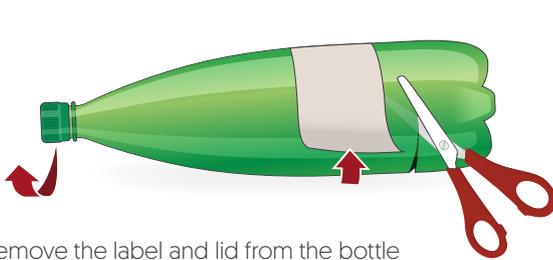
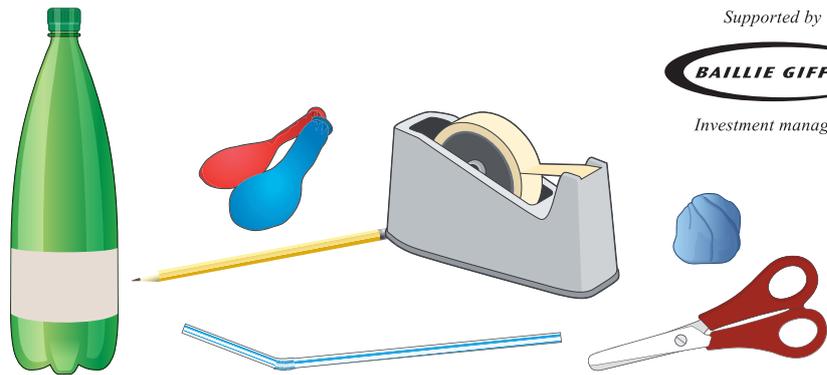


AT HOME ACTIVITY

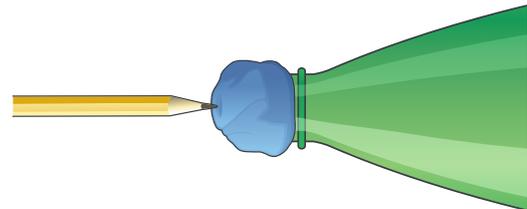
Make your own Lung

You will need:

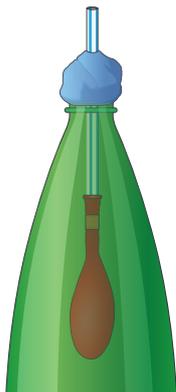
- Empty 500ml drink bottle
- Drinking straw
- 2 Balloons
- Scissors
- Tape
- Plasticine or Blu-Tack
- Pencil



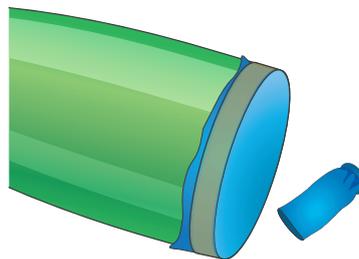
1. Remove the label and lid from the bottle and then carefully cut off the bottom quarter.



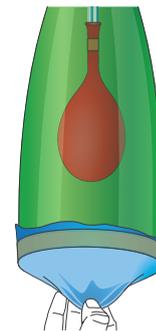
2. Make a blob of plasticine big enough to cover the top of the bottle and keep it airtight. Push the pencil through the plasticine to create a hole. Mould your plasticine onto the bottle top.



3. Securely tape one of the balloons over one end of the straw so it is airtight. Feed the straw up through the bottom of the bottle and the hole in the plasticine until the balloon is inside the bottle. Once in place, squeeze the plasticine to secure the straw so it is airtight.



4. Cut off the tube section of the other balloon and discard it. Stretch what's left over the bottom of the bottle and tape it in place, ensuring the balloon can't slip and is airtight.



To operate: Pull down on the stretched balloon.

What happens to the balloon inside the bottle? Let go of the balloon or push it back in and watch it again.

Extension

Try taping two straws together, making two holes in the plasticine and using two balloons inside your model to show how the air flows in and out of two lungs.

Explanation

This model demonstrates how our lungs work. When you pull on the stretched balloon, the other balloon should inflate and when you let go it should deflate. In our body our lungs operate in a similar method.

To take a breath, our diaphragm pulls down and the chest cavity is enlarged. This causes the air pressure in the chest to drop because the volume has increased, but the amount of gas is the same. Higher pressure external air rushes into our mouths and lungs to equalise the pressure, inflating our lungs.

When the diaphragm moves back up, it forces the chest cavity to get smaller, pushing the air back out again.

In our model the bottle is our chest cavity, the stretched balloon our diaphragm, the straw our mouth and the other balloon our lungs.

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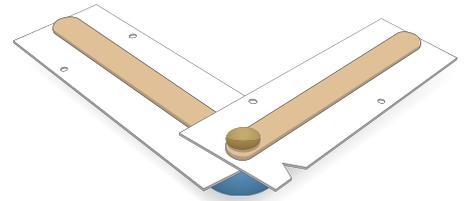
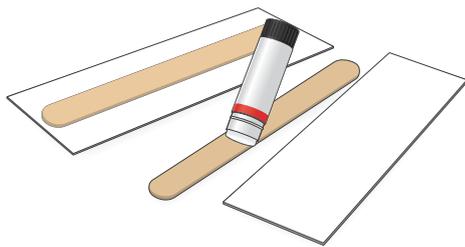
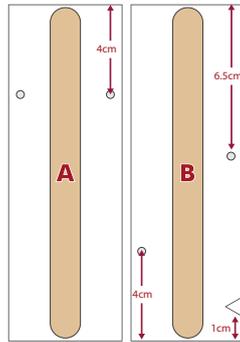
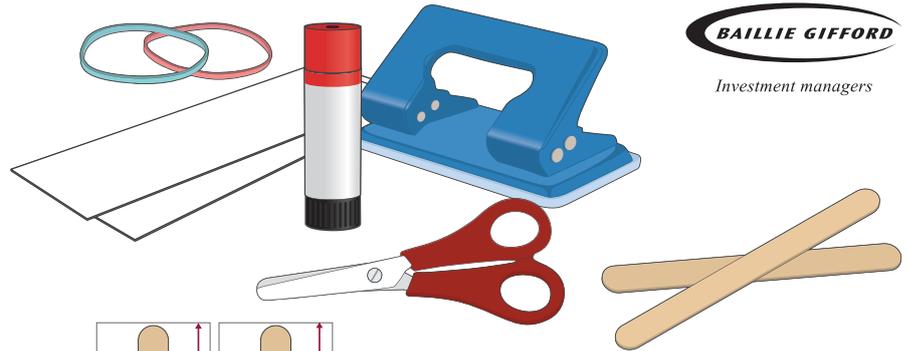
KYOWA KIRIN

AT HOME ACTIVITY

Make a Muscle

You will need:

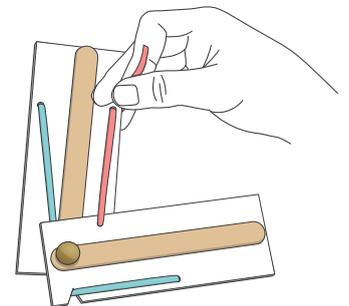
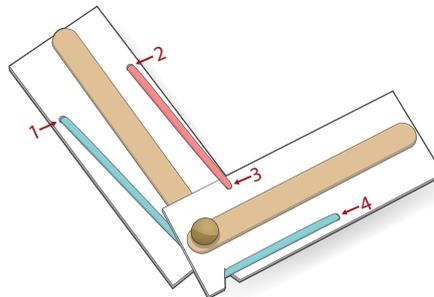
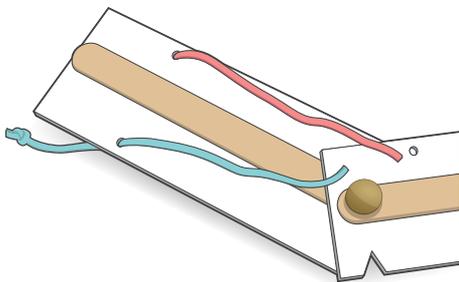
- 2 pieces of stiff card or cardboard cut to 15cm by 5cm
- 2 lollipop/craft sticks
- 2 rubber bands – diameter approx. 8cm
- Hole punch
- Drawing pin
- Scissors
- Glue stick



1. Glue each lollipop stick to the centre of each piece of card.

2. Use the diagram to measure and mark where the four holes are to be made and use the hole punch to make them in these positions. Use the scissors to cut a triangular notch as shown in the diagram on card B.

3. Place the bottom of lollipop stick B over the bottom of lollipop stick A. Push a drawing pin through both overlapping lollipop sticks to attach them. [Try using plasticine or Blu-Tack behind the lollipop sticks as this makes it easier and safer].



4. Cut both the rubber bands once. Thread each band through one of the holes on card A and tie each in a knot at the back so they can't move out of the holes.

5. Have the lollipop sticks at approximately 100° angle to one another. Thread the rubber band from hole 1 through hole 4 and tie off in a knot at the correct length to keep the arm at this position. Run this rubber band through the notch in card B. Put the other elastic band through hole 3 and tie off at the correct length.

6. Move the arm by pulling on the rubber bands. Pulling on one rubber band makes the arm bend, while pulling on the other makes the arm straighten.

Extension

Decorate your arm by drawing or labelling on bones, muscles and tendons.

supported by

KYOWA KIRIN

Explanation

The human body has over 650 muscles. In this activity we can examine how the system in our upper arms causes the arm to move. The elastic bands are acting a little bit like our muscles and the lollipop sticks like our bones.

When we want to move our arm, our brain sends a signal to the muscle making it contract so it gets shorter and fatter.

Muscles are attached to the bones with tendons and when the muscle contracts, it pulls on the bone causing it to move.

To move the arm back again, another muscle must contract to make a movement in the opposite direction.