Welcome to AP Environmental Science!
The purpose of this summer assignment is to review skills that we will be using throughout the course and to preview content we will be learning this year. The assignment should be completed before the first day of the Fall 2022 semester. You will need to make a copy of this document for yourself:
https://docs.google.com/document/d/1p_X2ZmEn8ALwuu-cF52E1LbrKPuv62k0Xcii1HlG_Rg/edit?usp=sharing
Go to File → Make A Copy

Please feel free to email me with any questions you may have: hhedrick@bmhs.us

Looking forward to class next year! - Mrs. Hedrick

Part 1: Experimental Design
Answer the following questions using the following statement, your knowledge of experimental design and the graph below. Need a refresh on experimental design? Watch this video or this one.

A clam farmer has been keeping records concerning the water temperature and the number of clams developing from fertilized eggs. The data is recorded below.

Water Temperature in °C	Number of developing clams
15	75
20	90
25	120
30	140
35	75
40	40
45	15
50	0

a.) What is the dependent variable?

b.) What is the independent variable?

c.) What is the optimum (best) temperature for clam development?

d.) What is the average temperature in this experiment?

e.) What are some constants the scientists should consider?

Part 2: Watch the Write Like A Scholar Series

An important part of AP Environmental Science is being able to communicate your understanding of the content through writing. The AP exam has three free-response questions (FRQs) that count for 40% of your overall score. The following videos provide an introduction to get you on the path to writing successful FRQs.

Video 1: Write Like A Scholar Series: Annotating AP Environmental Science FRQs

Video 2: Write Like A Scholar Series: Writing AP Environmental Science FRQs

Video 3: Write Like A Scholar Series: Scoring AP Environmental Science FRQs

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Part 3: Math Skills (what this is a science class, why so much math?)

There are seven Science Practices that we will incorporate throughout the year, these are skills and a way to apply your content knowledge. You can check them all out here.

Practice 6 is Mathematical Routines: Apply quantitative methods to address environmental concepts.

6.A Determine an approach or method aligned with the problem to be solved.

6.B Apply appropriate mathematical relationships to solve a problem, with work shown (e.g., dimensional analysis).

6.C Calculate an accurate numeric answer with appropriate units.

Reminders

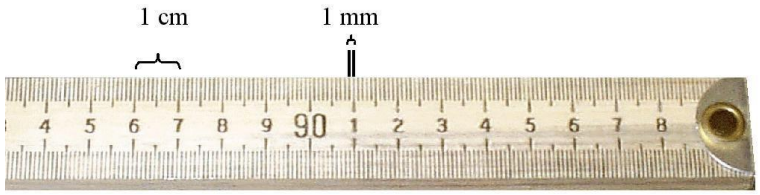
1. Write out all your work, even if it's something really simple. This is required on the AP ENVS exam so it will be required on all your assignments, labs, quizzes, and tests as well.
2. Include units in each step. Your answers always need units and it's easier to keep track of them if you write them in every step. No naked numbers!
3. Check your work. Go back through each step to make sure you didn't make any mistakes in your calculations. Also check to see if your answer makes sense. For example, a person probably will not eat 13 million pounds of meat in a year. If you get an answer that seems unlikely, it probably is. Go back and check your work.
4. You may use a calculator but will not be provided with a formula sheet.

Metric Units: YOU MUST MEMORIZE THE METRIC CONVERSION CHART

We usually see these units in class

Prefix	Symbol	Multiply Base Unit by	Example
tera	T	1,000,000,000,000	teragram = Tg = 10^{12} g
giga	G	1,000,000,000	gigaliter = GL = 10^{9}L
mega	M	1,000,000	megagram = Mg = 10^{6} g
kilo	k	1,000	kilogram = kg = 10^{3} g
hecto	h	100	hectogram = hm = 10^{2} m
deka	da	10	decagram = dag = 10 g
deci	d	1/10	deciliter = dL = 10^{-1} L
centi	c	1/100	centimeter = cm = 10^{-2} g
milli	m	1/1000	millimeter = mm = 10^{-3} m
micro	μ	1/1,000,000	microgram = μg = 10^{-6} g

Base Unit (g, m, W, L, etc.)



1. How many mm are in a centimeter?
2. How many centimeters are in a meter?
   (The prefix *centi-* means 100. How many cents (pennies) are in a dollar?) ___
3. The prefix milli- means a thousand. How many millimeters are in a meter?

Percent Change = $\frac{(\text{New} - \text{Original})}{\text{Original}} \times 100$

4. If you scored a 1090 on your first PSAT and 1210 on your second PSAT. What was your percent improvement?

5. If one termite can destroy 1.2mg of wood per day, how many kilograms of wood can 10 termites destroy in 1 week?

6. What is 70% of 640?

7. 400 kilograms = _____milligrams

8. 600 mm = _____ cm

9. 25 MW = _____ W

Write the following in scientific notation

10. 394 billion

11. 0.000070202

12. If I can run 6km in 24 minutes, how many cm can I run in 5 hours?

13. Fourteen percent of a 55,000 acre forest is destroyed by the invasive pine weevil. How many acres of the forest were not destroyed?

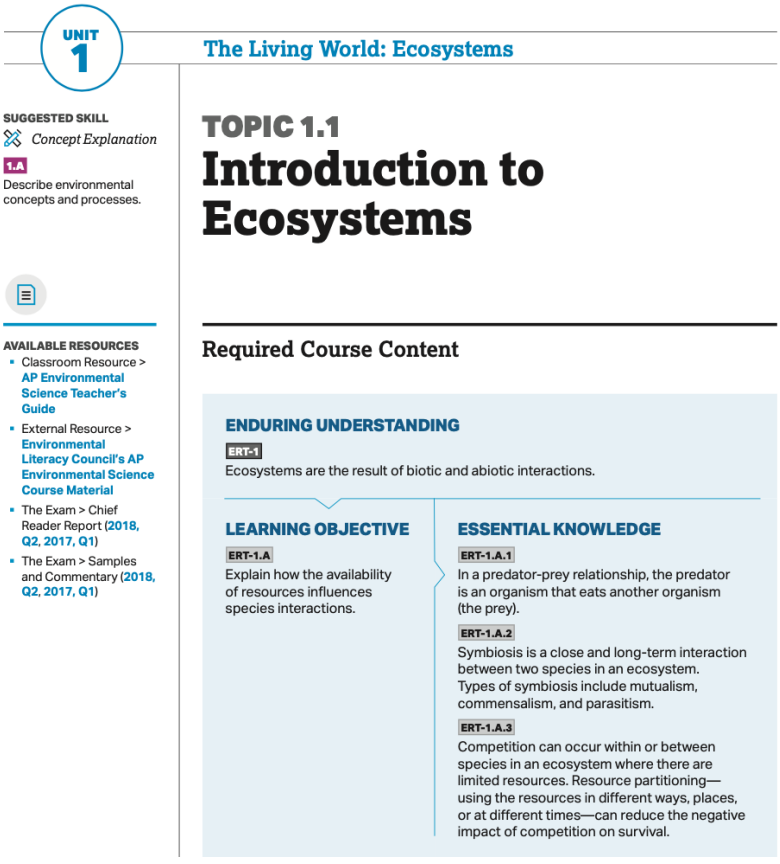
14. A pesticide was sprayed on a portion of a forest. The pesticide killed 25,000 termites. This is 71% of the local termite population. What is the total termite population?

Now that you've attempted all of these problems, review your answers here. (Try the problems before looking at the answers!!) You should be familiar with these math skills from previous math classes. If you struggled with the problems and are still confused after looking at the key that's okay! Everyone enters the course with different strengths and skill levels, if you're willing to put in the effort I am happy to work with you to help you succeed in the class.

Part 4: Photo Search Challenge

> Part of the interesting thing about this course is seeing how it fits into our everyday lives. There are nine units we will cover throughout the year, each unit is broken down into *Topics*. Every topic has *Learning Objectives*, which are further detailed by the *Essential Knowledge.*

Here is an example for a topic from Unit 1:



Your challenge is to take a picture that represents each unit. For each picture you will need to:

1. Identify the topic it represents
2. Identify the learning objective for the topic.
3. Explain how/why it represents that topic

Your work should be compiled into Google Slides. You may use this template here (clicking the link will force you to make a copy for yourself) or create your own.

The pictures must be your own. You will either need to show your face in the photo (selfie style) or include an identifying object (a piece of paper with your name, a small object like a toy car, etc).

All of the units, topics, and learning objectives can be found in the Course Exam Description (CED). Here is a copy of the CED in google docs. Before you begin taking pictures, browse through the CED to see what type of content you should be looking for.