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|  | **Photosynthesis**  Learning Objective: |
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| **Essential Question**:  What is the process of photosynthesis and where does it take place? | |
| **Questions:** | **Photosynthesis- Light**   * White light from the sun is a blend of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (colors) of light. * An object is a certain color because it \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ a certain portion of the light and absorbs the rest. * A leaf is green because it \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ green light. * \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are organisms that make their own energy. They don't eat. * Producers are ­­­­­­­­\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, meaning they make their own food. * \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a process that producers use to store light energy as chemical energy (usually in the form of sugars)   **Chemical Equations:**   * Chemical equations have \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (things that come together) and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (that which is produced).   Reactants ------------------------> Products  **Photosynthesis Equation:**  **Where? Structure of Chloroplast:**   * Photosynthesis occurs in the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_   Chloroplast   * + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- empty part of chloroplast   + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- stack of thylakoids   + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- looks like stacks of coins   **What absorbs the light?**   * \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- Green pigment in plants that absorbs the energy from sun and converts it to chemical energy * \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- Yellow, orange, & red pigments that absorb light energy and pass onto chlorophyll   Draw it!! |
|  | **Topic/ Objective: Photosynthesis**  I can explain how \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is made. |
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| **Essential Question**:  What is the difference between the Light Reaction and Calvin Cycle during photosynthesis? | |
| **Questions:** | **2 Cycles:**  There are two cycles that work together to create glucose (\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_)   * \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (require light) * \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (doesn't require light or dark)   \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- when a chemical (like water) is broken down by photons  **Light Reaction- Needs light**   * Occurs in the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of chloroplasts   + Adds a phosphate to \_\_\_\_\_\_\_\_\_\_ (adenosine diphosphate) to become \_\_\_\_\_\_\_\_\_\_\_\_ (adenosine triphosphate).     - LOTS OF ENERGY IN ATP   + Splits \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (H2O) to release O2 (oxygen) and H+(hydrogen)     - Sends H+ over to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_   **Remember Diffusion?**   * After the Light Reaction, oxygen (O2) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ out of the cell that we then breathe!   **Calvin Cycle- Doesn't need light!**   * Occurs in the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of chloroplasts   + Takes in\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (Carbon Dioxide)   + Uses the ATP (energy) and H+ from \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_   + Synthesizes (makes) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ * This can happen day or night |
| **Summary for BOTH sets of photosynthesis notes:** | |