



SECTION

4.4

OVERVIEW OF CELLULAR RESPIRATION

Study Guide

KEY CONCEPT

The overall process of cellular respiration converts sugar into ATP using oxygen.

VOCABULARY

| | |
|----------------------|-------------|
| cellular respiration | anaerobic |
| aerobic | Krebs cycle |
| glycolysis | |

MAIN IDEA: Cellular respiration makes ATP by breaking down sugars.

1. What is cellular respiration?

2. Why is cellular respiration called an aerobic process?

3. Where does cellular respiration take place?

4. What happens during glycolysis?

MAIN IDEA: Cellular respiration is like a mirror image of photosynthesis.

5. In what two ways does cellular respiration seem to be the opposite of photosynthesis?

6. In which two parts of a mitochondrion does cellular respiration take place?

7. Write the chemical equation for the overall process of cellular respiration.

8. Explain what the equation means. Identify the reactants, products, and the meaning of the several arrows.

Section 4.4 STUDY GUIDE CONTINUED

Use the space below to sketch and label a mitochondrion. On the sketch, write the four steps of the cellular respiration process that occur in the mitochondrion.

Cellular Respiration**Vocabulary Check**

9. The prefix *glyco-* comes from a Greek word that means “sweet.” The suffix *-lysis* comes from a Greek word that means “to loosen.” How are the meanings of these word parts related to the meaning of *glycolysis*?

10. What does it mean to say that glycolysis is an anaerobic process?

11. What is the Krebs cycle?



Name

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SECTION
4.5

CELLULAR RESPIRATION IN DETAIL

Study Guide

KEY CONCEPT

Cellular respiration is an aerobic process with two main stages.

MAIN IDEA: Glycolysis is needed for cellular respiration.

1. What is the function of glycolysis?

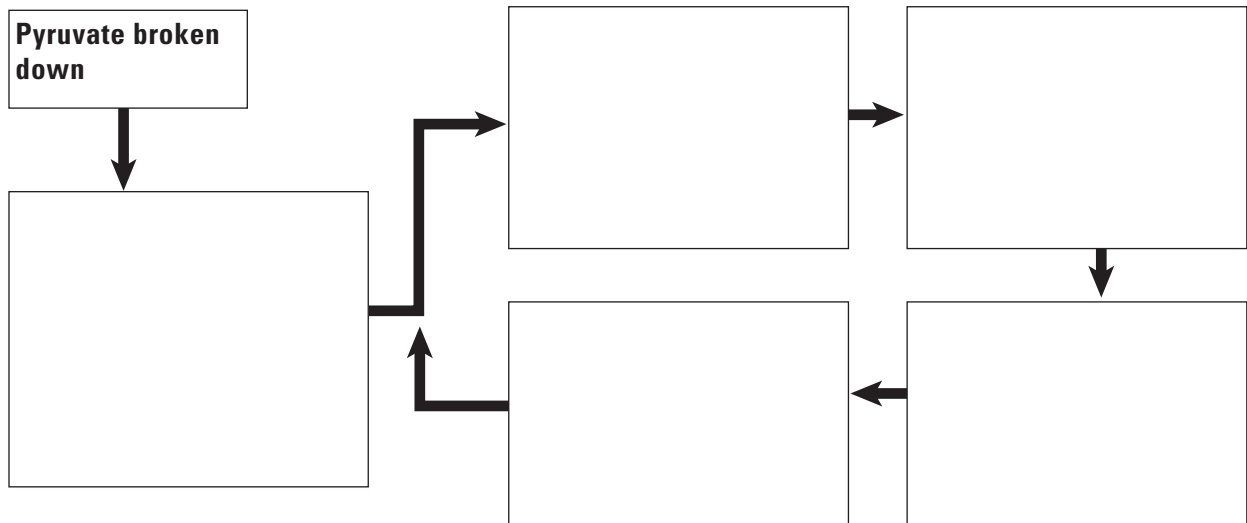
2. What happens to the molecules formed during glycolysis when oxygen is available?

3. What is meant by a “net gain of two ATP molecules” from glycolysis?

MAIN IDEA: The Krebs cycle is the first main part of cellular respiration.

4. What is the function of the Krebs cycle?

Complete the cycle diagram below to summarize the six steps of the Krebs cycle.



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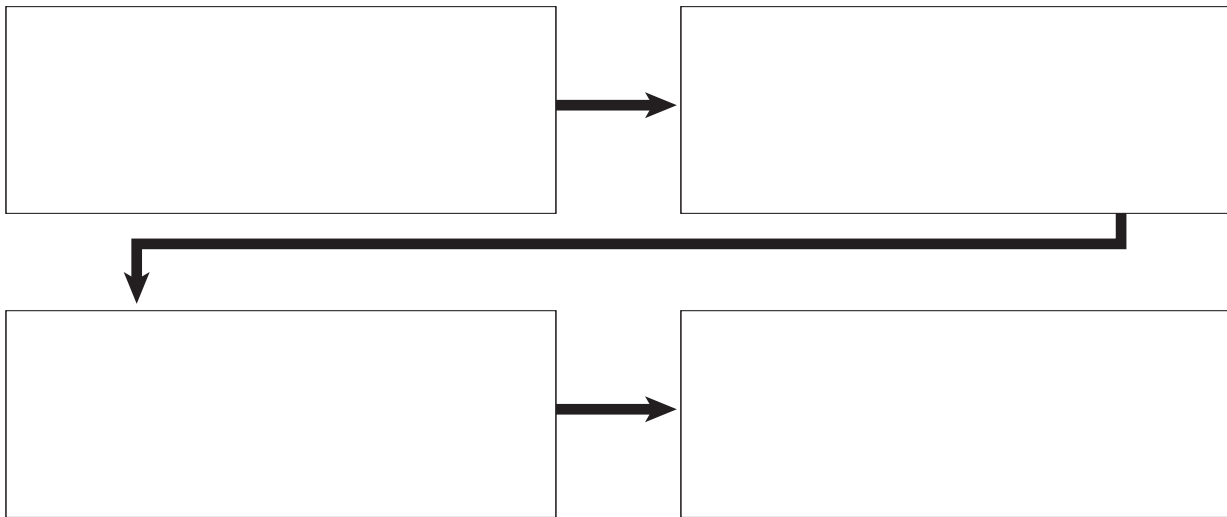
Section 4.5 STUDY GUIDE CONTINUED

MAIN IDEA: The electron transport chain is the second main part of cellular respiration.

5. Where is the electron transport chain in cellular respiration located?

6. What is the function of the electron transport chain?

Fill in the sequence below to take notes on the four steps of the electron transport chain.



7. Why is oxygen needed for cellular respiration?
