

BUILDING A MODEL LUNG

WITH A PLASTIC BOTTLE

FOCUS QUESTION:

How do our lungs take in air and push it out?



BACKGROUND

Our lungs help us breathe. When we inhale, air comes in and fills our lungs. When we exhale, air moves out. In this experiment, you will build a model lung to see how this works.



MATERIALS

- 1 clear plastic bottle (2 liter works best)
- 2 balloons (small party balloons work well)
- 1 balloon (large or any extra balloon)
- 1 Y-shaped straw or tubing
- Tape
- Scissors (adult help)
- Rubber band (optional)



PROCEDURE

1. Cut off the bottom of the plastic bottle.
2. Take the Y-shaped straw or tubing and place it in the bottle through the mouth. Tape it in place so it is airtight.
3. Stretch a small balloon over each end of the Y-shaped straw. These are the "lungs." Secure them with tape or rubber bands.
4. Stretch the large balloon over the cut bottom of the bottle. This is the "diaphragm." Make sure it is sealed tightly.
5. Your model lung is ready! Pull the diaphragm down and push it up to see what happens.



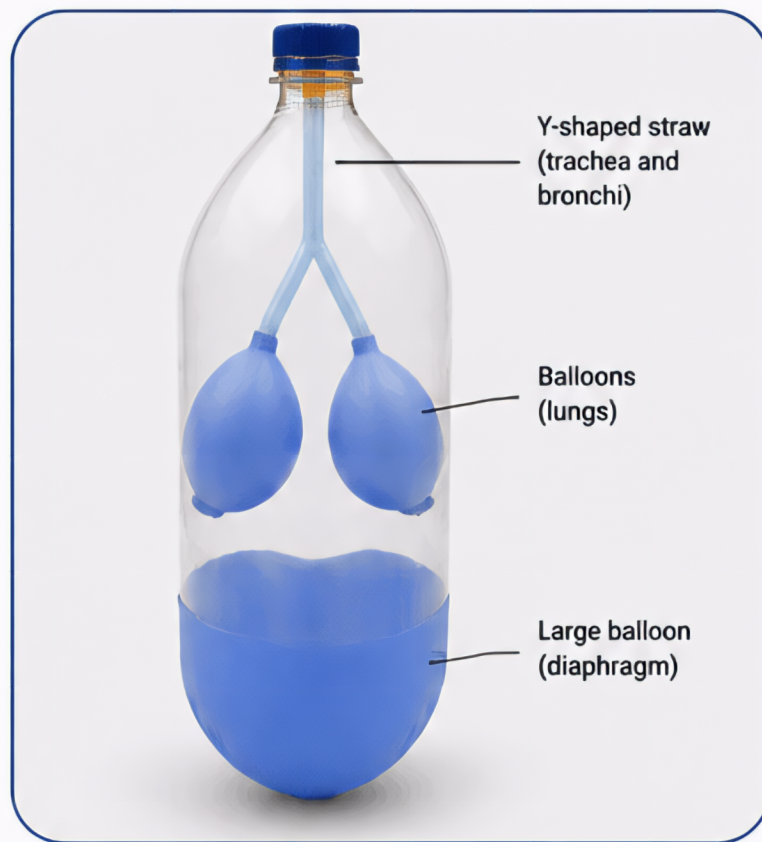
EXTEND YOUR LEARNING

- Try using balloons of different sizes. Does it change how much they inflate?
- What happens if there is a hole in the bottle? (Hint: air leaks out!)
- Research how oxygen moves from your lungs into your blood.



SAFETY FIRST

- Ask an adult for help when using scissors.
- Do not stretch balloons too much, they can pop.



WHAT HAPPENS?

- Pulling the diaphragm down makes the "lungs" fill with air (inflate). This is like inhaling.
- Pushing the diaphragm up makes the "lungs" push air out (deflate). This is like exhaling.



THINK ABOUT IT

1. What part of your model is like your trachea?

2. What part is like your lungs?

3. What part is like your diaphragm?

4. How is this model similar to your real lungs?

