

1. The structures inside the organelle in a chloroplast are called _____
2. What compound is necessary for photosynthesis is contained the the thylakoids?
 - a. Chlorophyll
 - b. Stroma
 - c. Stromae
 - d. Cyber Nucleic acid
3. What is another name for the light independent reactions?
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4. In what part of the chloroplast do the light-dependent reactions occur?
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6. What substances are produced during photosynthesis? Show their names and chemical formulas.
7. Why do there have to be six CO₂ entering the chloroplast? (Circle all that apply)
 - a. The glucose has six carbons
 - b. It work better
 - c. It makes the equation work
8. Which PhotoSystem interacts and converts water into oxygen?
 - a. Photosystem 1
 - b. Photosystem 2
 - c. Both
 - d. None
9. What is chemiosmosis?
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10. Photolysis is when the sun breaks apart water. (True/False)
11. What does ETC stand for in biology?
 - a. Exetera
 - b. Electron Transport Chain
 - c. Electron Transport Channel
 - d. Electron Trading Chain

12. Reduce means to remove electrons. (True/False)
13. Name the protein complex found in the thylakoid membrane that uses excited electrons to reduce NADP^+ into NADPH
14. What is the C3 cycle?
 - a. -Light independent reactions
15. What is the stroma?
16. Which step is the beginning of photosynthesis?
 - a. Pigments in Photosystem 2 absorb light energy
17. The formula for Photosynthesis is: $\text{CO}_2 + \text{H}_2\text{O} + \text{Sunlight} \rightarrow \text{Sugar} + \text{O}_2$
18. The formula for cellular respiration is: $\text{Sugar} + \text{O}_2 \rightarrow \text{CO}_2 + \text{H}_2\text{O} + \text{Sunlight}$
19. What do excited electrons produced in Photosystem one and Photosystem 2?
 - a. In Photosystem 1 they make NADPH
 - b. In Photosystem 2 they make ATP
20. What happens to the hydrogen ions as they climb down the electron transport chain?
 - a. Energy is released that helps make ATP.
21. Hydrogen ions are pushed into the thylakoid space and come from the surrounding stroma through the electron transport chain.
22. CO_2 plays NO part in Photosystems
23. NADP turns into NADPH when it is reduced.
24. Light-dependent reactions of photosynthesis include three major processes:
 - a. Excited electrons leave chlorophyll and reduce NADP^+ to NADPH
 - b. Excited electrons moving through the electron transport chain provide the free energy needed to pump Hydrogen Ions into the inner thylakoid
 - c. Hydrogen Ions flowing out of the thylakoid via a protein channel provide the free energy to convert ADP to ATP.
25. ATP Synthesis turns ADP into ATP

26. Chemiosmosis is when Hydrogen moves down the electrochemical gradient and creates ATP.

27. Photosystem 2 provides excited electrons to the electron transport chain.

28. The chemical reaction of all the chemical reactions in the light-dependent reactions of photosynthesis starting with two water molecules is: $\rightarrow 2\text{H}_2\text{O} + \text{singlight} \rightarrow \text{NADP}^+ + 2\text{H}^+ + 3\text{ADP} + 3\text{P} \rightarrow \text{O}_2 + 2\text{NADPH} + 3\text{ATP}$.

29. Where do the ATP and NADPH produced during the light-dependent reactions go when the process is complete?

a. They go to the C3 calvin cycle

30. What are the three phases of the calvin cycle?

a. Carbon Fixation- Carbon is added to RuBP, rubisco helps with this

b. Synthesis of G3P \rightarrow 6ATP \rightarrow 6ADP (from the light dependent reaction

c. Regeneration of RuBP- Reforms

31. What does "i" stand for?

a. Inorganic

32. Explain what happens to the carbon atoms from the carbon dioxide molecules once they enter the calvin cycle:

a. (Write your answer)

