

Name \_\_\_\_\_ Period \_\_\_\_\_

Name \_\_\_\_\_ Class \_\_\_\_\_ Date \_\_\_\_\_

**Chapter 8 Photosynthesis**

**Section Review 8-1**

**Reviewing Key Concepts**

**Short Answer** *On the lines provided, answer the following questions.*

1. Where do autotrophs get energy to produce food?

\_\_\_\_\_  
\_\_\_\_\_

2. How do living things use ATP?

\_\_\_\_\_  
\_\_\_\_\_

3. How is one molecule of ATP formed from one molecule of ADP?

\_\_\_\_\_  
\_\_\_\_\_

4. How does a change from ATP to ADP provide an organism with energy?

\_\_\_\_\_  
\_\_\_\_\_

5. What are two ways in which cells use the energy provided by ATP?

\_\_\_\_\_  
\_\_\_\_\_

**Reviewing Key Skills**

6. **Comparing and Contrasting** What are the similarities between autotrophs and heterotrophs? What are the differences?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Classifying** *On the line beneath each picture, classify the organism as either an autotroph or a heterotroph.*

7.



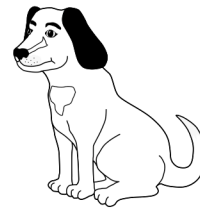
\_\_\_\_\_

8.



\_\_\_\_\_

9.



\_\_\_\_\_

© Pearson Education, Inc. All rights reserved.

**Chapter 8 Photosynthesis** **Section Review 8-2**

**Reviewing Key Concepts**

**Matching** Match each scientist with the appropriate experiment or conclusion. Write the letter of the correct scientist on the line provided. A letter may be used more than once.

- a. Priestley                      b. van Helmont                      c. Ingenhousz
- \_\_\_\_\_ 1. Plants need sunlight to produce oxygen.  
\_\_\_\_\_ 2. Plants gain most of their mass by taking in water.  
\_\_\_\_\_ 3. Using a candle and a jar, he observed that plants produce a substance that kept the candle burning.  
\_\_\_\_\_ 4. He measured the mass of the soil in which a plant grew.  
\_\_\_\_\_ 5. He observed plants exposed to light.

**Short Answer** On the lines provided, answer the following questions.

6. What is the overall equation for photosynthesis?  
\_\_\_\_\_  
\_\_\_\_\_
7. Explain how light energy affects a chlorophyll molecule.  
\_\_\_\_\_  
\_\_\_\_\_

**Reviewing Key Skills**

8. **Predicting** If a plant is kept under green-colored light for an extended period of time, what will happen to the plant’s food production?  
\_\_\_\_\_  
\_\_\_\_\_
9. **Inferring** A plant that has a high amount of the orange pigment carotene would have leaves of what color? Explain your answer.  
\_\_\_\_\_  
\_\_\_\_\_
10. **Design an Experiment** Design an experiment to test the effects of air pollution on plants. Be sure to include a control.  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

© Pearson Education, Inc. All rights reserved.

**Chapter 8 Photosynthesis**

**Section Review 8-3**

**Reviewing Key Concepts**

**Completion** *On the lines provided, complete the following sentences.*

1. The light-dependent reactions take place within the \_\_\_\_\_ membranes.
2. The light-independent reactions are also known as the \_\_\_\_\_.
3. The energy carriers \_\_\_\_\_ and \_\_\_\_\_ are produced during the light-dependent reactions.
4. In the light-dependent reactions, the gas \_\_\_\_\_ is produced.
5. High-energy sugars are produced during the \_\_\_\_\_ reactions.
6. The light-independent reactions take place in the \_\_\_\_\_.

**Reviewing Key Skills**

**7. Comparing and Contrasting** How are photosystem I and photosystem II similar? How are they different?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**8. Predicting** If there is no light coming into the chloroplasts, how will this affect the Calvin cycle?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**9. Applying Concepts** What effect does weather have on the process of photosynthesis?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**10. Applying Concepts** If you place a plant in a clear, sealed box, how could you use a measurement of the gases in the boxed air to measure the rate of photosynthesis? What gas would you measure?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

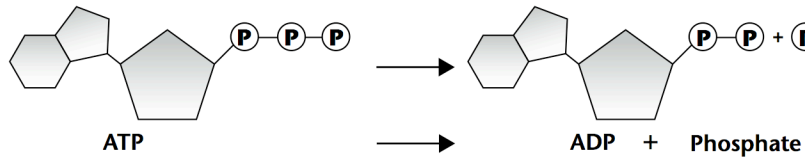
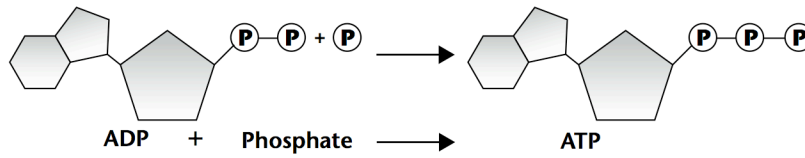
© Pearson Education, Inc. All rights reserved.

Name \_\_\_\_\_ Class \_\_\_\_\_ Date \_\_\_\_\_

### ATP

ATP is the basic energy source of all cells. Energy is stored by cells when ADP is converted into ATP. Energy is released when ATP loses a phosphate and becomes ADP.

*Label the energy storing reaction and the energy releasing reaction.*



*Answer the questions.*

1. How many phosphate groups are in one molecule of ATP?

\_\_\_\_\_

2. How many phosphate groups are in one molecule of ADP?

\_\_\_\_\_

3. What are the three parts of an ATP molecule?

\_\_\_\_\_

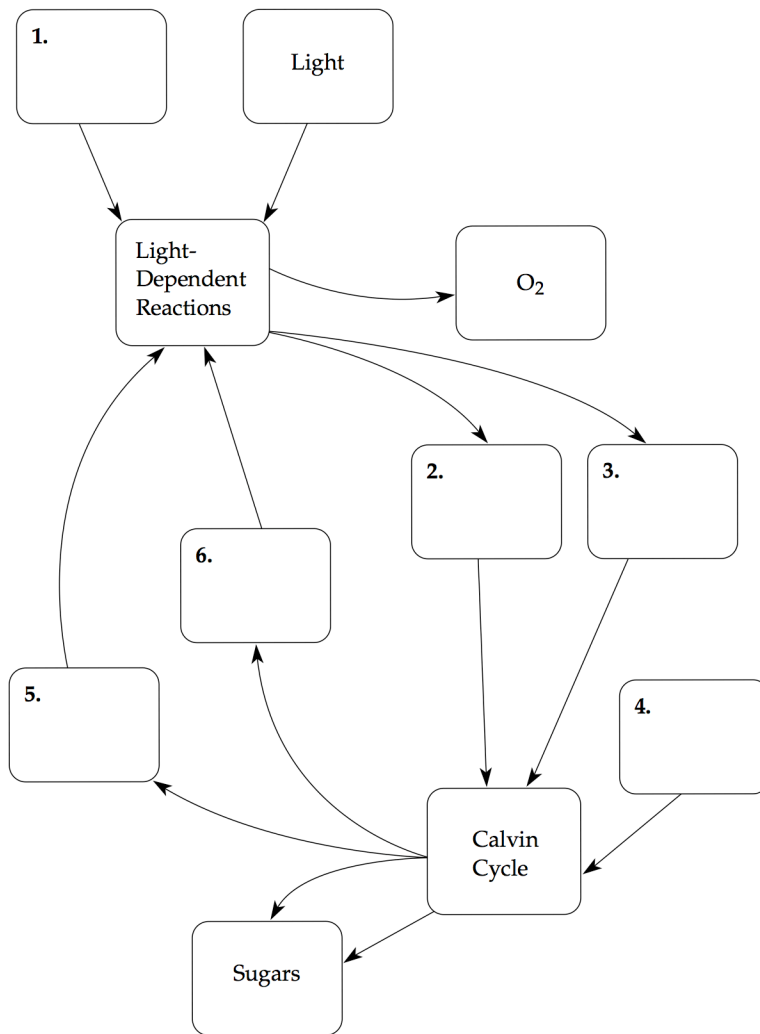
**Chapter 8 Photosynthesis**

**Graphic Organizer**

**Flowchart**

The following flowchart represents the reactions of photosynthesis. Fill in the missing information using the formulas listed below.

$NADP^+$      $ATP$      $ADP + P$   
 $H_2O$      $CO_2$      $NADPH$



© Pearson Education, Inc. All rights reserved.