

SLEEPY HOLLOW HIGH SCHOOL
AP BIOLOGY
SUMMER ASSIGNMENT 2011 ☺

Welcome to AP Biology. The summer assignment below is required of all students taking AP Biology. This assignment was developed with four goals in mind:

1. To review a few basic chemistry and biology topics so that we can get into the content of the course as soon as possible.
2. To evaluate your ability to gather information from a variety of sources and to present that information in a coherent way.
3. To give you a sense of the pace and depth of AP biology.
4. To get you (Na⁺K⁺) pumped for the class ☺

You should work on this assignment for about 1-2 hours per day for 7-8 days. (Except the 3rd assignment).

Enjoy the journey. I am looking forward to our year together.
Leana Peltier

I: **DUE: Monday, August 22nd**. You are to use a variety of resources, complete each of the following questions. Answers **MUST** be typed and should be no more than 2 pages long. See below for a list of Internet resources.

1. Water is essential for life on earth. Why?
Focus in on the role water plays in living things and the chemical properties of water that allow it to perform as it does. You should be able to understand and write about polarity, surface tension and specific heat.
2. DNA is the genetic information molecule. Describe the structure of DNA. Relate changes in DNA to changes in genetic information.

II: **DUE: Monday, August 22nd**. Use a variety of resources to explain or illustrate each of the following terms, ideas or structures. Please be sure your explanation is complete and that you refer to both structure and function in your answer. Be sure to use diagrams whenever possible. **(DRAW YOUR OWN DIAGRAMS...do not copy and paste)**

1. Organic molecules
2. Non-Polar organic molecules
3. Amino acids
4. The 4 levels of protein structure.
5. A dehydration synthesis (condensation) reaction
6. Structural formula for glucose
7. Sodium-potassium pump

III: **Biology Current Event- DUE first day of school.**

You must collect a total of **TWO** articles relating to the living world. A valuable source is Tuesday's NY Times Science section. The articles can be of any length and you must supply a copy. Once you have read and understood the article you must do the following: (no more than one page in length)

1. Summarize the article
2. Explain the significance of the article.
3. Detail how it impacts the living world.

IV: **ANIMAL EVOLUTION PROJECT-DUE first day of school.**

ANIMAL STRUCTURE AND FUNCTION

Over millions of years, animals have struggled to survive and as a result have evolved special adaptations for survival. Shape (or form) of these adaptations are directly linked to their function. This is a unifying theme throughout all topics of biology.

1. THE PROCEDURE:

Choose 2 of the animal types listed below (no more than one from each CLASS)

- mammalia
- aves
- reptilia
- amphibia

Choose 2 of the animal types listed below (no more than one from each PHYLUM)

- mollusca
- annelida
- arthropoda
- echinodermata

2. RESEARCH YOUR ANIMALS and Prepare a POWERPOINT Presentation:

Find out all you can about the animals you chose for your project.

For **each animal** you chose you will highlight **4 adaptations** and explain how their structure is linked to their function.

EX: Keep in mind this a very simplified version of what I expect from you.

LION: Class: mammalia. A lion has a very large skull with a comparatively small brain size. The skull is large and dense to accommodate large surface area for muscle attachment. Since the lion is a predatory animal and needs great jaw strength the increased surface area for muscle attachment is vital for its successful feeding.

3. PRESENTATION

Your animal presentation will be held to a 10 minutes maximum! Please KNOW and INTERNALIZE the important information....don't just read off the screen or computer! **A picture is worth a thousand words....include pics on all your slides.** You will be presenting this PowerPoint on the first day of school. **DO NOT FORGET WORK CITED.**

V: Complete the practice problem set at the following web site:

<http://www.biology.arizona.edu/biochemistry/tutorials/chemistry/problems.html>

SUGGESTED REFERENCES ON THE WEB

www.kensbiorefs.com

<http://users.rcn.com/jkimball.ma.ultranet/BiologyPages>

<http://www.accessexcellence.org> (go to the graphics gallery section)

<http://www.biology.arizona.edu>

<http://www.emc.maricopa.edu>

<http://en.wikipedia.org> (cannot be used by itself)

<http://web.mit.edu/esqbio/www/chapters.html>

OTHER SOURCES OF INFORMATION

Any College level General Biology textbook or a scientific encyclopedia.

I will be back in the Hollow coaching volleyball on August 23rd if you need me in person come on over to the gym.

You can always contact me at lpeltier@tufsd.org or 914-261-5457 with any questions or concerns. I will be out of the country until July 28th so email me during this time with any questions.

I look forward to hearing from you all.

For the topics DUE Monday, August 22ndyou may email them or mail them to the school ATTN: Ms. Peltier

Summer 2011