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AP Biology Summer Assignment 2019

Welcome to AP Biology! This is a college level course; it will be rigorous and demands your time both in and out of the classroom. All students enrolled in the course are required to take the AP exam in May in order to receive the weighted grade. Your work for this course will begin during the summer to ensure that everyone starts the class with the same prerequisite knowledge. Don't wait until the end of the summer to start this assignment. Start early, enjoy your summer, and look forward to an exciting year in AP Biology. If the summer assignment is incomplete or done poorly, you will be dropped from the course.

Advice: Expect to spend 1 - 3 hours per block on homework. The better your reading skills, the better you will do in this class. So read lots of books this summer!

Required text:
AP Biology 9th edition by Campbell and Reece. Check it out from the Textbook Center to work on this assignment over the summer.

General procedures for taking notes on the Campbell text throughout the year:
You may type your notes but studies have shown that students learn and retain better from handwritten notes.

1. Read the Key Concepts at the beginning of each chapter. The list of Key Concepts introduces the big ideas covered in the chapter.
2. Leaf through the chapter *slowly.* Look up and define unknown vocabulary terms in your notebook by using the glossary. (Look up at least 10 words per chapter, even if you think you know them all.)
3. Look carefully at illustrations and read their captions. The old adage of a picture being worth a thousand words holds true for the Campbell text.
4. Read the chapter. Take notes as you read. Refer to the Notetaking Rubric to see how notes will be graded.
5. After each concept, answer Concept Check questions. They are good examples of the kinds of questions that will be on the AP Exam. Check your answers in Appendix A.
6. Test your understanding of the chapter by completing the Test Your Understanding questions at the end of the chapter. Check your answers in Appendix A.

Required materials for class in the fall:
• Notebook for vocabulary, chapter notes, Concept Checks, Test Your Understanding, and lecture notes
• Lab notebook - You must use a lab notebook for all labs with grids for graphing.
- Life Science Carbonless Duplicate from Hyden McNeil
- Cheaper option - Quadrille Lab Notebook with grids for graphing.

• Folder for handouts
• Pens/pencils – different colors for checking your answers

AP Biology Website:
See my website for a copy of the syllabus and a tentative schedule for the 2019/2020 school year.
https://lahssmitchell.wordpress.com/

My definition of a complete sentence:
A complete sentence is a sentence that restates the question with the answer so that I, your teacher, don't have to fish out this paperwork to grade your answers. Always use complete sentences in this class! If a question is not complete, it is wrong.

Summer Assignment - due thoroughly on the first day of class or expect to be dropped from the course.

- Read each of the stated sections thoroughly for understanding.
- **Take notes** according to the general procedures listed on the front page and the Note Taking Rubric - it will help with the test and I will collect these on the first day! Look at the pictures.
- **Answer the questions** below.
- Email me during the summer if you have any questions about the reading content.
- *This assignment is due the first day of class and it needs to be done well.*
- You will be graded on organization (titles and subheadings!), content, and completion. (See the Note-taking Rubric.)

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Read and take notes on these sections	**Topic**	**Answer These Specific Questions in Complete Sentences (in addition to taking notes on the listed sections)**
2.3	Electronegativity	1. Define electronegativity. 2. Which elements have the highest and second highest electronegativity?
3.1-2	Properties of water	3. How does electronegativity affect interactions between water molecules? 4. Describe the four emergent properties of water that contribute to Earth's suitability for life? 5. Compare hydrophilic and hydrophobic substances.
Ch 5	Structure and function of biomolecules	6. Compare/contrast carbohydrates, proteins, and nucleic acid. 7. Compare the composition, structure, and function of starch and cellulose. What role do starch and cellulose play in the human body? 8. Why are lipids not considered to be polymers? 9. Proteins are the most structurally and functionally diverse class of biological molecules. Explain the basis for this diversity. 10. Describe complementary base pairing in nucleic acids.
Ch 6	Parts of the cell and their functions	11. Draw two eukaryotic cells, labeling and describing the function of each structure.
8.2-4	Biochemical reactions	12. Compare and contrast endergonic and exergonic reactions. 13. Explain the meaning of each component in the equation for the change in free energy of a spontaneous chemical reaction. Why are spontaneous reactions important in the metabolism of a cell? 14. How does ATP transfer energy from exergonic to endergonic reactions in the cell? 15. Compare and contrast an exergonic reaction with and without an enzyme.
9.1	Catabolic pathways and redox reactions	16. Explain how photosynthesis and respiration are redox reactions.
13.3	Mitosis vs. meiosis	17. Compare and contrast mitosis and meiosis.
16.1-2	DNA Structure and function	18. Draw and label a model of DNA. 19. What is the function of DNA and how does it fulfill this function? 20. Diagram and describe DNA replication. 21. When does DNA replication take place?
17.1	From gene to protein	22. What is the purpose of transcription? 23. What molecules are involved in the process of translation?
22.2	Process of natural selection	24. List the main ideas of natural selection and give an example of how natural selection might occur in an animal population of your choice.

General Note Taking Rubric for each section

		Excellent	Satisfactory	Poor
Key terms	Terms underlined or highlighted	Complete	Partial	Missing
Main ideas/key concepts	Main concepts Labeled Diagrams Details Length	Complete	Partial	Missing
Concept checks	Titled and numbered Complete sentences Corrected from appendix A in different color pen	Complete	Partial	Missing
Organization	Clear method of organization Notes are titled clearly with section number Notes are broken into levels: topics and subtopics	Easy to read and use for review	Adequate	Chaotic