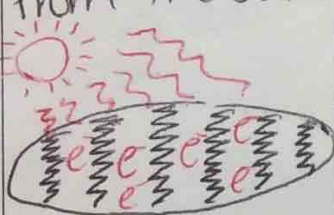


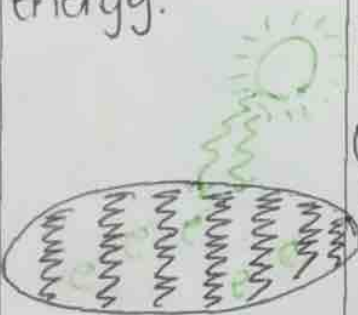
CO_2 = Carbon Dioxide
 H_2O = Water
 O_2 = Oxygen

$\text{C}_6\text{H}_{12}\text{O}_6$ = Glucose
 ATP = Cellular energy

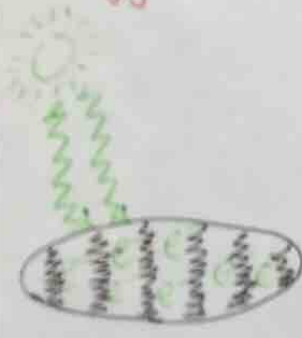
Respiration and Photosynthesis

Photosynthesis		Respiration	
Definition: Cell process of using sun energy to make food. Photo = light Synthesis = put together		Definition: Cell process of using $\text{C}_6\text{H}_{12}\text{O}_6$ to make energy.	
Equation: $6\text{CO}_2 + 6\text{H}_2\text{O} \xrightarrow[\text{energy}]{\text{Sun}} \text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2$ <p style="text-align: center;"> Reactants Products ↓ Byproduct </p>		Equation: $\text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2 \rightarrow 6\text{CO}_2 + 6\text{H}_2\text{O} + \text{ATP}$ <p style="text-align: center;"> Reactants Product Byproducts </p>	
Occurs in: Stage 1	Stage 2	Occurs in: Stage 1	Stage 2
Chloroplast Chlorophyll = pigment	Chloroplast	Cytoplasm	Mitochondria
Step #1: Capture energy from the sun. 	Step #2: H_2O moves up from roots. CO_2 enters through stomata. Converts CO_2 and H_2O to $\text{C}_6\text{H}_{12}\text{O}_6$.	Step #1: $\text{C}_6\text{H}_{12}\text{O}_6$ breaks down to small molecules.	Step #2: Small $\text{C}_6\text{H}_{12}\text{O}_6$ molecules mix with O_2 to make energy (ATP).
Extra Information: Only autotrophs Stores $\text{C}_6\text{H}_{12}\text{O}_6$ as sugar or starch.		Extra Information: <u>All cells!!</u>	

Respiration and Photosynthesis

Photosynthesis		Respiration	
Definition: Process of using solar energy to make food (glucose).		Definition: Process of using food to make energy (ATP).	
Equation: $6\text{CO}_2 + 6\text{H}_2\text{O} \xrightarrow[\text{energy}]{\text{Sun}} \text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2$ Reactants (Products) (Byproducts)		Equation: $\text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2 \rightarrow 6\text{CO}_2 + 6\text{H}_2\text{O} + \text{ATP}$ Reactants (Products)	
Occurs in: Stage 1	Stage 2	Occurs in: Stage 1	Stage 2
Chloroplast Chlorophyll = pigment	Chloroplast	Cytoplasm	Mitochondria
Step #1: Chlorophyll in the chloroplast collects solar energy. 	Step #2: CO ₂ diffuses through stomata. H ₂ O moves by osmosis from the roots. Chloroplast converts to C ₆ H ₁₂ O ₆ .	Step #1: C ₆ H ₁₂ O ₆ breaks into small molecules.	Step #2: Small C ₆ H ₁₂ O ₆ molecules combine with O ₂ to create ATP.
Extra Information: Autotrophs only.		Extra Information: <u>All cells!!!</u>	
Store as C ₆ H ₁₂ O ₆ or starch.			

Respiration and Photosynthesis

Photosynthesis		Respiration	
Definition: Cellular process of using solar energy to create food.		Definition: Cellular process of using food to create ATP (chemical energy of cells).	
Equation: $6\text{CO}_2 + 6\text{H}_2\text{O} \xrightarrow[\text{energy}]{\text{sun's}} \text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2$ Reactants → Products (C ₆ H ₁₂ O ₆ is labeled as byproduct)		Equation: $\text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2 \rightarrow 6\text{CO}_2 + 6\text{H}_2\text{O} + \text{ATP}$ Reactants → Byproducts + Products	
Occurs in: Stage 1	Stage 2	Occurs in: Stage 1	Stage 2
Chloroplast Chlorophyll: pigment	Chloroplast	Cytoplasm	Mitochondria
Step #1: Chlorophyll collects solar energy. 	Step #2: CO ₂ diffuses through stomata. H ₂ O uses osmosis to travel from the roots. Converts raw materials to C ₆ H ₁₂ O ₆ and releases excess O ₂ through stomata.	Step #1: C ₆ H ₁₂ O ₆ breaks into smaller molecules.	Step #2: Smaller C ₆ H ₁₂ O ₆ molecules combine with O ₂ to create ATP .
Extra Information: Only autotrophs.		Extra Information: <u>All cells!!!</u>	
Store C ₆ H ₁₂ O ₆ as sugars and starches.			