**Book Project:** **DUE DATE: Before Standardized Test**

# What I learned about in Ag Biology this year!

You will create a book to summarize everything that we have learned so far this year. This project will serve as your **take home final**. Each unit will be assigned after the unit has been discussed &/or completed in class. I have included which pages in your textbook you can find each piece of information. You can also find information in your notes & internet. Be creative, use visuals and list the standard & explain it in your own words &/or a picture (ex: 1.1 write &/or draw what a cell is). Act as though you are trying to teach each section to someone else. You will need to make a cover as well. (Cover & Name 20 points)

**Standard Explanation Link (Standards 1-3 ONLY):**
http://hegel.lewiscenter.org/users/mhuffine/subprojects/Department/dlsdsss_docs/stds/mslifescicsframe.htm#std3

**Materials:** **Computer paper, markers, color, pencils, etc.**

## Cell BioloGy

1. 1.1 What are cells? (textbook page 181) (2 points)
2. 1.2 What do you think are the 5 most important organelles and describe what each of them do. (textbook page 199) (10 points)
3. 1.3 Draw a plant cell and an animal cell – use color. (textbook page 192) (10 points)
4. 1c. Explain the role of a semi-permeable membrane. (textbook pages 187-190) (2 points)
5. 1c. Differentiate between prokaryotic cells, eukaryotic cells (including plants & animals), and viruses. (textbook pages 186 & 525) (10 points)
6. 1f. Describe the role of chloroplasts in synthesizing sugar from CO2 and sunlight. (textbook pages 197 & 222-223) (2 points)
7. 1g. Describe the role of mitochondria in the breakdown of sugar and the production of CO2. (textbook page 228) (2 points)

## Physiology (10 points)

1. 9.1 How do your heart and lungs work together? (Ch. 34 Sect. 1 & 2) (2 points)
2. 9a. Summarize how oxygen & nutrients are provided for cells & how carbon dioxide & waste are removed in a human to maintain homeostasis (Ch. 34 Sect. 1) (2 points)
3. 9.2 Describe how your nervous system (NS) works. (Ch. 33 Sect. 1 & 2) (2 points)
4. 9b. How does the NS mediate communication to maintain homeostasis? (2 points)
5. 9b.1How is the NS similar to the Internet as a communication network? (2 points)
6. 10a. Summarize the nonspecific defenses provided by skin & mucous membranes. (pg. 1084) (2 points)
7. 10b. Explain the human immune responds (antibodies) to specific invaders (infectious diseases). (textbook pages 1086- 1090 & figures 37.11 & 37.13) (2 points)
8. 10.1 How does a vaccine (immunization) work? (textbook page 1089) (2 points)
9. 10c. A vaccines response to specific invaders. (2 points)

## Genetics (10 points)

1. 2.1 What are genes and what do they tell the cell to make? (textbook page 270) (2 points)
2. 2.2 What are alleles? (textbook page 278) (2 points)
3. 2.3 What are proteins made of? (textbook page 170) (2 points)

4. 2a. Distinguish between the types of cells produced by mitosis and meiosis. (textbook page 275) (2 points)
5. 2d. Explain how fertilization increases genetic variation in offspring. (textbook pages 271 & 275-276) (2 points)
6. 2f. Describe how chromosomes determine an individual's sex (XY?). (textbook pages 305, & 295, 314, & 317) (2 points)
7. 3a. Predict the probable outcomes of phenotypes in genetic crosses based on the parental genotypes and mode of inheritance. (textbook pages 277 & 362) (2 points) (Punnett Square 5 points)
8. 4a. Outline the process by which genes are synthesized into proteins by organisms. (textbook pages 336, 339, & 341) (2 points)
9. 5a. Describe the structure and function of DNA, RNA, and proteins in an organism. (textbook pages 170, 329-331, 336) (6 points)
10. 5a.1 Compare and contrast DNA and RNA. (Ch. 12.3 pg. 336) (2 points)
11. 5a.2 What is the relationship among genes, DNA, and chromosomes? (pg. 332) (2 points)

## Evolution (10 points)

1. 7.1What is natural selection? (textbook pages 420-422) (2 points)
2. 7a. Explain why natural selection acts on phenotypes instead of genotypes. (textbook pages 421-422 Table 15.1) (2 points)
3. 7.2 How do mutations keep evolution going? (textbook page 434) (2 points)
4. 8.1 What are 4 pieces of evidence for evolution? (textbook pages 420-422) (8 points)
5. 8a. Identify how natural selection determines the survival of groups of organisms. (textbook pages 421-422 Table 15.3) (2 points)
6. 8.2 How are different species created? (textbook page 420-421 Table 15.3) (2 points)
7. 7d. Recognize variation within a species increases the likelihood that some will survive under changed environmental conditions. (textbook page 616) (2 points)
8. 8e. Analyze fossil evidence with regard to biological diversity, episodic speciation, & mass extinction. (textbook pages 392, Ch.14.1; pg. 116, Ch.5.1; pg. 122, Ch.5.2) (6 points)

## Ecology

1. 6.1 What is biodiversity and why is it important? (textbook page 116) (2 points)
2. 6.2 Explain what determines population size and how it affects the environment. (textbook page 92 Section 4.1 & 4.2) (4 points)
3. 6.3 Describe 5 ways that humans are making a negative (bad) impact on the environment. (textbook page 122, Section 5.2) (5 points)
4. 6.4 How can you help preserve the environment? (textbook page 129, Section 5.3) (2 points)
5. 6d. Outline how water, carbon, and nitrogen cycle in an ecosystem and diagram the movement of oxygen through photosynthesis and respiration. (textbook pages 46, 47, 48 & 220) (12 points)
6. 6e. Recognize the vital role of producers and decomposers in an ecosystem. (textbook pages 41- 42 & Figure 2.13 pg. 43) (2 points)
7. 6f. Explain the retention and loss of energy in a food web (Draw Energy Pyramid). (textbook pages 43-44, Figure 2.15, & Notes) (10 points)