

SECTION 6-1 REVIEW**CAPTURING THE ENERGY IN LIGHT**

VOCABULARY REVIEW Explain the relationship between the terms in each of the following pairs of terms.

1. granum, stroma _____

2. chlorophyll *a*, accessory pigment _____

3. chemiosmosis, ATP synthase _____

MULTIPLE CHOICE Write the correct letter in the blank.

- _____ 1. Chlorophyll *a*
- | | |
|---|--|
| a. absorbs mostly orange-red and blue-violet light. | c. is an accessory pigment. |
| b. absorbs mostly green light. | d. is responsible for the red color of many autumn leaves. |
- _____ 2. The photosystems and electron transport chains are located in the
- | | |
|--------------------------------|------------------------|
| a. outer chloroplast membrane. | c. thylakoid membrane. |
| b. inner chloroplast membrane. | d. stroma. |
- _____ 3. Both photosystem I and photosystem II
- | | |
|--|--|
| a. receive electrons from other photosystems. | c. donate protons to each other. |
| b. donate electrons to a transport chain that generates NADPH. | d. contain chlorophyll <i>a</i> molecules. |
- _____ 4. Water participates directly in the light reactions of photosynthesis by
- | | |
|--|--|
| a. donating electrons to NADPH. | c. accepting electrons from the electron transport chains. |
| b. donating electrons to photosystem II. | d. accepting electrons from ADP. |
- _____ 5. The energy that is used to establish the proton gradient across the thylakoid membrane comes from the
- | | |
|------------------------|---|
| a. synthesis of ATP. | c. passage of electrons along the electron transport chain of photosystem II. |
| b. synthesis of NADPH. | d. splitting of water. |

SHORT ANSWER Answer the questions in the space provided.

1. Why is photosynthesis referred to as a biochemical pathway? _____

2. How does the structure of a chloroplast enable it to build up a concentration gradient of protons? _____

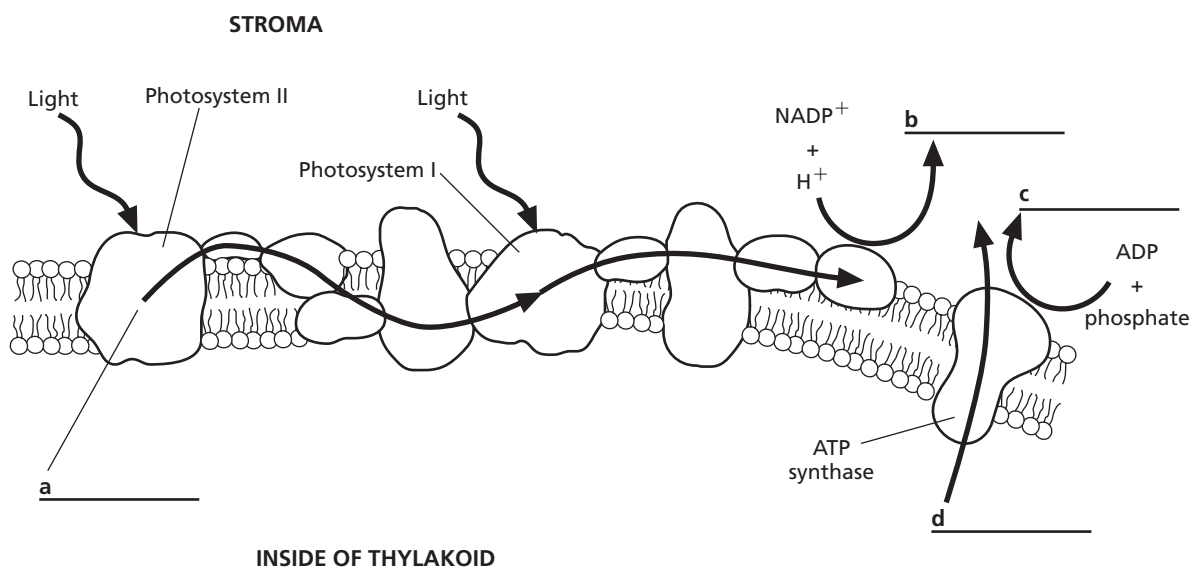
3. What are the energy-carrying end products of the light harvesting reactions? _____

4. Explain the function of accessory pigments. _____

5. **Critical Thinking** Which photosystem—I or II—most likely evolved first? Explain your reasoning.

STRUCTURES AND FUNCTIONS Label the substances represented by the letters *a–d* below.

The diagram below summarizes the light reactions of photosynthesis.



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