Cellular Respiration, Glycolysis, and Krebs Cycle Review Sheet

1. Where does cellular respiration take place? **Mitochondria**
2. Can all living things carry on cellular respiration? **YES**
3. Looking at the cellular respiration equation:
a. reactants = **1 molecule of glucose, 6 molecules of oxygen**
b. products = **6 molec. Water, 6 molec. Carbon dioxide, 36 ATP**
4. List two phases of cellular respiration. **Anaerobic and aerobic**
5. What is the purpose of glycolisis and where does it take place?
Splits glucose into 2 molecules of pyruvic acid. In the cytoplasm
6. Can all living things do glycolisis? **yes**
7. What is the difference between a facultative anaerobe and an obligate anaerobe?
Facultative – can live with or without oxygen
Obligate – can only without oxygen
8. During Glycolisis the glucose splits to form __**2PGAL**___molecules. This burns up __**2**___ATP molecules. The two PGAL molecules are changed into _**2 molecules of Pyruvic acid**_____. This produces _**4**__ATP molecules and __**2**___ NADPH2 molecules.
9. Glycolisis produces __**4**__ATP molecules, but you end up with __**2**__. Because **2 ATP molecules are used at the beginning of Glycolysis.**
10. Reactants of glycolysis = **glucose, 2 ATP**
Product of glycolysis = **2 Pyrovic acid, 2 ATP, 2 NADH2**
11. Define Krebs cycle.
Aerobic process of respiration that completes the breakdown of glucose started by glycolysis.
12. Define grooming
Process that takes place before the Krebs Cycle.
13. What happens in grooming?
Pyruvic acid is changed into Acetyl
14. Name of molecule that guides Acetyl into the Krebs Cycle? **CoA (Co-enzyme A)**
15. What happens to CoA? **Nothing just goes back to guide another acetyl into the Krebs Cycle**
16. Name the major compounds of Krebs Cycle.
Acetyl, oxaloacetic acid, citric acid, ketoglutaric acid, succinic acid
17. What happens to the acetyl when it enters the Krebs cycle.
It combines with water and oxaloacetic acid to form citric acid
18. Name the compound that helps Acetyl combine with the oxaloacetic acid. **Water**
19. What is formed when oxaloacetic acid combines with acetyl? **Citric acid**
20. Citric acid is a 6-C molecule that is changed into **Ketoglutaric acid**__ a 5C molecule, with the help from **H2O**_. During this process one **NADH2**__ is formed and 1 molecule of **CO2**__ is released .
21. Ketoglutiric acid is changed to _**Succinic acid**_, a 4 C molecule, In the process one _**ATP**_ and one **NADH2**__ is formed and one molecule of _**CO2**_ is given off.
22. Succinic acid is then transformed to __**Oxaloacetic Acid**_. In this process _**H2O**_is used and **FADH2**_ and **NADH2**_ are formed.
23. The oxaloacetic acid combines with **acetyl and water**_ to form _**citric acid**_ and restart the Krebs Cycle.
24. The Krebs Cycle goes around **twice. Once for each pyruvic acid molecule.**