AP Biology Summer Assignment 2018-2019

WELCOME TO AP BIOLOGY! ☺

I hope you are looking forward to an interesting year. Since this is a college level course, it will be rigorous and will require a lot of extra work inside the classroom and out. To get us off to a great start and to help us cover the huge amount of material required by the Advanced Placement Biology curriculum, the following 6 assignments will get a few things out of the way for other "stuff". It will be collected on the first day of school. Don't wait until school starts to finish the assignment.

You will have a quiz on chapters 1,2 and taxonomy, first meeting of the second week of school.

I will periodically check my school email during the summer; so if you have any questions, let me know! shannon.creviston@fresnounified.org

Enjoy your free time. Once school starts it will be limited!

Check List

1. Check out book from library. ___
2. Answered questions from chapter 1-2. ___
3. Finished Taxonomy Questions. ___
4. Read and Review Scientific Article ___
5. Sponge Bob Safety Rules ___
6. Contacted Mrs. Creviston during the summer to introduce yourself, and just to make her feel needed. ___

Chapter 1: Introduction, Themes in the Study of Life

1. Diagram the hierarchy of structural levels in biology.
2. Explain how the properties of life emerge from complex organization.
3. Describe 7 emergent properties associated with life.
4. Distinguish between prokaryotic and eukaryotic cells.
5. List and distinguish the 3 Domains of Life.
6. Briefly describe the 4 Kingdoms found in the Domain Eukarya.
7. Briefly describe how Darwin's ideas contributed to the conceptual framework of biology.
8. Outline the scientific method.
9. Define Key Terms: population, community, ecosystem, biome, hypothesis, control group, variable, experimental group, theory

Chapter 2: The Chemical Context of Life
(Since most of you have just completed a chemistry course, these questions should be easy for you!)

1. State 4 elements essential to life that make up 96% of living matter.
2. Describe the structure of an atom.
3. Distinguish between atomic number, atomic weight, mass number, and valence.
4. Explain why radioisotopes are important to biologists.
5. Describe the formation of a hydrogen bond and explain how it differs from a covalent or ionic bond.

<u>Scientific Article</u>
Find a biological science article from a recent publication (within the last year). The article can be of any length but you must attach a copy. Once you have read and understood the article, cite it appropriately, and do the following. Each of the bullets below should be one paragraph long.

- summarize it in one paragraph
- explain the significance of the article in a second paragraph
- why you chose it in a third
- what questions do you still have or further experiments the researchers should investigate

Taxomony

1. Look up *Panthera tigris*, *Panthera leo* and *Panthera pardus* on the internet. What are they?
    a. The first word in their scientific names are the same. Are they the same?
    b. Are they alike?
    c. The first name refers to what Scientists' have called a group **genus**. The second name is called a **species** name.
    d. So, how many words in a scientific name?
    e. What does the first name tell you?
    f. What does the second name tell you?
2. Look at the way scientific names are written.
    a. Ex: *Homo sapiens*
    Gorilla gorilla
    Amoeba proteus
    Plasmodium falcapurm
    Canis lupus
    b. Looking at the names, what are the rules for writing scientific names?
3. If a wolf has the scientific name *Canis lupus*, what do you think your dog's genus name might be?
4. Who was the man who developed this system of naming?
5. Scientists have been screwing around with taxonomy for years. They now have all living organisms divided into three Domains: Bacteria, Archaea, and Eukarya. Tell me a little about each Domain.(pg 536)
6. What domain are you found in and what other types of organisms do you share this domain with?

Sponge Bob Safety Rules

The Bikini Bottom gang has been learning safety rules during science class. Read the paragraphs below to find the broken safety rules and number and underline each one. How many can you find? On the back of your sheet, write the number and the CORRECT safety procedure that should have been used.

SpongeBob, Patrick, and Gary were thrilled when Mr. Krabbs gave their teacher a chemistry set! Mr. Krabbs warned them to be careful and reminded them to follow the safety rules they had learned in science class. The teacher passed out the materials and provided each person with an experiment book. SpongeBob and Gary flipped through the book and decided to test the properties of a mystery substance. Since the teacher did not tell them to wear the safety goggles, they left them on the table.

SpongeBob lit the Bunsen burner, and then reached across the flame to get a test tube from Gary. In the process, he knocked over a bottle of the mystery substance and a little bit splashed on Gary. SpongeBob poured some of the substance into a test tube and began to heat it. When it started to bubble he looked into the test tube to see what was happening and pointed it towards Gary so he could see. Gary thought it smelled weird so he took a deep whiff of it. He didn't think it smelled poisonous and tasted a little bit of the substance.

 They were worried about running out of time, so they left the test tube and materials on the table and moved to a different station to try another experiment. Patrick didn't want to waste any time reading the directions, so he put on some safety goggles and picked a couple different substances. He tested them with vinegar (a weak acid) to see what would happen even though he didn't have permission to experiment on his own. He noticed that one of the substances did not do anything, but the other one fizzed. He also mixed two substances together to see what would happen, but didn't notice anything. He saw SpongeBob and Gary heating something in a test tube and decided to do that test. He ran over to that station and knocked over a couple bottles that SpongeBob had left open. After cleaning up the spills, he read the directions and found the materials he needed. The only test tube he could find had a small crack in it, but he decided to use it anyway. He lit the Bunsen burner and used tongs to hold the test tube over the flame. He forgot to move his notebook away from the flame and almost caught it on fire.

 Before they could do another experiment, the bell rang and they rushed to put everything away. Since they didn't have much time, Patrick didn't clean out his test tube before putting it in the cabinet. SpongeBob noticed that he had a small cut on his finger, but decided he didn't have time to tell the teacher about it. Since they were late, they skipped washing their hands and hurried to the next class.