Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_ Mod: \_\_\_\_\_

**Photosynthesis Review**

1. (T/F) Plants produce all of the oxygen in our atmosphere

2. (T/F) All of a plant’s mass comes from water or soil-based nutrients

3. (T/F) The process of photosynthesis produces oxygen from the breakdown of carbon dioxide.

4. (T/F) Pigments are only involved in the light independent step of photosynthesis

1. Which cell process could result in a **decrease** of the amount of dissolved oxygen measured in an aquatic (pond, river, etc.) ecosystem?
2. mitosis C. cellular respiration
3. osmosis D. photosynthesis
4. Which of the following is **not** part of the light-dependent reaction
5. Splitting of water
6. Carbon fixation
7. Absorbing light energy
8. All of the above are a part of the light-dependent reaction
9. Carbon dioxide is necessary for
10. The light-independent reaction of photosynthesis
11. The light-dependent reaction of photosynthesis
12. In the light-independent reaction
13. Bonds are broken in water molecules, releasing oxygen
14. Carbon fixation occurs
15. Water is split
16. Sunlight is needed

8. In photosynthesis, the glucose

A. is broken down (used) during the light-dependent reaction

B. is broken down (used) during the light-independent reaction

C. is built (made)during the light-dependent reaction

D. is built (made) during the light-independent reaction

1. In which phase of the biochemical pathway of photosynthesis is ATP produced in order to be used in a later phase? In other words: Which phase includes the production of some ATP?
   1. light dependent
   2. light independent
   3. the “carbon fixing” phase

10. During the process of photosynthesis, phytoplankton (which are small, ocean-dwelling eukaryotes) release a gas into their aqueous environment. This gas could help the animals that live in the water with them. Name the gas.

1. Glucose
2. Carbon dioxide
3. Oxygen
4. Water
5. What is the difference between C3, C4 and CAM plants?
6. What is the difference between stoma and stroma? Which is involved with gas exchange?
7. Draw a graph demonstrating the expected effect of temperature on the rate of photosynthesis
   1. Why does the rate of reaction for question 11 decline all the way to 0 when temperature is really high?
8. Draw a graph demonstrating the expected effect of either light intensity or carbon dioxide concentration of the environment on the rate of photosynthesis
   1. Why does the rate of reaction for question 12 plateau even as the manipulated variable continues to increase?
9. Describe the relationship between the rate of photosynthesis and the rate of transpiration from the leaves of a plant. What does gas exchange have to do with a loss of water?
10. In which step of the photosynthesis reaction is oxygen gas (O2) produced?
11. In which step of the photosynthesis reaction does carbon fixing occur?
12. Write the general reaction for photosynthesis
13. Name the gaseous reactant for photosynthesis
14. State the energy conversion happening in the process of photosynthesis.