Bio. Sci. 10

Study Questions for Chapter 8 from the Text

1. How are respiration (chapter 7) and photosynthesis related with respect to what the author calls "down the energy hill" and "up the energy hill?"
2. What is the "visible light spectrum" a part of? Fill in the blanks: _____ _____ radiation. Which parts (wavelengths/colors) of the visible light spectrum drive photosynthesis?
3. What allows CO2 to pass into leaves and water vapor to pass out?
4. What organelle is the site of photosynthesis? How many membranes does it have on its outside? Inside, there is a stack of "hollow pancakes" whose name you don't need to know, but they are immersed in a liquid material called_____.
5. Accompanying and aiding chlorophyll in light absorption are other chemicals called_____.
6. What are the 2 stages of photosynthesis called? Briefly, what happens in each stage and where in the chloroplast?
7. What is the working unit of the light reactions?
8. Can you cover the figure legend of Fig. 8.5 and explain it in your own words?
9. What does a primary electron acceptor do? What is a redox reaction? Can you relate the movement of electrons and going up and down an energy hill? When chlorophyll loses an electron, where does it get another one? What happens to the molecule that loses an electron to chlorophyll? What's so important about this event?"
10. What chemical (use initials) is a major electron carrier? When it has no electron to carry, what are its initials? When it's carrying electrons what are its initials?
11. Why does a black object get hot on a sunny day? How does this relate to fluorescence? How would you say in your own words how solar energy gets changed to chemical energy?
12. What are the TWO chemicals in which the energy from sunlight are stored at the end of the light reactions?
13. Can you explain Fig. 8.7 in your own words?
14. What is the name of Stage 2 of photosynthesis? What is the carbon source for this stage? What is going to be the chemical end result of this stage? How are these (the beginning carbon source and the chemical end result) related to energy levels?
15. Follow the carbon atoms around Fig. 8.8. You don't need to know the names of the individual chemicals of the cycle. Can you summarize what happens in the cycle in terms of input and output? From which 2 chemicals is the energy derived for the turning of the cycle? Where did they come from?
16. Skip sections 8.5, 8.6. Look at the summary of C3 photosynthesis in Table 8.1. Read the Essay on p. 150.