

Biology Chapter 9: Electron Transport Chain Worksheet

1. Where do NADH and FADH₂ come from (circle all that apply)?

Glycolysis Fermentation Krebs Cycle

2. Where does the ETC occur?

3. While on the ETC, electrons are transported from one _____ to another.

4. What molecule is the final acceptor of the electrons?

Oxygen Carbon CoA

5. When this molecule combines with the electrons, what are the electrons' energy levels?

High ½ full Low

6. Electrons, the final electron acceptor and hydrogen ions combine to form what product?

7. For every 2 high energy electrons, what is transported across the membrane in the mitochondrion?

8. What charge builds up in the intermembrane space?

Positive (+) Negative (-)

9. What charge builds up in the matrix?

Positive (+) Negative (-)

10. Because of this build-up of charges on one side of the membrane, what state wants to be reached?

Concentrated Equilibrium Gas Liquid

11. Hydrogen ions travel through channels into proteins called what?

CoA Amylase Glucose ATP Synthase

12. This protein spins around like a turbine energy creating _____ from ADP + P.

13. Two high energy electrons can produce _____ ATP.

14. Glycolysis produces a net gain of _____ ATP.

15. The Krebs Cycle and the ETC produce _____ ATP.

16. Cellular respiration in total can produce _____ ATP.

17. What are the two waste molecules produced by cellular respiration (you may circle more than one)?

CO₂

C₆H₁₂O₆

O₂

H₂O

pyruvic acid

CoA

18. Not all of the energy contained in glucose is put into ATP. What is the rest of the energy released as?

19. Imagine that you are running the Iron man triathlon. Describe the process that your muscle cells take.