

Name: \_\_\_\_\_

Date: \_\_\_\_\_

## What Is Your Lung Capacity?

Your lung capacity is the amount of air your lungs can hold or the combination of different lung volumes. This activity will address two different types of lung volumes: Tidal volume and vital capacity. Tidal volume is the amount of air you breathe in or out during a normal breath. Vital capacity is the amount of air that can be forced out of your lungs when you take a very deep breath.

Your lung capacity allows you to provide your body with the oxygen it needs. In this activity, you'll examine your lung volumes at rest and after you have completed a set of exercises.

### Materials Needed:

Meter sticks

Round balloons (be aware of any latex allergies)

String

Scale (optional)

### Methods:

1. To measure tidal volume, take a normal-size breath and exhale it into the balloon. Do not force extra air into the balloon. Twist the balloon to keep the air in. Do not tie the balloon.
2. Take the string and use it to measure the diameter of the largest part of the balloon in centimeters. Record the number in the "resting" data table.
3. Repeat two more times, and average the tidal volume.
4. To measure vital capacity, inhale deeply taking in as much air as your lungs can hold and exhale it into the balloon. Twist the balloon to keep the air in. Do not tie the balloon.
5. Take the string and use it to measure the diameter of the largest part of the balloon in centimeters. Record in the "resting" data table.
6. Repeat two more times, and average the vital capacity.
7. Jog in place for two minutes.
8. To measure tidal volume, take a normal-size breath and exhale it into the balloon. Do not force extra air into the balloon. Twist the balloon to keep the air in. Do not tie the balloon.
9. Take the string and use it to measure the diameter of the largest part of the balloon in centimeters. Record in the "jogging" data table.
10. Repeat two more times, and average the tidal volume.
11. To measure vital capacity, inhale deeply taking in as much air as your lungs can hold and exhale it into the balloon. Twist the balloon to keep the air in. Do not tie the balloon.
12. Take the string and use it to measure the diameter of the largest part of the balloon in centimeters. Record in the "jogging" data table.
13. Repeat two more times, and average the vital capacity.
14. Convert the diameters and the averages you measured to volume using the graph and record in the data tables.
15. Answer the conclusions questions.

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### What Is Your Lung Capacity?

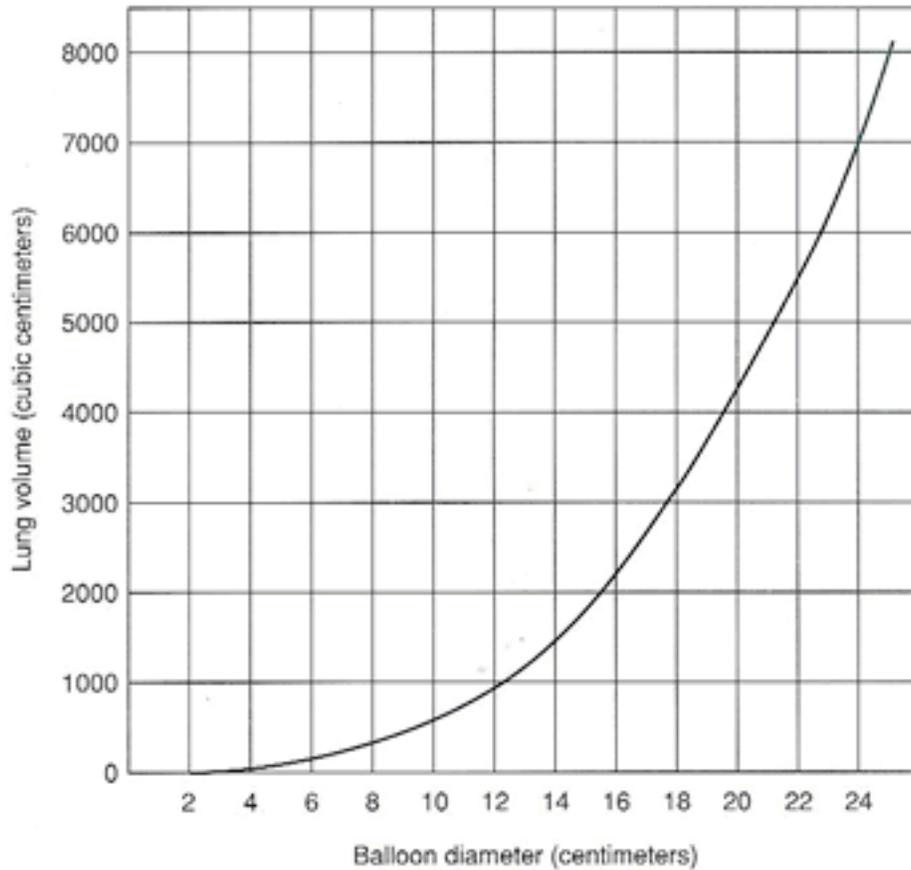
Data table: Resting

	Tidal Volume	Tidal Volume	Vital Capacity	Vital Capacity
Trial	Diameter in cm	Volume	Diameter in cm	Volume
1				
2				
3				
Average				

Data table: Jogging

	Tidal Volume	Tidal Volume	Vital Capacity	Vital Capacity
Trial	Diameter in cm	Volume	Diameter in cm	Volume
1				
2				
3				
Average				

Lung Volume vs. Balloon Diameter



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**Conclusion Questions:**

1. How do your tidal volume and vital capacity compare to one another? Which is larger? Why?
2. Compare and contrast your tidal volume during resting and after jogging.
3. Compare and contrast your vital capacity during resting and after jogging.
4. How does your data compare to others in your class?
5. Why do some of your class members have similar data to you? Why do some of your class members have different data from you?
6. How could an athletic trainer help improve your lung capacity?
7. If you were to start an exercise routine, how would it affect your lung capacity?