



SUPER POWER: Sound!

MAKE YOUR OWN EARS

LAB NOTES...

WHAT'S INSIDE OUR EARS?

If you could look inside someone's ear, you would see a long, narrow tube ending in a thin piece of skin. The tube is called the "ear canal" and the thin piece of skin is called the "eardrum."

You might also see some little hairs and earwax! The wax and hairs protect the sensitive eardrum from very loud noises and germs, to help stop you getting ear infections. The eardrum wobbles every time a sound vibration hits it, then our brain interprets that vibration into a sound that we can hear.



EAR SHAPE

Take a look at your ears in the mirror – what shape are they? Are they the same shape as an elephant or a cat?

Why do you think that is? The outside of our ears are designed to funnel sound waves into them so our eardrum can pick them up more clearly and we can hear things. Some animals can move their ears independently helping them to point their ears at where the sound is coming from and some elephants also use their ears to cool them down on hot days!



TO MAKE YOUR OWN ANIMAL EARS...

1. Take the paper and fold it in half along the long edge to make two narrow rectangles. Open the paper out and cut along the fold.
2. Put one half of the paper aside, and fold the other one in half length-ways again to make two narrow strips. Open the paper out and cut along the fold.
3. Tape the two strips together end-to-end to make a band
4. Measure the band around your head, and tape the other ends together so that it sits over your ears.
5. Now, take the other half of your piece of paper that you put to one side. Draw, colour and cut out a pair of animal ears, any shape and size you like. You could make them look like your favourite animal, or design alien ears!
6. Tape the ear shapes onto your headband in any position you want.

WATCH & BUILD
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MINS

AND A MODEL OF YOUR EARDRUM...

1. Roll up a piece of thin card into a tube, and secure it with tape. It can be any size, but this works best if it fits over your small speaker.
2. Cut a piece of baking paper or thin plastic big enough to cover one end of the tube, with a little bit of space around the edge.
3. Cover one end of the card tube with the plastic or baking paper and keep it in place with an elastic band. This is a model of the ear canal and eardrum.
4. Place the tube over your speaker...
5. Don't turn it on just yet!
5. Shake a small amount of something like salt, pepper or rice onto the stretched film.
6. Pick your favourite tune and turn up the speaker to full volume!
7. If you're using a phone, take the phone out of the case and find the speaker part. Place the baking paper directly over this speaker. If your tube is too small to fit your phone just use the baking paper without the tube.

YOU WILL NEED

- Plain A4 paper.....
- Tape.....
- Scissors
- Colouring supplies
- Thin card e.g. cereal box card
- Sheet of thin, clear plastic
e.g. food wrap OR baking paper
- Elastic band
- Salt or black pepper
- Portable speaker.....
(can be on a phone)

Did you place your ears on the same side of your headband or on opposite sides? What difference do you think that would make if the ears were real?

What happened to the salt or pepper when you turned on the music? Does it change if you change the type of music for example classical or rock?

What happens to the salt or pepper when you make the music louder? Why do you think that is?

Try stuffing your eardrum tube with some tissues then put the speaker back in. Do you think this will change the way the salt or pepper dances? Why do you think that is? **What can this tell you about why things sound different when you get a buildup of ear wax in your ears?**