**Biology for Health Sciences**

**Chapter 7 Worksheet Name:**

1. H+ = \_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. What does phosphorylated mean?
3. What are the 2 steps of anaerobic respiration?
4. Does anaerobic respiration use oxygen? \_\_\_\_\_\_
5. What are the 4 steps of aerobic respiration?
6. What step occurs in both anaerobic and aerobic respiration? \_\_\_\_\_\_\_\_\_\_\_\_
7. What produces more ATP, anaerobic or aerobic respiration? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
8. During respiration, the glucose molecule is oxidized/reduced (circle one).
9. Glycolysis:
   1. Where does it happen? \_\_\_\_\_\_\_\_\_\_\_\_\_\_
   2. How many steps? \_\_\_\_\_\_\_
   3. Is ATP need to jumpstart process? \_\_\_\_\_
   4. How many net ATP are made? \_\_\_\_\_\_
   5. What is NAD+ ? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ What does it “carry”? \_\_\_\_\_\_\_\_\_\_\_\_\_\_
   6. What 2 molecules are produced?
10. In eukaryotic cells, pyruvate oxidation, citric acid cycle and oxidative phosphorylation occurs in the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
11. Pyruvate Oxidation:
    1. 2 molecules of pyruvate are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
    2. These molecules also go through decarboxylation – what does that mean?
    3. Ends with 2 molecules of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
12. Citric Acid Cycle:
    1. \_\_\_\_\_ steps
    2. How many turns happen for 1 glucose molecule? \_\_\_\_\_\_
    3. At the end of the citric acid cycle, the glucose has been completely \_\_\_\_\_\_\_\_\_\_\_\_\_.
    4. Is there more decarboxylation? \_\_\_\_\_\_
    5. Are electron carriers taking the electrons away from this? \_\_\_\_\_\_
13. Oxidative Phosphorylation:
    1. Let’s break this down – “oxidative” : the electron carriers from the other steps are dropping of their electrons and being oxidized; “phosphorylation” : at the end of this, ADP is phosphorylated to become ATP
    2. 2 parts:
       1. Electron Transport Chain (ETC)
          1. What is the final electron acceptor? \_\_\_\_\_\_\_\_\_\_\_
          2. As the electrons are moving through the ETC, \_\_\_\_\_\_\_\_ are being pumped into the inner mitochondrial membrane space.
          3. That creates a gradient with a lot of potential energy.
       2. Chemiosmosis
          1. The H+ (protons) that are built up in the inner membrane space can escape through the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
          2. This forces a phosphate group to be added to ADP, therefore creating \_\_\_\_\_\_.
14. With aerobic respiration, how many ATP molecules can be made from the oxidation of one glucose molecule (approximate)? \_\_\_\_\_\_
15. Is glucose our only energy source? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
16. What organisms can use anaerobic respiration (fermentation)?
17. What is photosynthesis?
18. Write the equation for aerobic respiration: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
19. Write the equation for anaerobic respiration: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
20. The gas produced from combusting organic material during respiration is \_\_\_\_\_\_\_. When we combust fossil fuels (basically stuff that was never decomposed and now stuck in the Earth’s crust), we release large amounts of that same gas into the atmosphere. True/False