



## AP Environmental Science Summer Assignment 2022-2023

*The objective of this summer assignment is to get you thinking environmentally and to practice some scientific skills, including a refresher on scientific methods, research, critical thinking, and analysis. Please note that this assignment will be collected for grading on our first class meeting.*

1. Visit a natural outdoor area beyond school or your family's property. Here are some nearby places you could visit (of course, you could go elsewhere and this might be a fun thing to do while on vacation). \*Please obey all state and local laws including the use of masks and social-distancing where required. **Submit photos of handwritten journal or a typed Google Doc. 20-point lab grade.**

- Mountain Lakes Nature Preserve (Princeton; connects to Stuart Trail).  
<http://njtrails.org/trail/mountain-lakes-open-space-area/>
- Somerset County Parks: <http://www.somersetcountyparks.org/parksFacilities/ParksFacilities.html>
- Herrontown Woods/ Autumn Hill Reservation: <http://njtrails.org/trail/herrontown-woods/>
- Delaware and Raritan Canal: <https://www.dandrcanal.com/index.php/trails>

On your walk, please do the following:

- Record the time, date, and approximate duration (at least one hour) of your outing.
  - Record observations about the weather, the geology of the area, the type of path you are walking on (grass, sand, rock, etc.), and of the flora and fauna. This may be accomplished in a couple of paragraphs, but include as much detail as you can about the wildlife you observe. If you can't identify species, describe them thoroughly.
  - Then, respond to the following in a paragraph: *Is this natural area really "natural"? What evidence is there of human influence and alteration? How do you think it appeared 20 years ago, 200 years ago, and 20,000 years ago?*
2. Find an article in a magazine or newspaper and report on it in the form of a formal essay. The article must be a featured article from a reputable source (e.g. *Scientific American, National Geographic, NPR, PBS, The New York Times, The Wall Street Journal*). Particular topic examples could include an article on water conservation, coal fired power plant pollution, mountaintop removal mining, genetically modified organisms, factory farming, risks of eating seafood, glacial melting, water quality in Flint, Michigan, or the aftermath of a natural disaster such as Hurricane Maria.

Write a summary of what the article is about, explain any scientific phenomena (i.e. definition of conservation or how a hurricane is formed), and address the role of humans in connection with the event. **Make sure to write in paragraphs and adhere to the form of a formal essay. Submit paper as a Google Doc. This paper counts for a 40-point test grade.**

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To explain the scientific concepts in the article, additional research is going to be



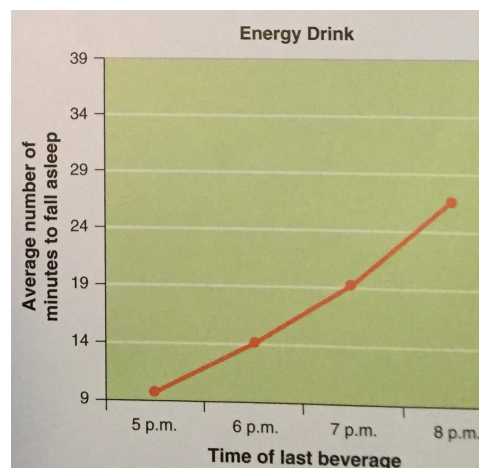
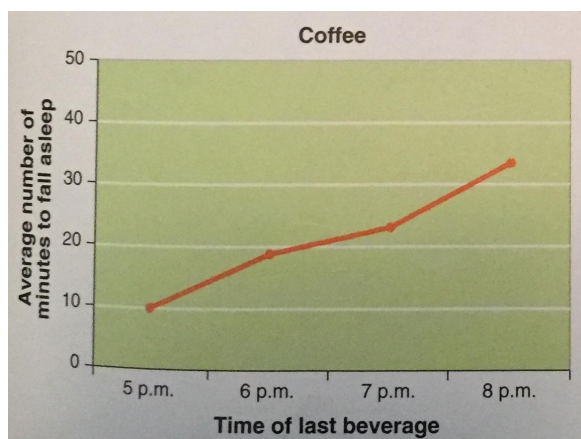
necessary. Students should use at least two additional resources, not including the primary document, wikis, or blogs. The paper should be at least two typed pages, double spaced, and Times New Roman 12pt font. Include a list of references at the end of the paper. Be sure to include a direct link, or hardcopy, of the main article you wrote about and citations for your additional resources.

### 3. Scientific method practice. Submit via Google Doc. 10-point homework

1. A company conducts an experiment to test whether their coffee or their energy drinks are more likely to keep people up at night. They have five male college students drink a cup of coffee at 5 p.m. one day, 6 p.m. the next day, 7 p.m. on the third day, and 8 p.m. on the fourth day. They have five other male college students do the same with energy drinks. Each night the researchers record how many minutes it takes for each student to fall asleep. With the results from their experiment, they produce the graphs shown below.

The researchers conclude that energy drinks are more likely to keep people up at night than coffee.

- Describe THREE problems with the company's experimental design. If you were designing a new experiment, how would you fix TWO of these problems? (5 points)
- Describe ONE problem with the company's graphs. Without repeating anything from part (a) provide at least TWO reasons supporting or opposing the position that these graphs show energy drinks keep people awake later than coffee. (3 points)
- During this study, the researchers do a survey of the students at the university and notice that students who report drinking more coffee also tend to have higher grades. Can any conclusions be drawn from this observation? Why? (2 points)



**Read and follow directions carefully. All parts of this assignment will be collected on the first day of class for grading.**

Enjoy your summer! See you in September.