

NAME \_\_\_\_\_

### Photosynthesis and Cellular Respiration Review Sheet

#### Part A. Write the correct term from the list below in the space next to the definition.

Aerobic	Cellular Respiration	Anaerobic	Chlorophyll	Pigment
Krebs cycle	Photosynthesis	Electron transport chain	Glycolysis	Calvin cycle
Metabolism	Stroma	Thylakoid		

- \_\_\_\_\_ the process by which light energy is converted to chemical energy
- \_\_\_\_\_ the process by which cells get energy from food
- \_\_\_\_\_ a substance that absorbs light
- \_\_\_\_\_ the primary pigment involved in photosynthesis
- \_\_\_\_\_ the series of proteins that carry electrons through the membrane of the mitochondria
- \_\_\_\_\_ the making of carbon dioxide into organic carbon compounds
- \_\_\_\_\_ making 2 pyruvate from one glucose
- \_\_\_\_\_ cluster of proteins and pigments that capture the sun's energy
- \_\_\_\_\_ a process that requires oxygen
- \_\_\_\_\_ a process that does not require oxygen
- \_\_\_\_\_ the cycle that pyruvate enters after glycolysis
- \_\_\_\_\_ the process of getting energy from food
- \_\_\_\_\_ space on the interior of a chloroplast; the light-independent reactions take place here

#### Part B. Place the following steps in order and write the number of each step in the space provided.

- \_\_\_\_\_ animals eat plants to get energy
- \_\_\_\_\_ plant absorbs sunlight
- \_\_\_\_\_ plant uses chemical energy to make organic compound (glucose)
- \_\_\_\_\_ light from the sun reaches Earth
- \_\_\_\_\_ plant converts sunlight to chemical energy

#### Part C. Circle the letter of the term or phrase that best answers each question.

- Photosynthetic organisms get their energy from:  
a. inorganic substances    b. autotrophs    c. heterotrophs    d. light
- Carbon dioxide fixation in the Calvin Cycle requires  
a. ATP and NADPH    b. ADP and NADPH    c. ATP and NADP<sup>+</sup>    d. ATP and O<sub>2</sub>
- Aerobic respiration follows glycolysis when \_\_\_\_\_ is available  
a. carbon dioxide    b. hydrogen    c. water    d. oxygen
- During cellular respiration,  
a. the complete breakdown of glucose yields only carbon dioxide and water  
b. the complete breakdown of glucose yields only ATP  
c. NADPH is produced  
d. carbon dioxide is required
- The total amount of ATP produced during glycolysis is:  
a. 45    b. 36    c. 2    d. 10

6. The grand total of ATP produce during glycolysis and cellular respiration is
- a. 45                      b. 36                      c. 2                      d. 10
7. When water is broken up in the light reactions, what is the waste product produced?
- a.            carbon dioxide                      c.            glucose  
b.            oxygen    d.            NADPH

**Part D. Determine whether the following statements are true or false. If the statement is false, correct the underlined portion.**

1. The Calvin Cycle produces ATP while breaking down glucose in cellular respiration
2. In the third stage of photosynthesis, oxygen is used to make organic molecules (glucose).
3. Glycolysis is the process where glucose is made from pyruvate.
4. Metabolic process that requires oxygen are called anaerobic.
5. Photosynthesis occurs in the stroma and thylakoid found in the mitochondrion.
6. NADPH is an electron transport carrier for cellular respiration.
7. During cellular respiration, glycolysis can be followed either by fermentation or respiration depending on whether oxygen is present.
8. The number of ATP produced by Fermentation is more than that produced by Cellular Respiration.

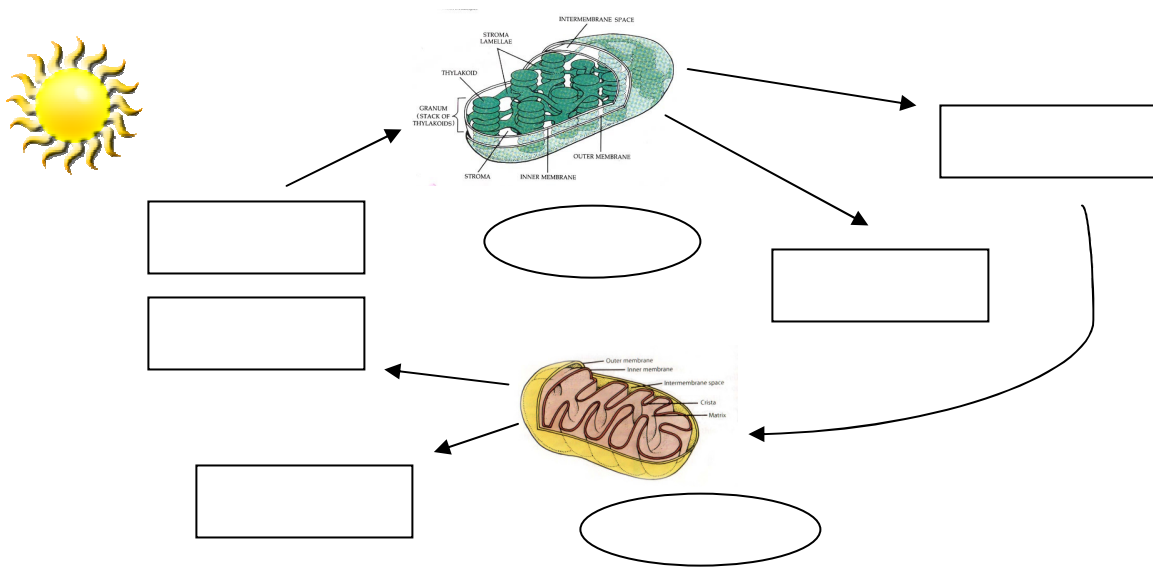
**Part E. Formulas and equations!!**

1. What is the chemical equation for photosynthesis? Identify the reactants and the products.
2. What is the chemical equation for cellular respiration? Identify the reactants and the products.
3. How are equations above the similar? How are they different?
4. What is the chemical equation for alcoholic fermentation?

**Part F. Read the clues for the jumbled words that appear below. Unscramble the words and place them on the blanks provided.**

- |  |                             |       |
|--|-----------------------------|-------|
| 1. Organelle containing chlorophyll            | SHORLAPLOCT                 | _____ |
| 2. Fuel used by cells                          | COGULES                     | _____ |
| 3. Atmospheric gas used by most cells          | NEGOXY                      | _____ |
| 4. End product of glycolysis                   | PRYVUCI CAID                | _____ |
| 5. Organelle with two membranes                | TRIDIMONCHON                | _____ |
| 6. Waste product from cell energy production   | BOCARN DIDIXOE<br>and TEWAR | _____ |
| 7. Energy storage molecule                     | DINNEOASE<br>SOPHTRIPATHE   | _____ |
| 8. Needs energy to bond with a phosphate group | EDOISANNE<br>OSPITAPHEDH    | _____ |

**Part G. Use the words that were unscrambled from Part F and put them in the correct blank in the diagram below.**



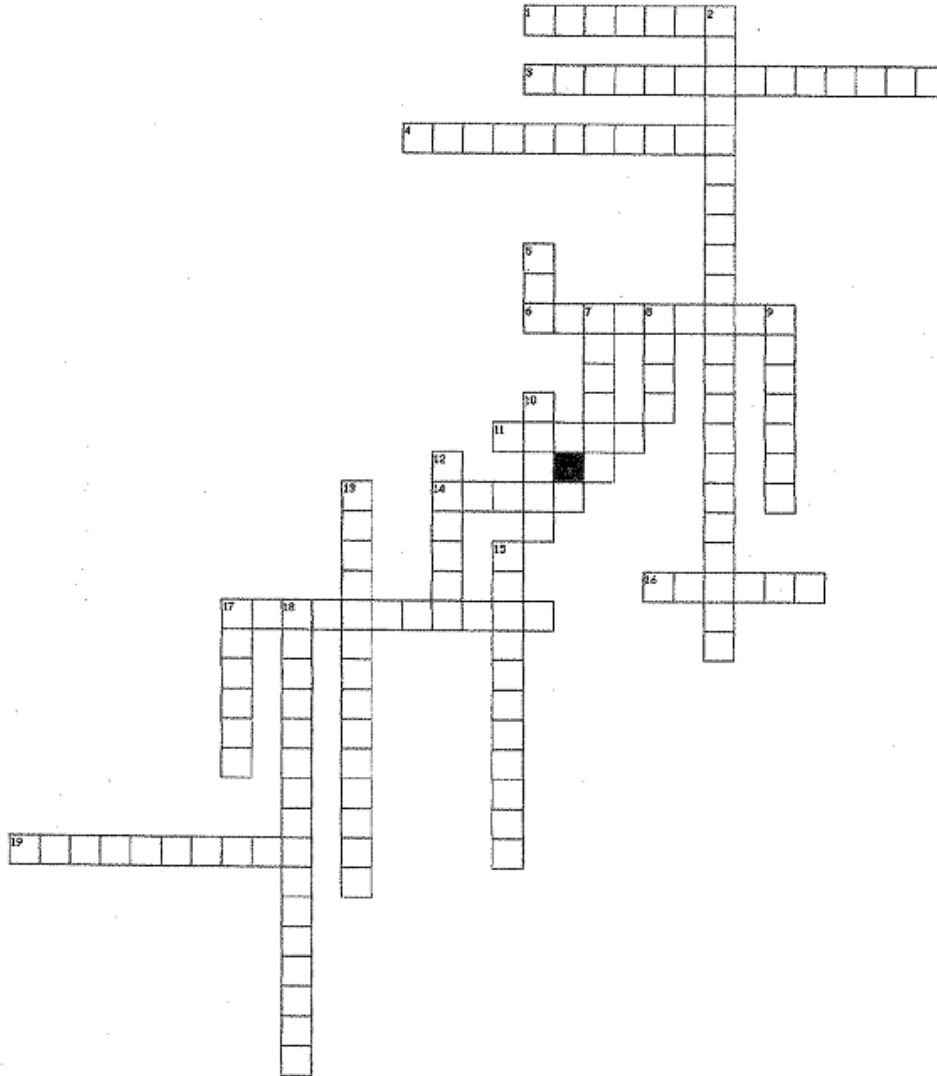
**Part H. Using the diagram above, answer the following questions.**

1. Which cell process does the top half of the diagram represent?
2. In what types of organisms does this process occur?
3. Which cell process does the bottom half of the diagram represent?
4. In what types of organisms does this process occur?
5. What happens when the chemical bonds of ATP are broken?
6. How are photosynthesis and cellular respiration both similar?
7. How are photosynthesis and cellular respiration both different?

**(CONTINUE ON BACK)**

# Photosynthesis

Name \_\_\_\_\_



## Across

1. end product of photosynthesis
3. part of photosynthesis that "collects" and stores energy
4. where photosynthesis takes place
6. found in group of three on ATP
11. formed by combining electrons with oxygen
14. electron carrier
16. part of a plant where photosynthesis usually occurs
17. produces glucose molecules
19. type of reaction that makes ADP from ATP

## Down

2. process that produces ATP or NADPH
5. energy storing molecule
7. combines with "fixed" electrons
8. molecules in Calvin cycle that combine to form glucose
9. what light energy does to electrons
10. molecule that picks up electrons to produce NADPH
12. what is released by electrons in a transport chain

13. what light energy is changed into
15. green pigment that captures light energy
17. atoms that are removed from molecules during the Calvin cycle
18. part of photosynthesis that does not require light