

C5.2 Large and small air sacs

Imagine a large leafy tree with limbs that divide into smaller and smaller branches. This is exactly like the paths in our lungs for the air we breathe in and out! The paths in our lungs branch out and become smaller and smaller, ending with the air sacs.

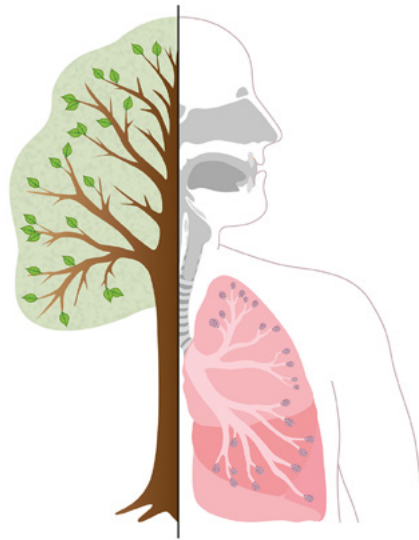


Figure 1: Comparison of a leafy tree and a lung.



Find out why the lungs are divided into many small air sacs.



Write down your ideas and guesses:

You need the following for the experiment:

- adhesive film
- many small pieces of construction paper
- 1 large piece of construction paper
- 1 ruler or tape measure

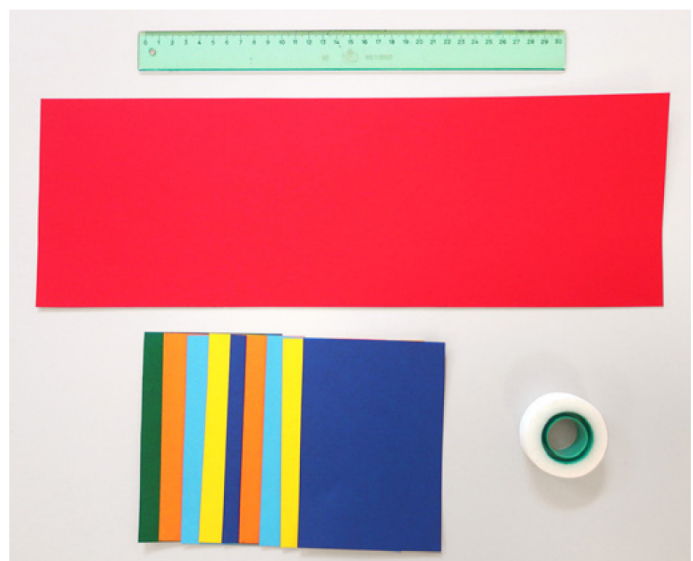


Figure 2: Required materials.



How to set up the experiment:

Lay out all the materials as shown in the photo.

1. Make a model of a lung's surface. To do so, curve the large piece of construction paper into a cylinder and tape the edges together with adhesive film. Set the cylinder upright.



Figure 3: How to make a cylinder.

2. Now make several models of air sacs. Just like you did with the large piece of construction paper, curve the small pieces of construction paper into cylinders and tape the edges together.
3. Place the small cylinders in the large cylinder until it is full.

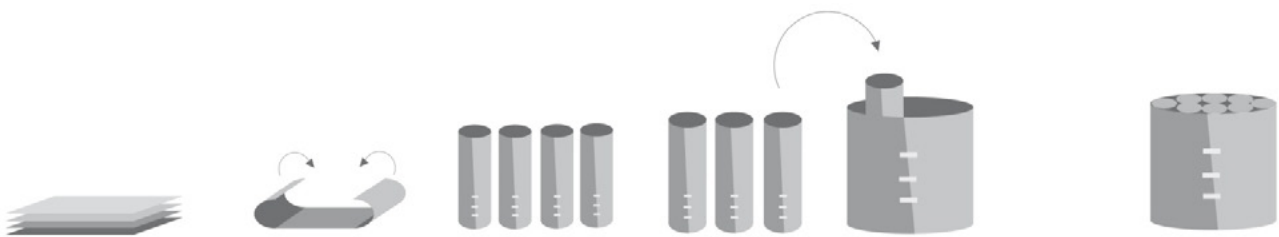


Figure 4: Many small cylinders are placed in the large cylinder.



How to conduct the experiment:

1. Unroll the large cylinder at one location.
2. At another location, unroll all of the small cylinders next to each other. Keep the pieces of construction paper as flat as possible.
3. Use the ruler or tape measure to measure the length and width of the large unrolled cylinder and write down the values.
4. Now measure the length and width of all of the small, unrolled cylinders combined and write down the values.

**Write down your observations:**

Large cylinder: _____

Small cylinders: _____

**Evaluate your observations:**

Compare the measurement results. What do you notice?

**Doing further research:**

1. Drop a whole effervescent tablet into a cup of water.
2. Drop a crumbled effervescent tablet into another cup of water.
3. Observe and compare the dissolving process in the two cups. What differences do you notice? Write down your observations.