

AP Environmental Science

Summer Assignment 2020-2021 @Belmont High School

Welcome to AP Environmental Science class. In this class, you will learn all about the various scientific concepts, principles, and methodologies of environmental science, the study of the natural world. This is a year-long class that will fulfill one-semester of an introductory college level environmental science or laboratory science course. We will be investigating a variety of topics from water pollution, air toxicity, soil and agriculture, global climate change, and energy resources. And, we will perform many laboratory experiments to help master these topics and develop scientific practices. Congratulations on enrolling in a rigorous program! You will not regret it!

For your summer assignment you will be completing the **6 activities** below.

WHY SUMMER WORK? In order to meet the demands of the curriculum it is necessary for you to complete some work before you come back in September.

Assignments 1,2,3: It's up to you which activities you complete, but you must complete **one activity from each column** for Assignments #1, #2, and #3. Click on the links in the table to learn more about each activity. All activities are due on the first day of school and can be submitted on google classroom.

Read It! Listen to It! Assignment #1	Watch It! Assignment #2	Do It! Assignment #3
<u>Nature's Best Hope</u> <u>by Douglas Tallamy</u>	<u>Scientists at Work</u> <u>On HHMI Biointeractive</u>	<u>Infographic!</u>
<u>The Serengeti Rules</u> <u>by Sean B. Carroll</u>	<u>Chasing Coral</u> <u>On Netflix</u>	<u>Vermicomposting!</u>
<u>The Sixth Extinction</u> <u>by Elizabeth Kolbert</u>	<u>Deepwater Horizon</u> <u>On Amazon Prime</u>	<u>PSA!</u>
<u>Current Events in Environmental Science</u>	<u>American Spring: Connections</u> <u>on PBS Nature</u>	<u>Scavenger Hunt!</u>
<u>Podcasts</u>	<u>The Boy Who Harnessed the Wind</u> <u>on Netflix</u>	<u>Seek App!</u>

Assignment #4

Graphing and Data Skills Practice Packet

The new A.P. Biology curriculum stresses the importance of being able to analyze and graph data. Go to the following website and watch the video and then answer the following questions. Please answer in complete sentences and be descriptive. You may need to use the internet to look up the answer to some of the questions. *Please write the question and the answer.*

<http://www.bozemanscience.com/beginners-guide-to-graphing-data>

4A: Questions to answer:

1. Why do we use graphs?
2. What are the 5 major types of graphs?
3. Did you get all the types of graphs correct on his quiz? If not, which one(s) did you get wrong?
4. How are graphs used by a scientist?
5. What is a line graph? What is it used for?
6. What is a scatter plot? When would we use a scatter plot?
7. What is an independent variable? Which axis is it on?
8. What is a dependent variable? Which axis is it on?
9. What is a bar graph? When would we use a bar graph?
10. What does an individual bar represent?
11. What is the definition of mean, median, and mode?
12. What is a histogram? When would we use a histogram?
13. What is a pie chart? When would we use a pie chart?
14. How can one set of data be placed in several different types of graphs?
15. What are the 5 important things that must be included on a graph? Please provide an explanation of each item or their significance to the graph.
16. On the example student graph he shows you, list at least 5 errors on the graph and explain how they can be corrected.

Next go to the following website, and as you watch the video answer the following questions.

<http://www.bozemanscience.com/graphing-data-by-hand>

4B: Questions to answer:

1. Explain why the independent variable is the fertilizer. (You may need to refer back to your definition of independent variable from the first video questions).
2. Explain why the dependent variable is the plant growth. (You may need to refer back to your definition of dependent variable from the first video questions).
3. Why did he decide to create a scatter plot graph?

4. Why did he place the fertilizer amount on the x-axis?
5. Why did he place the plant growth on the y-axis?
6. After placing the graph title and titles of the x-axis and y-axis on the graph, what is the next step?
7. Why does using the entire graph paper make the graph better and easier to read?
8. Why do you never extend your best fit line past your last data plot?

Assignment #5 : Math in APES

Do not use a calculator.

Calculators are not allowed on the AP Environmental Science exams.

Part A

Convert the following numbers into scientific notation:

1. 0.00002 _____
2. 100,000 _____
3. 1,000,000 _____

Convert the following written-word numbers into scientific notation:

4. One One-hundredth _____
5. Three Thousand and Four Hundred _____
6. One-hundred and Fifty Million _____

Convert the following numbers into standard notation:

7. 1.76×10^{-3} _____
8. 2.30×10^4 _____
9. 1.76×10^0 _____

Part B

1. A 100 square mile area of national forest is how many acres? how many hectares? *Circle* your final answers.
1 square mile = 640 acre
1 square mile = 259 hectare
2. Jen drives 120 miles round trip between Land O Lakes and Tomahawk daily. Her Suburban gets 11 miles to the gallon. Over the course of one week, five work days, how many gallons of fuel does she consume?
3. If each gallon of fuel generates 20 lbs of CO₂ how many pounds of CO₂ will Jen generate in one week of commuting between Land O Lakes and Tomahawk?
4. If Jen commutes to work 40 weeks each year what is the total annual amount of CO₂ she generates in a year?
5. If an average tree absorbs 50 lbs of CO₂/year how many trees will be required to offset Jen's annual carbon footprint.
6. Forest typically have 1,000 trees per hectare. If there are 200 million passenger cars in the US with Jen's carbon footprint. How many hectares are needed to offset this amount of carbon?

Assignment #6

Sign up on google classroom. **Class code: tv4vqzf**. It will be updated on June 22nd. Post an introduction about yourself in class comments. **tv4vqzf**

Assignments	Topic	
#1	Read the book _____ and completed the assignment.	
#2	Watched the movies _____ and completed the assignment.	
#3	Completed the _____ activity and completed the assignment.	
#4	Watched the video and answered the questions.	
#5	Completed all Math Problems.	
#6	Signed up for google classroom and posted on class comments.	

Have a wonderful summer and stay well.

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If you have any questions, please post on class comments on google classroom.