

Chapter 14- Regular Anatomy Lab- Lung Model

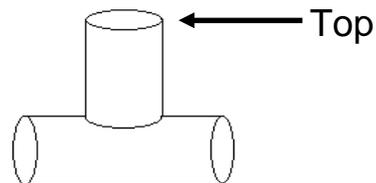
You will make a model of the human lung and make analogies between the model and what you have studied about the lungs and respiration in Chapter 15.



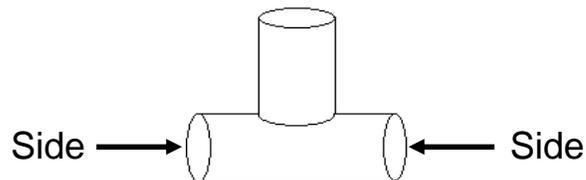
Materials: 1- 6" plastic tubing, 1-rubber glove, 1-silly putty, 1-T-connector, 1- 2 liter bottle, 2 round balloons, 2 rubber bands

Procedure:

- 1 Take out all materials to make sure you have the correct quantity of each.
- 2 Fit the plastic tubing into top of the T-connector.



- 3 Use a little silly putty to create a air tight seal between the tubing and the T-connector.
- 4 Place a balloon around each of the remaining side openings of the T-connector.



- 5 Wrap rubber bands tight around the balloons where the balloons and T-connector meet. The seal should be air tight.
- 6 Place the tubing and balloon apparatus inside the 2 Liter bottle. Insert the hose into the opening of the 2 Liter bottle. The hose should extend out enough so that the balloons sit in the middle of the bottle.
- 7 Use silly putty to create an air tight seal between the tubing and the opening of the 2 Liter bottle.
- 8 Take the cut out bottom of the 2 Liter bottle, invert it and insert it into the 2 Liter bottle. This will provide support to the bottom of the 2 Liter bottle.
- 9 Stretch a rubber glove over the end of the 2 Liter bottle.

Conclusion Questions:

- 1 What happens when you gently pull the glove downward?
- 2 What happens when you gently push the glove upward into the bottle?
- 3 What part of ventilation does pulling the glove downward represent?
- 4 What part of ventilation does pushing the glove upward represent?
- 5 What group of muscles needed for ventilation are **NOT** represented in this model?
- 6 Remove the silly putty between the neck of the 1 Liter bottle and the plastic tubing. Next pull on the glove. Do the lungs inflate? Do they remain inflated? Why or why not?

What is the purpose of the silly putty other than to create an air tight seal?

- 7 What is the relationship between pressure and volume? (You explain by writing the formula)
- 8 How does air want to flow naturally?
- 9 Using the relationship between air pressure and volume and using your knowledge of how air wants to flow, explain how pulling the rubber glove (diaphragm) downward inflated the balloons (lungs). (3 points)

Next, explain how pushing the glove upward deflated the balloons. (3 points)