

LUNG CAPACITY

Take a deep breath, then let it out. Every day you breathe in and out thousands of times. How much air do you breathe when you take a breath? The amount of air your lungs can hold is the capacity of your lungs. You can determine your lung capacity.

Strategy

You will measure the amount of air in your lungs.

You will determine your average lung capacity.

Materials

balloon (round)

metric ruler

Procedure

1. Stretch a balloon several times. Then take a deep breath and blow into the balloon. Exhale as much air as possible.
2. When you take the balloon away from your mouth, hold the open end tightly so that no air escapes. Resume normal breathing.
3. Measure the air-filled balloon's diameter by placing it next to a ruler as shown in Figure 1. Record the diameter of the balloon in Data Table 1 in Data and Observations.
4. Repeat Steps 1–3 four more times. Record the results of each time in Data and Observations.
5. The diameter of your balloon does not give you your lung capacity. To change the diameter of the balloon to liters (the metric unit for volume), you must use a graph. Locate your balloon diameter for trial 1 along the bottom axis of the graph in Figure 2. Read up to the curved dark line, then across to locate your lung capacity. Record your lung capacity in Data Table 1. Repeat to determine your lung capacity for all trials.
6. Total your results by adding each column of numbers in Data Table 1. Find the averages by dividing each total by the number of trials (5).

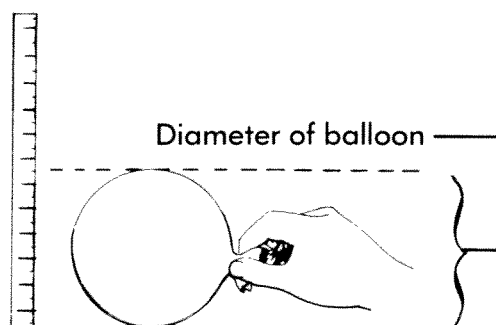


FIGURE 1.

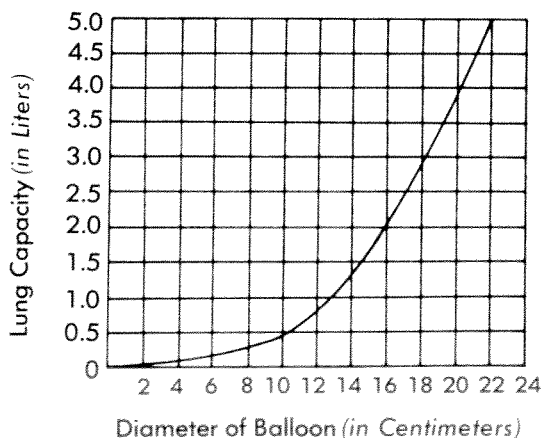


FIGURE 2.

Data and Observations

1. Record your results in Data Table 1.
2. Compute the totals and the averages.

Data Table 1

Trial	Your Balloon Diameter (in Centimeters)	Capacity in Liters
1		
2		
3		
4		
5		
Total		
Average		

Questions and Conclusions

1. What is meant by the term “lung capacity”? _____

2. Why was it necessary to change the balloon diameter to liters when finding lung capacity?

3. How does your lung capacity differ from those of other students in your class?

4. A person with a lung capacity of three liters could blow a balloon to what diameter? (Refer to Figure 2.) _____
5. Why might it be important to know a person’s lung capacity? _____

Strategy Check

- _____ Can you define the term lung capacity?
- _____ Can you measure your lung capacity?
- _____ Can you use the graph properly to change balloon diameter to lung capacity in liters?