

What's Your Lung Capacity?

Overview: Did you know the right lung is slightly larger than the left? It's true! The left lung is slightly smaller to make room for the heart. Lungs are among the largest organs in your body. They are a part of the respiratory system, whose main function is gas exchange between our body's circulatory system (our blood) and the environment (more specifically, the air around us). Through respiration we receive oxygen to help fuel our bodies, and dispel carbon dioxide and other wastes.

Materials

- 2-liter soda bottle
- black marker, permanent
- rubber hose (12" long)
- large plastic bowl
- liquid measuring cup (cups or millimeters)

Experiment

1. Fill the measuring cup with water up to either the cup or 100 milliliter mark, depending on the measurement you're using. Pour this into the 2-liter bottle and mark the water level with a line using the black, permanent marker. Also, write a "1" next to the line.
2. Keep adding water, one cup (or 100 milliliters) at a time, marking each new 1-cup increment until you have filled the bottle with water. Cap it.
3. Put water in the bowl, filling it about half of the way full. Now flip the full (but capped) bottle of water over the bowl. Be careful to keep the opening of the bottle under water so that no water is displaced in the process.
4. Put one end of the rubber hose in the top of the bottle (which should be now under water).
5. Take a really deep breath – as deep as you can – and blow your breath out into the tube. Continue to blow until you can't push any more air into the bottle. As air goes in the bottle, it pushes an amount of water equal to its volume out and into the bowl.
6. Put the lid on the bottle and turn it over before lifting it out of the water. How much water is left in the bottle? Subtract this amount from the original amount of water in the bottle. This should be your lung capacity.
7. Record your lung capacity as, "My lung capacity is _____." If you used cups, convert this number to milliliters by multiplying by 0.24 liters per cup. For example, 19 cups would equal 4.5 liters.

Reading

A man's lungs have a greater capacity than a woman's – it's about 6 liters for a man and 4.2 liters for a woman. And since a grown-up has a greater lung capacity than a kid, it makes sense that a 10-year old might breathe 20 times per minute when a grown-up might breathe only 12 times in a minute. A person who is 70 years old has breathed about 600,000,000 times in their life. But they have also breathed a lot of air – about 13,000,000 cubic feet. This is enough air to fill 52 blimps!

Exercises

1. Which body system are your lungs a part of?
2. What are some other parts in this system?
3. Explain this system's major function.

Answers to Exercises: What's Your Lung Capacity?

1. Which body system are your lungs a part of?(respiratory system)
2. What are some other parts in this system? (trachea, diaphragm, nose, mouth, etc.)
3. Explain this system's major function. (Gas exchange – it brings in oxygen for fuel and dispels carbon dioxide and other waste products.)