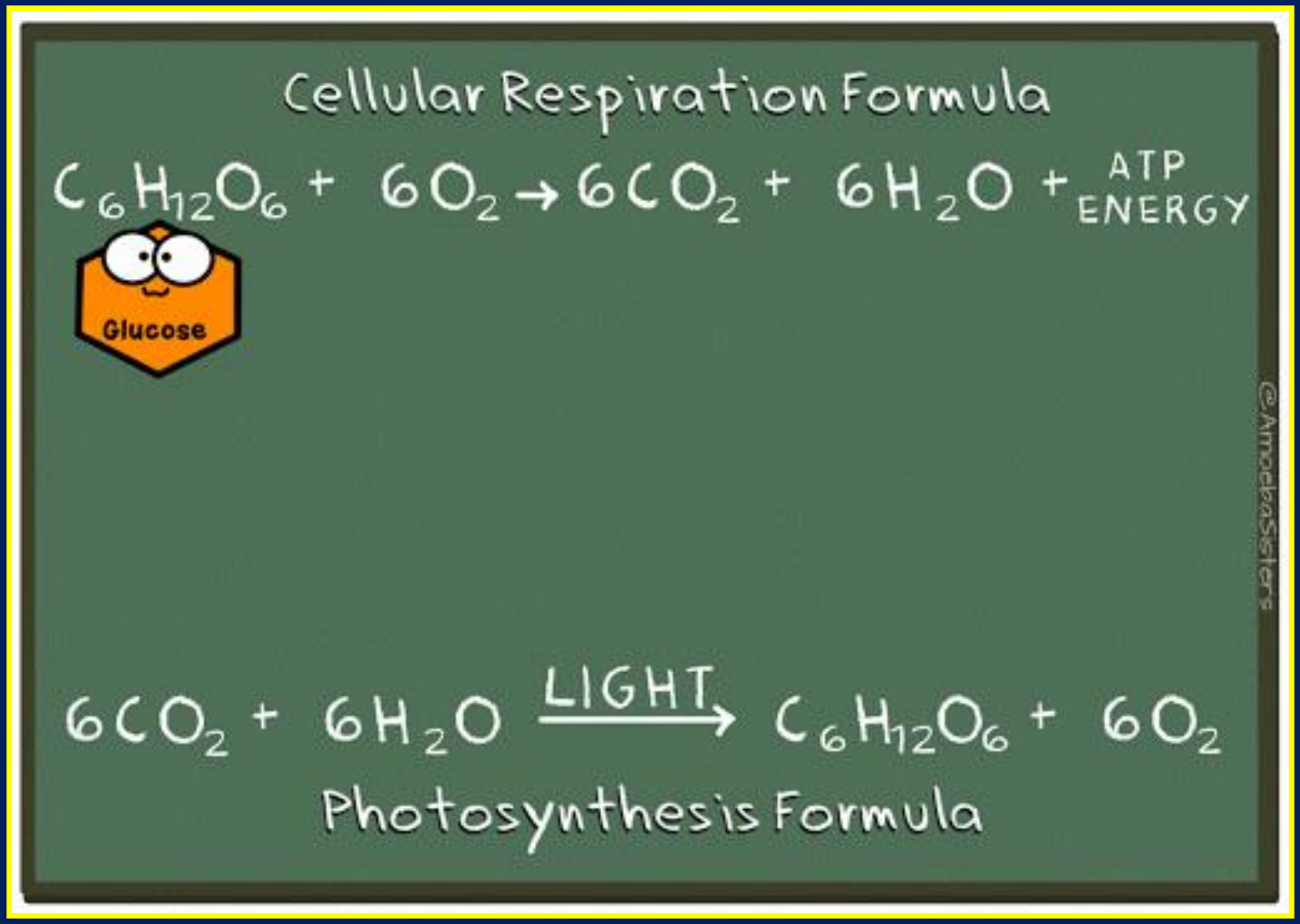
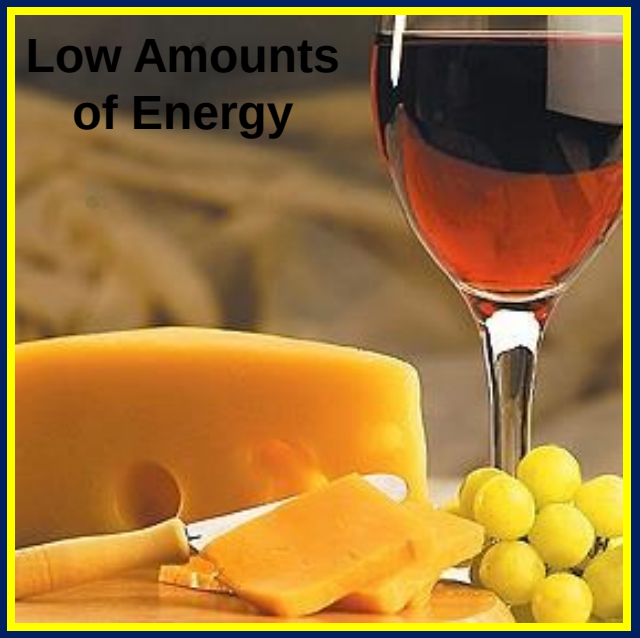
Respiration



All organisms, including plants, use cellular respiration to break down glucose into ATP energy

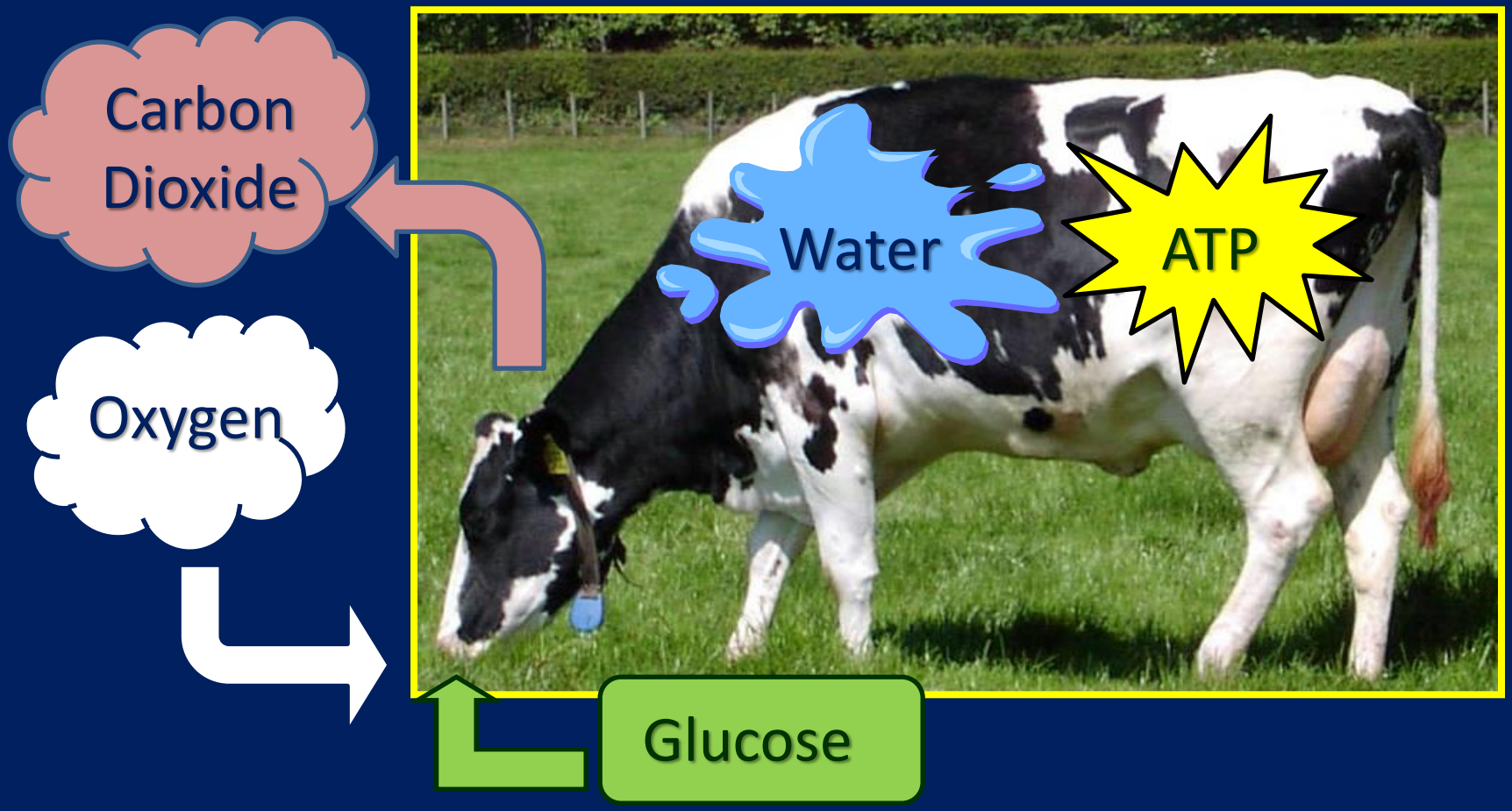
There are two types of cellular respiration reactions

Aerobic respiration that takes place with the help of oxygen

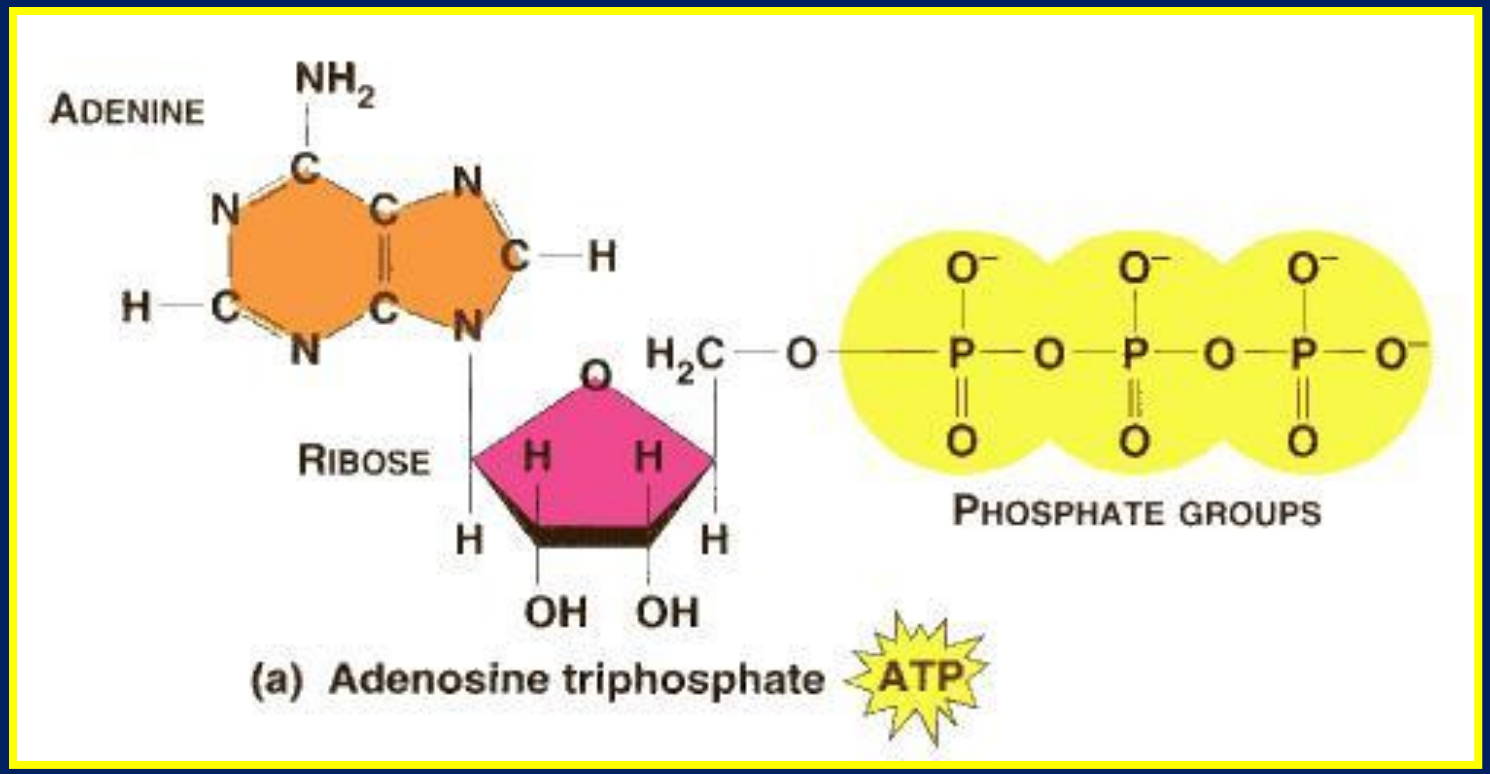


Anaerobic respiration that takes place without the help of oxygen

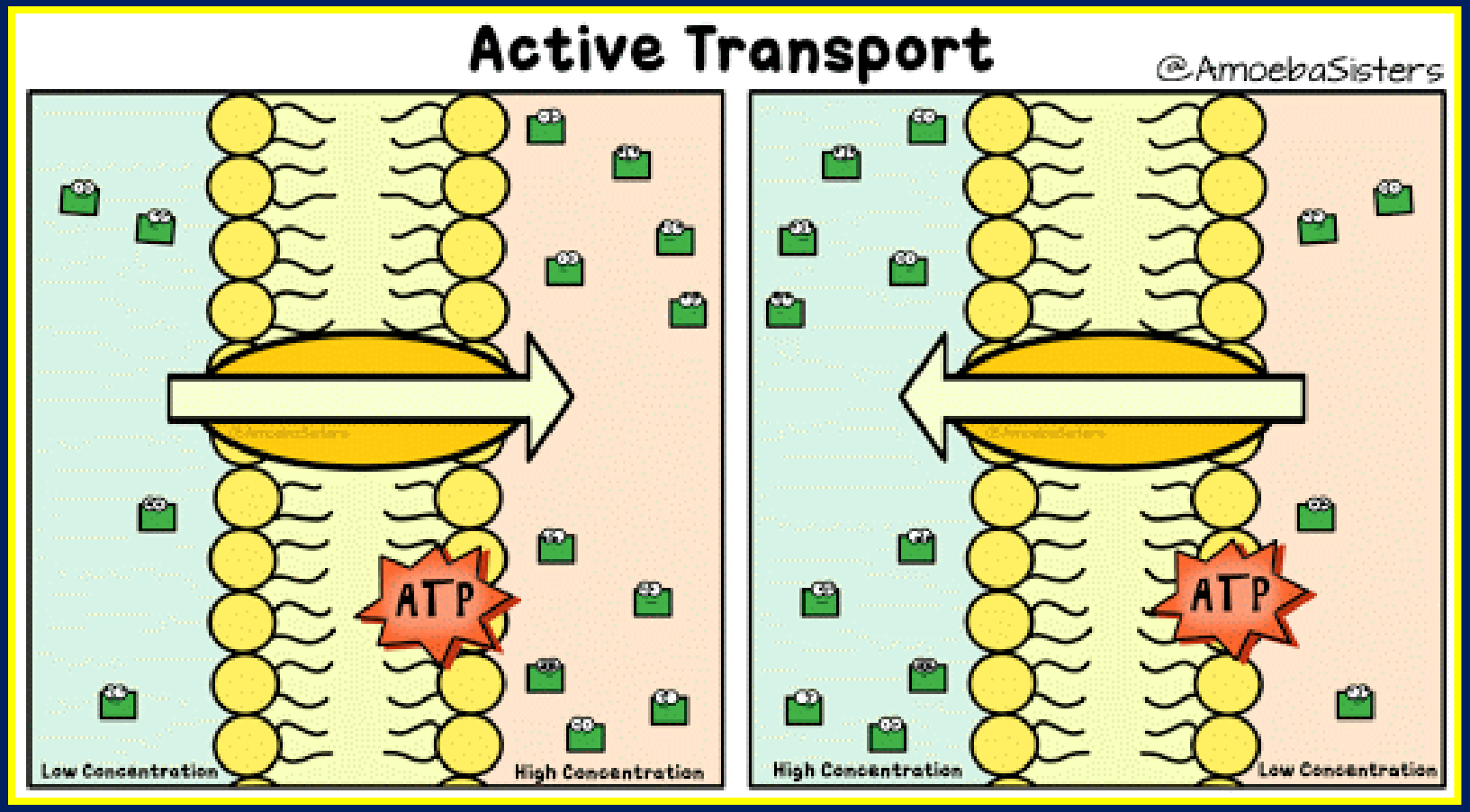
During aerobic respiration, oxygen is used to break down glucose into carbon dioxide, water and ATP energy.



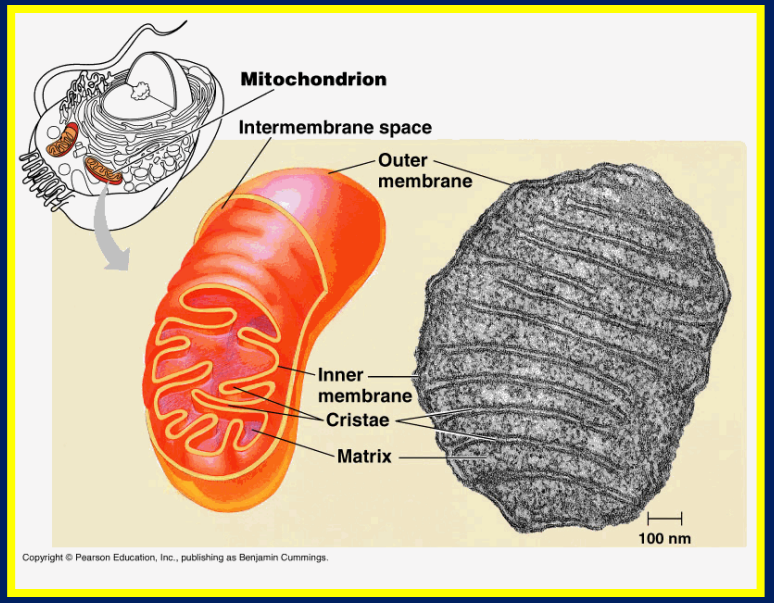
ATP, or Adenosine Triphosphate, is a nucleotide that consists of an adenine molecule bonded to a ribose sugar and attached to three phosphate groups.



Once ATP is made, cells can use that energy to do things like active transport.



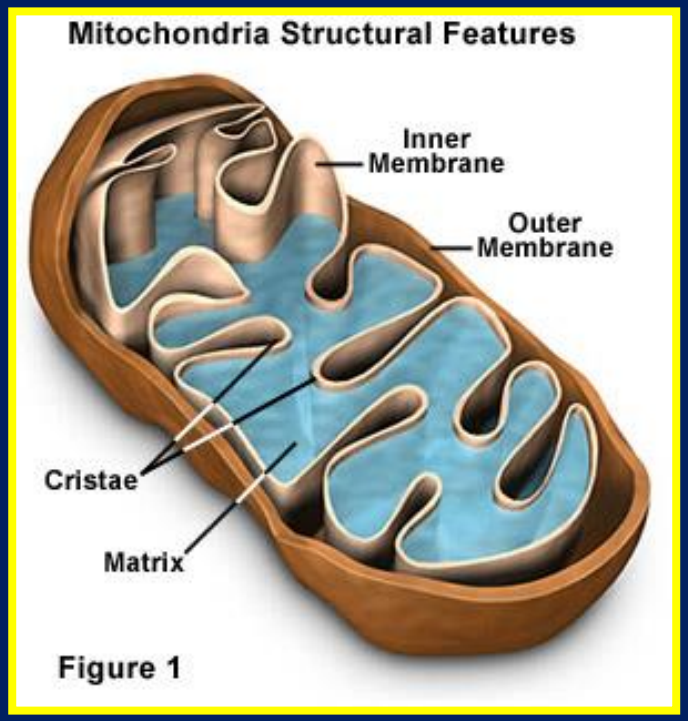
Aerobic respiration takes place inside the mitochondria



Mitochondria are found in all eukaryotic cells but are more plentiful in cells that need a lot of energy, such as muscle cells.

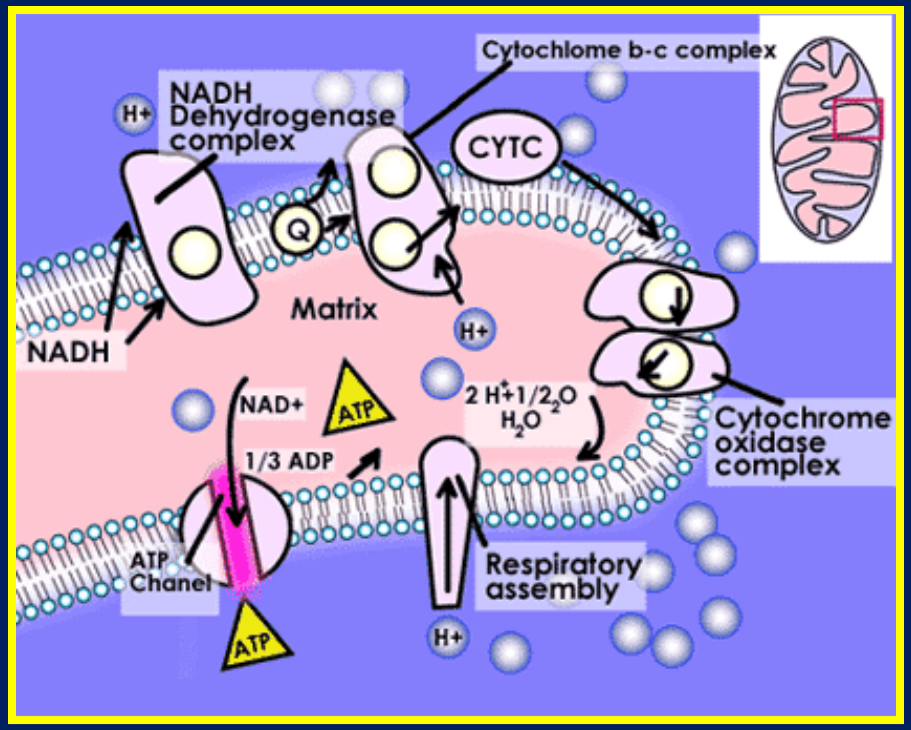
Each Mitochondria contains two membranes.

The outer membrane surrounds the mitochondria



The inner membrane is folded to increase surface area

Since the reactions take place on the inner membrane, having more surface area increases the number of reactions that can take place at the same time.



The amount of oxygen available determines the rate at which glucose can be broken down to create energy

No Oxygen = No Energy = Death

Respiration Reaction

$O_2 + C_6H_{12}O_6 \rightarrow CO_2 + H_2O + \text{Energy}$

Reactants

Oxygen
Glucose

Products

Carbon Dioxide
Water
ATP Energy

The End