

Science

Hands on!

Choose to do 1 or more of the following activities.

You may need to collect some items in order to do them.

Activity 1:

DIY SPEAKER

You'll need:

2 plastic cups

1 cardboard tube

Phone

Scissors



Instructions

Carefully cut a hole in the side of each plastic cup so the cardboard tube fits inside tightly.

Attach a cup to each end of the tube.

Cut a thin slit in the top of the cardboard tube just big enough to hold your phone.

Choose some music and listen to the sound in and out of the speaker.

Experiment with different sized tubes and cups to find the best speaker. Does it matter if you use paper cups instead of plastic?



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WHY DOES IT WORK?

When the phone plays music outside the tube the sound spreads out all around, but when you put the phone inside the cardboard tube the sound is directed down the tube towards the plastic cups and out from there! The cups focus the sound waves pointing them in one direction rather than scattered all around.

A megaphone works in a similar way. When a person speaks normally the sound scatters immediately, but a megaphone channels the sound towards the subject instead. This is why people sometimes cup their hands around their mouth to shout!

Activity 2:

Fingerprints

If you look at your fingers you'll see lots of lines, arches and loops. Did you know your fingerprint is unique to you!! Even more unique than your DNA.

If you look at the palms of your hands and your fingers you'll notice the skin is a bit different to that of your arm. Hand and finger skin is known as friction ridge skin which is also found on the soles of the feet. Friction ridge skin is thicker than skin on other areas of the body and doesn't have any hair!

Fingerprints are formed in the womb! As children grow they get bigger, but the pattern stays the same!

Every person's body is different, and this includes our fingerprints. This means they are very useful in identifying people, in particular those who have left fingerprints at a crime scene. In this activity you will investigate the best way to identify fingerprints on different surfaces.

Revealing fingerprints



HOW TO MAKE A FINGERPRINT BALLOON

Carefully press one finger into the ink pad and then press down onto the balloon. Inflate the balloon slowly checking the image as the balloon expands.

If it starts to go a bit blurry let some air out. You should be able to see the lines, loops and whorls clearly.



Get:
Paper or index cards

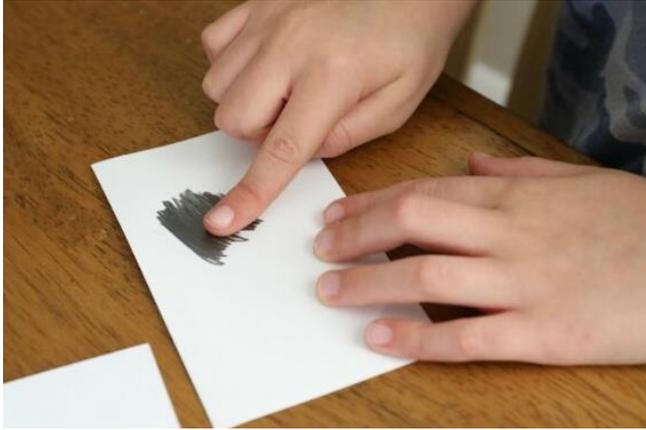
- Pencils
- Scotch tape or similar tape
- A magnifying glass – optional



First, use a pencil to scribble an area of dark graphite. This is going to be your “stamp pad,” so make it nice and big. And plenty dark.



Then rub your finger in the pencil graphite. Make sure to get the sides of your finger. You kind of have to roll your finger around to get enough coverage to have a good fingerprint.



Now stick a piece of tape to your finger. The sticky side of the tape will pick up the fingerprint.

Stick the tape onto a piece of white paper. We found that large index cards were the perfect size for each person to make prints for multiple fingers. It's fun to compare your fingers to your thumb!



It's amazing how much detail each fingerprint has! We had fun examining them with the magnifying glass and looking for the three main fingerprint patterns: arches, loops, and whirls.

Activity 3:

Salt crystals:

An easy way to make salt crystals is to dissolve table salt in water and leave the solution somewhere warm until the water evaporates leaving behind sparkly salt crystals. We also made coloured salt by adding a little food colouring.

You will need:

- *Table Salt
- *500ml warm water
- *Bowl or jug
- *Spoon
- *Plate or shallow bowl
- *Food colouring – optional

Put about 500ml of warm water into the jug.
Stir in a large spoonful of salt and stir until it is all dissolved (when you can't see or feel the grains any more).

Keep stirring in salt, a spoon at a time, until you reach the point where no more salt will dissolve (we call this a saturated solution).

Pour a small amount of the salty mixture onto a flat bowl or plate and leave somewhere warm.

After a few days you should see crystals appear.

Why do salt crystals appear?

When you stir salt into warm water it dissolves. It looks like it has disappeared but has actually mixed with the water to form a transparent solution.

When the salty solution is left in a warm place (we left ours on a windowsill) the water evaporates leaving behind salt crystals.

