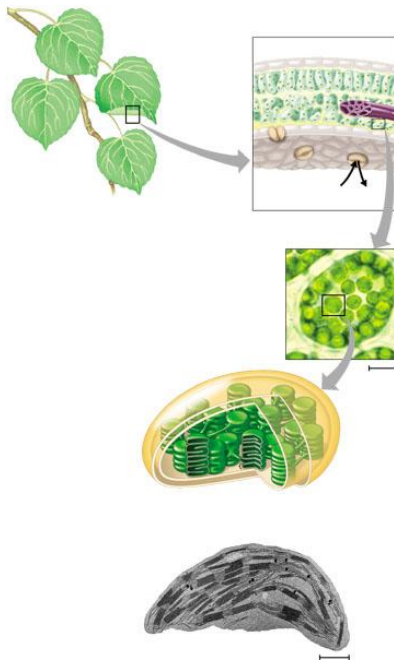


Name \_\_\_\_\_

**AP Biology**  
**TEXT: *Biology, Campbell and Reece***  
**7<sup>th</sup> Edition**

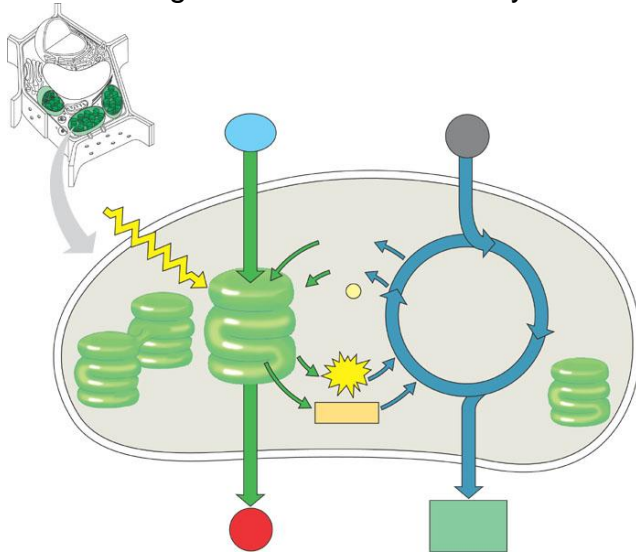
**Chapter 10 – Photosynthesis**  
**Guided Reading**

1. Label the diagram below.



2. Explain the experiment reasoning that Van Niel used to understand photosynthesis.

3. Use the diagram to label and identify the two broad stages of photosynthesis.



4. What is carbon fixation?

5. What is a photon?

6. Why are leaves green?

7. Describe Engelmann's experiment and explain its results.

8. What is the difference between an absorption spectra and action spectrum?

9. What happens to chlorophyll when it is hit by light? How does this relate to potential energy?

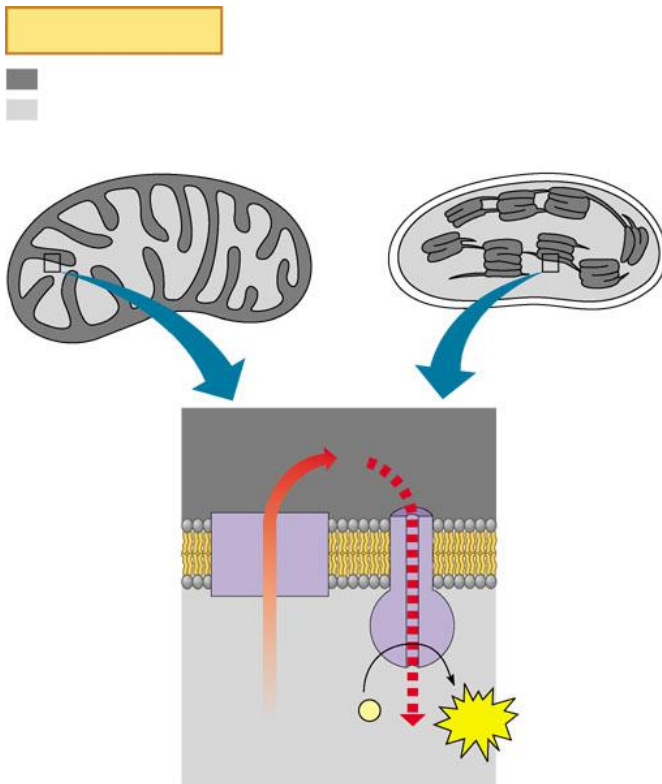
10. Identify the following parts of a photosystem:

- a. Photosystem
- b. Light harvesting complex
- c. Reaction center
- d. Primary electron acceptor

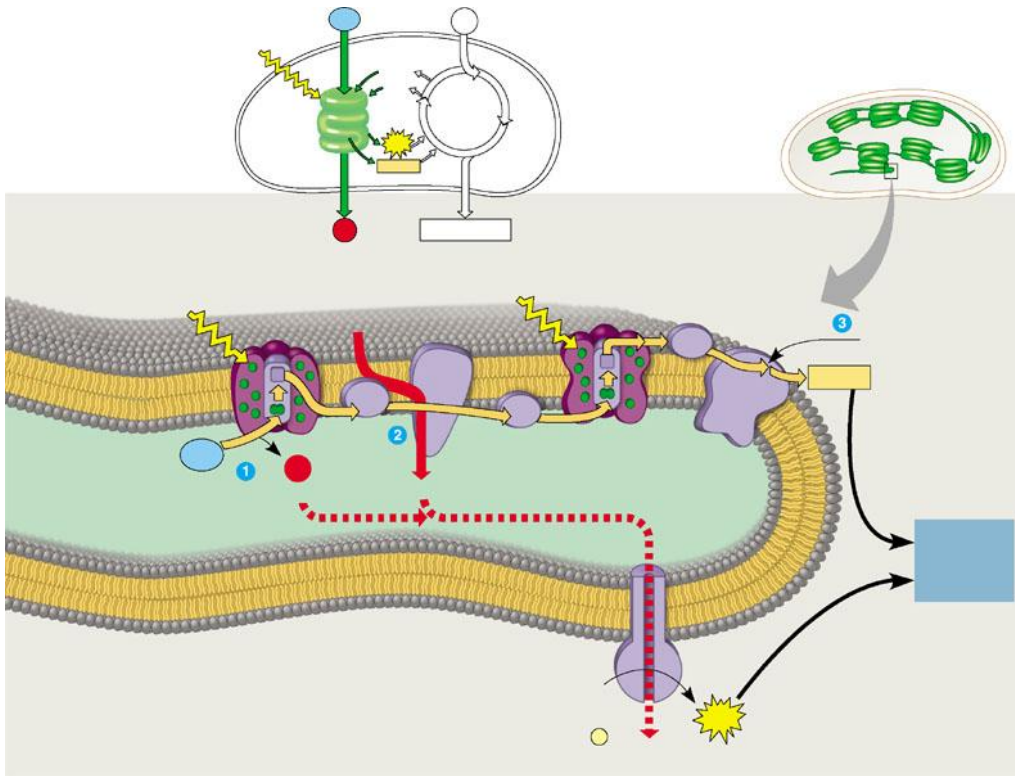
11. What are the steps in noncyclic electron flow in photosynthesis?

12. What is cyclic electron flow?

13. Use the diagram below to assist – but also write a response – compare and contrast chemiosmosis in mitochondria and chloroplasts.



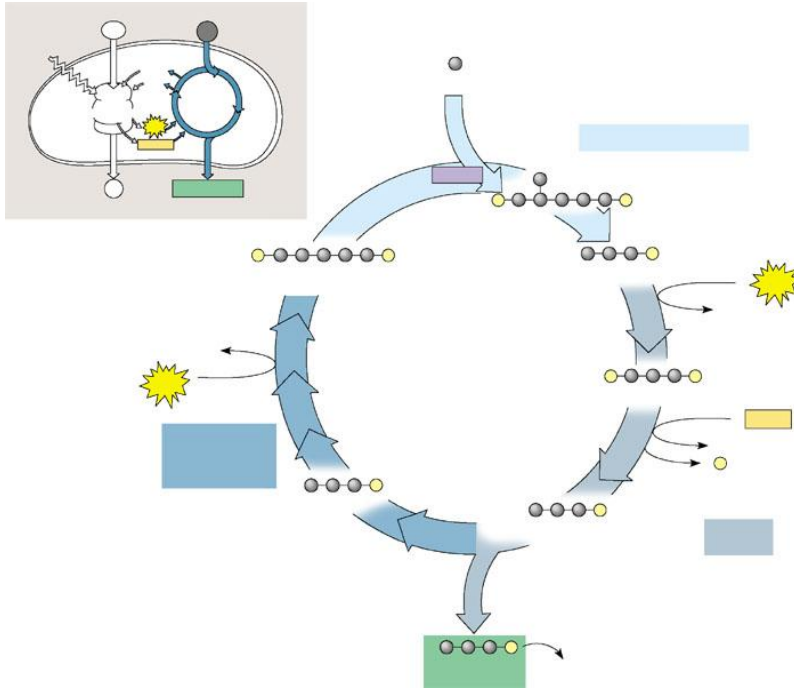
14. Use the diagram below to summarize the activities in the light reactions of photosynthesis.



15. Describe and explain the overall purpose of the Calvin cycle and each phase listed below:

- a. Calvin cycle
- b. Carbon fixation
- c. Reduction
- d. Regeneration

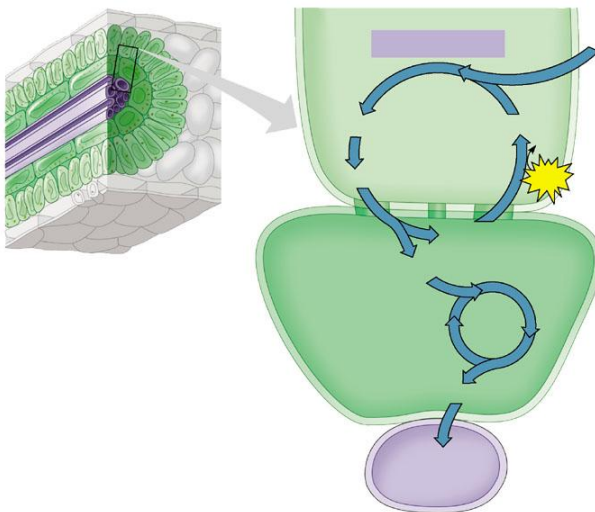
16. Label the diagram below of the Calvin Cycle.



17. What is a plant's most valuable resource and why did plants need to evolve adaptations for hot, arid climates?

18. Why is photorespiration such a "waste"?

19. Use the diagram below to explain C4 plants.



20. What are CAM plants and what is their “advantage”?

21. Use the diagram below to summarize the activities of photosynthesis.

