AP Environmental Science Summer Assignment 2017-2018

1. Read the first four chapters and the last four chapters of Silent Spring by Rachel Carson. This book was first published in 1962 has been described as starting the modern environmental movement which led to the formation of the US Environmental Protection Agency. Some people do find this book a little slow and repetitive, and that's why I'm only having you read eight chapters. Feel free to read the entire book if you'd like.

You can find this book at many Los Angeles County or City of Long Beach libraries. You DO NOT need to purchase this book, and as long as you plan ahead of time you should have no problem checking one out from a library. If you would like to purchase the book it's available on Amazon for about $6. Don't wait until the last minute to find this book! I would like you to answer the following questions in clear answers that prove to me that you've read the book. I have read the book and will be reading Amazon book reviews, Wikipedia sites, and other online commentary on the book, so please don't bother to make things up. I have no time to spare on students that hope to deceive me. I will penalize points to students that have not read the book, yet force me to waste time reading their work. You don't want to start off with negative points in this class.

a. Write a brief summary of the book (including stuff you won't find on the back cover)
b. Aside from the ending, relate a memorable section or story from the second half of the book.
c. What was the message/moral of the book? How did Carson weave that message through the book?
d. How did the book end?
e. Write a review of the book. Did you like it? Does it relate to the course? How long did it take to read?

Type your answers in complete sentences. Separate your answers into paragraphs with each paragraph labeled (a-e). Remember,your answers don't have to be long; they just need to prove to me that you've read the book. Just to be clear, the first four chapters are: A Fable for Tomorrow, The Obligation to Endure, Elixirs of Death, and Surface Waters and Underground Seas. The last four chapters are: One in Every Four, Nature Fights Back, The Rumblings of an Avalanche, and The Other Road.

Before we get to #2... You will turn in your Silent Spring assignment on or before Friday, August 25th. If you have any questions/comments/concerns e-mail me. Submit your assignment as a Google Doc through Google Classroom. Most students have probably not used Google Classroom, but it is pretty simple and you should be able to figure out how it works. If you're new to Google Drive/Docs/Classroom ask a friend for help, or look online for help. Remember you can always contact me at jellis@s.busd.k12.ca.us if you have any questions.

2. Prepare for the **APES Proficiency Exam**. APES is a college level course with certain prerequisites. You are expected to enter the course with a significant understanding of basic scientific and mathematical concepts and skills, not to mention strong reading, writing, and speaking skills. Although we will continue to work toward developing your skills in all of these areas all year, your success in this class will be highly dependent on what you bring to it at the onset. Over the summer, brush up on everything below and be ready to take your first test on these skills and concepts as soon as the first day of school. If you do not receive more than a 90% on the test, you will be assigned mandatory after school study-sessions and will have to retake the test until you can achieve a 90%.

Prerequisite Basic Mathematic Skills

•**Dimensional Analysis**- This concept is vital to your success in APES. You should have learned dimensional analysis in Chemistry or Physics. If you have forgotten how to do dimensional analysis, or never learned dimensional analysis, you should teach yourself over the summer. You need be able to convert any unit into any other unit, quickly and accurately, if given the conversion factor. This includes units that you have never heard of before. There are many online tutorials, such as this page:

http://goo.gl/jlsGIY

You should go over the six examples and try to complete the three quiz questions on the bottom of the page. (These examples and quiz questions are not required, you are not going to turn in your work, but it will prepare you for the proficiency exam)

Please join the Google Classroom that has been set up for the 2017-2018 AP Environmental Science class. There you will find the information for the Summer Assignment.

The code for Google Classroom is: batwvx

You will need to use your BHS email to join (the one that is set up like this: jshmo7462@s.busd.k12.ca.us)

Please join Google Classroom before **June 2nd**. If you have any trouble, feel free to contact me: jellis@s.busd.k12.ca.us or stop by my room, 504 as soon as possible.

•**Scientific notation-** Know how to convert large and small numbers into and out of scientific notation and how to add, subtract, multiply, and divide numbers in scientific notation. I'm sure you learned how to do this at one point in your math careers, but you'll want to review the processes and "tricks" to prepare for the Exam. CALCULATORS ARE NOT ALLOWED IN APES!

•**% Difference-** Know how to calculating the % difference or % error between two values or two results. For example, if the amount of carbon dioxide in the atmosphere today is 350 ppm, and in 20 years it is predicted to be 385 ppm, what is the percent increase of carbon dioxide in the atmosphere? Or, if a stream that has a dissolved oxygen concentration of 5.0 grams/milliliter, and there is a 10% decrease in dissolved oxygen, what is the new dissolved oxygen concentration?

Prerequisite Basic Scientific Concepts

You should already be familiar with every term/concept from Biology, Chemistry, and Earth Science on the list below. For items 1-46 you don't need to be an expert on each term, but you should be able to match the term with its definition. For the chemicals in item #47, be prepared to write out the full name for each chemical. If you need help with any of these, Google them!

1. elements
2. compounds
3. molecules
4. atoms
5. ions
6. nucleus (2 meanings)
7. protons
8. electrons
9. neutrons
10. organic vs. inorganic
11. natural vs. synthetic
12. electromagnetic radiation
13. energy vs. matter
14. kinetic vs. potential energy
15. radioactive decay
16. half life
17. law of conservation of matter
18. 1st law of thermodynamics
19. 2nd law of thermodynamics
20. entropy
21. metabolism
22. mutation
23. organism
24. species
25. population
26. community
27. producers/autotrophs
28. consumer/heterotrophs
29. photosynthesis (know the balanced equation)
30. cellular respiration (know the balanced equation)
31. aerobic
32. anaerobic
33. adaptation
34. trait
35. gene
36. chromosome
37. gene pool
38. evolution
39. extinction
40. core
41. mantle
42. crust
43. fault
44. weathering
45. erosion
46. rocks vs. minerals
47. the full name of each of these chemical abbreviations: C, CO_2, CO, H_2CO_3, $C_6H_{12}O_6$, CH_4, $CaCO_3$, H, H_2, H_2O, N, N_2, NO, NO_2, N_2O, NO_2^-, NO_3^-, NH_3, NH_4^+, O, O_2, O_3, P, PO_4^{-3}, S, SO_2, SO_3, SO_4^{-2}, H_2S, Cl, K, Mg, Ca, NaCl, Fe, Zn, Pb, Hg, Al, As, Rn, U