

**TEST NAME: Photosynthesis and Cellular Respiration Quiz**  
**TEST ID: 3248455**  
**GRADE: 10 - Tenth Grade**  
**SUBJECT: Life and Physical Sciences**  
**TEST CATEGORY: School Assessment**

## 09/23/19, Photosynthesis and Cellular Respiration Quiz

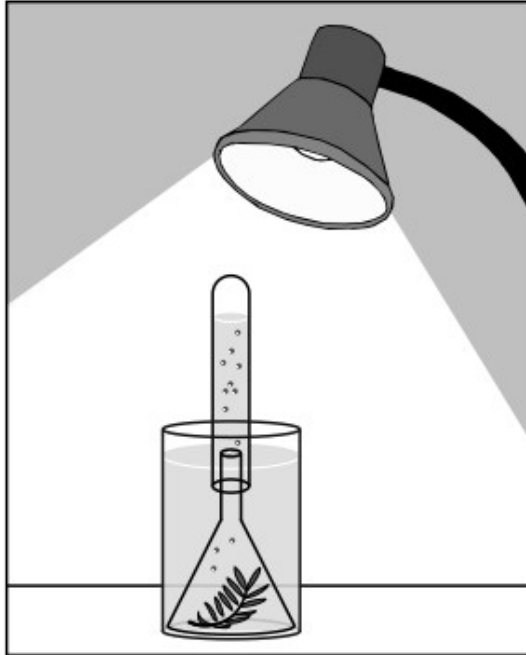
Student: \_\_\_\_\_

Class: \_\_\_\_\_

Date: \_\_\_\_\_

- 1. Animal cells perform functions using energy that is derived from glucose ( $C_6H_{12}O_6$ ). Which molecule is required for animal cells to obtain the MOST energy possible from a molecule of glucose?**
  - A. water
  - B. oxygen
  - C. lactic acid
  - D. carbon dioxide
  
- 2. Plants make sugars in the presence of sunlight in a process called photosynthesis. What form of carbon do the plants take in for this process?**
  - A. glucose molecule
  - B. carbon dioxide
  - C. single carbon atoms
  - D. complex organic compounds

3. 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
4. If an animal has a limited supply of  $O_2$ , which process would be **most** affected?
- A. alcoholic fermentation
  - B. lactic acid fermentation
  - C. aerobic cellular respiration
  - D. anaerobic cellular respiration

5. **In photosynthesis light energy is transferred to what form of energy?**
- A. kinetic energy
  - B. chemical energy
  - C. mechanical energy
  - D. gravitational potential energy
6. **Ava conducted an experiment to determine respiratory rates during different activities. She counted the number of breaths per minute. Ava noted that the number of breaths increases as physical activity increases. Why is there an increase in the number of breaths per minute as activity increases?**
- A. As activity increases, more oxygen is exhaled.
  - B. As activity increases, breathing becomes more efficient.
  - C. As activity increases, the oxygen needs of cells increase.
  - D. As activity increases, the rate of the heart beating decreases.
7. **How does the amount of energy resulting from anaerobic respiration compare with that of aerobic respiration?**
- A. Aerobic respiration results in less energy.
  - B. Aerobic respiration results in more energy.
  - C. Each process results in equal amounts of energy.
  - D. Each process results in variable amounts of energy.
8. **Which is the correct chemical equation for photosynthesis?**
- A.  $O_2 + H_2O + \text{energy} \rightarrow C_6H_{12}O_6 + CO_2$
  - B.  $CO_2 + H_2O \rightarrow C_6H_6O_3 + O_2 + \text{energy}$
  - C.  $6O_2 + 6H_2O \rightarrow C_6H_{12}O_6 + 6CO_2 + \text{energy}$
  - D.  $6CO_2 + 6H_2O + \text{energy} \rightarrow C_6H_{12}O_6 + 6O_2$
9. **Which of these is a product of photosynthesis and a requirement for cellular respiration?**
- A. carbon dioxide
  - B. glucose
  - C. water
  - D. sunlight

10. During the light reactions of photosynthesis, energy is stored in the compounds ATP and NADPH. A second set of reactions uses this stored energy to produce vital compounds such as glucose. This second set of reactions involves a biochemical pathway called
- the Calvin cycle.
  - carbon fixation.
  - respiration.
  - transpiration.
11. 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 <sub>2</sub>	Final Volume of CO <sub>2</sub>
1	Red	250 cm <sup>3</sup>	60 cm <sup>3</sup>
2	Orange	250 cm <sup>3</sup>	200 cm <sup>3</sup>
3	Green	250 cm <sup>3</sup>	400 cm <sup>3</sup>
4	Blue	250 cm <sup>3</sup>	100 cm <sup>3</sup>

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

- Photosynthesis occurs under all colors of light.
- Photosynthesis is not affected by the color of light.
- Photosynthesis occurs best under certain colors of light.
- Photosynthesis will occur whether or not light is present.



15. What does the following word equation represent?



- A. photosynthesis
  - B. regeneration
  - C. cellular respiration
  - D. transpiration
16. Which answer choice correctly pairs the process with the organelle in which it takes place?
- A. photosynthesis in mitochondria and cellular respiration in chloroplasts
  - B. photosynthesis in chloroplasts and cellular respiration in mitochondria
  - C. photosynthesis in mitochondria and cellular respiration in mitochondria
  - D. photosynthesis in chloroplasts and cellular respiration in chloroplasts