Cell Jobs and Photosynthesis Study Guide

* ATP and Energy
  + What is energy?
    - Name two different types. Give an example.
    - If energy is stored in a molecule, what type of energy would it be?
  + Thermodynamics
    - What is the first law of thermodynamics?
    - What is the second law of thermodynamics?
    - What is entropy?
    - What is an exergonic reaction?
    - What is an endergonic reaction?
  + What is ATP?
    - ATP is used for \_\_\_\_\_\_\_\_\_\_\_\_\_\_ in cells.
    - How fast is ATP made and broken?
    - How is the energy stored in ATP?
    - Why is ATP like a coiled spring?
    - Why do people need ATP?
    - What are the three different types of work ATP can do?
  + What is ADP?
    - What needs to go with the ADP in order to make ATP?
    - Name one process where ATP and ADP are cycled.
* Enzymes
  + What are enzymes?
    - How do they work?
    - Give an analogy for the way that enzymes work.
    - What is a lock and key?
  + What are substrates?
    - Why are substrates important in the role of an enzyme?
  + Enzyme and substrate complex
    - How do enzymes and substrates fit together?
    - Are there multiple enzymes for a substrate? Are there multiple substrates for an enzyme?
* Overview of Photosynthesis
  + What are photons?
    - How do they act?
  + What is the electromagnetic spectrum?
    - What is a wavelength?
    - Is visible light the entire electromagnetic spectrum?
* Overview of Photosynthesis (cont)
  + What is a chloroplast?
    - What are the parts of the chloroplast
    - Where are the light reactions performed?
    - Where is the Calvin Cycle performed?
  + What is the equation for photosynthesis?
    - Where does each reactant enter the chloroplast?
    - Where does each product leave the chloroplast?
* The Light Reactions
  + What are the light reactions?
    - What are the seven steps to the light reactions?
    - What are all four areas where the light reactions take place?
* The Calvin Cycle
  + What is the Calvin Cycle?
    - What are the four steps to the Calvin Cycle?
    - How many times does the Calvin Cycle need to happen to create a molecule of glucose?