

Photosynthesis & Respiration



Photosynthesis



Photosynthesis Vocabulary

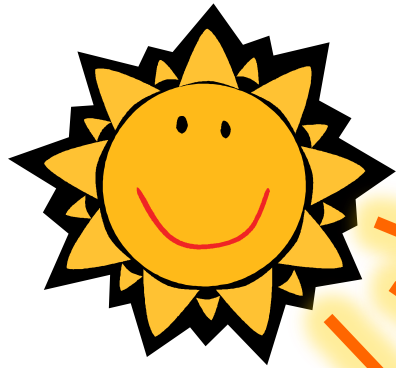
- **Photosynthesis**- A process by which plants convert sunlight, water, and carbon dioxide into food energy (sugar), oxygen and water.
- **Chloroplast**- An elongated cell organelle containing chlorophyll where photosynthesis takes place.
- **Chlorophyll**- A green molecule which uses light energy from sunlight to change water and carbon dioxide gas into sugar and oxygen

Photosynthesis Equation



Water + Carbon + sun → Oxygen + glucose
Dioxide (sugar)

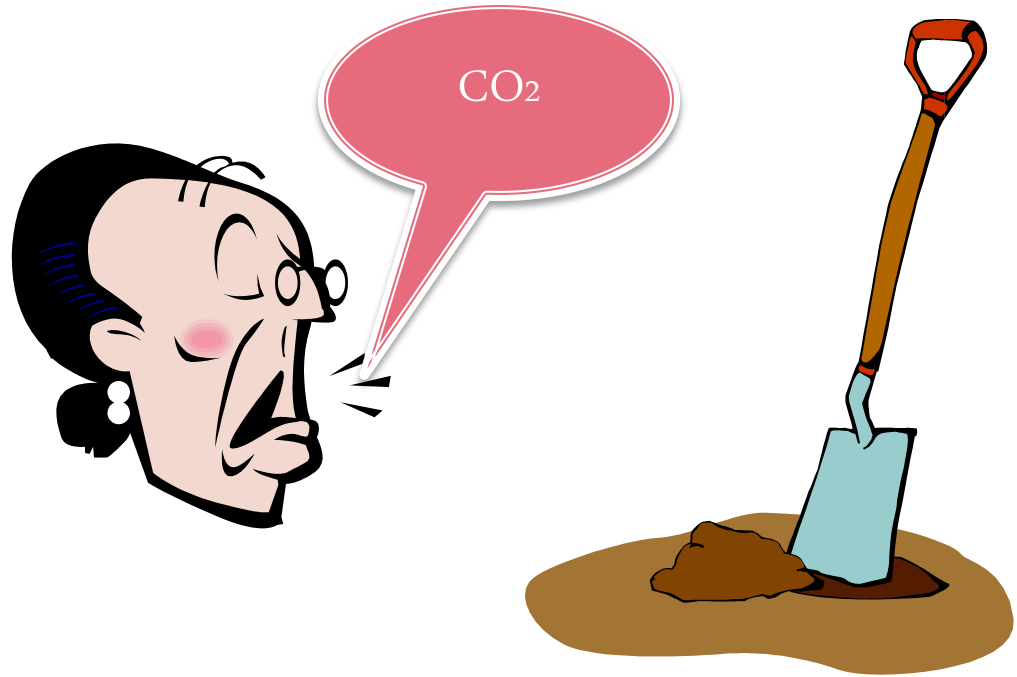
The chlorophyll absorbs the sunlight.



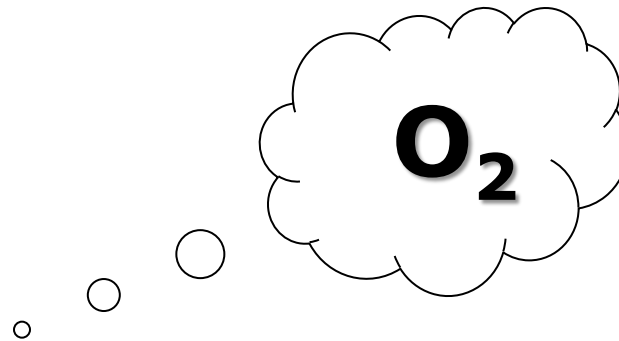
Chlorophyll is the green pigment inside the chloroplasts of plant cells that makes leaves green!



Chlorophyll then uses sunlight to change water, carbon dioxide and, nutrients from the soil.



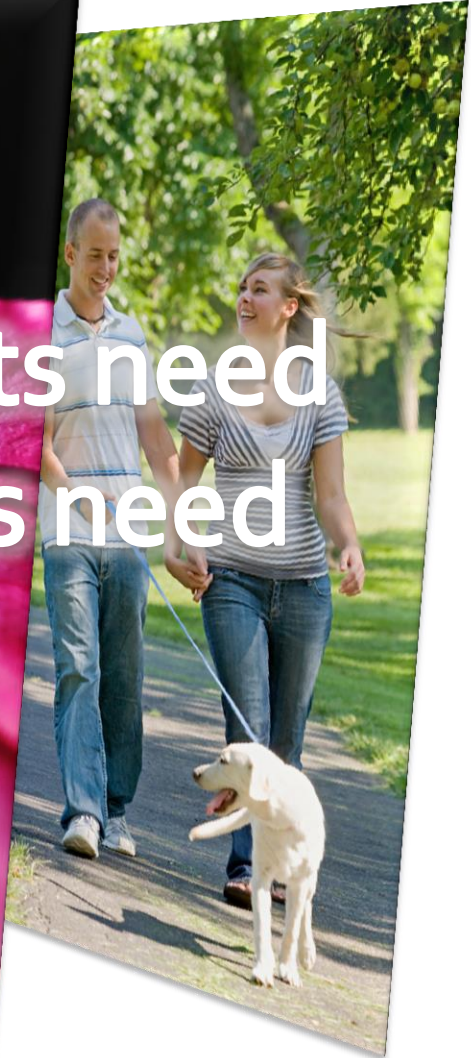
The **chlorophyll** processes the ingredients to make **sugar (plant food)** and **oxygen**.



Sugar + O_2

But, what about animals ?

Animals make the CO_2 plants need
Plants make the O_2 animals need



Cellular Respiration



Respiration Vocabulary

- **Cellular Respiration**- The process by which the chemical energy of "food" molecules is released and changed into ATP.
- **Mitochondria**- Rod-shaped organelles with a double membrane which converts the energy stored in glucose into ATP for the cell.

Cellular Respiration Equation



Oxygen + glucose (sugar) → water + carbon dioxide + energy

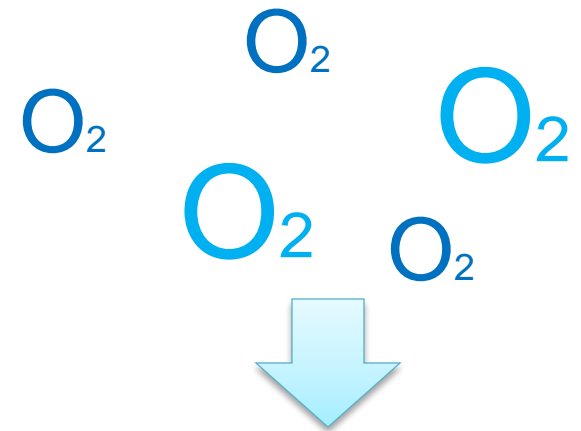
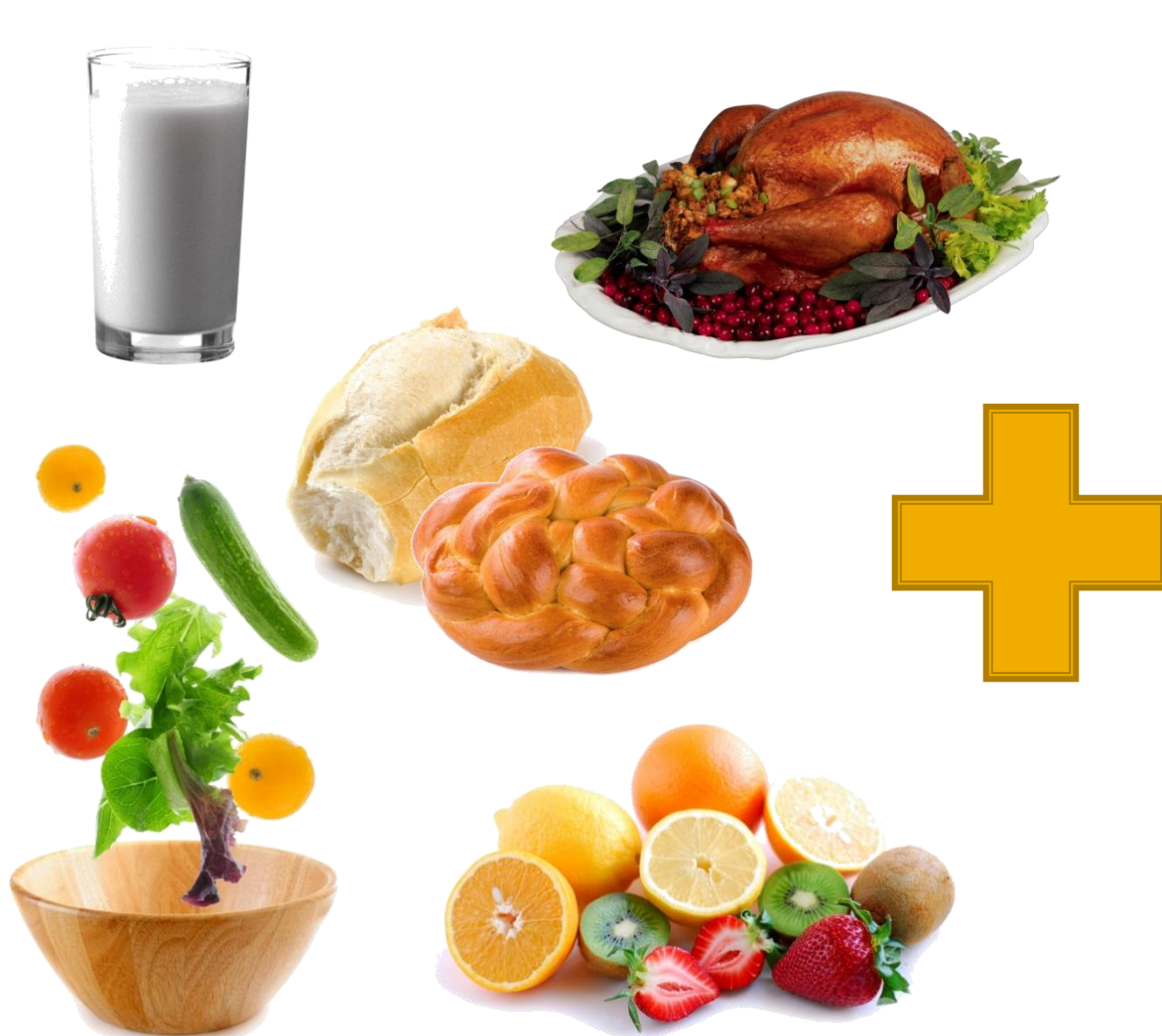
Do you notice something about this equation?

Animals & Plants Rely On Each Other

- Animals use:
 - Sugar (from producers/plants)
 - Oxygen (from producers/plants)
- Plants use:
 - Carbon dioxide (from animals)



The mitochondria change the O_2 and sugars (food)



Into CO_2 , H_2O , and ATP



ATP



Comparing Equations

Photosynthesis Equation:



Cellular Respiration Equation:



They are opposites of each other!