Respiratory Physiology Lab
Data Sheet

INSTRUCTIONS

The following data should be from only 1 member of your lab pair, not both of you.

Follow the instructions on the paper entitled "Control of Human Respiration". Record all data on this paper.

DATA

Table 1: Holding of Breath	
Before holding breath	First 30 Sec After holding breath
_____ breaths / minute	_____ breaths / minute

1. Did the respiratory rate of the test subject change after holding his or her breath? If so, describe how it changed.

2. What is different about the size (amplitude) or shape (frequency) of the respiratory waveforms following the release of the test subject's breath? Explain.

Table 2: Rebreathing of Air: Amplitudes of Respiration Waves		
0 to 30 seconds	60 to 90 seconds	120 to 150 seconds
_____ mm Hg	_____ mm Hg	_____ mm Hg

3. What would be the cause of the change in the amplitude and frequency of the waveform while the test subject was breathing into the bag?

4. How did the shape of the respiratory waveforms change while the test subject was breathing into the bag? How would you interpret this result?

Table 3: Hyperventilation and Apnea	
Before hyperventilating	After hyperventilating
_____ breaths / minute	_____ breaths / minute

5. Was there a natural Apnea (pause in normal breathing) after hyperventilation? If so, what caused it to ocurr?

5. How did Explain how you think carbon dioxide affects your breathing.

Part 5 – Lung Capacity

Observed Volumes and Capacities

Table 12.1

Volume Titles	Measurements (liters)
Tidal Volume (TV) p-p	
Vital Capacity (VC) p-p	

C. Observed vs. Predicted Vital Capacity

What is the Subject's observed Vital Capacity? _____liters.

- Your Gender _____ Age (in years) _____
- Height in cm (# inches x 2.54) _____

- Average from chart _____ml / 1000 = _____ L

II. QUESTIONS

D. Why does predicted vital capacity vary with height?

E. Explain how factors other than height might affect lung capacity.

F. How would the volume measurements change if data were collected after vigorous exercise?

Part 6

1. Atmospheric O_2 %

2. Normal Breathing % remaining (from graph)
    - What % of the available O_2 did you remove in that breath?

3. Held Breath % O_2 remaining (from graph)
    - What % of the available O_2 did you remove in that breath?

4. Hyperventilated breath% O_2 remaining (from graph)
    - What % of the available O_2 did you remove in that breath?

5. Compare your data to the rest of the class for each trial.

Trial	Your Efficiency (% removed)	Class rank (1^{st} = best efficiency)
Normal Breath		
Held Breath (30 sec)		
Hyperventilated (30 sec)		

6. What types of factors can affect your efficiency? Think of both environmental (caused by you) and physical (just the way you are)?

7. Are you aware of any factors that would have affected your class rank? If so, what were they and what effect did they have?