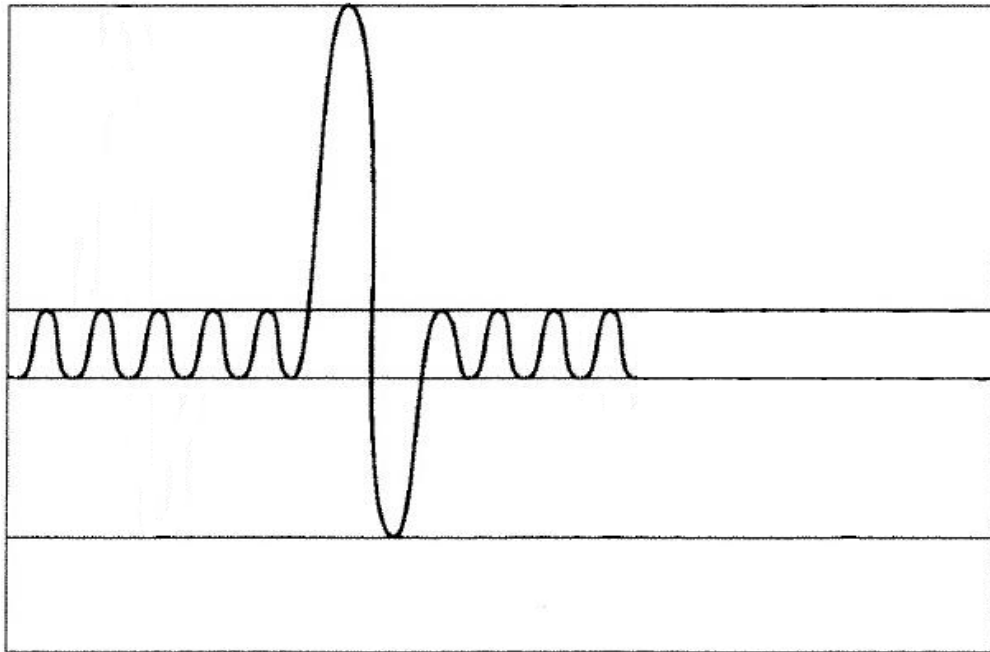


Mechanisms of Breathing

Using the list below, label the respiratory volumes on the graph.



Expiratory reserve volume
Inspiratory reserve volume

Residual volume
Tidal volume

Total lung capacity
Vital capacity

- Label the X axis "Breaths/Time."
- Label the Y axis "Volume of Air in Lungs (mL)." Next, label the numerical increments on the Y axis beginning with zero.
- Based on your graph, the volume of air in a normal breath is _____ mL.
- Write a mathematical formula showing the relationship between vital capacity, inspiratory reserve volume, expiratory reserve volume, and tidal volume.
- A particular student has a vital capacity of 4000 mL, a tidal volume of 450 mL, and an expiratory reserve volume of 1350 mL. Calculate his inspiratory reserve volume?
- Using the same volume numbers above and given that this same student has a residual volume of 1100 mL, calculate the total lung capacity of this student.

In a class of 16 students the following data was collected for 8 boys and 8 girls:

Girl	Height (ft. & in.)	Vital Capacity (L)
1	5'1"	3.11
2	5'9"	3.43
3	5'6"	3.31
4	4'9"	2.95
5	6'0"	3.55
6	5'3"	3.19
7	5'7"	3.35
8	4'11"	3.03

Boy	Height (ft. & in.)	Vital Capacity (L)
1	6'4"	4.75
2	5'9"	4.39
3	5'5"	4.18
4	6'0"	4.54
5	6'2"	4.65
6	5'3"	4.08
7	5'11"	4.49
8	6'7"	4.9

1. Using the graph provided graph the height and vital capacities of the girls in red and graph the height and vital capacities of the boys in blue.
2. Based on your graph, for boys and girls, what is the relationship between height (body size) and vital capacity?
3. Explain why there is a direct relationship between height (body size) and vital capacity.
4. Other than males are bigger than females, give a logical explanation as to why the vital capacity of males is larger than females.

