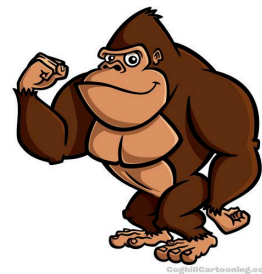


AP Environmental Science Summer Assignment 2018

Welcome to APES! We know this will be an amazing year and we will be learning many exciting things together. This is a fast paced course, but if you keep up with readings and assignments, we know you will be successful!

~ Mrs. Helle and Miss Clark



Instructor Information:

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APES Program of Studies:

Prerequisite: To enter this course, a student should have earned a grade of 80 or higher in Honors Biology or a grade of 90 or higher in CP Environmental Science and CP Biology, or have a teacher recommendation.

AP Environmental Science is a lab/inquiry- based course that is designed to immerse students in the physical, biological, and earth systems sciences that shape our environment. Scientific concepts, principles, and modern science practices allow students to analyze environmental issues and engage in evidence-based decision making in real world contexts. AP Environmental Science is an extended time course to accommodate the laboratory requirements. Students are strongly encouraged to take the AP examination in Environmental Science after completing this course.

Summer Assignment

When you come to class on the first day of school, it is important that you have had some background and experience with the subject already. This summer assignment is **not** meant to have you cover a few chapters in the textbook on your own. It is meant for you to broaden your horizons and experiences with environmental aspects of our world and allows me to evaluate your understanding of environmental science coming into the course. Use the checklist below to ensure you complete all parts of your summer assignment, but make sure to see the instructions for each assignment.

Assignment	Completed?
1. Join "Summer Assignment 2018" on Google Classroom (code: dyffbt)	
2. Screencasts with Notes (hardcopy turned in 1 st day of school)	
3. Videos and Website for Discussion (discussion on Classroom)	
4. "Home" video with paper (digital copy on Classroom AND hardcopy)	
5. Environmental Laws – 1 per person (assigned, on Classroom)	
6. Math Practice Packet (hardcopy turned in 1 st day of school)	

All parts of this Summer Assignment are due on the first day of class (Wednesday August 29 or Thursday August 30). Some parts must be handwritten and some parts must be submitted on Google Classroom.

Assignment #1: Join Google Classroom

We will be utilizing Google Classroom for the summer assignment. First, you must join Google Classroom. There are two APES classes, but we will be using one Classroom account for the summer assignment. Once you start school, your teacher will give you the class code for the rest of the year.

Class Code for Summer Assignment 2018: dyffbt

Assignment #2: Screencasts with Notes

Watch the 2 screencasts posted to Google Classroom. **Take your own notes as they play through.** These are general environmental concepts that you should be familiar with as we start the course. The various links that are mentioned in the screencast are also posted to Google Classroom. **Your notes should be hand-written and will be collected and graded on effort.** These will be collected on the first day of school.

- *Whale Wars*: <https://www.youtube.com/watch?v=Ni23UP4ZGm4->
- *Earth Days*: <https://www.youtube.com/watch?v=HjZRpurOGS0>
- *Easter Island Article*: <https://www.smithsonianmag.com/travel/the-mystery-of-easter-island-151285298/>

Assignment #3: Videos & Website for Discussion

Watch the videos *Dear Future Generations: Sorry* and *Man vs. Earth* (both posted to Google Classroom under Assignment #3). Next, go to the website entitled *Project Drawdown*. Explore some of the different solutions proposed to reduce global warming. As you read and watch, note things that surprise you, questions you may have, solutions that you think would be the most beneficial, etc.

- *Dear Future Generations: Sorry*: <https://www.youtube.com/watch?v=eRLJscAlk1M&t=183s->
- *Man vs. Earth*: <https://www.youtube.com/watch?v=VrzbRZn5Ed4>
- *Project Drawdown*: <http://www.drawdown.org/>

Your Task: Construct a response of your thoughts (at least 10 sentences) to post to the Google Classroom discussion (this will be it's own assignment on Classroom). This should NOT be a summary of the resources. **You must also comment on two other responses made by your classmates (at least 5 sentences).** Make sure your comment extends the discussion, is not derogatory, and is more than "good job". You will be getting credit for both your personal response and your comments to your classmates.

Assignment #4: "Home" Video with Paper

You will need to watch the film/documentary "Home," which can be found on YouTube by accessing the following link: <https://www.youtube.com/watch?v=jqxENMKaeCU&feature=c4-videos->. Write a 2-3 page (1" margins, double spaced, 2 page minimum) **critical** reaction paper in response to it. Your written essay is due the first day of class. **If you use any information from outside sources, you will need to include a bibliography.**

Assignment #5: Environmental Laws

As a class, you will collaborate and make a table like my example that organizes important information regarding environmental legislation for the laws/treaties listed below. Each student will be assigned to investigate one law and will need to find the following information: - Draft Year and Amendment Years - Is it International or National (just the U.S) - Describe the Function. - What Environmental Issues are Affected by this Legislation? - Agency/Group Responsible for Regulation and Enforcement (United Nations, Department of Interior, EPA, etc.)

The Sheets document is shared with you on Google Classroom (under the assignment for Activity #4). Choose a Law/Treaty to investigate that no one has chosen yet. Write your name next to the Law/Treaty and fill in the row of information for your Law/Treaty. You may NOT delete any student's name. Remember, we will be looking at the revision history for this document.

Do NOT change any other student's entries or the format of this document. Simply add the information for your assigned law in the appropriate spot. The template is formatted as follows:

Name	Draft & Amendment Year(s)	International or US?	Description	Issue(s) Affected	Agency
Clean Air Act	1963, 1977, 1990	US	To monitor and control air pollutants such as sulfur dioxide, nitrogen oxides, carbon monoxide, particulate matter, ozone, lead, carbon dioxide, volatile organic compounds, mercury. Meant to protect public welfare and health and to regulate emissions of dangerous air pollutants.	Air pollution, human health	EPA

Your table includes the following laws:

- Clean Water Act (CWA)
- Comprehensive Environmental Response, Compensation, Liability Act (CERCLA)
- Convention on the International Trade in Endangered Species (CITES)
- Emergency Planning and Community Right to Know Act
- Endangered Species Act (ESA)
- Energy Independence and Security Act (EISA)
- Environmental Quality Improvement Act
- Federal Food, Drug and Cosmetic Act (FFDCA, FDCA, or FD&C)
- Federal Insecticide, Fungicide and Rodenticide Act (FIFRA)
- Fish and Wildlife Act
- General Mining Act of 1872
- Hardrock Mining & Reclamation Act
- Healthy Forests Initiative (HFI)
- Kyoto Protocol
- Lacey Act (1900)
- Marine Protection, Research, and Sanctuaries Act (MPRSA)
- Montreal Protocol
- National Emissions Standards Act
- National Energy Conservation Policy Act
- National Environmental Policy Act (NEPA)
- North American Free Trade Agreement
- Nuclear Waste Policy Act (NWPA)
- Oil Pollution Act (OPA)
- Paris Agreement
- Refuse Act
- Resource Conservation and Recovery Act
- Safe Drinking Water Act
- Soil & Water Conservation Act
- Solid Waste Disposal Act
- Superfund Amendments and Reauthorization Act (SARA)
- Surface Mining Control & Reclamation Act (SMCRA)
- Taylor Grazing Act
- Toxic Substances Control Act (TSCA)
- Wilderness Act

**The Clean Air Act will be included on the table for your reference.*

Table Hints: - You can use online SCHOLARLY resources (Wikipedia is not reliable) to find the information. Since this part of your assignment is governmental in nature, .gov sites are best!

You will have a QUIZ on this material the first/second week of school, so be prepared!

Assignment #6: Math Practice Packet

Complete the Math Assignment included in below. If you need assistance, you can access a PDF on classroom that will provide you with some basic math guidelines. Since you will not be allowed to use a calculator on the AP exam, you may NOT use a calculator for this assignment. **You must show all of your work and include all units.** This assignment will be due on the first day of class.

Scientific Notation Practice:

Write the following numbers in scientific notation:

1. 1,000,000 _____
2. 48,000 _____
3. 5,878,300 _____
4. 0.015 _____
5. .003 _____
6. 0.2220 _____
7. 1267 _____

Convert the following to regular notation:

8. 2.45×10^4 _____
9. 9.1×10^2 _____
10. 7.5469×10^{-4} _____
11. 8×10^{-1} _____
12. 5.000×10^{-3} _____
13. 9.444×10^2 _____
14. 6.08×10^3 _____

Use Scientific Notation (and only Scientific Notation) solve the following problems:

15. $(6.235 \times 10^{-8}) \times (6.7 \times 10^2) =$

16. $(2.456 \times 10^4) / (1.436 \times 10^{13}) =$

Significant Figures

How many significant figures are in the following numbers?

1. 30 _____

2. 66000 _____

3. 968 _____

4. 9050 _____

5. 0.078 _____

6. 0.007040 _____

7. 1.7×10^6 _____

8. 20006.0 _____

Solve the following using the correct number of significant figures:

9. $(3.6 \times 10^{-1}) \times (1.2 \times 10^6)$

10. 4.0001×6

Dimensional Analysis

1. Convert 8,640 mm to cm

2. Convert 175 lbs to kg

3. Convert 33.2 kg/L to kg/mL

4. Convert 3.8 Km/sec to miles /year

5. Twelve hundred metric tons of solid waste is how many kilograms?
6. Traveling at 70 miles/hour, how many minutes will it take to drive 175 miles to San Antonio?

Percentages

1. If 35% of a natural area is to be developed, leaving 500 acres untouched, how many acres are to be developed?
2. If the concentration of mercury in a water supply changes from 65 ppm to 7 ppm in a ten-year period, what is the percentage change of the mercury concentration?
3. Fifteen million is what percentage of the U.S. population of 300 million?
4. What is 20% of a \$34.80 bill so you can give a good tip?

Applied Math Problems

1. A population of deer had 200 individuals. If the population grows by 15% in one year, how many deer will there be the next year?
2. One year I had 40 AP Environmental Science students and the next year I had 50 Environmental Science students, what percentage did the population of APES students grow by?
3. Electricity costs 6 cents per kilowatt hour. In one month one home uses one megawatt hour of electricity. How much will the electric bill be? (HINT: mega = 1,000 kilo)
4. Your car gets 15 miles to the gallon and your friend's car gets 25 miles to the gallon. You decide to go on a road trip to Virginia Tech, which is 300 miles away. If gas costs \$4 per gallon and you decide to split the gas money, how much money will you save in gas by driving your friend's car?
5. Virginia Beach is 10 miles wide and 30 miles long. If one inch of rain falls on Virginia Beach, how many cubic feet of rain fell on Virginia Beach. (Hint: convert all units to feet first).