

# AP Environmental Science Summer Assignment 2021-2022

Mr. Hernandez

[johernandez@https.us](mailto:johernandez@https.us)

## Summer Google Classroom Site

Each student is expected to join the summer AP Environmental Science classroom on Google classroom. The code to join is **nv5wzoe**. This site will contain many sources to complete the summer assignment including reference sheets, readings, and videos.

## Prerequisite Knowledge and Skills

AP Environmental Science is a college level course that combines content from earth science, biology, chemistry, physics, math, and social studies. You are expected to enter the course with a good understanding of basic scientific and mathematical concepts and skills, as well as strong reading, writing, and speaking abilities. The course will focus on seven science practice skills and four big ideas. They are as follows:

<b>Practice 1</b> <i>Concept Explanation</i> <b>1</b> Explain environmental concepts, processes, and models presented in written format.	<b>Practice 2</b> <i>Visual Representations</i> <b>2</b> Analyze visual representations of environmental concepts and processes.	<b>Practice 3</b> <i>Text Analysis</i> <b>3</b> Analyze sources of information about environmental issues	<b>Practice 4</b> <i>Scientific Experiments</i> <b>4</b> Analyze research studies that test environmental principles
<b>Practice 5</b> <i>Data Analysis</i> <b>5</b> Analyze and interpret quantitative data represented in tables, charts, and graphs	<b>Practice 6</b> <i>Mathematical Routines</i> <b>6</b> Apply quantitative methods to address environmental concepts	<b>Practice 7</b> <i>Environmental Solutions</i> <b>7</b> Propose and justify solutions to environmental problems	

### **BIG IDEA 1: ENERGY TRANSFER (ENG)**

Energy conversions underlie all ecological processes. Energy cannot be created; it must come from somewhere. As energy flows through systems, at each step, more of it becomes unusable.

### **BIG IDEA 2: INTERACTIONS BETWEEN EARTH SYSTEMS (ERT)**

The Earth is one interconnected system. Natural systems change over time and space. Biogeochemical systems vary in ability to recover from disturbances.

### **BIG IDEA 3: INTERACTIONS BETWEEN DIFFERENT SPECIES AND THE ENVIRONMENT (EIN)**

Humans alter natural systems and have had an impact on the environment for millions of years. Technology and population growth have enabled humans to increase both the rate and scale of their impact on the environment.

### **BIG IDEA 4: SUSTAINABILITY (STB)**

Human survival depends on developing practices that will achieve sustainable systems. A suitable combination of conservation and development is required. The management of resources is essential. Understanding the role of cultural, social, and economic factors is vital to the development of solutions.

Although we will continue to develop these skills throughout the school year, your success in the class is also dependent upon what you bring to it at the onset. One goal of this summer assignment is to help you brush up on any skills and concepts you have previously learned. Over the summer, review the scientific concepts below as well as the mathematical calculations on the next page; we will be building upon and referencing them throughout the school year. **You should be prepared to take an assessment on these skills and content on the second day of school. Continued enrollment in the course is contingent upon you scoring a minimum grade of 80% on that test.**

### **Task #1--Introduction to Environmental Science**

Read chapters 1 and 2 from the textbook. These chapters introduce the field of environmental science and provide a review of basic scientific concepts that you will need for the course. Complete the guided reading questions for each chapter and submit them prior to the first day of class.

- **Go to Google classroom and read the chapter 1 and 2 readings.**
- **Complete the guided reading questions as you read and submit them via Google Classroom before the first day of school.**

### **Task #2--Designing and Conducting Investigations**

The majority of the course, as well as the free response of the exam, will expect students to be able to identify the components of designing and conducting investigations. All students should have a working knowledge of the following parts of designing and conducting valid and reliable investigations: Hypothesis, controlled vs. non-experimental hypothesis test, independent and dependent variables, sample sizes, control and experimental groups, constants, data analysis, and validity in an experiment.

- **Go to the Google classroom site and examine the video for task 2.**
- **Read the article provided. Open the worksheet when you have finished both assignments.**
- **The worksheet should be completed and submitted via Google Classroom before the first day of school.**

### **Task #3--Math and Data Analysis Skills**

The AP Environmental Science exam will have some mathematical calculations in the multiple choice section, and the free response questions always involve mathematical calculations and data analysis. Even though you may use a calculator, a thorough knowledge of scientific notation, metric and English systems of measurement, basic computational skills, and dimensional analysis are essential to be successful. A mathematics reference sheet can be found on Google Classroom. Circle or highlight your final answer for each question.

- **Go to Google Classroom to access the worksheet.**
- **This assignment is to be completed on the worksheet provided or you may print out the worksheet. If you print, please take a picture of your responses or scan them and upload those documents to the Google Classroom assignment before the first day of class.**

### **Task #4--Field Experiences**

The goal of this part of the assignment is to experience some nature, start thinking about your role and interaction with the environment, and just have fun! There are a variety of possibilities that I hope you will find enjoyable. You should pick at least **TWO** different experiences to complete this assignment, and they must be from different categories. (You can't do two trips to the farmer's market for example!) Each experience needs to be documented separately, but can be completed on the same trip (camping overnight then going for a nature hike the next day for example). You should consider keeping electronics to a minimum during these experiences- consider leaving your phone at home and taking a good old fashioned camera with you, and don't listen to music but rather the sounds of nature. You can use experiences while on vacation, or close to home. Feel free to meet up with others in the class to do an experience together (but you each need to document the experience separately).

- **Go to Google Classroom to see the requirements and options for this activity.**
- **Upload your completed assignment to Google classroom before the first day of class.**