Part I. Access your seq.org e-mail account, set it up for forwarding and email me. 10 pts. Due June 3rd.

Set your seq.org email to automatically forward your e-mail to the e-mail address you check most regularly. To set up forwarding: choose the settings button—a wheel like button near the upper right of the mail page. Once the settings page comes up click on “Forwarding and POP/IMAP”. That page will allow you to enable forwarding to another address. Once you have done this please send an email to aakey@seq.org to let me know that you have completed this part of the assignment. When I have updates to post during the summer I will use e-mail - please yours check periodically.

Part II Check out Dr. Art’s Guide to Planet Earth and Environment: The Science behind the Stories (Withgott & Lapasota 5th ed.) from the library before leaving for the summer

Part III Summer reading/Review basic science content. Environmental Science is an interdisciplinary field. As students come into APES with different science backgrounds I want to make sure that everyone has some basic content knowledge in earth science, chemistry, biology and physics that we can build on. Read Dr. Art’s book and Chapter 2 pages 22-33 in Withgott and Lapasota. I expect that the content will be mostly review for you. It is background that I assume you will have when we meet together in the fall. Pay particular attention to reviewing photosynthesis and respiration, the carbon cycle, the laws of thermodynamics, the electromagnetic spectrum and feedback loops. Remember that there is a difference between understanding something when you read it and truly knowing it. I will email a practice test on this material during the summer (please remember to check your email).

Part IV. APES Scrapbook

Purpose: One of the important goals of science education is to help students learn how to make good decisions about public issues. What you will be studying next year in APES tends to be in the news on a regular basis. This exercise is intended to get you thinking about course content and how it is tied to current issues.

The Assignment: You must collect and summarize 7 newspaper articles. Each selected article must be about or related to some aspect of environmental science- at least one for each of the 7 sections of the AP Environmental Science course outline (http://apcentral.collegeboard.com/apc/public/repository/ap-environmental-science-course-description.pdf on pages 6-9). Articles must be at least 500 words and selected from reliable news sources. The articles must be published during the summer. Please read over the following criteria carefully:

- You will not receive credit for articles that are not published during the summer.
- Only news articles will be counted for credit – not web pages, blogs, or encyclopedia entries.
- If you are using the Internet, do not print articles more than 2 pages long. (It’s a waste of paper and it probably isn’t an appropriate article for this assignment).
- Conserve paper! Before you print a news article off the Internet choose the “printer-friendly” or “print version” button. This will save you wasting ink and paper on printing advertisements. It will also make it less likely that text will be cut off during printing. If this is not an option - copy and paste the article into a word-processing program. Be sure to include the source and date of the article if you do this. Please print on both sides of the paper (or print on scratch paper) and do not print in color. Do not use a font size larger than 12.
- Each article must have the date and source of the article (neatly written or typed) in the upper right hand corner.
- Write an abstract between 50 and 75 words in length containing the essential elements of each article (think: who, what, why, where, when, how). Your abstract should be able to stand on its own; it should make sense to someone who has not read the article.
- Please don’t bother making an ornamental scrapbook out of this. Merely stapling the articles together with the summaries will suffice.
Part V Summer APES selfies

Take 7 pictures of yourself this summer in settings that relate to the seven sections on the course outline. You must be in each picture and somehow indicate that this is for APES (pantomime, costume, hold a picture of an ape). For example, for the section on Land and Water Use you might take a picture of yourself in a forest or in a state park. Upload the photos into a Google Presentation that you can share in class as we get to know each other. I will send you a form (by email) for uploading links to at the end of the summer once I know who is in which section. Include your name and the section title at the top of each slide.

These are a few suggestions just to get you started thinking about this. The possibilities are endless - be creative.

I. Earth Systems and Resources
Take a picture of yourself next to a cool geological formation. Be prepared to explain what it is.
We are still in a drought – take a picture of yourself next to a water conservation effort.

II. The Living World
Take a photo of yourself in a local or exotic ecosystem/biome. Identify the ecosystem/biome.
Compost piles encourage the rapid turnover of nutrients and are underappreciated photo opportunities.

III. Population
Many things are changing in the Bay Area as a result of population growth -- take a photo of yourself in front of one.
An example of animal or plant populations

IV. Land and Water Use
Take a picture of yourself helping on a farm or garden, visiting a state forest or park, taking public transportation, fishing.....

V. Energy Resources and Consumption
Lots of possibilities here: solar panel installation, wind turbines, power plants, substations, gas station, the Sun, alternative fueled vehicles

VI. Pollution
Unfortunately it will not be difficult to find examples. The brownish haze on summer days is particulate matter and nitrogen dioxide.
What is in our local creeks?

VII. Global Change
Consider a photo near something that is changing as a result of climate change (sea level rise) or near a sign indicating endangered species habitat.

Due dates: The scrapbook and Google presentation are due the first day of class. There will be a test on the summer reading within the first two weeks of class.

Please e-mail me if you have questions.

Optional: Woodside offers a two day summer program (Boot Camp), Thursday and Friday, August 11 & 12 to support students who are taking an AP class for the first time. It provides a chance to meet others taking the class, get help on the summer assignment, and review the summer reading before the first test. A section for APES will be offered if there is interest. Sign up online at tinyurl.com/asap-whs. Or see Mr. Mueller in B7. Or Lupe Flores in the main office.

Best wishes for a fun and re-energizing summer!
I. Earth Systems and Resources (10-15%)
* A. Earth Science Concepts
  (Geologic time scale; plate tectonics, earthquakes, volcanism; seasons; solar intensity and latitude)
* B. The Atmosphere
  (Composition; structure; weather and climate; atmospheric circulation and the Coriolis Effect; atmosphere-ocean interactions; ENSO)
* C. Global Water Resources and Use
  (Freshwater/saltwater; ocean circulation; agricultural, industrial, and domestic water use; surface and groundwater issues; global problems; conservation)
* D. Soil and Soil Dynamics
  (Rock cycle; formation; composition; physical and chemical properties; main soil types; erosion and other soil problems; soil conservation)

II. The Living World (10-15%)
* A. Ecosystem Structure
  (Biological populations and communities; ecological niches; interactions among species; keystone species; species diversity and edge effects; major terrestrial and aquatic biomes)
* B. Energy Flow
  (Photosynthesis and cellular respiration; food webs and trophic levels; ecological pyramids)
* C. Ecosystem Diversity
  (Biodiversity; natural selection; evolution; ecosystem services)
* D. Natural Ecosystem Change
  (Climate shifts; species movement; ecological succession)
* E. Natural Biogeochemical Cycles
  (Carbon, nitrogen, phosphorus, sulfur, water, conservation of matter)

III. Population (10-15%)
* A. Population Biology Concepts
  (Population ecology; carrying capacity; reproductive strategies; survivorship curves)
* B. Human Population
  * 1. Human Population Dynamics
     (Historical population sizes; distribution; fertility rates; growth rates and doubling times; demographic transition; age-structure diagrams)
  * 2. Population Size
     (Strategies for sustainability; case studies; national policies)
  * 3. Impacts of population growth
     (Hunger; disease; economic effects; resource use; habitat destruction)

IV. Land and Water Use (10-15%)
* A. Agriculture
  * 1. Feeding a growing population
     (Human nutritional requirements; types of agriculture; Green Revolution; genetic engineering and crop production; deforestation; irrigation; sustainable agriculture)
  * 2. Controlling pests
     (types of pesticides; costs and benefits of pesticide use; integrated pest management; relevant laws)
* B. Forestry
  (Tree plantations; old growth forests; forest fires; forest management; national forests)
* C. Rangelands
  *(Overgrazing; deforestation; desertification; rangeland management; federal rangelands)
* D. Other Land Use
  * 1. Urban land development
     (Planned development; suburban sprawl; urbanization)
  * 2. Transportation infrastructure
     (Federal highway system; canals and channels; roadless areas; ecosystem impacts)
  * 3. Public and federal lands
     (Management; wilderness areas; national parks; wildlife refuges; forests; wetlands)
  * 4. Land conservation options
     (Preservation; remediation; mitigation; restoration)
  * 5. Sustainable land-use strategies
* E. Mining
  (Mineral formation; extraction; global reserves; relevant laws and treaties)
* F. Fishing
  (Fishing techniques; overfishing; aquaculture; relevant laws and treaties)
* G. Global Economics
  (Globalization; World Bank; Tragedy of the Commons; relevant laws and treaties)
V. Energy Resources and Consumption (10-15%)
* A. Energy Concepts
  (Energy forms; power; units; conversions; Laws of Thermodynamics)
* B. Energy Consumption
  * 1. History
    (Industrial Revolution; exponential growth; energy crisis)
* 2. Present global energy use
* 3. Future energy needs
* C. Fossil Fuel Resources and Use
  (Formation of coal, oil and natural gas; extraction/purification methods; world reserves and global demand; synfuels; environmental advantages/disadvantages of sources)
* D. Nuclear Energy
  (Nuclear fission process; nuclear fuel; electricity production; nuclear reactor types; environmental advantages/disadvantages; safety issues; radiation and human health; radioactive wastes; nuclear fusion)
* E. Hydroelectric Power
  (Dams; flood control; salmon; silting; other impacts)
* F. Energy Conservation
  (Energy efficiency; CAFE standards; hybrid electric vehicles; mass transit)
* G. Renewable Energy
  (Solar energy; solar electricity; hydrogen fuel cells; biomass; wind energy; small-scale hydroelectric; ocean waves and tidal energy; geothermal; environmental advantages/disadvantages)

VI. Pollution (25-30%)
* A. Pollution Types
  * 1. Air Pollution
    (Sources - primary and secondary; major air pollutants; measurement units; smog; acid deposition - causes and effects; heat islands and temperature inversions; indoor air pollution; remediation and reduction strategies; Clean Air Act and other relevant laws)
  * 2. Noise Pollution
    (Sources; effects; control measures)
  * 3. Water pollution
    (Types; sources; causes and effects; cultural eutrophication; groundwater pollution; maintaining water quality; water purification; sewage treatment/septic systems; Clean Water Act and other relevant laws)
  * 4. Solid Waste
    (Types; disposal; reduction)
* B. Impacts on the Environment and Human Health
  * 1. Hazards to human health
    (Environmental risk analysis; acute and chronic effects; dose-response relationships; air pollutants; smoking and other risks)
  * 2. Hazardous chemicals in the environment
    (Types of hazardous waste; treatment/disposal of hazardous waste; cleanup of contaminated sites; biomagnification; relevant laws)
* C. Economic Impacts
  (Cost-benefit analysis; externalities; marginal costs; sustainability)

VII. Global Change (10-15%)
* A. Stratospheric Ozone
  (Formation of stratospheric ozone; ultraviolet radiation; causes of ozone depletion; effects of ozone depletion; strategies for reducing ozone depletion; relevant laws and treaties)
* B. Global Warming
  (Greenhouse gases and the greenhouse effect; impacts and consequences of global warming; reducing climate change; relevant laws and treaties)
* C. Loss of Biodiversity
  * 1. Habitat loss; overuse; pollution; introduced species; endangered and extinct species
  * 2. Maintenance through conservation
  * 3. Relevant laws and treaties