

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.*

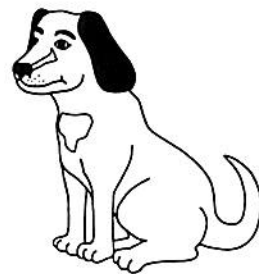
7.



8.



9.



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, observed that plants produce a substance that kept the candle burning.
- _____ 4. measured the mass of the soil in which a plant grew.
- _____ 5. 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.

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?

Chapter 8 Photosynthesis

Chapter Vocabulary Review

Defining Terms *On the lines provided, write a definition of each of the following terms.*

1. ATP _____

2. thylakoid _____

3. NADP⁺ _____

4. ATP synthase _____

5. Calvin cycle _____

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

6. What is the difference between an autotroph and a heterotroph?

7. In which part of photosynthesis is oxygen produced?

8. What is the relationship between pigments and chlorophyll?

9. How do the light-dependent reactions differ from the Calvin cycle?

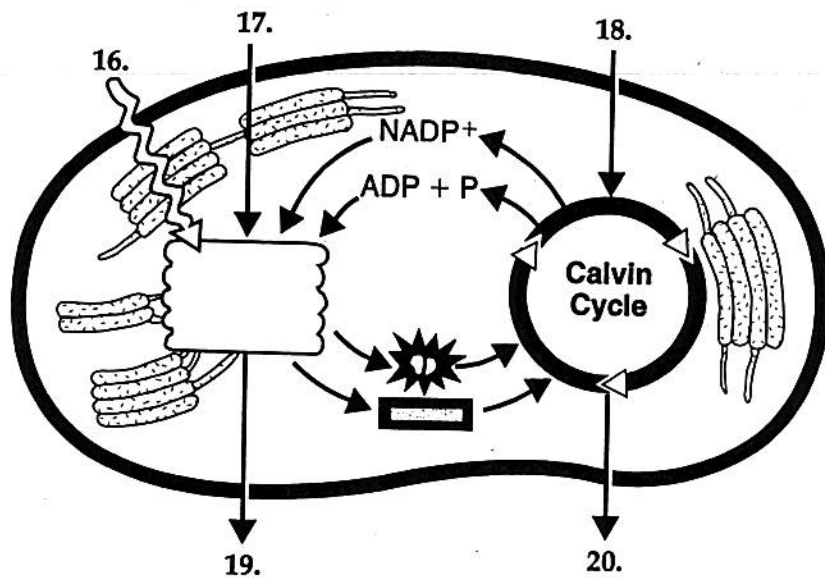
10. What compounds are formed from carbon dioxide in the Calvin cycle?

Matching Match each term with its description below. Write the letter of the correct term on the line provided.

- a. chlorophyll
- b. stroma
- c. pigment
- d. photosynthesis
- e. light-dependent reactions

- _____ 11. molecule that absorbs certain wavelengths of light
- _____ 12. produce oxygen gas and convert ADP to ATP
- _____ 13. the region outside the thylakoid membranes
- _____ 14. principal pigment found in plants
- _____ 15. process by which autotrophs use sunlight to make high-energy sugars

Labeling Diagrams On the lines provided, write the names of the reactants and products for photosynthesis that correspond to the numbers in the diagram.



- 16. _____
- 17. _____
- 18. _____
- 19. _____
- 20. _____

