

8.3 The Process of Photosynthesis

The Light-Dependent Reactions: Generating ATP and NADPH

For Questions 1–5, write *True* if the statement is true. If the statement is false, change the underlined word or words to make the statement true.

- _____ 1. Photosystems are clusters of chlorophyll and proteins.
 - _____ 2. The light-dependent reactions begin when photosystem I absorbs light.
 - _____ 3. Electrons from water molecules replace the ones lost by photosystem II.
 - _____ 4. ATP is the product of photosystem I.
 - _____ 5. ATP and NADPH are two types of protein carriers.
6. How does ATP synthase produce ATP? _____

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

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

The Light-Independent Reactions: Producing Sugars

9. What does the Calvin cycle use to produce high-energy sugars?

10. Why are the reactions of the Calvin cycle called light-independent reactions?

11. What makes the Calvin cycle a cycle?

Factors Affecting Photosynthesis

14. What are three factors that affect the rate at which photosynthesis occurs?

- 15.** Would a plant placed in an atmosphere of pure oxygen be able to conduct photosynthesis? Explain your answer.

Apply the Big idea

- 16.** Photosynthesis plays an important role in supplying energy to living things. Considering what the products of photosynthesis are, what is another way in which photosynthesis is vital to life?
