

PHOTOSYNTHESIS: A QUICK OVERVIEW!

INTRODUCTION: Complete the following questions using the website:
http://phschool.com/science/biology_place/biocoach/photosynth/intro.html

Once you have navigated to the website, go through the screens by clicking the “next” button. Please note that you may have to view some of the provided animations to answer the questions.

1. Photosynthesis converts **light energy** into the **chemical energy** of **sugars** and other organic compounds.
2. A reactant is an “ingredient” that is needed for a reaction. What two reactants are needed for photosynthesis? **Carbon Dioxide and Water**
3. A product is the end result of a reaction. What two products are made in photosynthesis? **Carbohydrates and Oxygen**
4. What part of light runs photosynthesis? **The solar energy called Visible light**
5. What is a wavelength? What does it have to do with energy? (move your cursor over the diagram to see how wavelength changes in the light spectrum) **The distance between the crests of waves is called the wavelength. The shorter the wavelength, the greater the energy for each unit**
6. Which wavelengths work best for photosynthesis? **Red and Blue light**
7. What part of the plant is responsible for photosynthesis? **Leaves**
8. What is a waste product that is made in photosynthesis? **Oxygen**
9. Using your cursor, label the parts of a leaf. Print your answers and attach to this sheet.
10. Using your cursor, label the parts of a plant cell. Print your answers and attach to this sheet.
11. Which organelles are responsible for photosynthesis? **Chloroplasts**
12. Using your cursor, label the parts of a chloroplast. Print your answers and attach to this sheet.
13. What are thylakoids? What are grana? **The disc-shaped thylakoids possess an interior space. The thylakoids are stacked to form grana, which are suspended in the stroma of the chloroplasts**
14. What do plants keep inside of the thylakoids? **The pigment Chlorophyll**

15. The **Light Reactions** convert light energy into chemical energy in the form of **ATP** and **NADPH**.
16. The light reactions (also called the light dependent reactions) must have light in order to run. Therefore, they only happen during the day
17. The Calvin Cycle (also called the light independent reactions) does not need light to run; so they can take place whenever the plant wants them to.
18. The Light dependent reactions take Water and sunlight and use them to make ATP (cellular gasoline), Oxygen (which the plant releases) and NADPH (think of it as a car full of Hydrogen moving to the next location). (When you see electrons on this demo, think Hydrogen)
19. **ATP** provides the energy, and the **NADPH** supplies the electrons for the **Calvin Cycle** which converts carbon dioxide to sugar.
20. The Calvin Cycle will use the ATP made in the light dependent reactions to run (just like your car uses gasoline). This is why it doesn't need light to work.
21. The Calvin Cycle will take the CO₂ (carbon dioxide) that the plant breathed in and add the hydrogen that has been brought over by the NADPH in order to make sugar.

Take the self quiz...print off your final score and attach to this sheet.