**AP Biology**

**Unit 3 – Bioenergetics Test Topics**

1. Anabolic versus catabolic pathways
   1. Definitions, examples
   2. Relationship between G, H, S – endergonic, exergonic – spontaneous, not spontaneous (see chart in notes)
2. First and second laws of thermodynamics and relationship to biology
3. ATP Cycle – understand the diagram
4. Oxidation/reduction in terms of H
5. Respiration
   1. 3 (or 4?) parts – study the summary chart!!!
   2. Proton-motive force
   3. Difference between hydrogen and proton
   4. Main idea of fermentation
   5. Lactic acid fermentation versus alcoholic fermentation
   6. Facultative anaerobes, obligate anaerobes
6. Photosynthesis
   1. 2 parts
      1. Location
      2. Function
      3. Products
   2. 3 parts of Calvin Cycle
   3. Why is light needed? Why is water needed?
   4. Where does the oxygen gas come from?
   5. Pigments – wavelengths of light -- difference between absorption and reflection – relation to color and use
   6. Main idea of chemosynthesis
7. Respiration versus photosynthesis – similarities and differences
   1. Location of ETC, ATP synthase
   2. Chemiosmosis
   3. Reactants and products
   4. Functions
   5. Electron carriers
8. How do bacteria do these processes?
9. Reading charts and graphs related to experiments with these processes