

Study Guide

CHAPTER 8

Section 3: Cellular Respiration

In your textbook, read about cellular respiration and glycolysis.

Use each of the terms below only once to complete the passage.

~~aerobic~~ ~~anaerobic~~ ~~ATP~~ ~~cellular respiration~~ ~~cytoplasm~~ ~~energy~~
~~glucose~~ ~~glycolysis~~ ~~mitochondria~~ ~~NADH~~ ~~oxygen~~

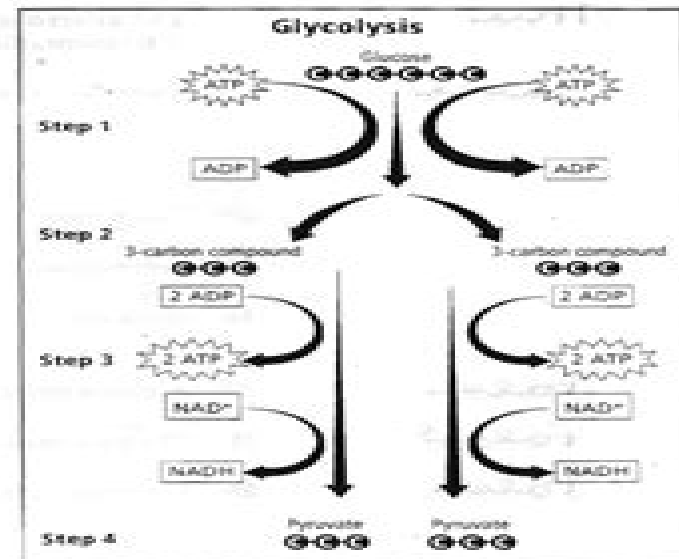
Organisms obtain energy in a process called (1) Cellular respiration. This process harvests electrons from carbon compounds, such as (2) glucose, and uses that energy to make (3) ATP. ATP is used to provide (4) energy for cells to do work. In (5) glycolysis, glucose is broken down into pyruvate. Glycolysis is a(n) (6) anaerobic process because it does not require oxygen. Glycolysis takes place in the (7) cytoplasm. Two molecules of ATP and two molecules of (8) NADH are formed for every glucose molecule that is broken down. (9) Aerobic respiration takes place in the (10) mitochondria. It is aerobic because the process requires (11) oxygen.

Refer to the diagram of glycolysis. Label the steps in the description to match the diagram.

12. Step 4. Each three-carbon compound is converted into a three-carbon pyruvate.
13. Step 2. A six-carbon compound is broken down into two three-carbon compounds.
14. Step 1. Phosphate groups from two ATP molecules are transferred to a glucose molecule.
15. Step 3. Two NADH molecules and four ATP molecules are produced.

Respond to each question.

16. Interpret How many total ATP molecules are produced from the glycolysis of one six-carbon glucose?
2 net ATP, 4 are produced.
17. Explain Why is there a net gain of only two ATP molecules in the glycolysis of one six-carbon glucose?
4 are produced, but 2 are used to for ADP + P; so a net gain of 2 ATP



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Arshad Iqbal



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