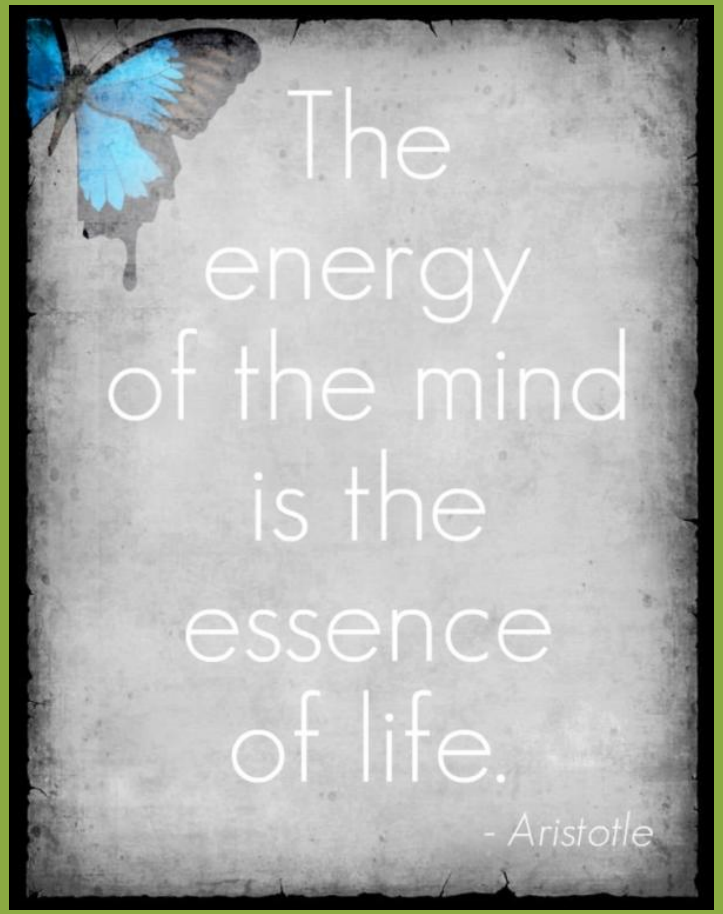
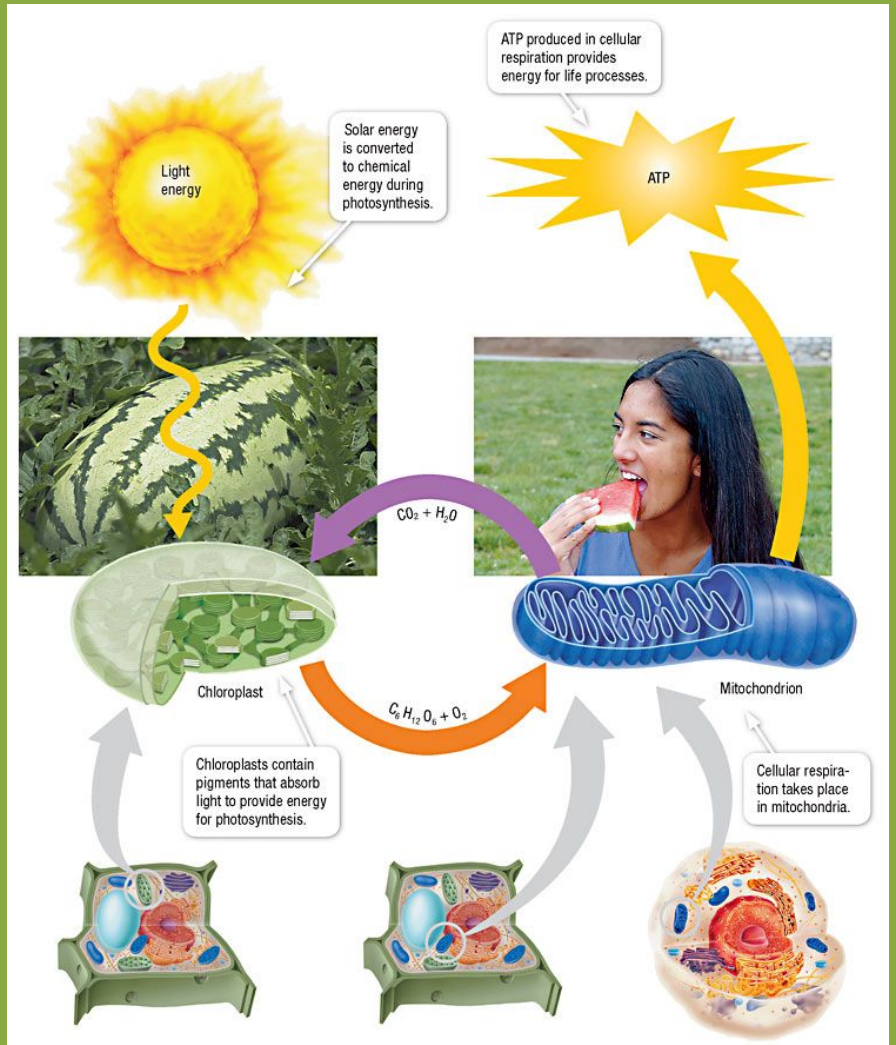


Bioenergetics

Photosynthesis and Cellular Respiration

I can....

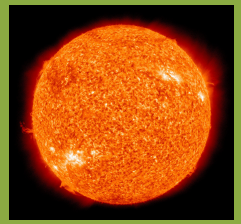
Compare the basic transformation of energy during photosynthesis and cellular respiration.



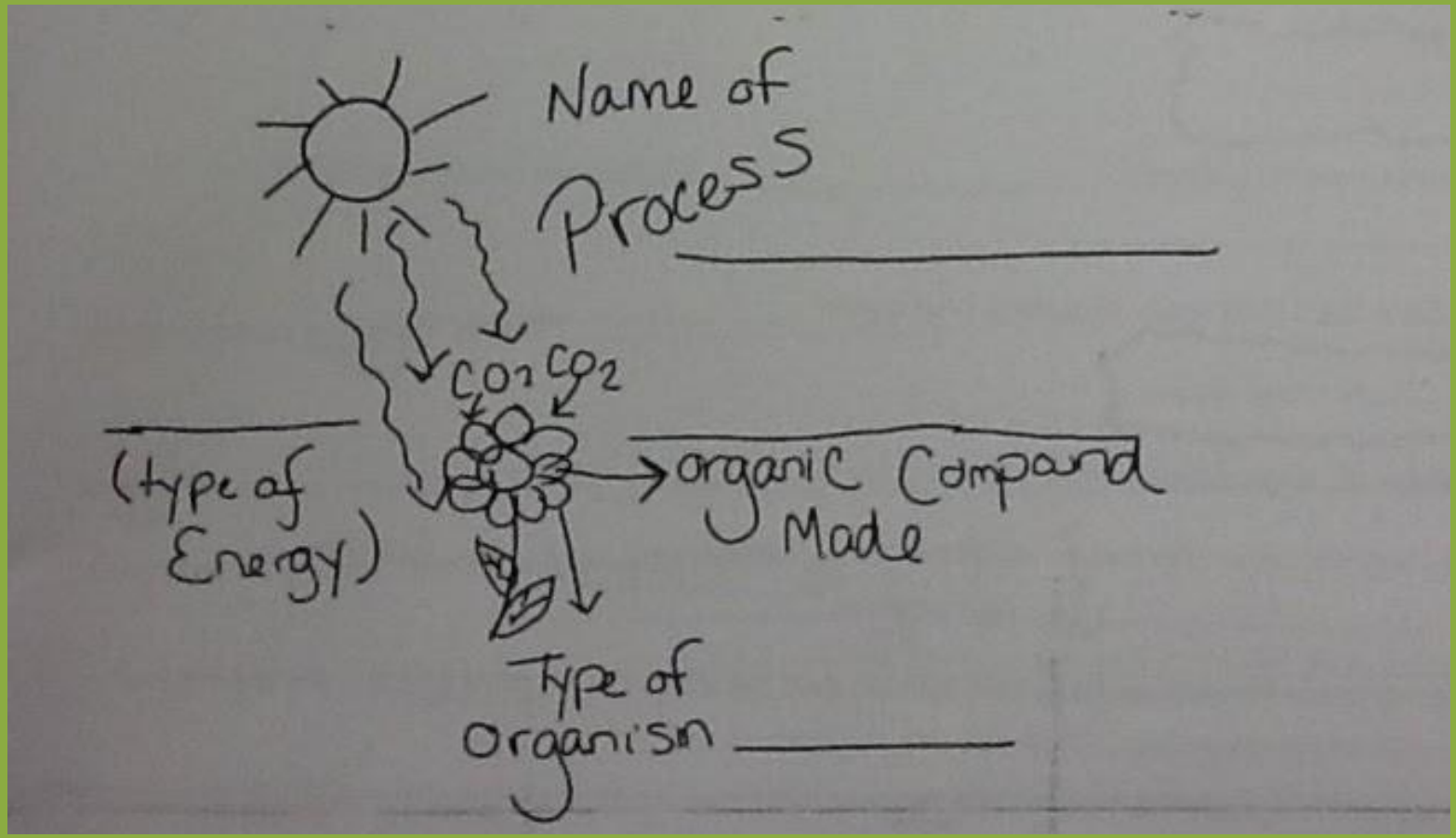
Chemical Energy

Another form of Homeostasis is that All organisms require a constant supply of energy.

This energy is stored in chemical bonds of organic compounds (organic meaning they contain many Carbon - Carbon bonds)



Almost all energy originates from the SUN

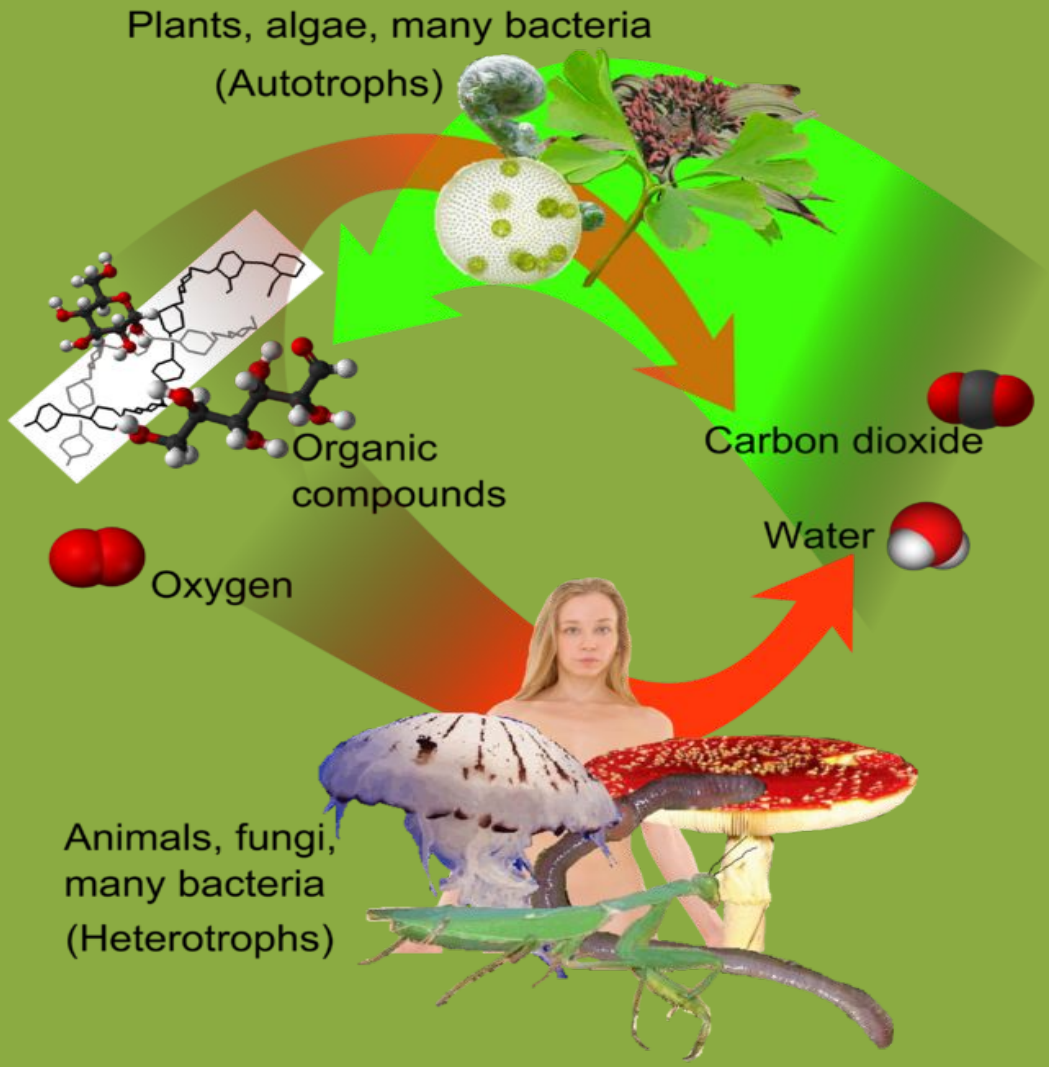

Name of Process
CO_2 CO_2
(type of Energy)
organic Compand Made
Type of Organism

Basic Vocabulary

Autotroph: (Auto = Self, Trophe = nourishing) Organisms that produce their own nutrients from inorganic substances or from the environment

Heterotroph: (Hetero = "Another, Different", Trophe = Nutrition) Organisms that CANNOT make their own organic compounds and therefore must eat autotrophs or organisms that eat autotrophs.

Autotrophs vs Heterotrophs



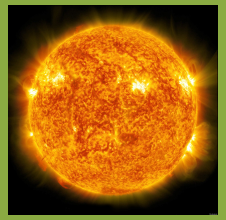
Basic Vocabulary cont.....

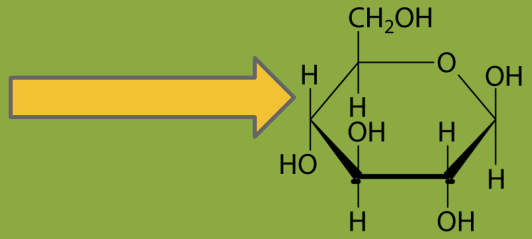
Photosynthesis: The process by which autotrophs convert solar energy into chemical energy using CO_2 and water to make carbohydrates and O_2

Cellular Respiration: The process by which ALL organisms convert energy found in carbohydrates into USABLE energy in the form of **ATP!!!!!**

Energy Transformations

Photosynthesis:





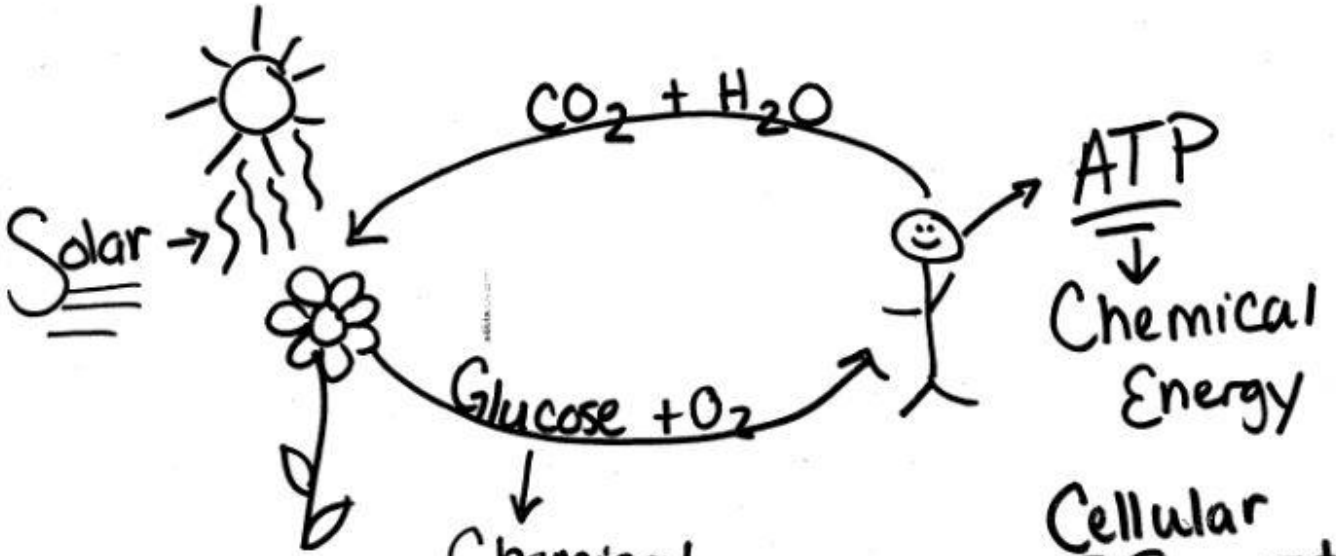
Solar (Sun) to Chemical (Glucose)

Cellular Respiration:

Chemical (glucose) to

Chemical (ATP!!!!!!)

Energy Conversions



Photosynthesis

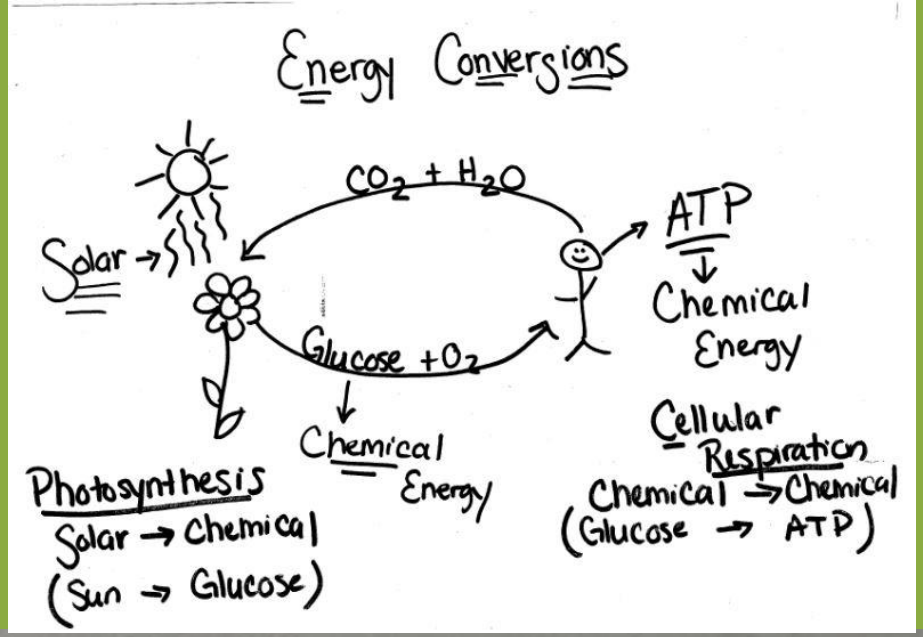
Solar → Chemical

(Sun → Glucose)

Cellular Respiration

Chemical → Chemical

(Glucose → ATP)



using the information from this section and the diagram on page 199 list the inputs and output of photosynthesis and cellular respiration

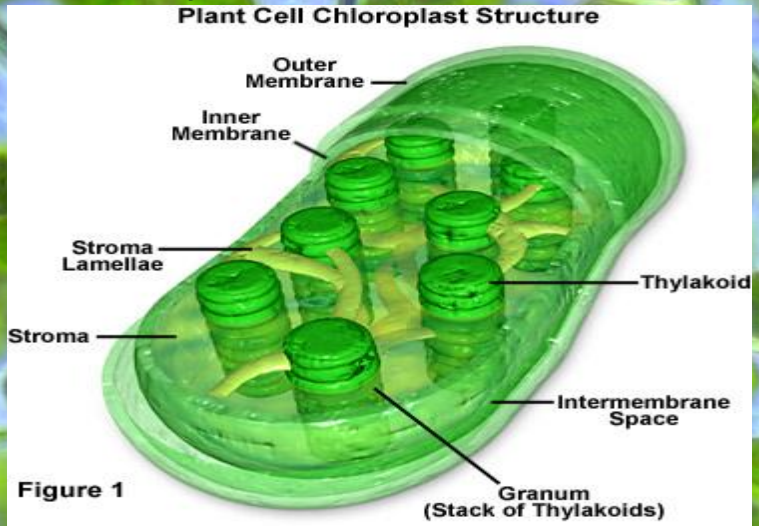
Process	Inputs	Outputs
Photosynthesis		
Cellular Respiration		

Equations and Locations

Photosynthesis:

Sunlight + Water + Carbon Dioxide → Glucose + Oxygen

Where????? Chloroplast



EQUATIONS AND LOCATIONS

Cellular Respiration:

Glucose + Oxygen → Water + Carbon Dioxide + Energy (ATP)

Location:

In both the Cytoplasm and the Mitochondria

MAJOR ATP production occurs in the mitochondria during aerobic respiration

PROKARYOTES perform cellular respiration ONLY in the cytoplasm