

A.P. Environmental Science (APES) Summer Assignment 2019-2020

Palm Harbor University High School

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Welcome to APES!

The APES Pinellas County Summer Assignment has eight options.

<https://www.pcsb.org/Page/1561> We will complete options 1, 2, 3, 4, and 8 in a specialized format.

Please familiarize yourself with my web site, www.kwanga.net. It will be updated during the summer and the school year. You will be using it all year to access and print labs and other handouts, as well as to access the web links page for in-depth study, research, and review.

The summer assignment must be typed on white computer paper, double-spaced, with one-inch margins, using Times New Roman, Arial, or other regular type font size 12. A cover page is required. Part 4 may be typed on loose leaf paper, using blue or black ink. (The College Board is very specific the directions you must follow, so you must acclimate to this).

This assignment is 130 raw score points and will be converted to a 100-point total in the grade book. For reference, tests are 200 points and lab reports are usually 50 points.

The assignment will be collected on the first day of class. No late summer assignments will be accepted for students who were listed on my roster in May.

If you have any questions, email me any time. Have a sustainable summer!

Summer Assignment Format (must be submitted in this order):

- Cover page – any format, graphics acceptable (2 pts.)
- Part 1: Environmental Legislation (2 pts.each = 24 pts.)
- Part 2: Environmental Articles (3 pts. each part = 18 pts.)
 - Copy of first page of Article 1
 - Commentary on Article 1
 - Copy of first page of Article 2
 - Commentary on Article 2
 - Copy of first page of Article 3
 - Commentary on Article 3
- Part 3: Chemistry review (1 pt. each = 34 pts.)
- Part 4: Math problems (3 pts. each = 42 pts.)
- Bibliography, MLA or APA format (5 pts.)

- Part 8 – show your study guide book the first day of class,
or show or email online order receipt to me by or on the first day on class (5 pts.)

IMPORTANT:

1) Email me your parents' or guardians' email addresses by August 1. Be sure to email me from the account you want me to use all year. (You may do this starting today). Emails will be sent throughout the school year.

2) Go to www.kwanga.net and familiarize yourself with the layout and content of the site. Be sure to look over all APES pages carefully. The site will be updated throughout the summer.

Part 1 Environmental Legislation

For #1 – 12 For the following list of laws, state the main objective of each law.
Cite your sources properly (MLA or APA) on the reference page.

1. Clean Air Act (CAA) of 1970, 1990
2. Clean Water Act (CWA) of 1972
3. Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or Superfund), 1980
4. Endangered Species Act (ESA) of 1973
5. Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), 1947
6. Hazardous and Solid Waste Amendments (HSWA) of 1984
7. Occupational Safety and Health Act of 1970 (OSH Act)
8. Resource Conservation and Recovery Act (RCRA) of 1976
9. Safe Drinking Water Act (SDWA) of 1974
10. Solid Waste Disposal Act (SWDA) of 1965
11. Toxic Substances Control Act (TSCA) of 1976
12. Wilderness Act of 1964

Part 2 Environmental Articles (adapted from St. John's College H.S.)

- Find three current articles (from May-August of this year) that provide one example each of negative human impact on the environment.
- Each article must be about a different impact.
- You are encouraged to use articles from local sources.
- One of the articles must focus on Florida.
- One of the articles should focus on alternative energy: geothermal, solar, hydroelectric, wind, nuclear, etc.
- Include the first page of each article printed from the internet, photocopied from a journal, or cut from a newspaper or magazine.
- You may use an online newspaper or journal, as well as “.gov, .edu, or .org” sites. Check the web links on kwanga.net for helpful information.
- Cite your sources properly (MLA or APA) on a reference page at the end of the section.
- Remember, maintain your integrity and write your original thoughts.
- See first page for proper format.

For each article, answer the following questions. Please number your answers.

- 1) Summarize the article in your own words.
- 2) What is the problem? When did it begin?
- 3) Who are the responsible parties, if they are known?
- 4) How severe is the environmental impact?
- 5) What are your thoughts on the issue?

Part 3 Chemistry review

There is a sizeable amount of chemistry in APES. Successfully completing Chemistry I/IH is a prerequisite for this class, except for IB sophomores, who take chemistry concurrently with APES. Juniors and seniors should know common polyatomic ions and acids on the list below from their chemistry classes. IB sophomores may look these up online; email if you need clarification.

Write the following chemical formulas. For ions, be sure to include the charges.

- | | |
|---|---|
| 1) Nitric acid | 18) Nitrous oxide (dinitrogen monoxide) |
| 2) Sulfuric acid | 19) Calcium carbonate |
| 3) Hydrochloric acid | 20) Ammonia |
| 4) Carbonic acid | 21) Ammonium ion |
| 5) Carbon dioxide | 22) Carbonate ion |
| 6) Ozone | 23) Chloride ion |
| 7) Glucose | 24) Calcium ion |
| 8) Oxygen (atmospheric gas) | 25) Hydrogen ion |
| 9) Nitrogen (atmospheric gas) | 26) Bicarbonate ion |
| 10) Hydrogen (atmospheric gas) | 27) Nitrate ion |
| 11) Hydrogen sulfide (dihydrogen monosulfide) | 28) Nitrite ion |
| 12) Methane | 29) Nitride ion |
| 13) Carbon monoxide | 30) Iron(II) ion (ferrous ion) |
| 14) Nitrogen dioxide | 31) Iron(III) ion (ferric ion) |
| 15) Sulfur trioxide | 32) Phosphate ion |
| 16) Sodium hypochlorite | 33) Sulfate ion |
| 17) Nitric oxide (nitrogen monoxide) | 34) Hydroxide ion |

Part 4 Math Problems – Show all work and units.

METRIC CONVERSIONS

See <http://www.kwanga.net/apesnotes/apes-math-tips-for-ap-exam.pdf> for details.

- 1) 3.7 m = _____ mm
- 2) 3.7 m² = _____ mm²
- 3) 500 GW = _____ W
- 4) 19 ng = _____ μg
- 5) 0.66 MW = _____ kW
- 6) 444 mm³ = _____ m³

PERCENTAGES

See <http://www.kwanga.net/apesnotes/apes-math-tips-for-ap-exam.pdf> for details.

- 7) Calculate the percentage growth rate for a country with a population of 7 million in a year in which it had 100,000 births, 70,000 deaths, 30,000 immigrants, and 40,000 emigrants.
- 8) If the concentration of mercury in a water supply changes from 55 ppm to 8 ppm in a ten year period, what is the percent change of mercury concentration? What is the percent change per year?

- 9) If 25% of a natural area is to be developed, leaving 500 acres untouched, how many acres will be developed?
- 10) A natural gas power plant operates at 60% efficiency. If one cubic meter of natural gas provides 1000 BTU of electricity, how many BTU of waste heat is produced?

DIMENSIONAL ANALYSIS / UNIT CONVERSIONS / FACTOR LABEL

Conversion factors:
1 mi ² = 640 acre (ac)
1 ac = 0.405 hectares (ha)
1 barrel oil = 42 gallons (gal)
1 L = 0.264 gal
1 kilowatt-hour (kWh) = 3.4 x 10 ⁴ British Thermal Units (BTU) = 8.6 x 10 ⁵ calories (cal)

- 11) A 200-square mile area of a forest occupies how many acres, in both standard and scientific notation?
- 12) A 200-square mile area of a forest occupies how many hectares, in both standard and scientific notation?
- 13) How many kWh does a city consume monthly, if it uses 70 billion BTUs of energy each month?
- 14) One barrel of crude oil produces six million BTU of energy. How many BTU will one liter of crude oil provide, in both standard and scientific notation? How many calories of energy will one gallon of crude oil provide, in both standard and scientific notation?

Part 8

MANDATORY: Obtain the following study guide: 5 Steps to a 5: AP Environmental Science, McGraw-Hill. The book is updated yearly. Get as recent of a guide as you can. *I have a limited number of study guides to check out if you see me before the summer begins.* You may order a new one online, which usually comes out in the fall.

BRING YOUR STUDY GUIDE (OR PROVIDE ME WITH AN ONLINE ORDER RECEIPT) ON THE FIRST DAY OF SCHOOL.

Read the introductory sections and take one of the practice exams.

If you wish, you may purchase a set of the “Barron's A.P. Environmental Science flash cards.”
