

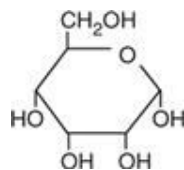
TEST NAME: **Test 6 - Photosynthesis and Respiration**
TEST ID: **2334609**
GRADE: **09 - Ninth Grade - 12 - Twelfth Grade**
SUBJECT: **Life and Physical Sciences**
TEST CATEGORY: **Shared Classroom Assessments**

Student: _____

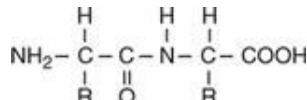
Class: _____

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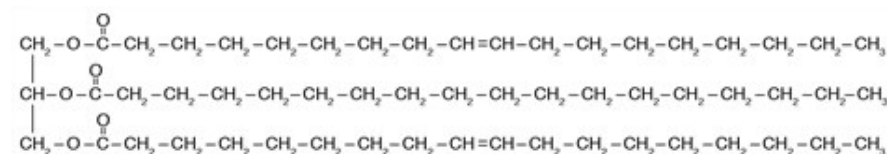
- A.



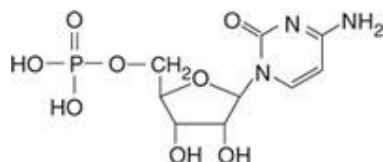
- B.



- C.



- D.



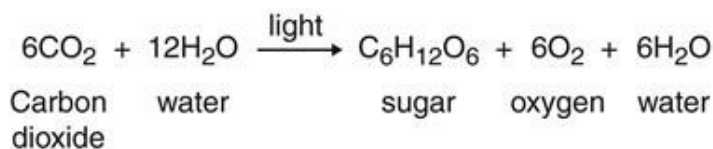
- A

- A

- A. Enzymes are constantly renewed by other enzymes.
- B. Enzymes are made of unusually strong materials.
- C. Enzymes are constantly regenerated by respiration.
- D. Enzymes are not changed when they catalyze a chemical reaction.

4. Cellular respiration results in the production of adenosine triphosphate (ATP) molecules for energy. The most efficient form of cellular respiration would result in the production of ATP along with which substances?
- A. oxygen and energy
 - B. glucose and glycogen
 - C. lactic acid and alcohol
 - D. carbon dioxide and water
5. During a biochemical reaction, pyruvate ($C_3H_4O_3$) is converted into carbon dioxide (CO_2) and water (H_2O). In what cellular organelle does this biochemical reaction occur?
- A. nucleus
 - B. cytoplasm
 - C. mitochondrion
 - D. endoplasmic reticulum
6. A student observes a flask containing a mixture of yeast, water, and a carbohydrate; the top of the flask is covered by a balloon. After 30 minutes, what waste products would she expect to find in the flask and balloon?
- A. carbon dioxide and ethyl alcohol
 - B. carbon dioxide and lactic acid
 - C. oxygen and glucose
 - D. oxygen and starch
7. The diagram shows the process of photosynthesis.

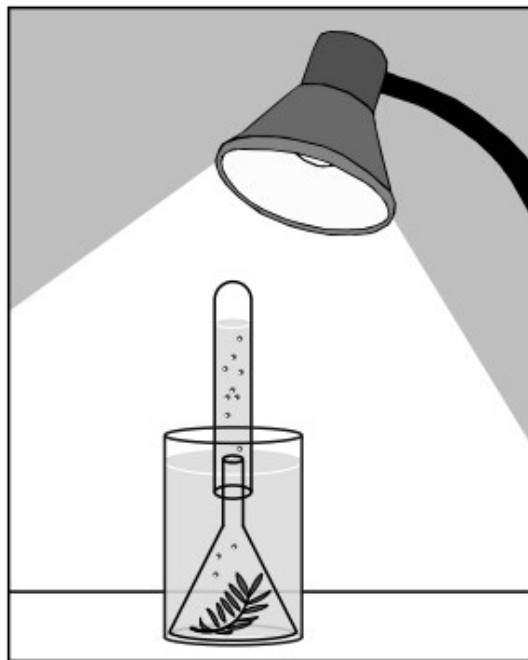
Photosynthesis



What type of energy transformation occurs during photosynthesis?

- A. heat energy to electrical energy
- B. kinetic energy to electrical energy
- C. potential energy to chemical energy
- D. electromagnetic energy to chemical energy

8. Which statement **best** compares aerobic and anaerobic respiration?
- A. Less ATP is generated during anaerobic respiration than during aerobic respiration.
 - B. More water is generated during anaerobic respiration than during aerobic respiration.
 - C. More oxygen is generated during anaerobic respiration than during aerobic respiration.
 - D. Less lactic acid is generated during anaerobic respiration than during aerobic respiration.
9. This diagram shows an experimental setup containing an aquatic plant, elodea, gas collection equipment, and a light source.



Which gas bubbles are being collected?

- A. carbon dioxide, because it is a waste product of photosynthesis
- B. water vapor, because it is a waste product of photosynthesis
- C. nitrogen, because it is a waste product of photosynthesis
- D. oxygen, because it is a waste product of photosynthesis

10. An experiment was performed using four plants of the same species. Each plant was placed in an identical container under the same environmental conditions. Carbon dioxide was added to each container. Each plant was then exposed to a different color of light. After 72 hours, the volume of carbon dioxide in each container was measured. The measured data is shown in the table below.

Plant	Light Color	Initial Volume of CO ₂	Final Volume of CO ₂
1	Red	250 cm ³	60 cm ³
2	Orange	250 cm ³	200 cm ³
3	Green	250 cm ³	400 cm ³
4	Blue	250 cm ³	100 cm ³

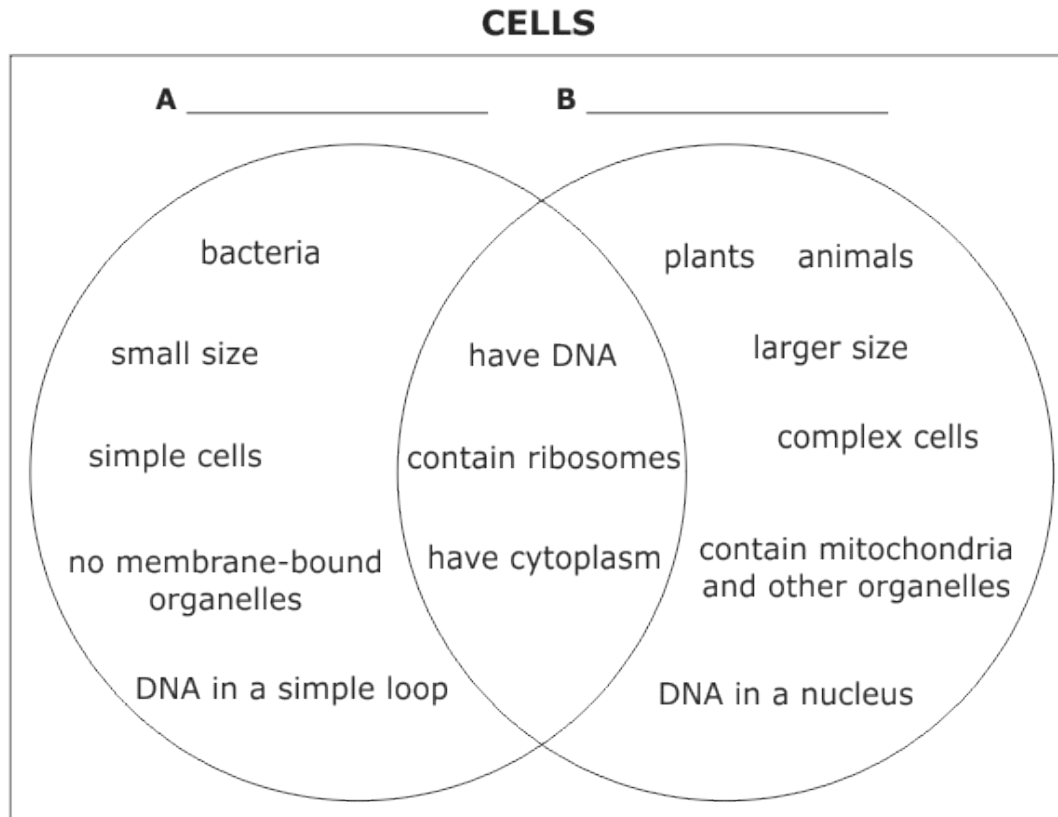
Which statement would **most likely** explain the different volumes of carbon dioxide after 72 hours?

- A. Photosynthesis occurs under all colors of light.
 - B. Photosynthesis is not affected by the color of light.
 - C. Photosynthesis occurs best under certain colors of light.
 - D. Photosynthesis will occur whether or not light is present.
11. **When placed in a glucose solution, yeast cells will produce bubbles. Which process are the yeast cells carrying out?**
- A. chemosynthesis
 - B. photosynthesis
 - C. respiration
 - D. transpiration
12. How are the reactions for photosynthesis and cellular respiration related?
- A. The glucose and oxygen produced in photosynthesis are used as reactants in aerobic cellular respiration.
 - B. The glucose and oxygen produced in photosynthesis are used as reactants in anaerobic cellular respiration.
 - C. The carbon dioxide and water produced in photosynthesis are used as reactants in aerobic cellular respiration.
 - D. The carbon dioxide and water produced in photosynthesis are used as reactants in anaerobic cellular respiration.

13. Which process releases energy from food by producing ATP in the absence of oxygen?
- A. glycolysis
 - B. fermentation
 - C. photosynthesis
 - D. cellular respiration
14. Which of these processes produces the **most** ATP during cellular respiration?
- A. glycolysis
 - B. fermentation
 - C. citric acid cycle
 - D. electron transport chain
15. Which is responsible for muscle pain felt after repeatedly lifting weights?
- A. a buildup of ethanol due to aerobic respiration
 - B. a buildup of ethanol due to anaerobic respiration
 - C. a buildup of lactic acid due to aerobic respiration
 - D. a buildup of lactic acid due to anaerobic respiration
16. Which is the correct sequence of events during aerobic respiration?
- A. electron transport chain, Krebs's cycle, glycolysis
 - B. glycolysis, Krebs's cycle, electron transport chain
 - C. glycolysis, electron transport chain, Krebs's cycle
 - D. electron transport chain, Krebs's cycle, glycolysis

17. Which equation represents cellular respiration?
- A. $\text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2 \rightarrow 6\text{CO}_2 + 6\text{H}_2\text{O}$
 - B. $6\text{CO}_2 + 6\text{H}_2\text{O} \rightarrow \text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2$
 - C. $\text{C}_3\text{H}_8 + 5\text{O}_2 \rightarrow 3\text{CO}_2 + 4\text{H}_2\text{O}$
 - D. $3\text{CO}_2 + 4\text{H}_2\text{O} \rightarrow \text{C}_3\text{H}_8 + 5\text{O}_2$
18. Eating organic vegetables is considered important for human nutrition. Which is the original source of energy?
- A. vitamins found in soil
 - B. lipids within the root tips
 - C. proteins stored in vacuoles
 - D. sun, made available by photosynthesis
19. Why do living things require energy for active transport?
- A. Organisms move substances down the gradient.
 - B. Organisms use the energy for osmotic purposes.
 - C. Organisms move substances against the gradient.
 - D. Organisms move solutes from high to low concentration.
20. Which process requires ATP in order to release particles from a cell to maintain homeostasis?
- A. pinocytosis
 - B. exocytosis
 - C. endocytosis
 - D. phagocytosis
21. Which is the primary function of a vacuole?
- A. to digest food and water
 - B. to store food and water
 - C. to remove wastes
 - D. to store proteins

22. Refer to the Venn diagram comparing cell types below.



What are the **best** titles for A and B?

- A. A is eukaryotic and B is prokaryotic.
 - B. A is prokaryotic and B is eukaryotic.
 - C. A is plant and B is animal.
 - D. A is animal and B is plant.
23. Which **best** explains why muscle cells are different from blood cells?
- A. A mutation occurs during the development of muscle cells but not in blood cells.
 - B. Different genes are activated in muscle cells than in blood cells.
 - C. Muscles cells experience different environmental influences than blood cells.
 - D. Muscle cells are produced by the brain, but blood cells are produced by the heart.

24. **All of the following are functions of a cell membrane EXCEPT**

- A. surrounding and protecting the contents of the cell.
- B. releasing waste products from the cell.
- C. producing energy for cell processes.
- D. allowing gases to enter the cell.

25. Which is used by the amoeba for locomotion?

- A. cilia
- B. flagella
- C. pseudopod
- D. contractile vacuole