

Photosynthesis & Respiration



Photosynthesis



Photosynthesis Vocabulary

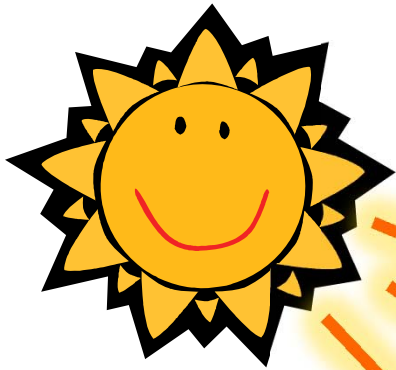
- **Photosynthesis**- A process by which plants convert sunlight, water, and carbon dioxide into food energy (sugar), oxygen and water.
- **Chloroplast**- An elongated cell organelle containing chlorophyll where photosynthesis takes place.
- **Chlorophyll**- A green molecule which uses light energy from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

Photosynthesis Equation



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

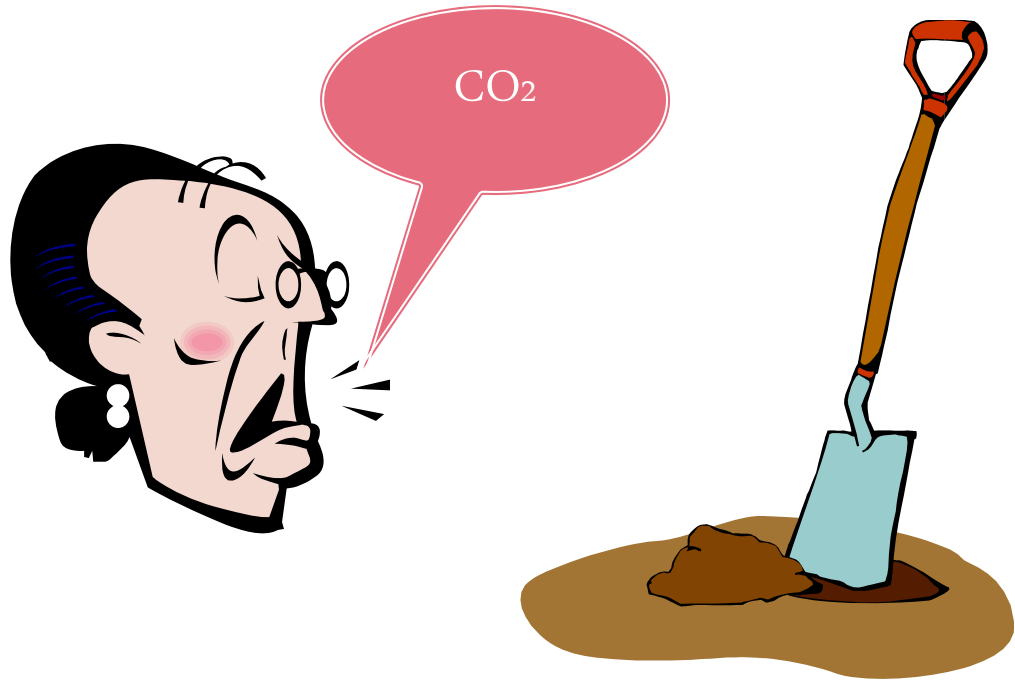
The chlorophyll absorbs the sunlight.



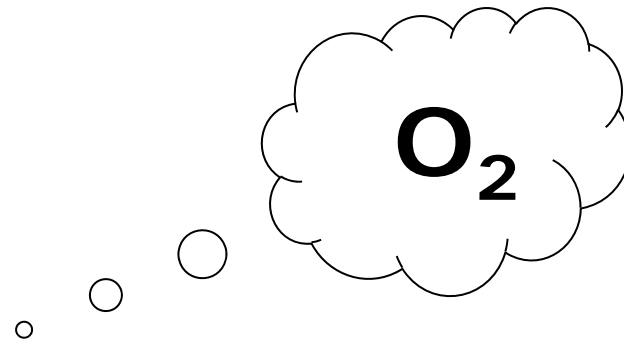
Chlorophyll is the green pigment inside the chloroplasts of plant cells that makes leaves green!



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 ?



Respiration



Respiration Vocabulary

- **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.

Respiration Equation



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

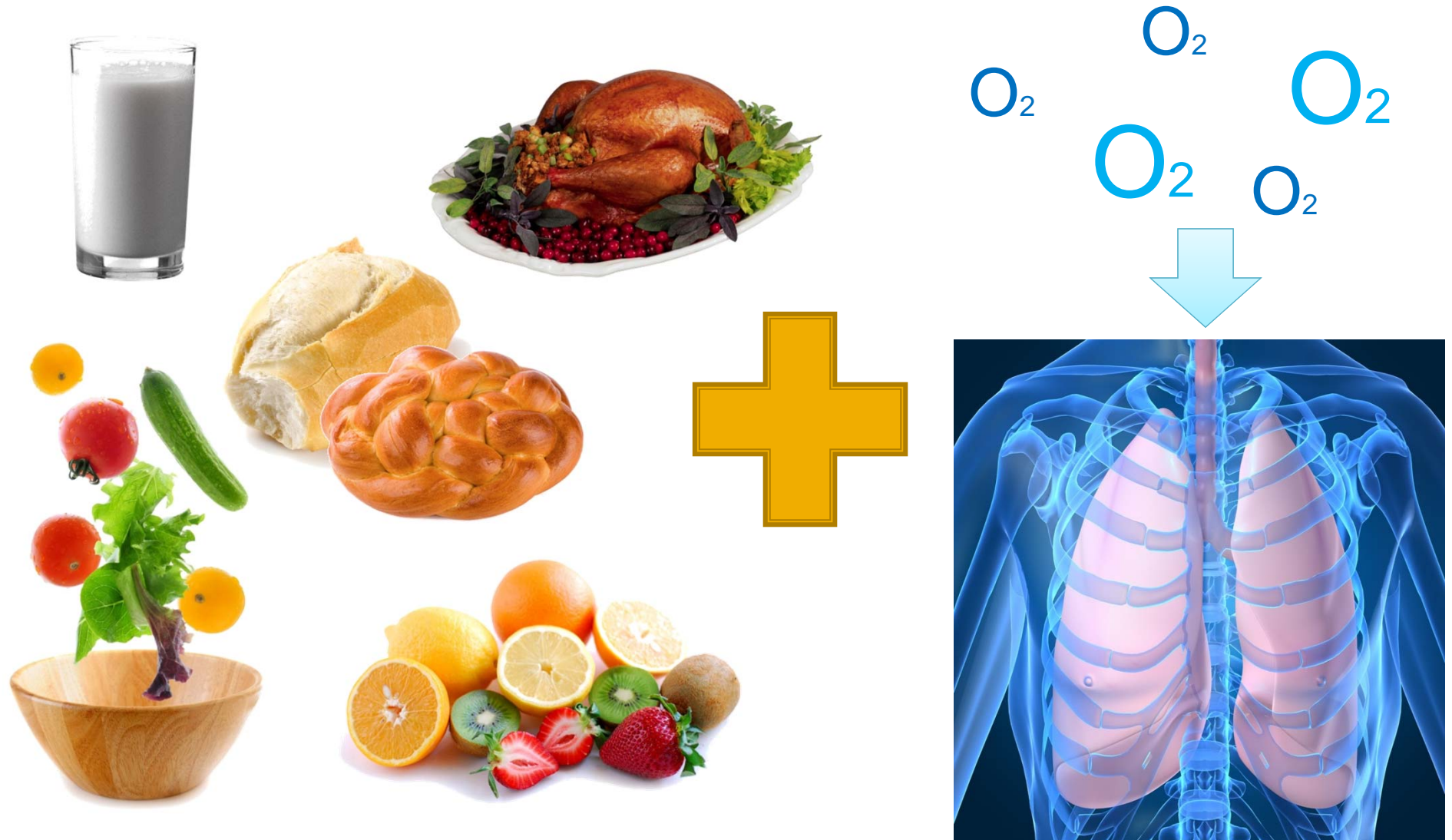
Do you notice something about this equation?

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:



Respiration Equation:



They are opposites of each other!