

PAL Worksheet

Week 10 Problem Set 1

Cardio/Respiratory

1. Why do we need the cardiovascular system to deliver O₂? Why can't we use simple diffusion?
2. Why do we need to deliver O₂ to organs and tissues? What is it used for?
3. Clearly explain how inspiration/expiration works. Draw a series of pictures showing volume and pressure changes (which changes first) in the chest cavity.
4. Exercise increases the delivery of O₂ to the tissues. Describe exactly how this happens (many mechanisms are at play both at the level of the lung and heart – try to get as many as possible).

5. Define hematocrit. Explain how hypoxia (like moving to high altitude) would affect a person's hematocrit.

6. What is the most important factor that influences O₂ binding to hemoglobin? Draw a O₂-hemoglobin saturation curve. Don't forget to label your axis! Explain this curve to someone.