

Photosynthesis & Respiration

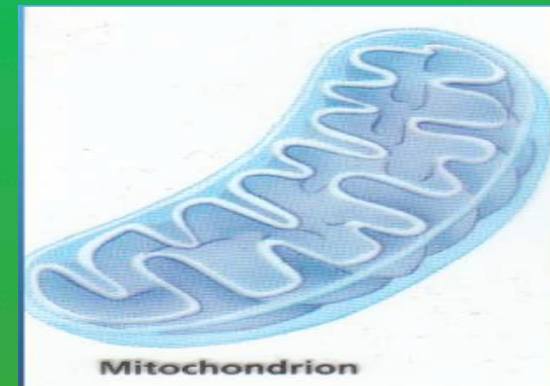
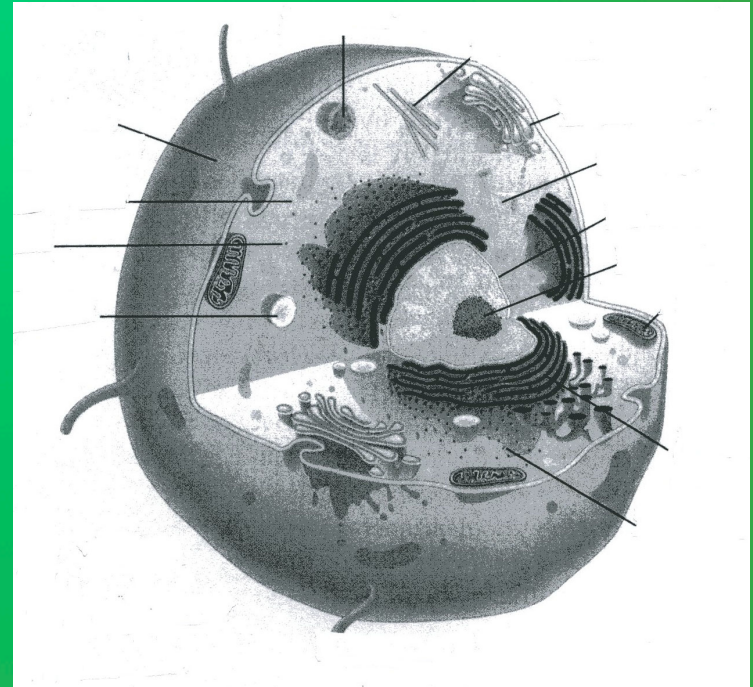


What is Cellular Respiration?

-CR is how plants and animals use the glucose that is made by plants

-(don't forget, plants use glucose to build more cells, to grow, to repair, etc.)

-animals and plants do CR



Inputs and Outputs of Cellular Respiration

-a 3 step reaction where

-glucose (input)

-oxygen (input)

are combined to create:

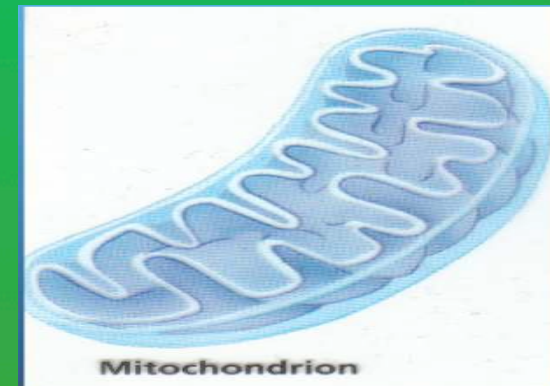
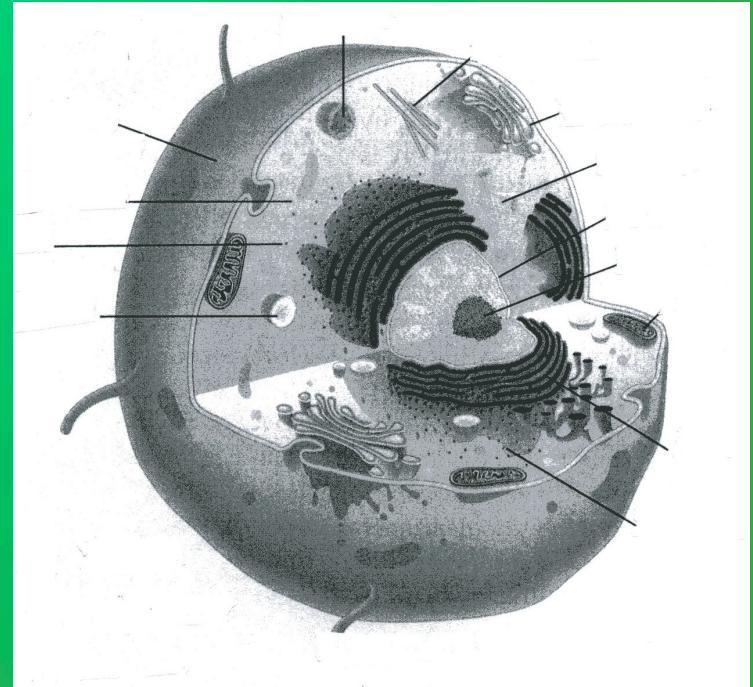
- ATP (adenosine triphosphate) a usable form of energy (output)

-water (output)

-CO₂ (output)

-cells must break down glucose into ATP because...

-ATP is the only usable form of energy for a cell



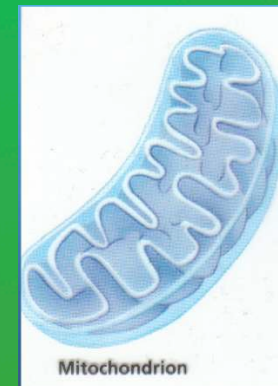
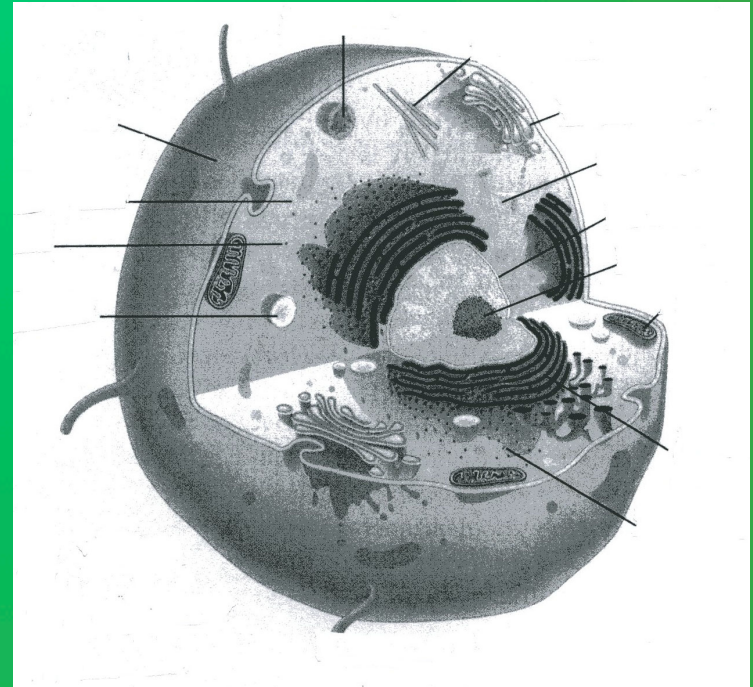
Where does Cellular Respiration Occur?

Types of Cells

- In animal
- In plants

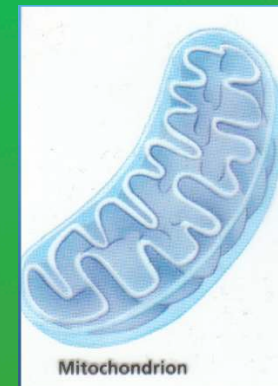
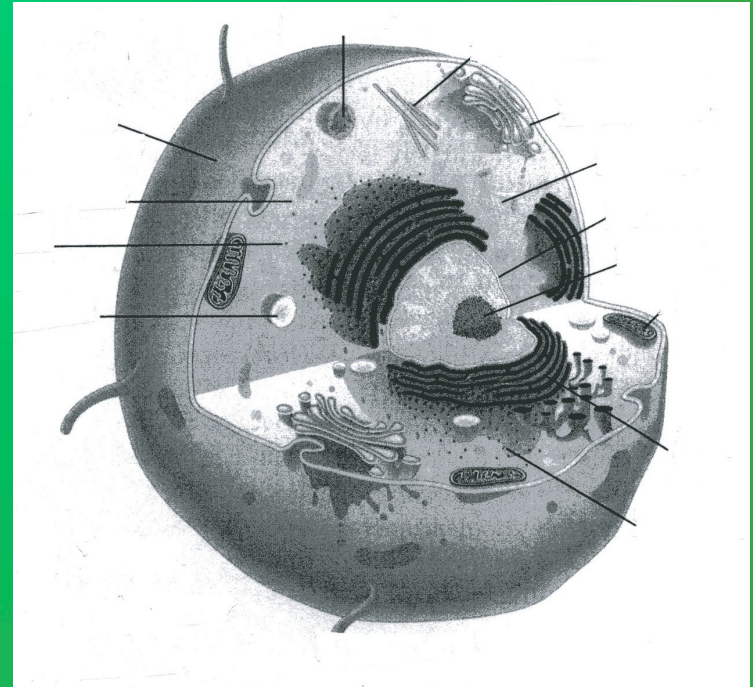
Parts of the Cell

- In the Cytoplasm
- In the Mitochondria



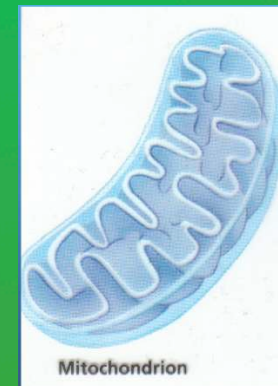
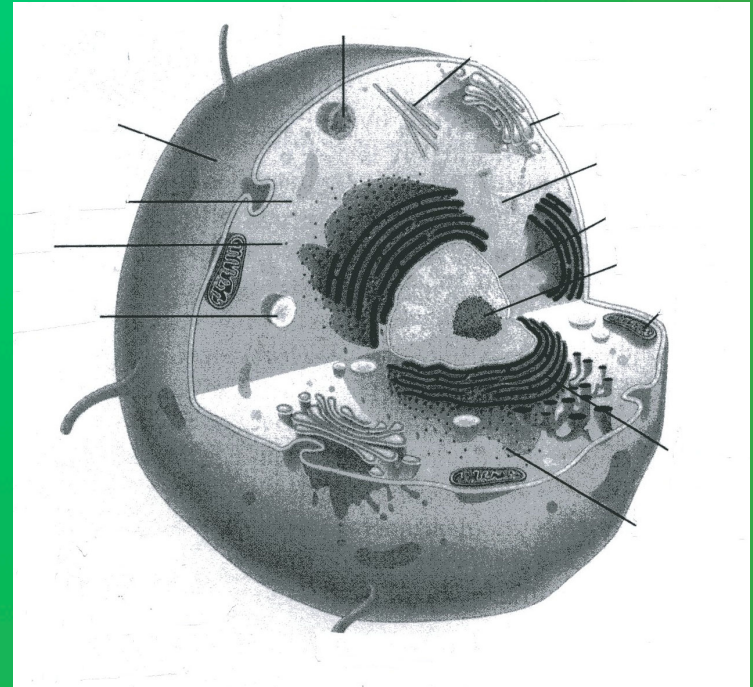
The 3 Steps of Cellular Respiration

- Step#1
- An animal eats glucose, and breathes in air
- Glycolysis: (using oxygen to breakdown glucose into Pyruvic Acid)
 - occurs in the *Cytoplasm*



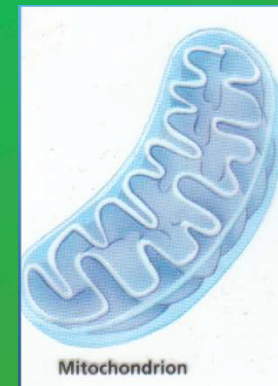
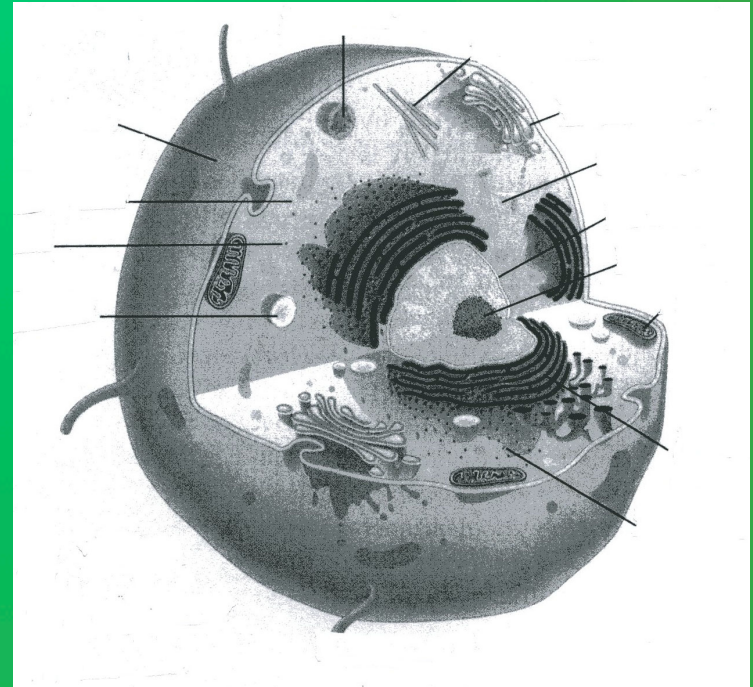
The 3 Steps of Cellular Respiration

- Step#2
- Pyruvic acid is broken down into Acetyl CoA
- occurs in the *Cytoplasm*



The 3 Steps of Cellular Respiration

- Step#3
- Citric Acid Cycle: (the process of breaking down Acetyl CoA into ATP)
 - occurs in the *mitochondria*



The 3 Steps of Cellular Respiration

Step#1

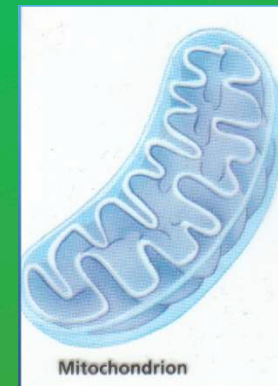
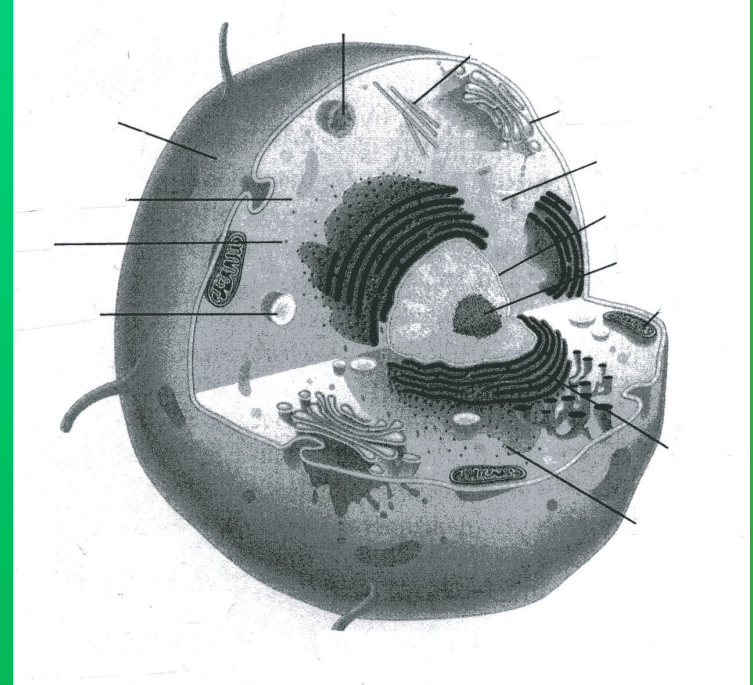
- Glycolysis: (the breakdown of glucose into Pyruvic Acid)
 - occurs in the *Cytoplasm*

Step#2

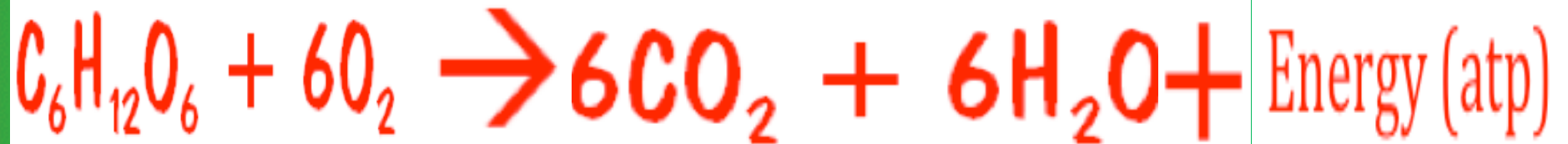
- Pyruvic acid is broken down into Acetyl CoA
- occurs in the *Cytoplasm*

Step#3

- Citric Acid Cycle: (the process of breaking down Acetyl CoA into ATP)
 - occurs in the *mitochondria*



What is the chemical equation for cellular respiration?



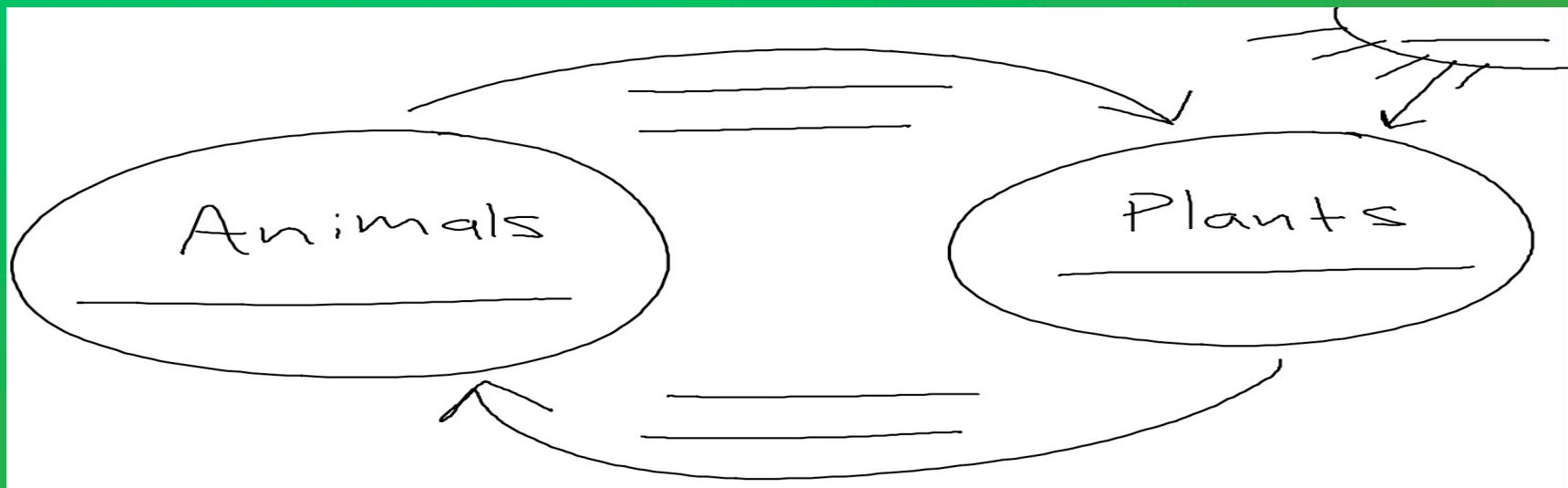
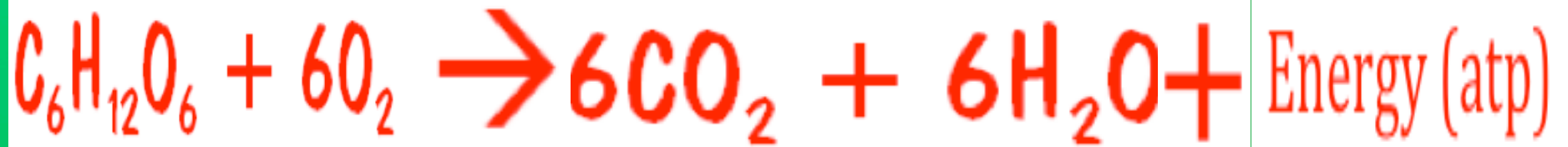
One molecule of glucose and six molecules of oxygen break down into six molecules of carbon dioxide, six molecules of water and energy in the form of ATP.

What is the equation for the chemical reaction for photosynthesis?



Six molecules of carbon dioxide react with six molecules of water to form 1 molecule of glucose (sugar) and six molecules of oxygen.

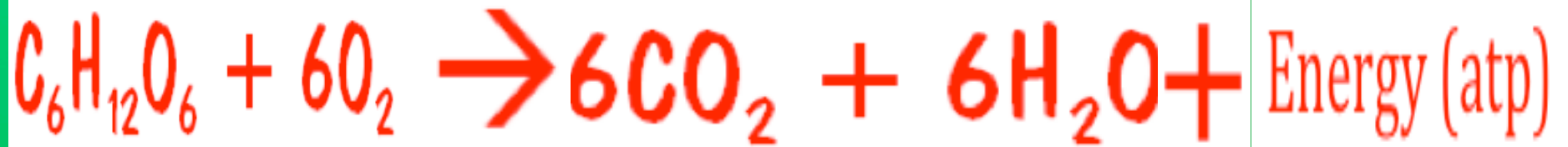
The Relationship Between Cellular Respiration and Photosynthesis



The inputs for _____ are the outputs from _____

The inputs for _____ are the outputs from _____

Compare and Contrast Photosynthesis w/ Cellular Respiration



Photosynthesis	Cellular Respiration
Food is _____	Food is _____down
Energy is from the _____	Energy is from _____
CO2 is _____	CO2 is _____
Oxygen is _____	Oxygen is _____
Produces _____	Produces _____
Happens in the light/dark (circle the correct answer(s))	Happens in the light/dark (circle the correct answer(s))
Only occurs in _____	Occurs in both _____ and _____

Why is Cellular Respiration so Important?

- Animals need energy in the form of ATP
- The outputs from Cellular Respiration are the inputs for Photosynthesis
- In other words, the outputs from animals allows plants to continue converting sunlight into glucose which is the energy we need to fuel our own bodies