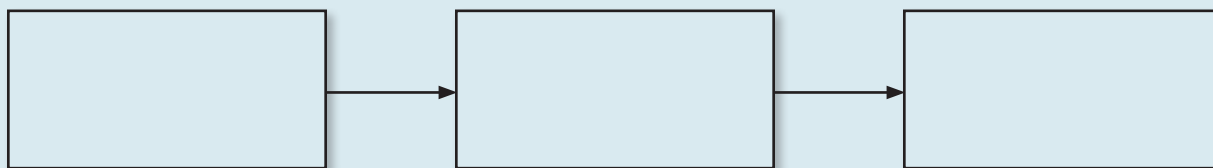


# Chapter 4 Review

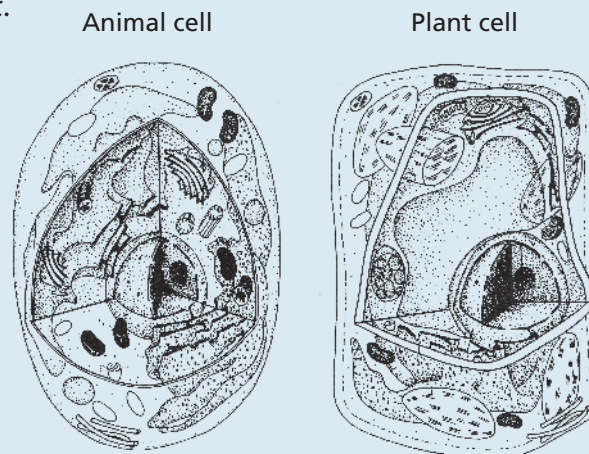
1. What cellular process makes most of a cell's ATP? \_\_\_\_\_  
\_\_\_\_\_
2. Do humans need photosynthesis to survive? Explain your answer.  
\_\_\_\_\_
3. Put the words *Krebs cycle*, *glycolysis*, and *electron transport chain* in the flow chart below to show the order of the main steps of cellular respiration.



4. Which of the descriptions below best describes cellular respiration?
  - a. chemical energy is released when glucose is broken down into carbon dioxide
  - b. sunlight energy is stored in carbon-based molecules like glucose
  - c.  $6\text{CO}_2 + 6\text{H}_2\text{O} \rightarrow \rightarrow \rightarrow \rightarrow \text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2$
  - d. when oxygen is available, fermentation occurs
5. Which of the descriptions below best describes photosynthesis?
  - a.  $\text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2 \rightarrow \rightarrow \rightarrow \rightarrow 6\text{CO}_2 + 6\text{H}_2\text{O}$
  - b. sunlight energy is stored in carbon-based molecules like glucose
  - c. an ATP-making process that occurs in mitochondria
  - d. chemical energy is released when glucose is broken down into carbon dioxide

For questions 6 and 7, refer to the diagram to the right.

6. Where in the cell does cellular respiration occur?  
Circle the organelle in both cells and write the name of the organelle next to your circles.
7. Where in the cell does photosynthesis occur?  
Draw a box around the organelle and write the name of the organelle next to your box.



Section 2: Overview of Photosynthesis

# Study Guide B

## KEY CONCEPT

The overall process of photosynthesis produces sugars that store chemical energy.

## VOCABULARY

photosynthesis	light-dependent reactions	thylakoid
chlorophyll	light-independent reactions	

**MAIN IDEA:** Photosynthetic organisms are producers.

1. Why are some organisms called producers?

\_\_\_\_\_

2. What is the function of photosynthesis?

\_\_\_\_\_

3. What is chlorophyll?

\_\_\_\_\_

**MAIN IDEA:** Photosynthesis in plants occurs in chloroplasts.

4. What are chloroplasts?

\_\_\_\_\_

5. In which two parts of a chloroplast does photosynthesis take place?

\_\_\_\_\_

6. What are thylakoids?

\_\_\_\_\_

7. Write the chemical equation for the overall process of photosynthesis. Then explain what the equation means and identify the reactants, products, and the meaning of the several arrows.

\_\_\_\_\_

\_\_\_\_\_

8. What are the differences between the light-dependent reactions and the light-independent reactions?

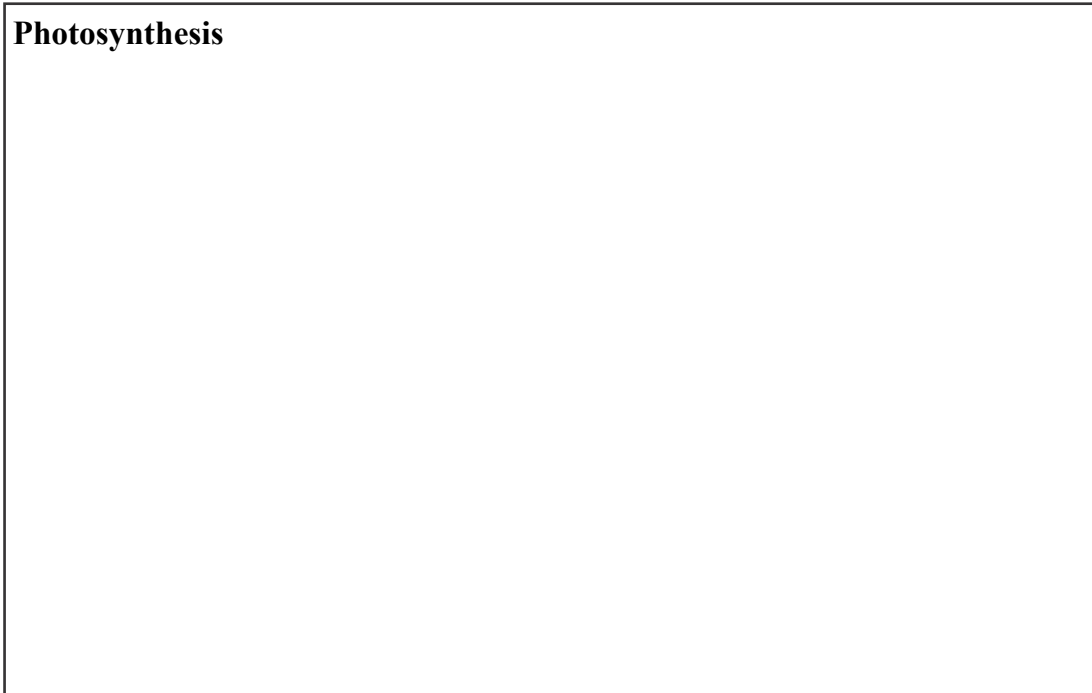
\_\_\_\_\_

\_\_\_\_\_

**Study Guide B *continued***

Use the space below to sketch and label a chloroplast. On the sketch, write the four steps of the photosynthesis process.

**Photosynthesis**



**Vocabulary Check**

9. The prefix *photo-* means “light,” and synthesis means “to put together.” How do those meanings tell you what happens during photosynthesis?

\_\_\_\_\_

10. The prefix *chloro-* means “green,” and the suffix *-phyll* means “leaf.” How are these meanings related to chlorophyll?

\_\_\_\_\_

11. The prefix *in-* means “not.” How does this meaning tell you which reactions in photosynthesis require light, and which reactions do not?

\_\_\_\_\_

\_\_\_\_\_

Section 4: Overview of Cellular Respiration

# Study Guide B

## 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.

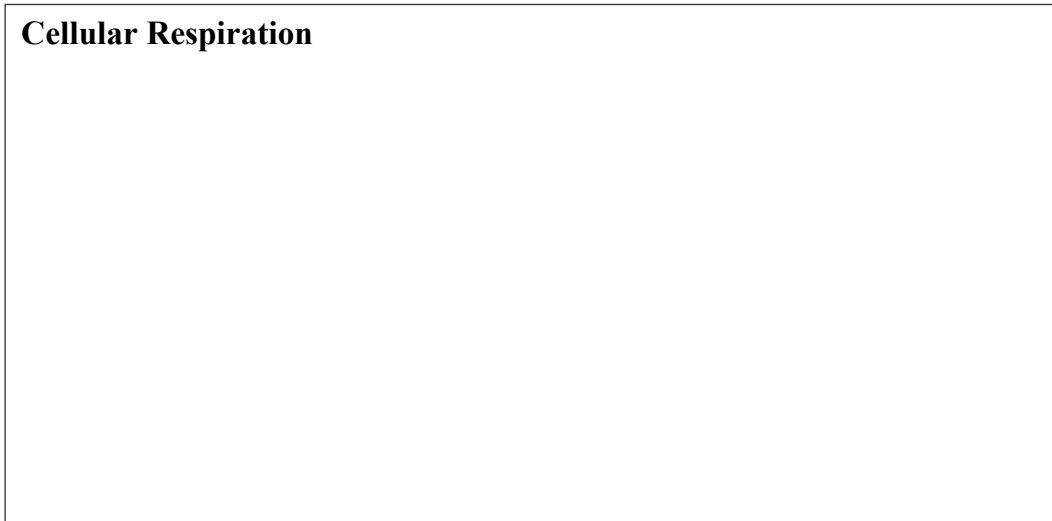
\_\_\_\_\_

\_\_\_\_\_

**Study Guide B** *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?

\_\_\_\_\_

\_\_\_\_\_