

# AP Environmental Science Summer Assignment

Mr. Parmar

Welcome to Advanced Placement Environmental Science (APES)! In preparation for this course, you will have some work to do over the summer. Most of the work should be review for you; to refresh your memory.

This summer assignment is due on the first day of class. Do the best you can on it; if you are having trouble solving or answering any questions, mark them down and we will go over them during the first week of school. You will have a quiz on this material during the first week of school.

If you have any questions, you can email me at [fparmar@connellyhs.org](mailto:fparmar@connellyhs.org).

- Get the textbook: Living in the Environment by Miller and Spoolman
  - We will use the 18<sup>th</sup> Edition (the 17<sup>th</sup> Edition is acceptable) – get the AP Edition
  - You may get a hard copy of the text, or an e-book
- Get a quad-ruled (graph paper) composition book.
  - This will be your AP Lab notebook

## Summer Assignment I – Laboratory Notebook

The following activities and labs will be done in your laboratory notebook. In this notebook, write neatly in complete sentences and paragraph-format (no bullet points). Write only in black pen and never use white-out (cross things out neatly instead). Put your name and course on the cover of the notebook. Title the first page “Table of Contents”, be sure to add each assignment below. Skip two sheets of paper. On the third sheet, write the number 1 on the bottom corner – this is Page 1. Number the next 10 pages or so (front and back!)

1. Title Page 1: Nature Walk
  - a. Visit a natural outdoor area beyond your backyard, take a walk and make observations.
  - b. Record the location, date, time, and duration of your outing.
  - c. Briefly record (1 paragraph) your observations on the flora, fauna, and geology of the area.
  - d. In another paragraph, respond to the following: Is this area really “natural”? How could it have appeared 20 years ago, 200 years ago, and 20,000 years ago?
2. Title the next blank page: Travelling Produce
  - a. Find a fruit or vegetable in your house that is not local; something that has travelled to be a part of your diet. There should be a sticker on the item telling you its country of origin. Record the date, item and country of origin of the item.
  - b. Use the internet to estimate the distance between where the item was grown and your home.
  - c. List the most likely modes of transportation used to move the item from its field to your kitchen.
  - d. In a paragraph or two, answer the following: What are the environmental impacts of shipping fresh produce over long distances? Are there any non-health related benefits to doing this? What are the health benefits/costs of having a wide variety of fresh produce available at all times? Is it “worth it”?

3. Title the next blank page: Ecological Footprint
  - a. Calculate your ecological footprint, try to be as detailed and accurate as possible.  
<http://www.footprintcalculator.org/>
  - b. Answer the following questions:
    - i. If everyone on the planet lived like you, how many planets would we need? How does this compare to the nationwide average? What country are you most similar to?
    - ii. What is your total footprint in global hectares? How many tons of CO<sub>2</sub> is this?
    - iii. In what type of land/water do you have the largest footprint?
    - iv. List your biggest and smallest consumption categories by percentage.
    - v. Discuss ways to reduce your footprint.
4. Title the next blank page: “Tragedy of the Commons” Reading
  - a. Broadly read “Tragedy of the Commons” by Garrett Hardin (it is a good foundation, but we know much more today. Also, some moral issues arise in his solutions; we can discuss in class)  
[http://www.garretthardinsociety.org/articles/art\\_tragedy\\_of\\_the\\_commons.html](http://www.garretthardinsociety.org/articles/art_tragedy_of_the_commons.html)
  - b. Answer the following questions.
    - i. What is Garrett Hardin’s central idea in this essay?
    - ii. Do you personally agree with Hardin’s central idea?
    - iii. Is the “Tragedy of the Commons” unavoidable?
    - iv. Identify one “commons” in your own life (at school, home, or work) and explain how it is (or is not) being managed wisely to avoid the situation described in the essay.

### Summer Assignment II – Textbook

Your major homework assignment over the year will be to take notes and answer review questions from the textbook. You will also have AP practice Free Response Questions to do.

For notes, you may take them on paper or on your iPad. They may be any style that helps you learn – hierarchical outline, Cornell style, flashcards, etc. (Highlighting the textbook does not count as notes!)

For any questions that are assigned, all answers must be complete and concise. You generally do not need to write in full sentences (bullet points are ok) unless you are told otherwise. These questions will usually be assigned at the end of every chapter – you may have them as a separate document or as the end of every chapter’s notes; again, use a format that helps you remember and learn (and stay organized!)

1. Read and take notes from your textbook on Chapter 1. Then use the end of the chapter for the following:
  - a. Chapter Review: Read it but you do not have to answer any questions.
  - b. Critical Thinking: Answer all these questions.
  - c. Ecological Footprint Analysis: Answer all these questions.
  - d. AP Review Questions: Answer all these questions.
2. Read and take notes from your textbook on Chapter 2. Then use the end of the chapter for the following:
  - a. Chapter Review: Read it but you do not have to answer any questions.
  - b. Critical Thinking: Answer all these questions.
  - c. Data Analysis: Answer all these questions.
  - d. AP Review Questions: Answer all these questions.

## Summer Assignment III – Background Material (OPTIONAL)

The end of the textbook has a number of supplemental sections. They are a review of things you may have already learned in other classes. Thus, this part of your summer assignment is optional and will not be checked. If you know the material in a particular supplement, skip the section and focus on that which is new or difficult. This is still important background material that you should have some understanding of.

### 1. Review Math

- a. Supplement 1 has conversion factors. No calculators are allowed!
  - i. Put 0.0035 & 135000 in scientific notation
  - ii. Put  $1 \times 10^6$  &  $1.2 \times 10^{-4}$  in common notation
  - iii. Solve for  $10^2 \times 10^3$  &  $10^3 \times 10^{-4}$
  - iv. Solve for  $10^5 / 10^{-2}$  &  $10^5 / 10^2$
  - v.  $0.003 \times 0.0005 =$  (in scientific notation)
  - vi.  $1500 \times 100 =$  (in scientific notation)
  - vii.  $1000 / 130000 =$  (in scientific notation)
  - viii.  $15 / 0.00015 =$  (in scientific notation)
  - ix. What percent of 1,000 is 10?
  - x. What is 15% of 1,500?
  - xi. Starting with 100 units, you end with 50. What is the percentage decrease?
  - xii. Start with 1,000 watts of power and increase usage by 30%. How many watts are used?
  - xiii. You dissolve 5 g of salt into 95 g of water. What is your percent salt solution?
  - xiv. If a city of 10,000 has 100 births, 30 deaths, 10 immigrants, and 20 emigrants over one year, what is the net annual percentage growth rate?
  - xv. How many pounds are in 120 kg?
  - xvi. A light bulb uses 100 watts an hour, how many watts do 24 light bulbs use in 120 hours?
  - xvii. Convert one square meter to square centimeters.
  - xviii. How many joules are in a 200 kilocalorie pizza slice?

### 2. Review Chemistry

- a. Supplement 4 has basic chemistry related to environmental science.

### 3. Review Data, Graphs, and Maps

- a. Supplement 2 is on reading graphs and maps.
- b. Supplement 6 is on analyzing maps.
- c. Supplement 7 is on analyzing data and graphs.

### 4. New material (that will be covered later in class and then become background information)

- a. Supplement 3 overviews environmental history
- b. Supplement 5 overviews basic weather patterns