Photosynthesis: An Overview

<u>Photosynthesis</u>: A process by which plants use the energy of sunlight to convert water and carbon dioxide into high energy carbohydrates (sugars and starches), and oxygen (a waste product).

The Photosynthesis Equation

$$6 \text{ CO}_2 + 6 \text{ H}_2\text{O} \xrightarrow{\text{light}} \text{C}_6\text{H}_{12}\text{O}_6 + 6 \text{ O}_2$$
(carbon dioxide) (water) (sugars) (oxygen)

- -In addition to water and carbon dioxide, photosynthesis requires light and chlorophyll (a pigment found in chloroplasts)
- -The leaf is the main organ of photosynthesis for a plant
- -Most leaves are made of a specialized tissue called mesophyll. This is where photosynthesis occurs, so they are packed with chloroplasts.
- -Leaves also have stomata (singular stoma), which are pore-like openings underneath the leaf that let carbon dioxide and oxygen in and out.
- -Surrounding each stoma are two guard cells that respond to changes in water pressure to open and close the stoma.
 - -When water pressure in the cells is high, the guard cells curve and the stomata open.
 - -When water pressure in the cells is low, the guard cells flatten and the stomata close.