

# Build a Lung

When you breathe, you actually pull air into your lungs because your diaphragm muscle causes your chest to expand. You can see this is true by placing your hands on your ribs and inhaling slowly. Did you feel your chest expand? In this activity, you will build a model of a lung by using some common materials. You will see how the diaphragm muscle works to inflate your lungs. Refer to the diagrams in the textbook as you construct your model.

## MATERIALS

- bag, trash, small plastic
- balloon, small
- bottle, top half, 2 L
- clay, golf-ball-sized piece
- rubber bands (2)
- ruler, metric
- straw, plastic
- tape, transparent

## PROCEDURE

1. Attach the balloon to the end of the straw with a rubber band. Make a hole through the clay, and insert the other end of the straw through the hole. Be sure at least 8 cm of the straw extends beyond the clay. Squeeze the ball of clay gently to seal the clay around the straw.
2. Insert the balloon end of the straw into the neck of the bottle. Use the ball of clay to seal the straw and balloon into the bottle.
3. Turn the bottle gently on its side. Place the trash bag over the cut end of the bottle. Expand a rubber band around the bottom of the bottle to secure the bag. You may wish to reinforce the seal with tape. Before the plastic is completely sealed, gather the excess material of the bag into your hand, and press toward the inside of the bottle slightly. (You may need to tie a knot about halfway up from the bottom of the bag to take up excess material.) Use tape to finish sealing the bag to the bottle with the bag in this position. The excess air will be pushed out of the bottle.

## ANALYZE THE RESULTS

1. What can you do with your model to make the “lung” inflate?

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2. What do the balloon, the plastic wrap, and the straw represent in your model?

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**Build a Lung** *continued*

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3. Using your model, demonstrate to the class how air enters the lung and how air exits the lung.

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**APPLYING YOUR DATA**

Do some research to find out what an “iron lung” is and why it was used in the past. Research and write a report about what is used today to help people who have difficulty breathing.

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## Teacher Notes

### TIME REQUIRED

One 45-minute class period

### LAB RATINGS

Teacher Prep—2  
Student Set-Up—2  
Concept Level—1  
Clean Up—2

Easy ← 1 2 3 4 → Hard



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## MATERIALS

You may want to build a model first to use as a reference for students. If so, you may want to substitute a bag smaller than the one that students use to model the diaphragm.