

Hold It In Lab

Question – How much air can you exhale in one breath?

Hypothesis – I think I can exhale _____ liters because _____.

Before you start the lab, you need to mark your tubing and create the apparatus.

- Unroll the tubing. Note that one end is open and one end is sealed.
- Place the ruler so that the 1.0 mark on the ruler is lined up with the **sealed** end of the tubing.
- Trace the lines that appear on the ruler onto the tubing. Starting with 6.0 L, label the lines in the same way in which the ruler is marked. As you move down the tubing, repeat this procedure five more times until your final mark is “0.0 L”. **(See picture on back of this paper)**
- Once you have reached the 0.0 L mark, measure another 0.1 L of tubing and place a mark at that spot. **Cut the tubing at that point.** Your tubing is now a measurement of liters up to 6.0 liters.
- Begin to assemble your apparatus by putting a plastic insert into the tubing making sure it is about half in and half out of the tubing. Wrap the extra width of tubing securely around the plastic insert and fasten the tubing securely to the plastic insert using masking tape. Make sure that air cannot get between the plastic insert and the tubing.
- Finally, place the cardboard mouthpiece snugly inside the plastic insert. **(See Picture)**

Now perform the following steps to determine how much air you can exhale.

1. Roll the tubing as close to the mouthpiece as possible.
2. While your partner holds the roll of tubing between both hands, take as deep a breath as you can. Slowly exhale as much air as you can into the tubing. Do not blow into the tubing too hard, because your partner will have trouble holding it as it unrolls. If you are the person holding the tube, move backward slowly as it unwinds.
3. Just before you take the tubing out of your mouth, put one hand on the plastic insert and the other around the tubing. Twist the tube at the end of the insert to keep air from escaping. Your partner will roll the excess tubing toward you.
4. Using the graduations on the tube, determine how much air you exhaled. Record your answer in your science notebook.
5. Repeat the procedure once more. Record the information in your science notebook. Total the results of both trials and determine the average.

(Find average by adding the two trials together and then divided by two)

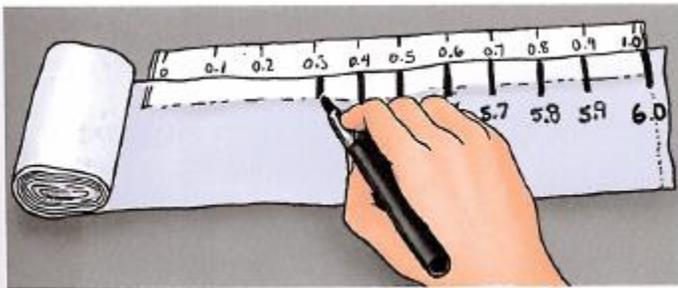
Student	Trial 1 in liters	Trial 2 in liters	Average

6. Reverse roles with your partners and repeat steps 1 through 5. **Make sure you use your own side of the apparatus!** Record all of your partner’s information in your chart in your comp book.
7. Return the ruler and marker to the blue table and throw away everything else.

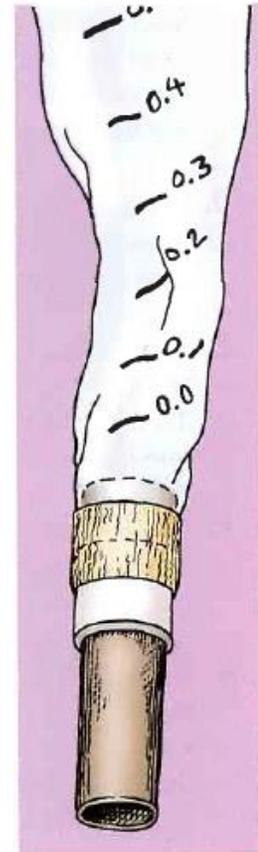
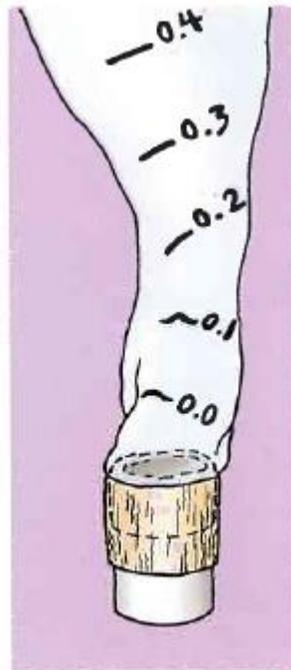
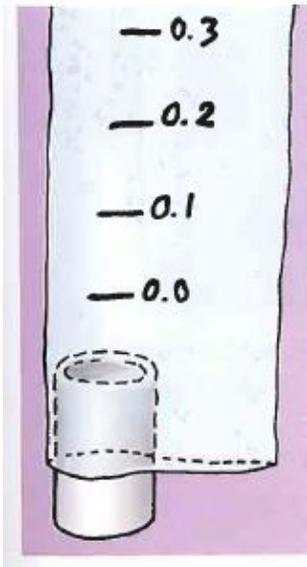
Answer the questions below in your comp book. You do not need to write the question nor do you need to write in complete sentences.

Questions to answer in your comp book:

1. Looking at your average, was your hypothesis proven correct? Why or why not?
2. Did the results surprise you? Why or why not?
3. How does the amount of air in your lungs affect your life?
4. List at least five things that can negatively affect how much air your lungs can hold.
5. What kind of everyday actions can you do to positively influence (change) the amount of air your lungs can hold?



This is how you should mark your tubing.



How it should look completed.

Use masking tape to attach the plastic insert.