiment with different amounts of water in each glass. Can you play a tune?

