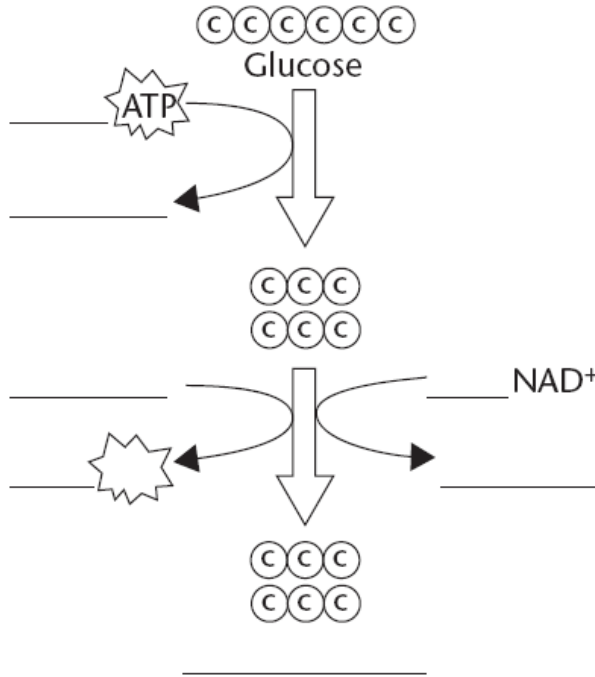


9.2 The Process of Cellular Respiration

Glycolysis

1. **THINK VISUALLY** Complete the diagram by writing on the lines provided the names and numbers of molecules used and produced during glycolysis.



2. Why is it an investment for the cell to use two ATP at the beginning of glycolysis?

3. What are two advantages of glycolysis?

The Krebs Cycle

For Questions 4–7, write *True* if the statement is true. If the statement is false, change the underlined word or words to make the statement true.

- _____ 4. The pyruvic acid produced in glycolysis enters the chloroplasts if oxygen is present in a cell.

- _____ 5. In the matrix, pyruvic acid is converted to lactic acid before the Krebs cycle begins.
- _____ 6. The compound that joins with a 4-carbon molecule in the Krebs cycle is called acetyl-CoA.
- _____ 7. Carbon dioxide is the only product of the Krebs cycle that is not re-used or used in other stages of cellular respiration.

Electron Transport and ATP Synthesis

For Questions 9–14, complete each statement by writing the correct word or words.

8. In eukaryotes, the electron transport chain is composed of a series of electron carriers located in the _____ of the mitochondrion.
9. In prokaryotes, the electron transport chain is in the _____.
10. _____ serves as the final electron acceptor of the electron transport chain.
11. _____ and _____ pass high-energy electrons to the electron transport chain.
12. The transfer of high-energy electrons down the electron transport chain causes _____ to be transported across the mitochondrial membrane.
13. ATP synthases produce the force needed to add one _____ to each ADP molecule by spinning when hydrogen ions flow through them.

The Totals

14. How many ATP molecules per glucose molecule does a cell gain from each of the three stages of cellular respiration?

15. Besides glucose, what other kinds of molecules can be used to produce ATP in cellular respiration?

16. Why is cellular respiration considered an efficient process?

Apply the Big idea

17. Where does the heat that warms your body come from? Explain your answer.
