



Project Exploration creates transformative learning opportunities for youth underrepresented in the sciences –particularly students of color and girls – by equipping them with the skills, practices, and mindset needed for a lifelong pursuit of learning. STEM@Home makes activities around science, technology, engineering, and math accessible and fun to do at home. This STEMbook activity, resources, and more are available at [www.projectexploration.org/stemathome](http://www.projectexploration.org/stemathome).

## In this activity, you will:

learn about the lungs' function and build a model.



## Supplies Required:

Plastic bottle  
Straw  
Rubberbands  
Tape  
Scissors  
Balloons  
Modeling clay

## Video

How do the lungs work? <https://tinyurl.com/yxlf2dvv>

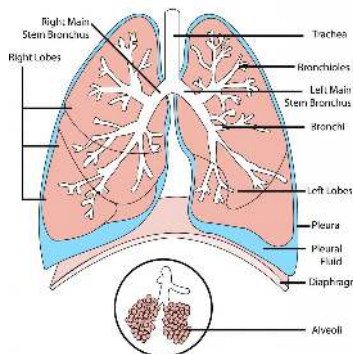
## Overview

The lungs are an essential organ to all mammals. The lungs are part of our breathing system which has two functions:

- 1) Ventilation – the movement of air into and out of the lungs
- 2) Gas exchange – this is where gases are exchanged between tiny sacs called alveoli and the blood.

Under the lungs is the diaphragm which is a muscular sheet separating the lungs from the abdomen. Your diaphragm moves up and down to increase the space in your chest like the balloon at the bottom of the model.

Diagram of the Human Lungs



## Instructions

1. Carefully cut your bottle to about half the size.
2. Tie a knot in one end of one balloon and cut off the fat end.
3. Stretch the balloon around the bottom of your plastic bottle.
4. Put a straw in the neck of the other balloon and secure tightly with the elastic band but not so much that you crush the straw. The air must flow through, so test it with a little blow through the straw to see if the balloon inflates.
5. Put the straw and the balloon into the neck of the bottle and secure with the play dough to make a seal around the bottle – make sure that again, you don't crush the straw.
6. Hold the bottle and pull the knot of the balloon at the bottom. What happens?

## Additional Resources

**Think About It!** What is the diaphragm is weak? How do you think that would affect the lungs? If you close off the straw, what happens to the lungs' ability to inflate and deflate?

1. How does smoking affect the lungs? <https://tinyurl.com/y6kuw97x>
2. How does oxygen travel throughout the body? <https://tinyurl.com/ltme5v5>

## Share It Out

**Share on social media:** Take a video of your model in action and explain what is happening. Post to social media and use the hashtags:

#ModelLungs  
#ProjectExploration  
#StemAtHome

For more activities like this one, go to [www.projectexploration.org/stemhome](http://www.projectexploration.org/stemhome). If you're interested in learning more about Project Exploration and our free events, programs, and activities, please find us on social media and be sure to follow!



Call or text us for help: 312-772-6634

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