

The Respiratory System: Gas Exchange

1. The atmosphere is a mixture of gases. Write down the percentages for:

a. O₂ _____

b. CO₂ _____

c. N₂ _____

d. H₂O _____

2. Calculate the partial pressures of the following gases at both atmospheric pressures:

760 mmHg

747 mmHg

a. O₂ _____ _____

b. CO₂ _____ _____

c. N₂ _____ _____

d. H₂O _____ _____

3. What is the atmospheric pressure on the top of Mt. Whitney? _____

4. Calculate the partial pressure of O₂ on the top of Mt. Whitney. _____ mmHg

5. a. Why does more CO₂ than O₂ dissolve in liquid when both gases are at the same pressure?

b. Name the law that explains this. _____

6. Efficient external respiration depends on three main factors - list them.

a.

b.

c.

7. What three factors cause the partial pressures of gases in the alveoli to differ from pressures in the atmosphere?

a.

b.

c.

8. When airflow is restricted so that the partial pressure of O_2 is low and CO_2 is high, what happens to the:

a. arterioles? _____

b. bronchioles? _____

9. Internal respiration depends on three factors - list them.

a.

b.

c.

10. The planet Pneumo has a total atmospheric pressure of 900 mmHg. Oxygen and carbon dioxide each constitute 30% of the atmosphere.

a. What is the partial pressure of oxygen on the planet Pneumo? _____

b. Which gas would be found in the highest concentration in your blood?