

Photosynthesis – homework essay sample



**ASSIGN
BUSTER**

1. Write the basic equation for Photosynthesis (Ps).
2. Some students define Ps as the process by which plants use light energy as food. Discuss if this is a correct statement that would likely be accepted by an AP Biology Exam Reader.
3. Contrast and compare an absorption spectra versus an action spectra for Ps.
4. Discuss why is the narrow area of electromagnetic radiation between 380-750 nm is the best choice to power a process like Ps.
5. Contrast and compare the function of the chlorophyll pigments versus the function of the accessory pigments in Ps.
6. Explain the adaptive value for plants to have their leaves change color in the fall.
7. Contrast and compare the tasks or purposes of the Light Reaction and Dark Reaction.
8. Explain if oxygen and NADPH are produced when electrons are in a cyclic flow using photosystem I and P700.
9. During the light reaction the proton gradient across the thylakoid membrane can be as great as 3 pH units. On which side of the membrane (stroma or lumen of the grana) is the pH the lowest?

10. Photorespiration costs the plant as much as 50% of the carbon fixed in the Calvin Cycle. Discuss why has this process not been selected against (or has it?).

11. Discuss under what environmental conditions C4 Ps and CAM Ps are adaptive.

12. In science fiction stories, plants that live on planets far from the sun are often described as having black foliage, while those that live on planets close to the sun are described as having shiny reflective foliage. Discuss why these would be good adaptive features.

13. In order for Dr. Smith's African violets to grow and flower, what photosynthesis to respiration ratio (Ps: Rs) must he create for them? Explain.