

## AP Biology Summer Assignment 2017

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.

### **Required text:**

AP Biology edition, Biology in Focus; Urry, Cain, Wasserman, et.al. Check it out from the Counseling Office to work on this assignment over the summer.

### **General procedures for taking notes on the Campbell text throughout the year:**

*You may type everything and keep it in a binder instead of a notebook.*

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. Optional: 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. Optional: 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:**

- Binder and loose leaf paper
- Pens/pencils – different colors for checking your answers
- Calculator - 4 function with square root and square keys

### **AP Biology Website:**

[www.jasonsbiology.edublogs.org](http://www.jasonsbiology.edublogs.org)

### **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.

### **Key terms for answering free response questions:**

Analyze - show relationships between events;	Design - create an experiment and convey its ideas
Compare - discuss similarities and differences	Explain - clarify; tell the meaning; use evidence/reasoning
Contrast - discuss points of difference or divergence between two or more things	Predict - tell what you expect to happen when conditions change
Describe - give a detailed account	Justify - explain why a response is reasonable

**Placement Test for AP Biology:**

*It will cover the concepts in the table on the back of this sheet. You may be switched out of class if you do poorly, and this will be your first test grade and it will count a lot. Be prepared to take the test on the first day of class.*

**Summer Assignment due on the first day of class:**

- Read each of the stated sections thoroughly for understanding.
- Take notes according to the general procedures listed on the front page and the Notetaking Rubric - it will help with the test and I will collect these on the first day!
- Answer the questions below.
- Email me during the summer if you have any questions about the reading content at [jason.falconio@freirecharterschool.org](mailto:jason.falconio@freirecharterschool.org)
- **This assignment is due the first day of class and it needs to be done well. If this is not done, we will work to switch you to a more appropriate class.**
- You will be graded on organization (titles and subheadings!), content, and completion. (See the Note-taking Rubric.)

Read and take notes	Topic	Answer Questions in Complete Sentences
Ch 2	The Chemical Context of Life	<ol style="list-style-type: none"> <li>1. What is the difference between an element and a compound?</li> <li>2. Describe an atom and it's parts.</li> <li>3. Explain what an element's properties depend on, use an example.</li> <li>4. Compare and contrast ionic, covalent, hydrogen, and Van der</li> </ol>

		<p>Waals bonds.</p> <ol style="list-style-type: none"> <li>5. Describe a chemical reaction</li> <li>6. Explain each of the following properties of water <ol style="list-style-type: none"> <li>a. Specific heat</li> <li>b. Evaporative cooling</li> <li>c. Cohesion and adhesion</li> <li>d. Heat of vaporization</li> <li>e. Density as a solid</li> </ol> </li> <li>7. Explain pH, give two examples.</li> </ol>
Ch 3	Carbon and the Molecular Diversity of Life	<ol style="list-style-type: none"> <li>1. What is the fundamental basis for the differences among carbohydrates, proteins, lipids and nucleic acid?</li> <li>2. Compare the composition, structure, and function of starch and cellulose. What role do starch and cellulose play in the human body?</li> <li>3. Why are lipids not considered to be polymers?</li> <li>4. Proteins are the most structurally and functionally diverse class of biological molecules. Explain the basis for this diversity.</li> <li>5. What role does complementary base pairing play in the functions of nucleic acids?</li> </ol>
Ch 4	Parts of the cell and their functions	<ol style="list-style-type: none"> <li>1. Draw one eukaryotic and one prokaryotic cell, labeling and describing the function of each structure.</li> </ol>
Ch. 6	An Introduction to Metabolism	<ol style="list-style-type: none"> <li>1. Describe the first and second laws of thermodynamics</li> <li>2. Explain entropy.</li> <li>3. Compare and contrast endergonic and exergonic reactions.</li> <li>4. 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?</li> <li>5. How does ATP transfer energy from exergonic to endergonic reactions in the cell?</li> <li>6. Compare and contrast an exergonic reaction with and without an enzyme.</li> </ol>
Ch. 7.1	Catabolic pathways and redox reactions	<ol style="list-style-type: none"> <li>1. Explain how photosynthesis and respiration are redox reactions.</li> </ol>

**Turn in notes and answers to questions on first day of class for a grade. Expect to take a test on this material on the first day of class.**

