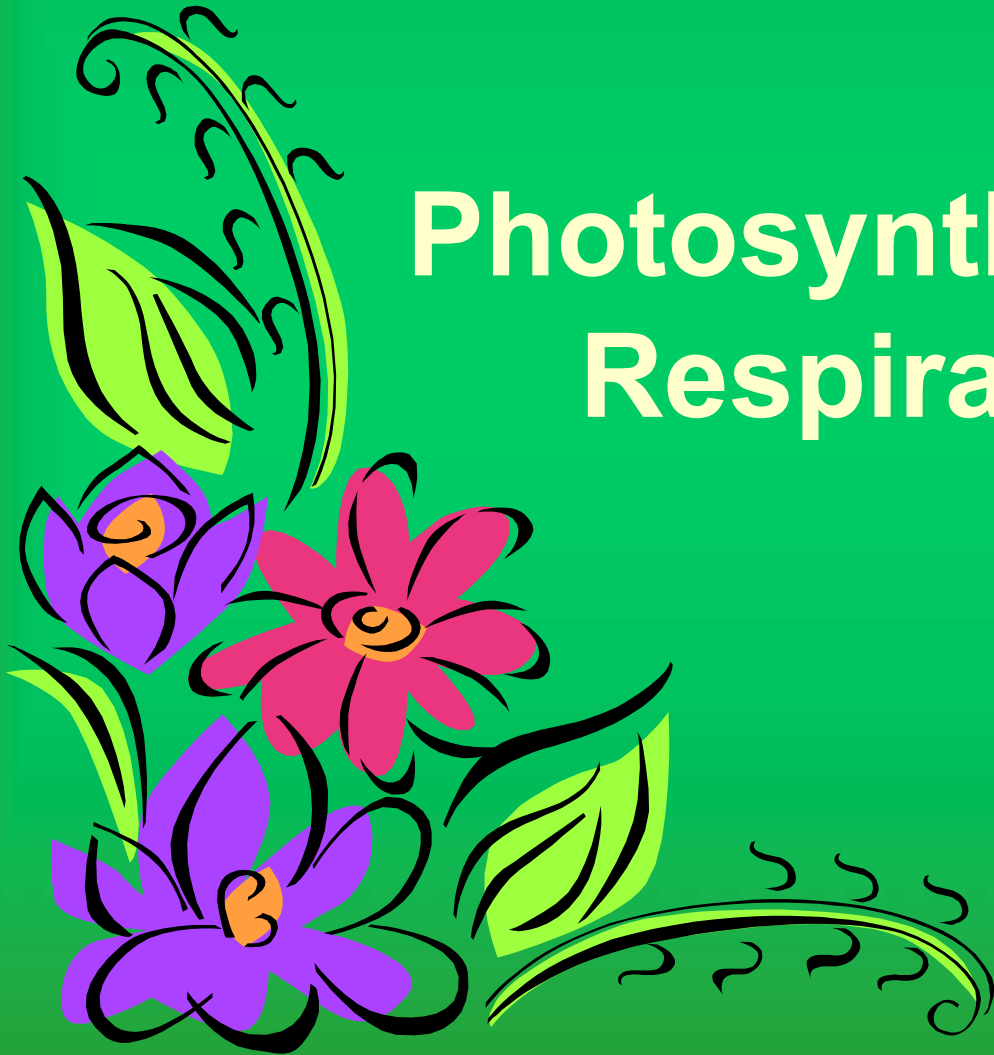
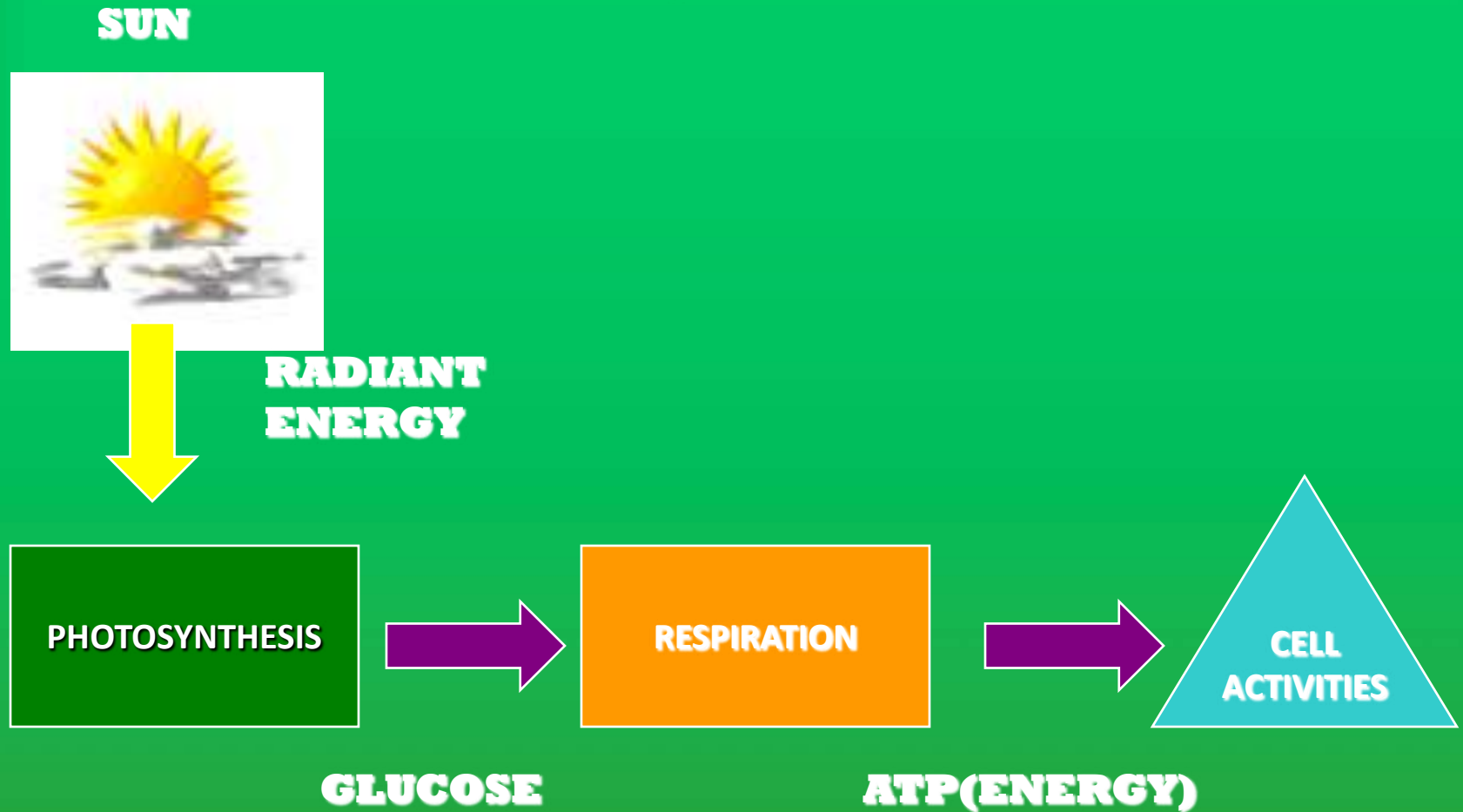


Photosynthesis & Respiration

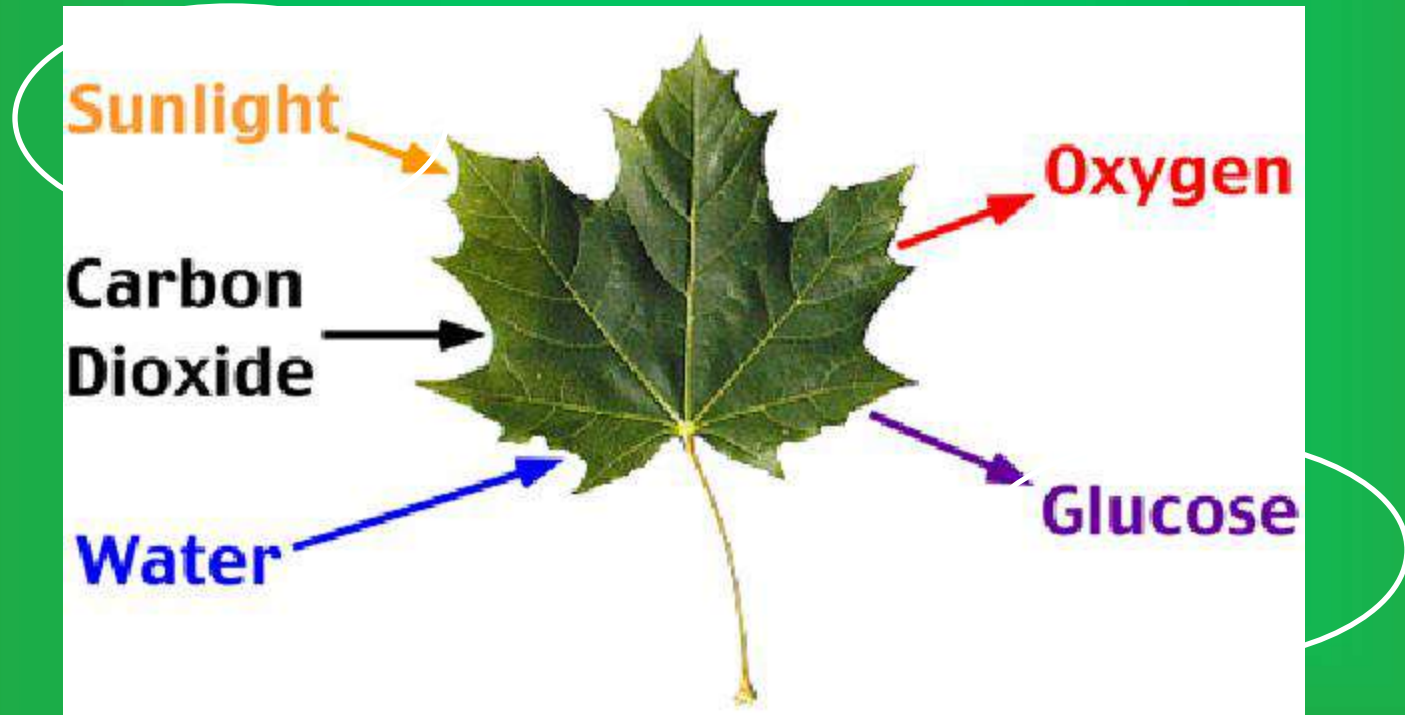


Overview of photosynthesis and respiration



Photosynthesis:

- Photosynthesis is the process by which the energy of sunlight is converted into the energy of glucose



What is Photosynthesis?

The *process* of photosynthesis is a chemical reaction.

It is the most important
chemical reaction on our planet.

Describe Photosynthesis

- The process of changing light energy to chemical energy
- Energy stored as sugar
- Occurs in plants and some algae
- Plants need light energy, CO_2 , and H_2O
- Takes place in the chloroplasts, using chlorophyll, the green pigment in plants

- **Chlorophyll** is the pigment inside the **chloroplast** that absorbs light for photosynthesis



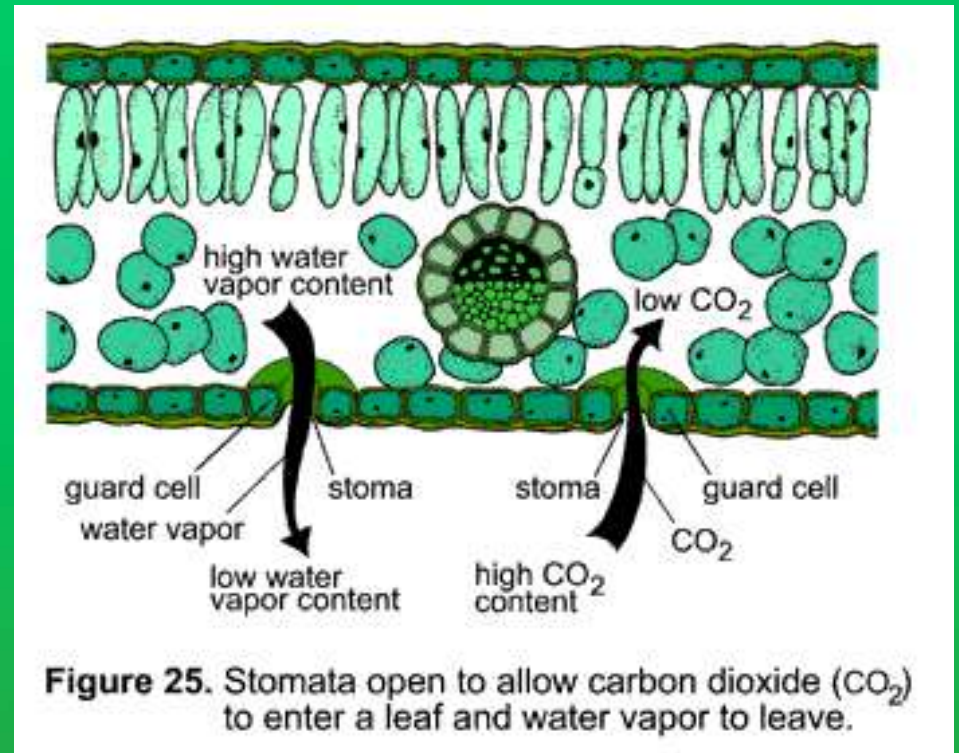
As the chlorophyll in leaves decays in the autumn, the green color fades and is replaced by the oranges and reds of carotenoids, other pigments.

What happens during photosynthesis?

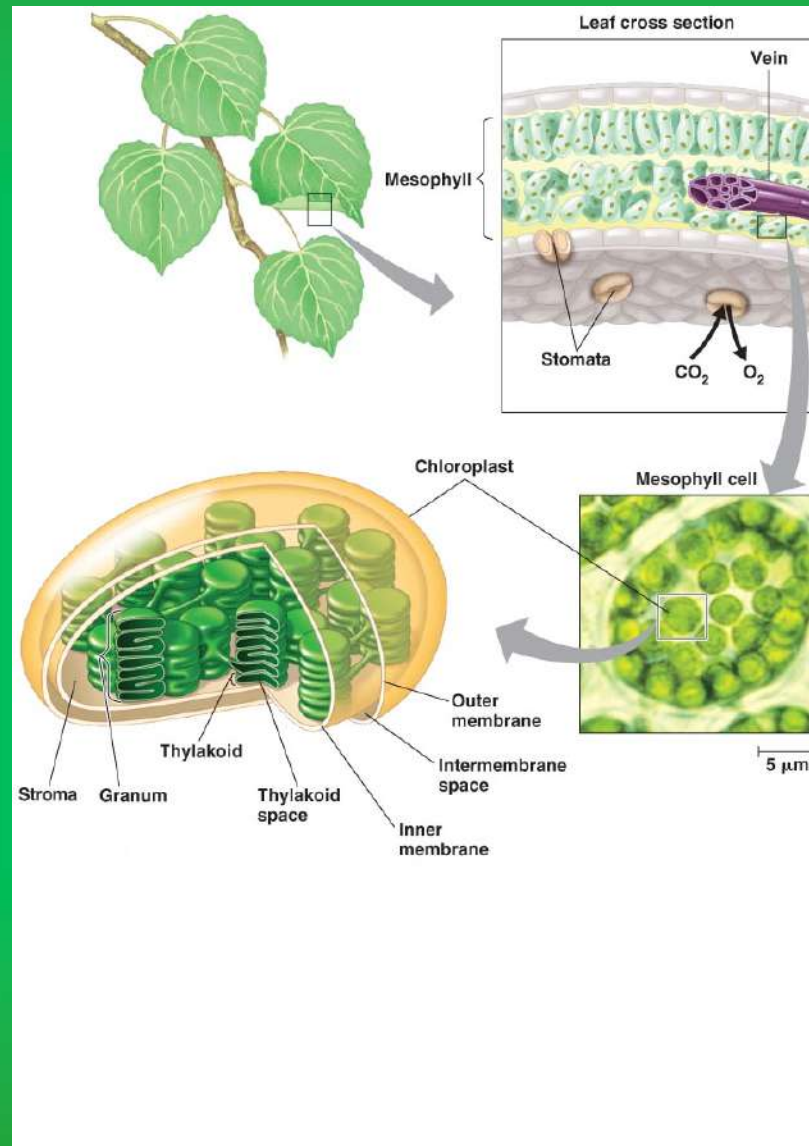
- Plants capture light energy and use that energy to make glucose
- Sunlight provides the energy needed by chlorophyll to change molecules of carbon dioxide and water into glucose
- Oxygen is also released in this reaction

What happens during photosynthesis?

- Carbon dioxide enters the leaf through holes called stomata
- CO₂ combines with the stored energy in the chloroplasts through a chemical reaction to make glucose



- Photosynthesis occurs in the chloroplasts of plants



What happens during photosynthesis?

- The sugar is moved through tubes in the leaf to the roots, stems and fruits of the plants
- Some of the sugar is used right away by the plant for energy; some is stored as starch; and some is built into plant tissue

What is Cellular Respiration?

The release of chemical energy for use by cells.

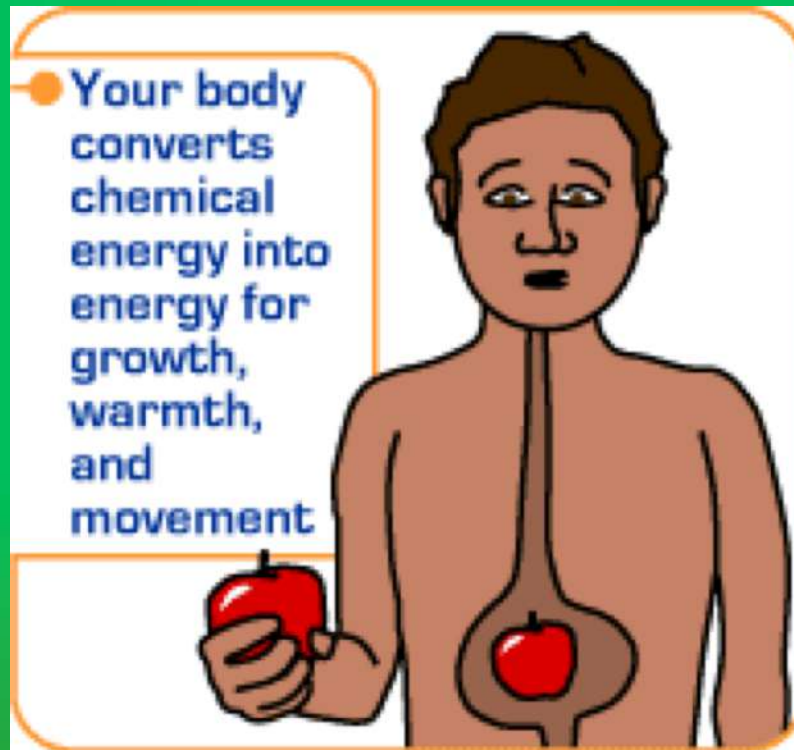
What is Cellular Respiration?

Once the energy that was in sunlight is changed into chemical energy by photosynthesis, an organism has to transform the chemical energy into a form that can be used by the organism.

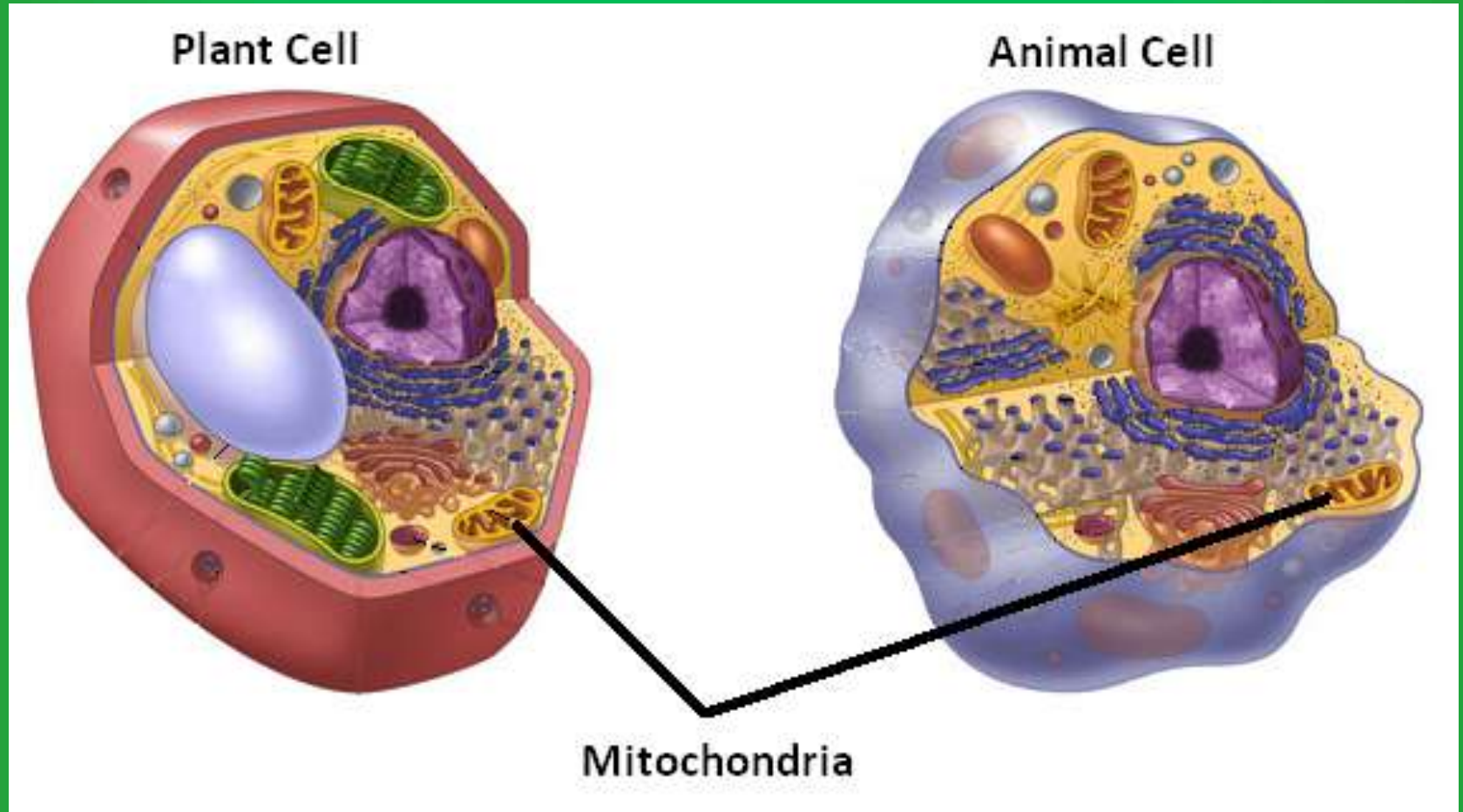
This process is cellular respiration.

Cellular Respiration:

Cellular respiration is the process by which the energy of glucose is released in the cell to be used for life processes (movement, breathing, blood circulation, etc...)



- Respiration occurs in ALL cells and can take place either with or without oxygen present.



Describe Cellular Respiration

- The breakdown of glucose molecules to release energy
- Turns glucose into ATP
- Takes place in all living things
- Is a step by step process