Glycolysis:

* Occurs in cytosol, part of the cytoplasm
* Breaking down of glucose
* Without Oxygen
  + Fermentation (Lactic Acid, Alchohol)
* Without Oxygen
  + Krebs Cycle (Citric Acid Cycle)
* Starts of with glucose c6h12o6
  + Uses two ATPs
  + Break into Pyruvate, 2 3 carbon compounds (PGAL -Pyruvate)
* Produce 2ATPs/molecule and 1 NADH/molecule (NAD+ reduce by adding Hydrogen)
* Glucose + 2NAD+ 2ATP + 4ADP + 2 Phosphate Groups = 2 pyruvates + 2NADHs + 2 ATPs (per PGAL)
  + Pyruvate = Acetyl Co-A (2 Carbons) use to start Krebs Cycle.

Kreb Cycle:

* Occurs in the matrix
* Preparation: Reduce NAD+ to NADH (Intermediate Step)
  + Acetyl Co-A merges with oxaloacetic acid = Form citric acid
* Krebs Cycle
  + Citric Acid is oxidized over a bunch of steps
  + Get back to Oxaloacetic acid
  + 3CO2 leaves the system/ time, 6 leaves total from 2 pyruvates
  + Generate NADH, FADH and ATP
    - NAD+ becomes reduced
    - ADP becomes ATP
    - FAD to FADH oxidized
  + Net from Citric Acid (Per pyruvate)
    - 2NADH from Prep step
    - 3 NADH from Krebs Cycle
    - 1 ATP
    - 1 FADH2
  + Total
    - 10 NADH ----- oxidized
    - 4 ATP ( +2 from glycolysis)
    - 2 FADH2------- oxidized
      * 10 x3 = 30, 2 x2 = 4
    - Get our Total 38
* Breaking down Sugar, catabolizing
* Krebs Cycle is the starting point.
* Acetyl Co-A intermediary that generates ATP

Electron Transport Chain:

* Electron transport chain actually generates the ATP
* NADH sponsors 3 ATP
* FADH sponsors 2 ATP
* Oxidization of NADH
  + NADH = NAD+ + H+ + 2e-
* Reduction of Oxygen to Water
  + 2e- + 2H+ + 1/202 = H20
* Everytime oxygen goes from higher energy to lower energy state, releases energy
* This energy is used to pump the H+