AP Environmental Science is a lab based course that is designed to examine ecological, biological, chemical, physical, and environmental concepts in action. A student in this course should be familiar with local, regional and global concerns within their environment. The objective of the summer assignment is to get you thinking environmentally and to refresh some math skills. Please note that all of the summer assignments will be turned in through Edmodo (www.edmodo.com). I hope that you have an enjoyable, exciting, and educational summer! I look forward to meeting you in August! – Mr. Fritts

At the beginning of summer, please send me your email so I can get you connected to our Edmodo page. Have fun this summer, and if you have any questions please email me at cfritts@bssd.net or message me through Edmodo.

Below are the tasks you should complete this summer. All assignments should be typed, and uploaded to the appropriate assignment link in Edmodo. All assignments will be due after the first full week of school in August. The expectations for an AP course are significantly higher than those for a regular course. All work is expected to be turned in on the due date. If you must turn work in late, it will be accepted 1 week after the due date for a maximum of 80% credit and 2 weeks late for a maximum of 60% credit. Assignments turned in more than 2 weeks after the due date will not earn credit.

1. Environmental Surveys / Ecological Awareness

Directions: Complete the three footprint calculators below and create a Word document to compile your results. For each footprint create a short summary paragraph describing what you have learned about yourself. After you finish compiling your results, upload your Word document to the “Environmental Surveys” assignment link on Edmodo.

a. Go to: http://www.h2oconserve.org/ or http://www.gracelinks.org/824/water-program and complete the water footprint calculator. Take a screen shot of your footprint results and add that to your Word document.

b. Go to: http://www.nature.org/greenliving/carboncalculator/index.htm and find your individual carbon footprint. Take a screen shot of your footprint results and add that to your Word document.


2. Tragedy of the Commons

Directions: Read the essay “Tragedy of the Commons” by Garrett Hardin. The essay can be found at this link: http://www.garretthardinsociety.org/articles/art_tragedy_of_the_commons.html. After reading, create a Word document and respond to the following questions in complete sentences. Once you have answered all the questions, upload your Word document to the “Tragedy of the Commons” assignment link on Edmodo.

a. What is Garrett Hardin’s central idea in this essay?

b. Do you personally agree with Hardin’s central idea?

c. Is the “Tragedy of the Commons” unavoidable?

d. Identify one “commons” in your own life (at school, home, work) and explain how it is (or is not) being managed wisely to avoid the situation described in the essay.

3. Brush Up Your Math Skills

Directions: The math assignment does not need to be typed. Please complete the following problems and make sure to show all your work. Calculators are not allowed on the AP Environmental Science test, so you will have to be able to do
simple math in your head. After you have completed the questions, you can take a picture of your work and upload it to the “Brush Up Your Math Skills” assignment link on Edmodo. The Office Lens app is a great app to use for taking pictures of documents. You can find it in the Apple or Android Stores for free.

a. Someday, you may purchase a house that has 2500 square feet of living space. How many square meters of living space is this?

b. If a calorie is equivalent to 4.184 joules, how many joules are contained in a 250 kilocalorie slice of pizza?

c. A coal-fired electric power plant produces 12 million kilowatt-hours (kWh) of electricity each day. Assume that an input of 10,000 BTU’s of heat is required to produce an output of one kilowatt-hour of electricity.

i. Calculate the number of BTU’s of heat needed to generate the electricity produced by the power plant each day.

ii. Calculate the pounds of coal consumed by the power plant each day, assuming one pound of coal yields 5,000 BTU’s of heat.

d. If a city of 10,000 experiences 200 births, 60 deaths, 10 immigrants, and 30 emigrants in the course of a year, what is its net annual percentage growth rate?

4. Think Global! (50% of Grade) You may either –

Choose one book from the list below to read over the summer. -OR- Choose three environmental documentaries to watch (some suggestions are below, but you may choose others).

**IF YOU CHOOSE A BOOK:** As you read, and after you finish… please complete the following:

- Write down any vocabulary and/or information that is related to environmental science and define (10 Term Minimum)

- Describe any questions you have as a result of your reading (5 Questions Minimum)

- Describe your opinion of the reading – positive/negative/neutral. Reference items in the book to support your thoughts. (Minimum 2 paragraphs)

- Relate what you have learned to your personal life – how does it affect/impact you? How does it fit into an APES course? (Minimum 1 paragraph)

- Condense the overall, take home message of the book into a Bumper Sticker slogan. Design & draw your bumper sticker. Then justify and defend your poster /slogan. (Minimum 1 paragraph)

- Upload your finished book report and bumper sticker slogan to the “Think Global!” link on Edmodo.

**IF YOU CHOOSE TO WATCH DOCUMENTARIES:** Documentaries must be a minimum of 45 minutes in length. Documentaries should look at Environmental ISSUES, not just nature. Please complete the following for EACH Documentary.

- Provide the name of the documentary and year in which it was released.

- Describe any questions you have as a result of your viewing (3 Questions Minimum)

- Describe your opinion of the documentary – positive/negative/neutral. Reference items in the documentary to support your thoughts. (Minimum 1 paragraph)
Relate what you have learned to your personal life—how does it affect/impact you? What information affected you the most? Will it impact how you live your life? (Minimum 1 paragraph)

Choose one documentary and design a unique movie poster and slogan for it. Your movie poster should be colorful, neat, and include a slogan that identifies the take home message of the film. Then justify and defend your poster/slogan. (Minimum 1 paragraph)

Upload your documentary reviews and movie poster to the “Think Global!” link on Edmodo.

**Book Options** – most available from your local library or on electronic media (Kindle/Nook/iPad)

- Omnivore’s Dilemma (Pollan, 2007)
- Hot, Flat and Crowded (Friedman, 2009)
- Ishmael (Quinn, D)
- Plan B 2.0: Rescuing a Planet Under Stress and a Civilization in Trouble (Brown, 2006)
- Plan B 4.0: Mobilizing to Save Civilization (Sustainability Revised) (Brown, 2009)
- The Origin of Feces (Waltner-Towes, D)
- The Big Necessity (George, R)
- A Civil Action (Harr, 1996)
- The World Without Us (Weisman, A)
- Coal River (Shnayerson, M)
- Weather Makers (Flannery, T)
- Cheap: The high cost of discount culture (Shell, 2009)
- Cradle-to-Cradle: Remaking the Way we Make Things (McDonough & Braumgart)
- Wild Ones (Mooallem, 2013)
- Silent Spring (Carson, 1962)
- A Sand County Almanac (Leopold, 1949)
- Water Wars: Drought, Flood, Folly and the Politics of Thirst (Ward, 2002)
- Cadillac Desert: The American West and its Disappearing Water (Reisner, 1986)
- Beyond Malthus (Brown, 1999)

**Suggested Documentaries** - many can be found on Netflix, Amazon Prime, and some stream on the web.

- National Geographic: Human Footprint
- National Geographic: Six Degrees Could Change the World
- 180° South
- Flow: For the Love of Water
- Tapped
- Trashed
- Food, Inc.
- King Corn
- Dirt
- Gasland
- Who Killed the Electric Car / Revenge of the Electric Car
- Manufactured Landscapes
- Vanishing of the Bees
- Fresh
- Fuel
- Bag It
- Baraka
- Plastic Planet
- Planet in Peril
- Empty Oceans, Empty Nets (PBS)
- Harvest of Fear (Frontline)
- The Cove
- Hawaii: Message in the Waves

***Be prepared to discuss your experiences from this assignment as well as the book or documentaries***