



Musical coat hangers

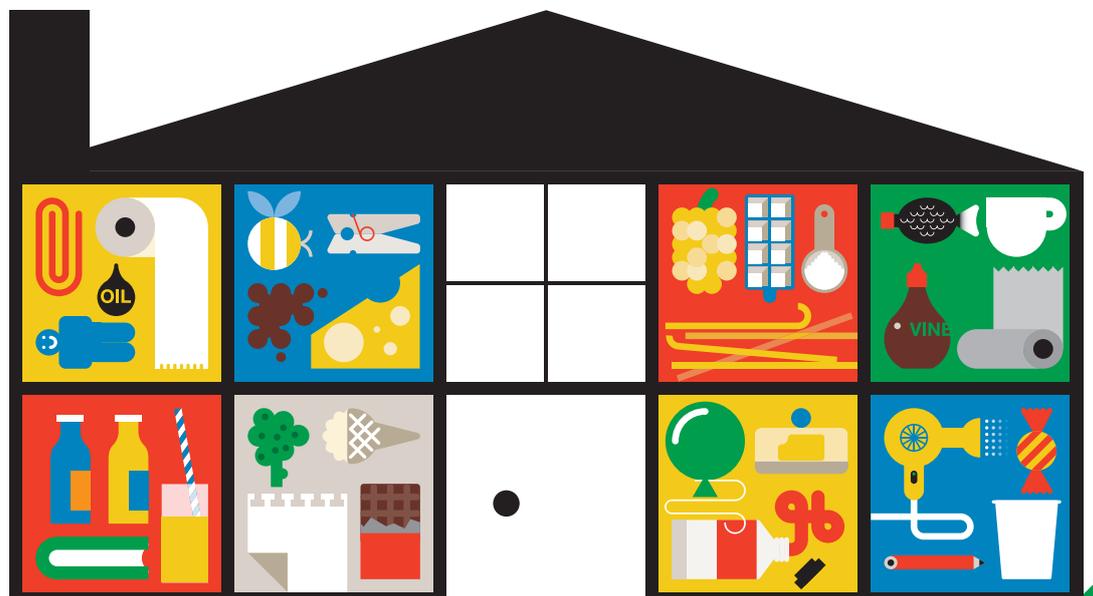
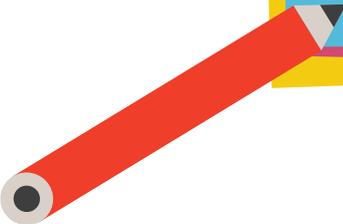


The activity

Make a surprising sound device from a coat hanger.

ExpeRiment to see what sort of things affect the sounds you hear.

Learn about how sounds are made and how sound travels differently through different materials.





What you'll need

- Metal coat hanger
- String (Butcher's string works best)
- Optional: Other types of hanger (plastic, wooden) and other types of string (nylon, wool, cotton thread etc)

What to do

Cut two pieces of string, between 50cm and 75cm long. Tie one piece of string to each corner of a coat hanger. Holding the strings, bash the hanger against a chair or table and listen to the sound it makes.

Next, loop the end of one string around one of your index fingers, and loop the other string around the other index finger. Put one finger in each ear and hit the hanger again. You should hear a dramatically different sound.

Try tying the string to hangers made out of different materials, or other objects, and repeating the experiment. Try doing the activity with different types of string.

Questions to ask children

Before the activity: what do you think you'll hear when you put your fingers in your ears?

What do you think will happen if you hit the hanger harder against the table?

What do you think will happen if we use a different hanger? Why?

What do you think will happen if we use a different type of string? Why?

What else could we change? (The length of the string, the type of string, the type of thing we hit the hanger with etc)



The science

Being safe

Take care when putting fingers in your ears - they do not need to be jammed in for the experiment, simply placed inside.

This activity reveals some important facts about the nature of sound.

Sounds are made when objects vibrate. It might not always look like it, but if something is making a sound, some part of it must be vibrating.

Usually, we hear sounds because the vibration of the object makes the air around it vibrate, and those vibrations travel through the air and make our ear drums vibrate.

When we listen to the coat hanger through the string tied to it, the vibrations travel to our ears through the string, not through air. This is why it sounds different.

Sound travels differently through solids, liquids and gases.

The string is a solid, so the sound we hear through it is different to the sound we hear when the vibrations of the hanger travel to our ears through the air (a gas).

Going Further

You could try out different shaped objects made from the same material to see whether the shape of an object affects the sound it makes when it is hit.

You could try changing the length of the string. How far can you make a sound travel through the string?

You could try another ExpeRimental activity to do with sound - Singing wine glasses: <http://bit.ly/1nEo4Gw>

You can learn more about sound here:
<http://bit.ly/SoundScience>