**Cell Energy: Photosynthesis and Cellular Respiration**

**Study Guide**

Vocabulary:

ATP/ADP Reduction

Phosphorylation Oxidation

Hydrolysis Excited

NADP+/NADPH Xylem

NAD+/NADH Phloem

FAD/FADH2 Stomates

Thylakoid Glycolysis

Lumen Krebs Cycle

Stroma Light reactions

ATP Synthetase Calvin Cycle

Photosystem Substrate-level phosphorylation

Electron Transport Chain Oxidative phosphorylation

Pyruvate Lactate

Aerobic Anaerobic

Fermentation

**What You Should Know/Be Able to Do:**

* Understand why plants are green
* Structure of ATP: understand that hydrolysis of ATP releases energy and phosphorylation of ADP requires an investment of energy
* Know the summary equations for both photosynthesis and cellular respiration
* Any diagrams we filled in during class are fair game
* Know the inputs and outputs for:
  + Photosynthesis (overall)
  + Light reactions
  + Calvin Cycle
  + Cellular respiration (overall)
  + Glycolysis
  + Krebs Cycle
  + Mitochondrial electron transport chain
  + Anaerobic respiration (fermentation)
* Understand how plants move water, CO2, and O2
* Know the location of each part of photosynthesis and cellular respiration
* Describe what happens to water and to carbon dioxide during photosynthesis
* Describe what happens to glucose and oxygen during cellular respiration
* Know which parts of cellular respiration are aerobic and which are anaerobic
* Explain the connection between photosynthesis and cellular respiration
* Explain why aerobic respiration is better than anaerobic respiration
* Explain how cellular respiration links the digestive system, the circulatory system, and the respiratory system
* Explain why your muscles start to ache during intense aerobic exercise