

Key

CELLULAR RESPIRATION

MULTIPLE CHOICE. Circle ALL that are TRUE. There may be MORE THAN one correct answer.

- _____ is the first step in cellular respiration that begins releasing energy stored in glucose.
A. Alcoholic fermentation
B. Lactic acid fermentation
C. Glycolysis
D. Electron transport chain
- The carriers for energy and high energy electrons resulting from glycolysis and the krebs cycle are _____.
A. ATP
B. NADH
C. FADH₂
D. NADPH
- If oxygen is NOT present, glucose is broken down by _____.
A. Krebs cycle
B. electron transport chain
C. fermentation (anaerobic respiration)
- Name the 3 carbon molecule produced when glucose is broken in half during glycolysis.
A. pyruvic acid
B. lactic acid
C. Acetyl-CoA
D. citric acid
- Since fermentation does not require oxygen it is said to be _____.
A. aerobic
B. anaerobic

6. Write the complete overall chemical equation for cellular respiration using words:

sugar + Oxygen → ATP + Carbon dioxide + water

7. Compare this reaction to PHOTOSYNTHESIS ($6 \text{ H}_2\text{O} + 6 \text{ CO}_2 + \text{light energy} \rightarrow \text{C}_6\text{H}_{12}\text{O}_6 + 6 \text{ O}_2$)
How are these equations related?

opposites & dependent on each other

8. Write the equations in words for the two kind of fermentation:

Alcoholic fermentation

sugar → ethanol + ATP + CO₂

Lactic acid fermentation

sugar → ATP + lactic acid

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Tell the kind of fermentation (alcohol or lactic acid) used in each example:

9. Yeast uses this to make bread dough rise alcohol
10. Your muscle cells use this during rapid exercise when oxygen is low lactic acid
11. Bacteria and yeast use this to make beer and wine alcohol

The Krebs Cycle and Electron Transport

MULTIPLE CHOICE:

Circle the answer or answers that best complete the statement or answer the question.
(THERE MAY BE MORE THAN ONE RIGHT ANSWER.)

12. Which of the following shows the correct sequence during cellular respiration?
- A. Electron transport chain → glycolysis → Krebs cycle
 - B. Glycolysis → Electron transport chain → Krebs cycle
 - C. Krebs cycle → Electron transport chain → glycolysis
 - ☒ D. Glycolysis → Krebs cycle → Electron transport chain
13. Where do the carbon atoms in pyruvic acid end up following the Krebs cycle?
- A. They enter the electron transport chain and make ATP
 - ☒ B. They become part of a carbon dioxide molecule and end up in the atmosphere
 - C. They join with citric acid to make Acetyl-CoA
 - D. They build up in the intermembrane space
14. When cellular respiration requires oxygen it is said to be _____
- ☒ A. aerobic
 - B. anaerobic
15. The movement of which ion across the membrane from the intermembrane space to the matrix causes ATP synthase to spin and make ATP
- A. Na⁺ ions
 - B. oxygen
 - ☒ C. H⁺ ions
 - D. water
16. Which stage of cellular respiration produces the most ATP?
- A. glycolysis
 - B. Krebs cycle
 - ☒ C. Electron transport
 - D. Acetyl-CoA charging