Respiratory Physiology Lab Answer Sheet

Data

Activity 1

Data Table 1: Number of breaths per minute at rest

Trial 1	Trial 2	Trial 3	Trial 4	Average number of breaths per minute
9	*9*	*8*	*9*	*8.75*

Activity 2

Data Table 2: Number of breaths per minute after performing an activity

Trial 1	Trial 2	Trial 3	Trial 4	Average number of breaths per minute
24	*24*	*22*	*19*	*22.25*

1. Compare the values for breathing in a state of rest vs. breathing after performing an activity. Is there a difference? Why or why not. Be specific about the physiology behind your response.

Yes, there is a difference. There is a difference because when you are doing an activity, the heart rate is being increased. When your heart rate has been increased, your body works a little harder to supply oxygen to areas needed. Air

that is taken into the body is traveling to the lungs and being exchanged throughout the body. Internal and external respiration will take place and gas exchange will occur.

Activity 3
Data Table 3: Tidal Volume

Total Volume (L)	Tidal Volume (L)
3.7	*1.23*

2. Explain why slow, deep breathing ventilates the alveoli better than rapid, shallow breathing. Be sure to relate your response to tidal volume.
Slow, deep breaths are better because it allows the body to fully exchange the air coming in and out. The small tidal volume of each breath is what is used to move the air in and out of the body.

Activity 4
Data Table 4: Expiratory Reserve Volume

Total Volume (L)	Expiratory reserve volume
4.0	*1.3*

3. After expelling the expiratory reserve volume, did any air remain in your (or the subject's) lungs? Explain your answer.

No, because the directions told me to exhale as much air as possible. The air was pushed out as forcefully as I could. It felt like there was not any air left until another breath was taken.

Activity 5

Data Table 5: Vital Capacity

Estimated Vital Capacity (L)	Measured Vital Capacity (L)	Average Measured Vital Capacity (L)
3.32	*5.8*	*5.6*

Activity 6

Data Table 6: Inspiratory Reserve Volume (IRV)

Measured Vital Capacity (L)	Tidal Volume (L)	Expiratory Reserve Volume (L)	Inspiratory Reserve Volume (L)
5.8	*1.23*	*1.3*	*3.27*

4. What is the difference between respiratory volumes and respiratory capacities?
Respiratory volumes measure the amount of air that is in the lungs. Respiratory capacities is the amount of two or more lung volumes added together.

Activity 7

Data Table 7: PEFR values (liters per minute)

Trial 1 (L/min)	Trial 2 (L/min)	Trial 3 (L/min)	Trial 4 (L/min)	Average PEFR (L

240	*230*	*230*	*280*	*245*

5. FEF (forced expiratory flow) and PEFR (peak expiratory flow rate) are often measured in individuals who may have asthma. Based on the background for this investigation, and your experience carrying out these activities, how would you expect these values to be affected by asthma?
   If asthma came into play with this activity today, the values for all of it would change. The values would most likely be lower than the ones that were recorded for this activity. With asthma, the lungs have a harder time working than those who do not have asthma. The PEFR values would definitely be a lot lower too.