



~Photosynthesis Review Guide~

1. What is a heterotroph? Give 2 examples. *an organism that must consume (cow, human)*
2. Name the main pigment used during photosynthesis. *Chlorophyll*
3. What is an autotroph? Give 2 examples. *an organism that makes its own food*
4. Why is chlorophyll so important for Photosynthesis? *gets the e⁻ excited*
5. What is the secondary pigment used in Photosynthesis? *carotene*
6. Write the chemical formula for photosynthesis. *$CO_2 + H_2O + \text{sun} \rightarrow O_2 + \text{glucose}$*
7. What is needed during the light dependent reactions? *H₂O, sun*
8. What is produced during the light dependent reactions? *O₂*
9. What happens to water during the light dependent reactions? *broken down in H, H & O₂ released*
10. What is the purpose of the excited electrons during Photosynthesis? *to make ATP, NADPH*
11. What is needed during the Light independent reactions? *CO₂ + ATP, NADPH*
12. What is produced during the light independent reactions? *glucose*
13. What is another name for the light independent reactions? *Calvin Cycle*
14. How do we see the color green from chlorophyll? *reflected*
15. What organelle is the main focus during photosynthesis? *Chloroplast*
16. Where does each phase of photosynthesis occur? *1 = thylakoid 2 = stroma*
17. Explain why temperature limits the process of photosynthesis. *too cold or hot - nothing works*
18. Explain how carbon dioxide can limit the process of photosynthesis. *need it for Stage #2*
19. Explain why water can limit the process of photosynthesis. *need it for Stage #1*
20. Explain how light can limit the process of photosynthesis. *need it for Stage #1*
21. Is ATP made during photosynthesis? Why or why not..... explain your reasoning. *NO - all is used in Stage 2*
22. What is an example of a C4 plant? CAM plant?

↓ corn ↓ pineapple

3

Cellular Respiration

Study Guide

1. What is the cellular respiration equation? $O_2 + \text{glucose} \rightarrow CO_2 + H_2O + ATP$
2. Define Glycolysis. *sugar breaking down*
 - a. What is being broken down? *Glucose*
 - b. Where does this occur in eukaryotic cells? *cytoplasm*
 - c. Name the product of Glycolysis. *Pyruvate + ATP*
 - d. Explain why there is a net gain of only 2 ATP at the end of glycolysis. *because 2 were used to start*
3. Name the second stage of aerobic cellular respiration. *Krebs Cycle*
 - a. Where does this process occur? *mitochondria*
 - b. Is this stage aerobic or anaerobic? *aerobic*
 - c. Where does it occur in prokaryotes? *cytoplasm*
 - d. Name the molecule that is broken down. *pyruvate*
 - e. How many CO₂ molecules are made? *6*
 - f. What happens to most of the CO₂? *exhaled out*
 - g. How many ATP molecules are produced in this stage? *2*
 - h. What 2 energy-carrying molecules (electron carriers) are made? *NADH, FADH₂*
4. Name the third stage of aerobic cellular respiration. *ETC*
 - a. Where does this process occur? *mitochondria*
 - b. What is the purpose of NADH and FADH₂? *- help create ATP*
 - c. How many ATP are created? *32*
 - d. What other product is made? *H₂O*
5. Total ATP made in aerobic respiration is...? *36*
6. How does prokaryotic cellular respiration work? *use cell membrane - make 38 ATP*
7. When oxygen is not present, then what process occurs? *anaerobic*
8. Name the 2 types of anaerobic respiration. *LAF & AF*
9. What is produced during lactic acid fermentation? *lactic acid*
10. Can humans go through this process (lactic acid fermentation)? *yes*
11. How many ATP does this process produce? *0 by itself*
12. What is produced during alcoholic fermentation? *CO₂ + alcohol*
13. What are the "holes" in bread? *CO₂*
14. What type of organisms can go through this process? *yeast*