Photosynthesis & Cellular Respiration Vocabulary:

1. **Energy = the ability to do work**
2. **ATP** = (adenosine triphosphate); energy storing molecule
3. **ADP** = adenosine diphosphate
4. **Photosynthesis** = the process that provides energy for almost all life
5. **Autotroph** = organisms that make their own food
6. **Chlorophyll** = green pigment in chloroplasts that traps sunlight
7. **Light Reactions** = Light energy is converted to chemical energy; Energy is captured from sunlight in the chlorophyll of the chloroplasts of plant cells.
8. **Dark Reactions** = (Calvin Cycle); Carbon dioxide (CO2) and the chemical energy stored in ATP and NADPH powers the formation of carbohydrate molecules (sugars, starch and cellulose)
9. **Stroma** = specific location on a chloroplast where the dark reactions occur
10. **Glycolysis** = Occurs in the cytoplasm of the cell
* *Starting molecule:* ONE molecule of glucose (C6H12O6)
	+ - *Produces:* two pyruvic acids or pyruvates (C3H6O3); 2 ATP molecules
		- Attaches H’s to NAD+ (electron carrier) and forms NADH (high energy molecule)
1. **Aerobic** = requires oxygen
2. **Pyruvic Acid** = (pyruvate) C3H6O3
3. **Kreb Cycle** = also called the citric acid cycle
* Aerobic process (requires oxygen)
* Occurs in the mitochondrion
* *Starting molecules*: 2 pyruvates and oxygen
* *Produces:* NADH and FADH2, CO2 and 2 ATP molecules
1. **ETC** = Electron Transport Chain
* Aerobic process (requires oxygen)
* Occurs in the inner membrane of the mitochondria
* *Starting molecules:* NADH and FADH2 and oxygen
	+ Uses the NADH and FADH2 from the Kreb’s Cycle and another NADH from Glycolysis.
* *Produces:* Water and 32 ATP’s
	+ FADH2 and NADH, release H’s so they can attach to oxygen and produce water
1. **NADH & FADH** = high energy molecules
2. **Anaerobic** = no oxygen present
3. **Alcoholic Fermentation** = Occurs in plants
* *Starting molecules:* 2 pyruvates and NADH (from glycolysis)
* *Produces:* ethyl alcohol and carbon dioxide.
* Bakers use alcoholic fermentation of YEAST to make bread.
* Used to make wine and beer
1. **Lactic Acid Fermentation** = Occurs in animals

*Starting molecules:* 2 pyruvates and NADH (from glycolysis)

*Produces:* lactic acid

Lactic acid fermentation by microorganisms plays an essential role in the manufacturing of food products such as yogurt and cheese.