

Respiration Notes

- All living things get their energy from sugar that plants make
- Organisms are either heterotrophs or autotrophs
- Plants are autotrophs- they can make their own food
 - Plants use the glucose they make during photosynthesis as their food
 - They do not have to eat anything
- Animals and many other organisms are heterotrophs
 - They eat plants or other organisms to get their glucose
- Respiration begins when the cell pumps glucose into the cell from the outside
- The glucose builds up in the cytoplasm
- **Glycolysis** begins in the cytoplasm
 - Glycolysis cuts the glucose in half
 - It recharges 2 molecules of ATP
- After glycolysis the half molecules of glucose are pumped into the mitochondria
- The cell will also begin pumping Oxygen into the mitochondria
 - Once both the oxygen and sugar pieces are in the mitochondria, the cell begins **Respiration**
 - The cells use oxygen to completely apart the glucose pieces and make CO₂
 - This releases a lot of energy that the cell uses to recharge 34 molecules of ATP
 - The cell then uses the ATP to provide energy for everything that they need to do stay alive
- The process of glycolysis and respiration allows the cell to recharge a total of 36 molecules of ATP for each molecule of glucose that they take in
- We can write this process as a chemical equation and you may notice that it is the opposite of photosynthesis

