**Homeostasis points are extra points that can be earned during each unit. These points are optional. Homeostasis points must be earned during each unit and the points will only be added to that unit test. The homeostasis points are due no later than the unit test it corresponds to.**

**Homeostasis Points for SB1bc - Macromolecules and Enzymes**

Complete one or more of the following for up to 10 summative homeostasis points each:

Create a 3-D model  for:

a single glucose molecule

a lipid or a phospholipid

DNA double helix

an enzyme

a protein molecule

With each 3-D model you must identify and label all the parts of the model (including monomers if needed).  You must also write an informative and detailed handout describing the functions of each molecule (i.e. how organisms use the molecule, where it is made, monomers, etc.).  If you make a model of an enzyme or protein you must provide additional information identifying what the enzyme or protein is.

For up to 15 summative homeostasis points you can complete the following:

Research a genetic disease or disorder that results from an enzyme deficiency or ineffective enzyme.  Write a one page paper, 12 font, double spaced. You will need to use APA citations for your references.

Complete the enzyme lab we have in class – enzymes, the catalysts of life.

**Homeostasis Points for SB1ad - Organelles and Cell Transport**

Complete one or more of the following for up to 10 summative homeostasis points each:

Create a 3-D model  for:

a bacteria cell

a plant cell

an animal cell

the phospholipid bilayer

If you create a model for bacteria, plant or animal cells you will need to include a comparison table for prokaryotes and eukaryotes.

All of your models must be labeled with organelles and organelle functions.

Complete one or more of the following for up to 15 summative homeostasis points each:

Research a disorder that results from an organelle that does not work properly such as the mitochondria.  Write a one page paper, 12 font, double spaced. You will need to use APA citations for your references.

Create an extension of the cell transport dialysis tubing lab.  You will need to write up the lab procedures, conduct the lab and analyze the data you take.

**Homeostasis Points for SB2 – DNA and Genetics**

Complete one or more of the following for up to 15 summative homeostasis points each:

1. Create a 3-D DNA model (similar to the one shown in class)
   1. Your DNA must have 21 nucleotide pairs
   2. One side of your DNA model needs to start with TAC and needs to end with a DNA sequence which will result in a stop codon (so work backwards from a STOP to mRNA to DNA).
   3. You must provide a legend for your model indicating the following things: Adenine, Thymine, Guanine, Cytosine, deoxyribose, phosphate, and hydrogen bonds.
   4. You must look up a current article, using the Science Daily website, about DNA.
      1. Summarize the article in 7-10 sentences (using appropriate terminology)
      2. In 2-3 sentences give your opinion of the article (do you agree with what is being studied or researched?)
      3. Ask at least 1 question that you have regarding the information from the article.
      4. Print a copy of the article and reference the article using APA formatting.
2. Create your own family Pedigree. The directions are located in a separate file in the homeostasis link/tab.
3. Research a genetic disorder and include the following information in your 1-2 page paper:
   1. What kind of disorder is it (a DNA mutation, a chromosomal mutation, non-disjunction, dominant, recessive, sex-linked, etc.)
   2. Explain how the disorder occurs (ex. A deletion of a codon or the 18th chromosome does not separate properly during meiosis…)
   3. Describe the symptoms which are present in an individual having this trait.
   4. What treatments are available
   5. What research is being done
   6. Do you agree with the research and treatments? (some things are controversial – ie. Stem cell research and genetic engineering)
   7. Reference at least 3 scientific sources using appropriate APA formatting.