

AP Biology Summer Assignments 2016-2017

WELCOME TO AP BIOLOGY! I hope you are looking forward to an exciting semester! Since this is a college level course, it will be rigorous and will demand a great deal of time both in and out of the classroom. If you're up to the challenge, get started by completing the following assignments prior to the beginning of the school year. The assignments will be collected on the first day of school (*note: #2, below, is due the 2nd day) and will count as your first grade (including a quiz on Ch 1-4)! Don't wait until the end of the summer to complete the assignments - pace yourself! For all, except # 5 (below), you must hand write your answers. Remember: Your work must be your own!

Before you get started, you need to register for the online resources for our book: "Biology" (AP Edition); Campbell, Reece; 8th edition (publisher is Pearson). **YOU MUST EMAIL ME** at susan.phillips@cobbk12.org **BEFORE 6/10/16 to get your student code**. An electronic text version is one of the resources. After that time, I will only check my email on a periodic basis. Also, many students purchase their own (used) hard copy (ISBN number 9780131356917 or 0131356917- ***PLEASE NOTE, THE EARLIER VERSION I PRINTED HAD THE WRONG CODES. These should be correct**) of this book (from Amazon, etc.) and keep it at home, while keeping the copy you will be issued from school next year, at school. It is a very heavy book! Regardless, you are required to have a hard copy in class EVERY DAY. Also, you are also **HIGHLY** advised to purchase the latest version of 'AP Biology Test Prep Series' paperback book from Pearson Education, as ours are older and correlate to the AP Exam before it was redesigned in 2013. You can find them on Amazon, as well as several other places.

Go to my blog (www.phillipssciencemethods.weebly.com) and click on AP Biology (it may still say '2015-16'). Go to the right hand column, under the heading 'Useful Links/Apps', and sign up for Remind.

Go to www.collegeboard.org and register for an account. Go over the 'Course Descriptors', etc.

You must purchase (at least) **3 'composition notebooks'** (google it and refer to 'images' to see a picture of the type of notebook required) for this course, along with a large 3 ring binder (2+ inches).

The assignments are as follows:

1. The College Board recognizes 4 BIG IDEAS in Biology. Briefly describe each of these big ideas in your own words and give an example for each.

Big Idea 1: The process of evolution drives the diversity and unity of life

Big Idea 2: Biological systems utilize free energy and molecular building blocks to grow, to reproduce, and to maintain dynamic homeostasis

Big Idea 3: Living systems store, retrieve, transmit, and respond to information essential to life processes

Big Idea 4: Biological systems interact, and these systems and their interactions possess complex properties

2. You must begin the semester long AP Biology Project. You must read one book for this course, *The Immortal Life of Henrietta Lacks* by Rebecca Skloot. The **first installment of questions is due on Tuesday, August 2**. You must follow the appropriate guidelines, as outlined on my blog. A hard copy of the guidelines is also available, as well as around 10-12 copies of the book (first come, first serve) to check out from me before the current school year is over. The paperback is available for purchase on Amazon, as well as other sites.

3. Answer the questions from each of the Chapter Reading Guides for Chapters 1-4 found at the following website: http://www.biologyjunction.com/campbell_8th_edition_reading_gui.htm. If the website has problems during the summer, you can find the reading guides at several other sites –just Google "AP Biology Reading Guides for Campbell 8th Edition". Also, once you have gotten your student access code to the online Pearson (publisher) site for our book from me (see the 2nd paragraph on the 1st page of this sheet), **you can access all of the reading guides from the site**. Print out the reading guides, but please answer the questions **in your own handwriting** on the printed copies. You will have a quiz on the first 4 chapters (along with a few 'Statistics' questions, see #4, below) during the first few days of the new semester, so taking notes from the text is essential for success! The questions

will require that you thoroughly understand the concepts in Ch 1-4 (along with scientific processes, graphing and statistics, see below). This is an AP course so....**Make sure you are prepared!**

4. Along with #3 (above), you must do the following assignments on Statistics, Graphing and Scientific Processes (yes, this also will be on the Quiz!):

A. Statistics in Biology

1. Go to my blog and under 'Power Points' (top left), open 'Intro to Statistics' PPT. Take notes! Make sure you can calculate 'mean, mode and standard deviation', given a chart or graph.

2. **Go to my blog and scroll down (left side) to the Unit 1 (green) Heading. Watch the videos, as well doing all assignments for Ch 1-4 that are listed. *NOTE- Ch 5 and the Catalase Lab are NOT part of the Summer Assignment!**

B. Watch the following video(s). This primarily pertains to Chap 5 and will not be on the first quiz, BUT, it will be on the 1st major test given the beginning of the 2nd week of the semester. It would be wise to go over it ahead of time, as this course moves very, very fast!

<http://www.bozemanscience.com/042-biologoical-molecules>

C. If you have any trouble with 'basic chemistry' concepts in the text, Bozeman also has videos for 'Chemistry' and I suggest you watch those. Just google 'Bozeman Chemistry' and pick from the list. He also has 'Biology' videos that are good for reviewing concepts you learned in your freshmen Biology course.

5. You will perform your first lab and it will be self-designed. Observe either a plant or an animal this summer for a minimum of 2 weeks. You will decide on the frequency of collecting the data. You must make both qualitative and quantitative observations (that is, some of the data you collect needs to be something you can measure), so give this some prior thought. Pick one variable (must be testable) that you will quantifiably measure. Use a composition notebook and make entries during each observation 'period'. This will not be your final 'write-up', but rather an 'informal' (yet, thorough) log that you will refer to before writing the report you will turn in. Along with making accurate records of your findings, include any conditions/factors (confounding variables) that differed from the previous observation(s) periods. Also, make note of any questions that may have occurred to you. Once your 'observation experiment' has concluded, you will write a somewhat 'formal' lab report. The report should include these **bolded** sections: **Purpose/ Hypothesis**; **Procedure** (a step by step procedure of what you did); **Data and Results** (include quantifiable data in the form of a chart/table, at least 1 graph and a clear, concise paragraph of your qualitative observations. You must include a legend directly underneath each table/chart and graph. You may also include pictures in this section. Black and white/grayscale printing is okay). **Analysis** (explain your data. Also, calculate the mean, mode and standard deviation of your quantitative data, showing your work. Depending on what you are measuring, a rate calculation may also be appropriate. Why are you doing this? Because statistics are vital in analyzing data! Plus, the AP Bio Exam now requires you are proficient in statistical analysis) and **Conclusions** (state if the purpose/hypothesis was supported. Explain what could be done to improve the observation experiment and the validity of your data. List 2 or more questions you still have about your observations that likely weren't answered in the context of this assignment). You will be required to use APA format for all labs in this course (refer to www.citationmachine.net), so it would be a good idea to attempt to format this "Lab" in APA, as best you can. **IT IS RECOMMENDED THAT YOU TYPE THIS LAB.** This will be your first lab grade, but more importantly, it will establish a vital foundation for future labs that you will design in this course. One (BIG) note: this is all the help you will get from me for this (#5) assignment. I want this to be explorative and see the scientist in you evolve....and that will mean making a few mistakes! I believe this will be a great experience for each of you. It will also serve as a major factor in preparing for the AP Exam, as data analysis is an essential skill and component for success on the recently redesigned Exam. **You will turn in this lab on the first day of class.**

Again, I will periodically check my school email during the summer, so if you have any questions (other than for number 5, above), let me know. Enjoy the summer (and learn some biology)!