



Anaerobic Respiration: Fermentation Worksheet

Instructions: Type your **FIRST & LAST** name, with your teacher's **LAST** name in bracket, at the end of the worksheet when you click 'FINISH'. Example: Sam Smith (COX).

A. Watch the video entitled "Fermentation".

B. Answer the following questions, after you have watched the video at least twice. Choose the best answer for each question. There is only one answer for each question.

1. Lactic acid fermentation occurs in your muscles after a workout because your cells are struggling to get _____.
 - A. glucose
 - B. sunlight
 - C. oxygen
 - D. water

2. Fermentation is cellular respiration without which molecule?
 - A. $\text{C}_6\text{H}_{12}\text{O}_6$
 - B. O_2
 - C. CO_2
 - D. NO_2

3. When respiration occurs with oxygen, it is called _____.

- aerobic
- photosynthesis
- anaerobic
- fermentation

4. Fermentation is _____.

- cellular respiration
- photosynthesis
- aerobic
- anaerobic

5. The process carried out by yeast that causes bread to rise is called _____.

- alcoholic fermentation
- lactic acid fermentation
- cellular respiration
- yeast mitosis

6. How are lactic acid and alcoholic fermentation similar?

- They have the same products
- They have the same reactants
- They both require oxygen
- They occur in the same organisms

7. What is the correct equation for cellular respiration?

- $6O_2 + C_6H_{12}O_6 + \text{Energy} \rightarrow 6CO_2 + 6H_2O$
- $6O_2 + C_6H_{12}O_6 \rightarrow 6CO_2 + 6H_2O + \text{Energy}$
- $6CO_2 + 6H_2O + \text{Energy} \rightarrow 6O_2 + C_6H_{12}O_6$
- $6CO_2 + 6H_2O \rightarrow 6O_2 + C_6H_{12}O_6 + \text{Energy}$

8. Fermentation occurs in the cell's _____.

- cytoplasm
- nucleus
- cristae
- mitochondria

9. Which organism uses alcoholic fermentation?

- Bacteria
- Archaea
- Worms
- Yeast

10. Which compounds are produced by the two main types of fermentation?

- A. NAD⁺ or ATP
- B. Alcohol or Lactic Acid
- C. Glucose or Carbon Dioxide
- D. ADP or ATP

11. What role does oxygen play in cellular respiration?

- A. It is reduced in glycolysis as glucose is oxidized.
- B. It provides electrons to the electron transport chain.
- C. It is required to produce heat and light.
- D. It serves as the final electron acceptor during the electron transport chain.

12. Which step is not involved in Fermentation?

- A. Electron Transport Chain
- B. Kreb's Cycle
- C. Glycolysis
- D. Photosynthesis

13. How are cellular respiration and photosynthesis almost opposite processes?

- A. Photosynthesis removes oxygen from the atmosphere, and cellular respiration puts it back.
- B. Photosynthesis releases energy, and cellular respiration stores energy.
- C. Photosynthesis removes carbon dioxide from the atmosphere, and cellular respiration creates carbon dioxide.
- D. Photosynthesis makes glucose, and cellular respiration breaks glucose.

14. How many ATP molecules are required to start glycolysis?

- A. Four
- B. Three
- C. Two
- D. One

15. How is fermentation related to the production of bread?

- A. The absence of oxygen converts the sugar in the bread dough into oxygen, which is then removed from the bread.
- B. The ATP produced through fermentation is used by the bakers to knead the dough into the proper shapes.
- C. Yeast cells undergo alcoholic fermentation, which creates carbon dioxide that makes bread rise.
- D. Bacterial cells in the dough convert sugars through lactic acid fermentation into oxygen, allowing the dough to increase in height.

16. Which statement is true about fermentation?

- A. Used when there is no available oxygen in cells
- B. Only carried out by animal cells
- C. Produces large amounts of ATP
- D. Occurs in the mitochondria of cells

17. How many molecules of ATP are produced from fermentation?

- A. 2
- B. 4
- C. 36
- D. 38

18. During both alcoholic and lactic acid fermentation _____.

- A. NAD⁺ is regenerated, allowing glycolysis to continue
- B. Glucose is split into 3 pyruvic acid molecules
- C. Oxygen is required
- D. Carbon dioxide is produced

19. Lactic acid fermentation is carried out by animal cells only.

- A. True
- B. False

20. How is lactic acid fermentation different from alcoholic fermentation?

- A. Lactate is produced in lactic acid fermentation
- B. Carbon dioxide is produced in lactic acid fermentation
- C. Pyruvate is produced in lactic acid fermentation
- D. Ethanol is produced in lactic acid fermentation

