AP Environmental Science

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AP Environmental Science is a lab-based course that is designed to examine ecological, biological, chemical, physical, and environmental concepts and interactions. A student of this course should be familiar with local, regional, and global concerns within their own environment. The objective of this summer assignment is to get you thinking environmentally and to refresh some of your math skills.

By enrolling in AP Environmental Science, you have taken on a college level course, meaning that you are willing to challenge yourself. You are expected to always follow the Clarksville Academy's Honor Code; meaning you are expected to complete your own work in your own words. Plagiarism and cheating will not be tolerated, and you will receive a grade of zero as well as being referred to Honor Council. Just because you are working with a partner does not mean you submit identical assignments unless you are told to do so by Ms. Ray.

**Due Date:**

August 13, 2021

**Google Classroom:**

You will need to use your school email to sign into your Google Classroom. You will need to use the + sign at the right top corner of the page. Enter the APES class code to join our class. The classroom code is: **dyonylv**

**Instructions:**

You will need to complete this assignment to help you be successful in APES. Many of the concepts covered in this assignment might have already been covered in another class, but you will be building on these concepts throughout the year. This packet will be graded on completeness and correctness. You will need use complete sentences to answer. Please remember this a college level course. Do not wait until the last minute to turn in this assignment since it will be counted as your first 100-point test grade. The assignment is due on the assigned date posted above (August 13). If you turn in the summer assignment late, I will deduct 10 points for each day up until the 5$^{th}$ day. Meaning if you turn in the summer assignment on August 20$^{th}$, the highest possible grade you will receive is a 50%, anything turned in after the 20$^{th}$ will be graded as a zero (0).

## I. Experience the Natural World

Visit a natural outdoor area, go for a walk, and make some observations. Please attempt to go beyond your back yard. Here are some nearby places you can visit:

- Dunbar Cave
- Rotary Park
- Land Between the Lakes
- Port Royal Historic Park
- Oak Grove War Memorial Walking Trail
- The Greenway

**On you walk you will need to do the following:**

1. Find a plant OR an animal in your county that you have never seen in the wild before and create a photo journal. This is for this region only (Northwest Tennessee), if you went to the Smokies and took the pictures you will not receive credit.
    a. If you choose a plant, you need at least 3 photos at least 1 week apart. Take a digital photo at least once a week to every 10 days.
    b. If you choose an animal, you only need to have one good quality digital photo. The photo needs to be clear enough to clearly identify what you are looking at. Spend some time in your backyard, your farm, or at one of the above-mentioned parks and look around. Mammals and birds are typically very flighty of humans so you will have a hard time "sneaking up" on them to get a good picture. If you can zoom in close enough to accurately identify the animal that will be fine! Don't forget about fish, reptiles, amphibians, and insects!
    c. For either plant or animal, you will need to describe the location. Include the weather, (sunny/ rainy, temperature, humidity), time of day, and if you noticed any other animals in the vicinity. This needs to be at least 1 paragraph.
    d. Do your best to identify the species. If you have any field guides, start there. If not, I have found inaturalist.org very helpful. It is also a good idea to go on and download the free app on your smartphone or iPad. If it's a plant and you are struggling to identify it, take up close photos of its stems, leaves, and any flowers or fruits. Write down what you believe it is and why.
    e. Give a brief description of your plant or animal. Make sure to include details such as diet, native habitat, number or offspring, time of migration or reproduction, etc.

II. Current Events in Environmental Science

The topics are as follows:

1. Human population growth
2. Non-native (invasive) species
3. Food production, food safety
4. Fossil Fuels
5. Renewable Resources
6. Nuclear Energy
7. Air Quality
8. Water Quality
9. $CO_2$ and Global Warming
10. Recycling or another aspect of waste management
11. Nature Conservation
12. Overfishing, Overhunting
13. Deforestation
14. Ozone Depletion
15. Legislation or International Treaty dealing with environmental issue

a. Collect a copy of 1 article, published since January 1, 2017, relating to one of the environmental issues found on the list of topics above. (An issue involves an environmental concern, not just some interesting scientific finding). The sources may be scientific publications, popular magazines, or newspapers. You must indicate your source.
    i. For your article you must write at least two paragraphs summarizing the content of the article and one paragraph discussing your thoughts on the article. Does the article teach you anything new? What are the points of the article? Make sure you cite your source.
b. Listen to or watch at least 1 hour of podcasts relevant to an environmental science issue on the list of topics. You may choose several from one series or mix and match. Below is a list of some the available podcasts; all the podcasts in each series may not be about environmental science, so please choose episodes that are relevant to your topic. You can choose podcasts that are not listed below, but the ones that I have listed can be found in iTunes for free. If you need additional help with this, please e-mail Ms. Ray.
    i. List of podcasts
        1. TedTalks
        2. 60-second science
        3. Nature Podcast
        4. Ecogeeks: Science Video Podcast
        5. Nature Stories podcast
        6. NPR: Climate Connections
        7. NPR: Health and Science
        8. NPR: Environment

9. Terra
10. NPR: On Science
11. Science Times
12. Science Talk

ii. For each podcast write two paragraphs. A paragraph summarizing the topic and one paragraph discussing your thoughts. You will need to attach the title and link to your podcasts.

III. Definitions

a. You will need to complete a Quizlet as a study tool to help you prepare yourself for the common terminology, we will be using in APES this year! To do this please follow these instructions:

1. Go to quizlet.com
2. Use your CA email account to create your account (It is free!)
3. Click on the create option at the top of your page
4. Name your quiz: Yourlastname2021 (my quiz would be Ray2021)
5. You are only responsible for words and definitions. Pictures are incredibly helpful to study with, but I am not requiring them
6. Use definitions that you understand.
7. You must send me the link or include it in the packet you turn in to receive credit.

**Vocabulary words to define**

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| 1. Environment | 19. Hypothesis | 37. Base |
| 2. Environmental Science | 20. Control Group | 38. pH |
| 3. Ecosystem | 21. Sample Size | 39.Chemical Reaction |
| 4. Biotic | 22. Replication (during experimentation) | 40. Law of Conservation of Mass |
| 5. Abiotic | 23. Theory | 41. Carbohydrate |
| 6. Environmentalist | 24. Matter | 42. Protein |
| 7. Ecosystem Service | 25. Mass | 43. Lipid |
| 8. Economic Service | 26. Atom | 44. Nucleic Acid |
| 9. Biodiversity | 27. Element | 45. DNA |
| 10. Genetic Diversity | 28. Molecule | 46. RNA |
| 11. Species | 29. Isotopes | 47. Cell |
| 12. Species Diversity | 30. Covalent Bond | 48. Energy |
| 13. Specification | 31. Ionic Bond | 49. Chemical Energy |
| 14. Greenhouse gases | 32. Hydrogen Bond | 50. First law of Thermodynamics |
| 15. Anthropogenic | 33. Polar Molecule | |
| 16. Sustainability | 34. Surface Tension | 51. Second Law of Thermodynamics |
| 17. Biophilia | 35. Capillary Action | |
| 18. Ecological Footprint | 36. Acid | |