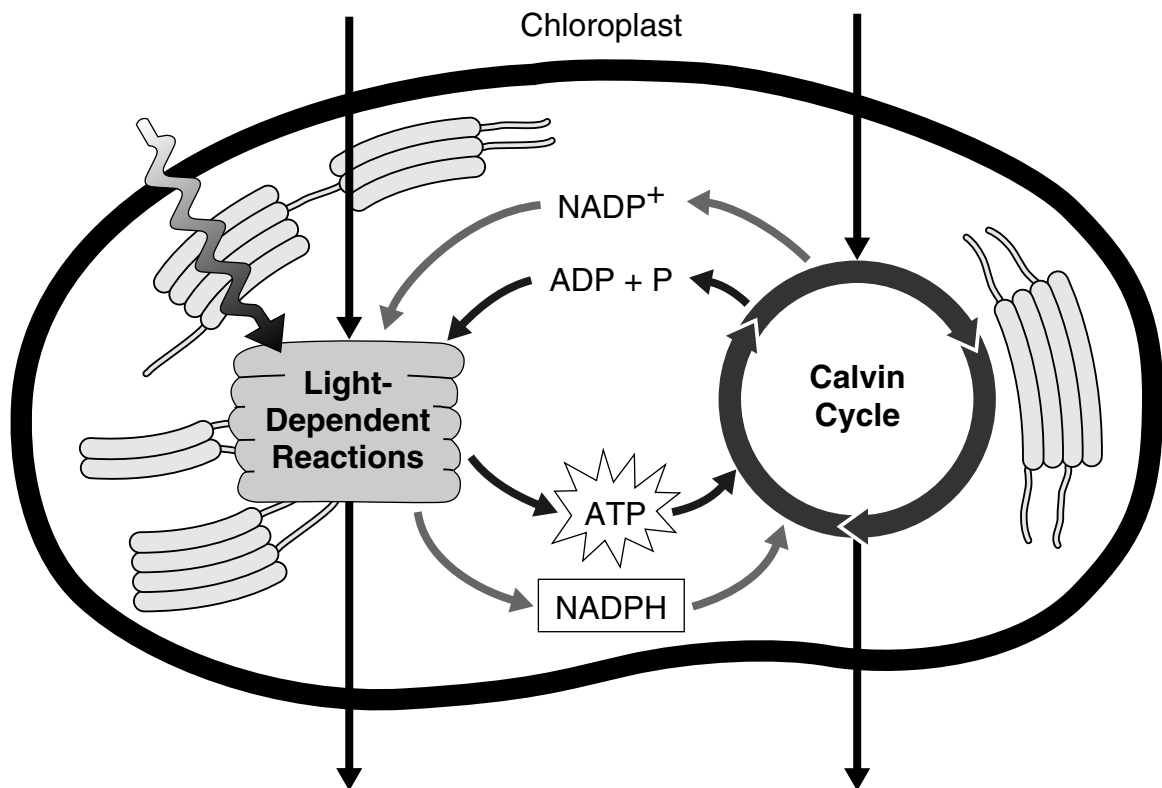


Section 8–3 The Reactions of Photosynthesis (pages 208–214)

This section explains what happens inside chloroplasts during the process of photosynthesis.

Inside a Chloroplast (page 208)

- Chloroplasts contain saclike photosynthetic membranes called _____.
- What is a granum? _____
- The region outside the thylakoid membranes in the chloroplasts is called the _____.
- What are the two stages of photosynthesis called?
 - _____
 - _____
- Complete the illustration of the overview of photosynthesis by writing the products and the reactants of the process, as well as the energy source that excites the electrons.



Electron Carriers (page 209)

6. When sunlight excites electrons in chlorophyll, how do the electrons change?

7. What is a carrier molecule? _____

8. Circle the letter of the carrier molecule involved in photosynthesis.

- a. H_2O c. CO_2
b. NADP^+ d. O_2

9. How does NADP^+ become NADPH? _____

Light-Dependent Reactions (pages 210–211)

10. Circle the letter of each sentence that is true about the light-dependent reactions.

- a. They convert ADP into ATP.
b. They produce oxygen gas.
c. They convert oxygen into carbon dioxide.
d. They convert NADP^+ into NADPH.

11. Where do the light-dependent reactions take place? _____

12. Circle the letter of each sentence that is true about the light-dependent reactions.

- a. High-energy electrons move through the electron transport chain from photosystem II to photosystem I.
b. Photosynthesis begins when pigments in photosystem I absorb light.
c. The difference in charges across the thylakoid membrane provides the energy to make ATP.
d. Pigments in photosystem I use energy from light to reenergize electrons.

13. How does ATP synthase produce ATP? _____

The Calvin Cycle (pages 212–214)

14. What does the Calvin cycle use to produce high-energy sugars?
- _____
- _____
15. Why are the reactions of the Calvin cycle also called the light-independent reactions?
- _____
16. Circle the letter of each statement that is true about the Calvin cycle.
- a. The main products of the Calvin cycle are six carbon dioxide molecules.
 - b. Carbon dioxide molecules enter the Calvin cycle from the atmosphere.
 - c. Energy from ATP and high-energy electrons from NADPH are used to convert 3-carbon molecules into higher-energy forms.
 - d. The Calvin cycle uses six molecules of carbon dioxide to produce a single 6-carbon sugar molecule.

Factors Affecting Photosynthesis (page 214)

17. What are three factors that affect the rate at which photosynthesis occurs?
- a. _____
 - b. _____
 - c. _____
18. Is the following sentence true or false? Increasing the intensity of light decreases the rate of photosynthesis. _____

WordWise

Answer the questions by writing the correct vocabulary terms from Chapter 8 in the blanks. Use the circled letter from each term to find the hidden word. Then, write a definition for the hidden word.

1. What is the process called by which plants use the sun's energy to make high-energy sugars?

○ _ _ _ _ _

2. What is the stage of photosynthesis called in which plants use the energy that ATP and NADPH contain to build high-energy sugars?

_ _ _ _ _ ○ _ _ _ _ _

3. What are the reactions of the first stage of photosynthesis called?

_ _ _ ○ _ _ _ _ _ _ _ _ _ _ _
_ _ _ _ _

4. What is the region called where the Calvin cycle takes place?

_ _ _ _ _ ○ _

5. What is an organism called that obtains energy from the food it consumes?

_ _ _ _ _ ○ _ _ _ _ _

6. What is one of the principal chemical compounds that living things use to store energy?

_ _ _ _ _ _ _ _ _ _ _ ○ _
_ _ _ _ _

7. What is an organism called that makes its own food?

_ _ _ _ _ ○ _ _ _ _ _

Hidden word: _____

Definition: _____
