

Summer Assignment

(230 Points)

Instructions: This summer assignment packet is designed to help prepare and orient you for the rigors of AP Environmental Science. This will be a challenging program, meant to forge you into strong scientific students. Much of the work here builds off of previous science courses such as biology and earth science and is considered background knowledge for this course; while some terminology and/or concepts may be new to you, nothing should be overwhelming.

All of your work should be completed and is due during the first week of school, no excuses. I would prefer these to be done electronically and printed but I will accept hand written work, as well. Everything should be neat and organized- this is to your benefit as a student.

Part 1: Glossary of Terms (70 points)

Below is a list of important terminology and concepts required for class. The list is not exhaustive but will provide you will a solid foundation with which to explore concepts from class. Work to define each idea as best you can.

Remember, this is an AP class which means you are technically college students, so operate like college students. Do not seek to provide just a one sentence response, but go above and beyond, provide context to your work and real world examples. Yes this is a graded assignment for class, but more importantly it is an opportunity for you to develop your own personal glossary of terms for AP Environmental Science, practice active studying habitats and begin preparing for the AP exam now. Simply put, the more work you put in, the stronger you will become.

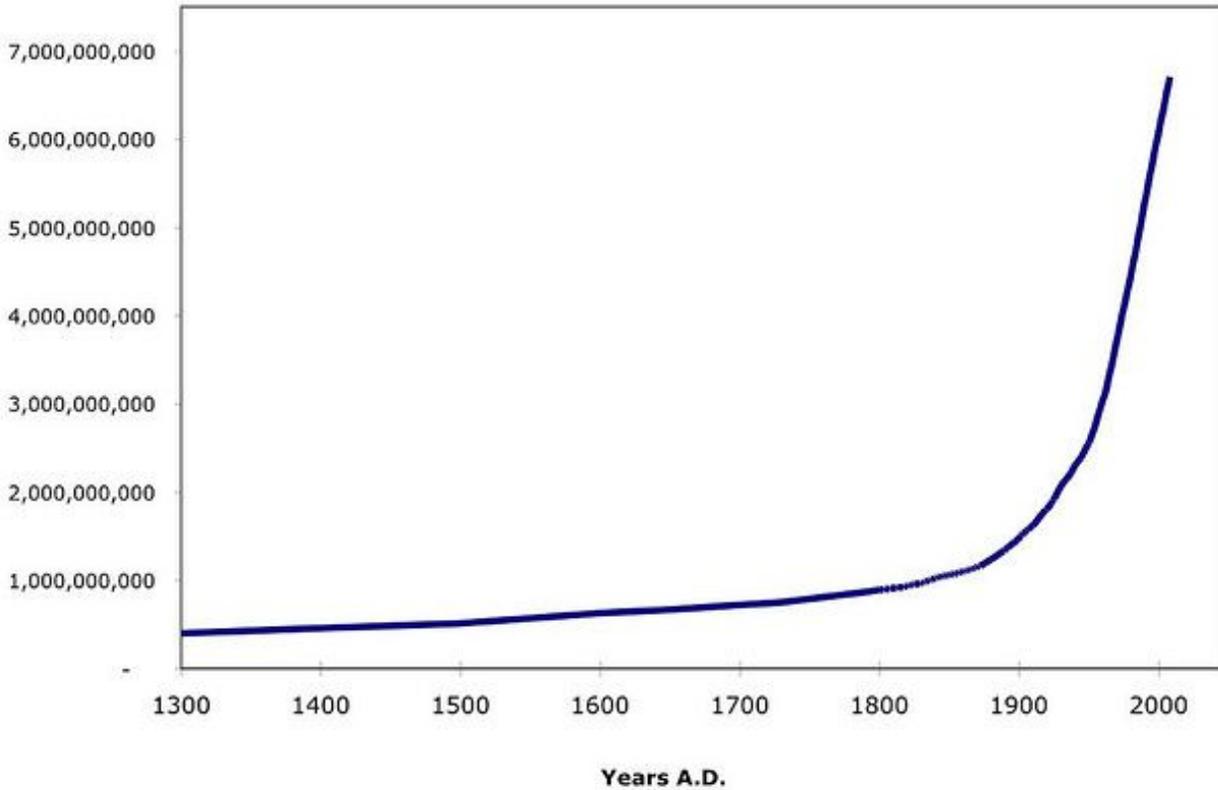
Each term is worth 1 point (63 points, as indicated) and you can receive up to 7 points for making your glossary neat, presentable and organized. Please note that terms are arranged by topic as specified by the College Board.

- **Earth Systems and Resources**
 - Lithosphere (1 pt)
 - Atmosphere (1 pt)
 - Hydrosphere (1 pt)
 - Biosphere (1 pt)
 - Plate Tectonics (1 pt)
 - Convergent Boundary (1 pt)
 - Divergent Boundary (1 pt)
 - Transform Boundary (1 pt)
- **The Living World**
 - Biotic (1 pt)
 - Abiotic (1 pt)
 - Autotroph (1 pt)
 - Heterotroph (1 pt)
 - Biome (1 pt)
 - Forest (1 pt)
 - Grassland (1 pt)
 - Deserts (1 pt)
 - Wetlands (1 pt)
 - Estuaries (1 pt)
 - Ecosystem (1 pt)
 - Terrestrial (1 pt)
 - Aquatic (1 pt)
 - Community (1 pt)
 - Species (1 pt)
 - Keystone species (1 pt)

- Foundational species (1 pt)
 - Indicator species (1 pt)
 - Niche (1 pt)
 - Trophic level (1 pt)
 - Reservoir (1 pt)
- **Population**
 - Anthropogenic (1 pt)
 - Per capita (1 pt)
- **Land and Water Use**
 - Arable (1 pt)
 - Irrigation (1 pt)
 - Salinization (1 pt)
 - Desalination (1 pt)
 - Water Diversion (1 pt)
 - Extraction (1 pt)
- **Energy Resources and Consumption**
 - First Law of Thermodynamics (1 pt)
 - Second Law of Thermodynamics (1 pt)
 - Efficiency (1 pt)
 - Potential Energy (1 pt)
 - Kinetic Energy (1 pt)
- **Pollution**
 - Pollution (1 pt)
 - Air pollution (1 pt)
 - Primary pollutants (1 pt)
 - Secondary pollutants (1 pt)
 - Noise pollution (1 pt)
 - Light pollution (1 pt)
 - Water Pollution (1 pt)
 - Point source pollutants (1 pt)
 - Nonpoint source pollutants (1 pt)
 - Solid Waste (1 pt)
 - Toxicity (1 pt)
 - LD-50 and LC-50 (1 pt)
 - Hazardous Waste (1 pt)
 - Carcinogens (1 pt)
 - Bioremediation (1 pt)
 - Phytoremediation (1 pt)
- **Global Change**
 - Biodiversity (1 pt)
 - Tropospheric Ozone (1 pt)
 - Stratospheric Ozone (1 pt)
 - Climate Change (1 pt)
 - Greenhouse Gases (1 pt)

Part 2: Graph Analysis (10 points)

World Population



- What does the X-axis show in the above graph? (1 pt)
- What does the Y-axis show in the above graph? (1 pt)
- What kind of growth is demonstrated in the graph? (2 pts)
- What conclusion can you make from the above graph? (6 pts)

Part 3: Primary Literature (20 points)

- Read and annotate ONE of the following Scientific Journal Articles.
 1. [Tragedy of the Commons](#), Garrett Hardin (1968)
 2. [The Dangers of Ocean Acidification](#), Scott Doney (2006)
- There will be a quiz on BOTH articles during the first week of class.
 - You should know both articles, but only need to annotate ONE.
 - We will discuss both articles in class before the quiz.

Part 4: Current Event Articles (50 points)

- Find two articles that have been published this summer 2018 (from May-August) (25 points each)
 - Each article should be about a different environmental issue.
 - Read and annotate each article, providing a one page reflection on the assignment.
 - Example article topics: chemical contamination, climate change, pollution, deforestation, overpopulation, endangered species, invasive species, pesticides, habitat destruction
 - Include a hard copy of each article (either printed out, photocopied, or cut out) OR Include the hyperlink to the URL if you found it online.
 - Online newspapers or journals or .gov, .edu. or .org sites are okay.
 - Include a Works Cited at the end of your reflections (MLA or APA is fine).
 - For each article please address the following criteria
 - Summarize the content of the article in your own words, focusing on the following questions:
 - What is the problem?
 - When did it begin?
 - Do we know who are the responsible parties? If so, who is it?
 - How severe is the environmental impact?
 - Reflect on or write your personal reaction to the article, focusing on the following questions.
 - What are your thoughts on the issue?
 - How does it compare to information you have heard or read before?
 - Does it support/refute what you know or thought you knew?
 - What other information would be helpful for you to better understand the environmental impacts?
 - Are there words/concepts you don't understand?
 - Do you know who to trust in regards to "the facts" presented?
- Your work will not be collected if you do not include the actual article with your work.

Rubric (25 points per article)

	Tier I (100%-90%) Mastery	Tier II (89%-80%) Proficiency	Tier III (79%-70%)	Tier IV (Failing)
Annotations (5)	Annotations were completed in the correct MLA format with no room for improvement.	Annotations were completed in generally correct MLA format with some room for improvement.	Annotations were completed but not in the correct MLA format.	No annotation included
Summary (10)	The student included a detailed, informative and thorough summary of the article that focused on important themes and concepts in environmental science and not minutia. Work indicated the highest degree of knowledge of the subject with little to no room for improvement.	The student made a strong attempt at including a detailed, informative and thorough summary of the article that focused on important themes and concepts in environmental science, but sometimes concentrating on minutia. Work indicated average knowledge of the subject with room for improvement.	The student made a weak attempt at including a detailed, informative and thorough summary of the article that focused on important themes and concepts in environmental science, but more often concentrated on minutia. Work indicated below average knowledge of the subject with significant room for improvement.	No summary
Connections to Environmental Science (10)	The student has made thought provoking, inciteful connections between their article and environmental science as a whole. Work indicated the highest degree of knowledge of the subject with little to no room for improvement.	The student made a strong attempt at thought provoking, inciteful connections between their article and environmental science as a whole. Work indicated average knowledge of the subject with room improvement.	The student made a weak attempt at thought provoking, inciteful connections between their article and environmental science as a whole. Work indicated below average knowledge of the subject with significant room improvement.	No connection to environmental science

Part 5: Environmental Law (80 points total)

1. Construct a table that summarizes the major points of each of the following environmental laws and policies.
 - a. Name of Law or Treaty
 - b. Year Effective
 - c. Is it International or National (just the U.S)
 - d. Describe the Function.
 - e. What Environmental Issues are Affected by this Legislation?
 - f. Agency/Group Responsible for Regulation and Enforcement (United Nations, Department of Interior, EPA, etc.)
2. Use the table below as a model.
3. You may find it easier to do this in landscape orientation.
4. You can use your textbook or online SCHOLARLY resources (Wikipedia is not reliable) to find the information. Since these are governmental in nature, .gov sites are best!
5. Each law/policy is worth 2 points. You can earn up to 6 points for making your work neat, presentable and organized. Please note that the Clean Air Act has been completed for you, but still needs to be included in your list.

Name	Year Effective	International or US?	Description	Issue(s) affected	Agency
Clean Air Act	1963	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

Laws:

1. Clean Air Act (CAA)
2. Hardrock Mining & Reclamation Act
3. Occupational Safety & Health Act (OSHA)
4. Clean Water Act (CWA)
5. Healthy Forests Initiative (HFI)
6. Ocean Dumping Ban Act
7. Comprehensive Environmental Response, Compensation Liability Act (CERCLA)
8. Kyoto Protocol Oil Pollution Act (OPA)
9. Convention on the International Trade in Endangered Species (CITES)
10. Lacey Act (1900)
11. Oil Spill Prevention & Liability Act
12. Corporate Average Fuel Economy (CAFÉ standards)
13. Law of the Sea Convention (UNCLOS)
14. Pollution Prevention Act (PPA)
15. Endangered Species Act (ESA)
16. Marine Mammal Protection Act (MMPA)
17. Refuse Act
18. Energy Independence & Security Act
19. Marine Protection, Research, and Sanctuaries Act (MPRSA)
20. Resource Conservation & Recovery Act (RCRA)
21. Energy Policy Act
22. Montreal Protocol
23. Safe Drinking Water Act
24. Federal Food, Drug, and Cosmetic Act (FFDCA, FDCA, or FD&C)
25. National Energy Act
26. Soil & Water Conservation Act
27. Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)
28. National Environmental Policy Act (NEPA)

29. Solid Waste Disposal Act
30. Federal Water Pollution Control Act
31. National Wildlife Refuge System Act
32. Surface Mining Control & Reclamation Act (SMCRA)
33. Fish and Wildlife Act
34. Noise Control Act
35. Toxic Substances Control Act (TSCA)
36. General Mining Act of 1872
37. Nuclear Waste Policy Act (NWPA)
38. Wilderness Act

We will work out of a google classroom!
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