

AP ENVIRONMENTAL SCIENCE (APES)  
SUMMER WORK 2017

Congratulations! You signed up for APES 2017-18. Be prepared to learn about the many environmental issues that we face. You are also expected to be an independent learner, since there is a lot of material to cover. The more you prepare on the basics over the summer, the more information we can cover during the school year.

If you ever have any questions, you can send me a text using the Remind app. Text 81010 and send the message @4862c9. I will respond to your questions within 24 hours.

Below is a list of things to get you started:

Task 1:

- Read Chapter 4 From Chemistry to Energy of Life
  - Create Cornell Notes for the chapter
  - Answer the following questions in complete sentences:
1. What are the basic building blocks of matter? Provide examples using chemicals common in living organisms.
  2. Name four ways in which the chemical nature of the water molecule facilitates life.
  3. What are the three classes of biological polymer, and what are their functions?
  4. Describe the two major forms of energy, and give examples of each.
  5. State the first law of thermodynamics, and describe some of its implications.
  6. What is the second law of thermodynamics, and how might it affect our interactions with the environment?
  7. What are the two major sources of energy that power Earth's environmental systems?
  8. What substances are produced by photosynthesis? By cellular respiration? By chemosynthesis?
  9. Compare and contrast three competing hypotheses for the origin of life.
  10. Name three things scientists have learned from the fossil record.

Task 2:

- Read Chapter 5 Evolution, Biodiversity and Population Ecology
  - Create Cornell Notes for the chapter
  - Answer the following questions in complete sentences:
1. Explain the premises and logic that supports the concept of natural selection.
  2. How does allopatric speciation occur?
  3. Name two examples of evidence for natural selection.
  4. Name three organisms that have gone extinct, and give a probable reason for each extinction.

5. What is the difference between a species and a population? Between a population and a community?
6. Contrast the concepts of habitat and niche.
7. List and describe each of the five major population characteristics discussed in this chapter. Explain how each shapes population dynamics.
8. Could any species undergo exponential growth forever? Explain your answer.
9. Describe how limiting factors relate to carrying capacity.
10. Explain the difference between K-selected species and r-selected species. Can you think of examples of each that were not mentioned in the chapter?

Task 3: Watch one of the following documentaries and complete a documentary reflection sheet.

Task 4: Complete the APES Basic Math Skills