

To access all the links, go to Shorecrest Website→Resources→Registration→ “Summer Coursework and Information” and download this document

APES 2019-2020 Summer Homework

Welcome to APES! As an AP course, this class covers the environmental science content taught in **a year** of courses at a college. I have perused UW’s course catalog and it takes 2-3 introductory courses to cover the content we will cover in this class. As a result, the pace is quick and there is A LOT of ground to cover. We cover approximately a chapter a week and our class time is a combination of labs, activities, tests and lectures. Due to the limited hours in class and the volume of content, you will be responsible for reading and learning from the text. I have intentionally incorporated a chapter from your text for the summer homework. This is the book from which you will be learning. Please keep that in mind as you complete your work this summer. The chapter I have chosen is review. This is all content that was covered in IPS and biology or chemistry. If you are feeling overwhelmed with the review chapter, please consider how you will feel with new content.

That being said, the content we will cover is extremely interesting, current and **relevant**. I love teaching this course and find that it continually influences my life. I look forward to working with you next year.

All the best!!!

Ms. Tellefson

1. Chapter 2 from the textbook
 - a. **There will be a quiz the first week of school on this material.**
 - b. Take the quiz on *Socrative* using the link below. The teacher room code is : Tellefson.
<https://b.socrative.com/login/student/>
 - c. While you take the quiz use the table provided, on the back, to track your progress.
 - d. Use the table to guide your studies. I have provided the corresponding chapter and sections. I recommend you take notes (by hand) on the content you did not know and answer the matching review questions at the end of the chapter. ***Please keep in mind that I can see your answers. In other words, I know what you need to study.***
 - e. You can find the chapter on Shorecrest’s summer homework website.

2. Math Review
 - a. Attached below you will find math problems. Answer the questions/problems **BY HAND AND WITHOUT A CALCULATOR.** *
 - b. To earn full credit you must show **ALL OF YOUR WORK.**
 - c. The worksheet refers to an “Appendix C”. There is no appendix C. You will need to google or research any conversion. (ie how many gallons in a barrel of oil?)

*Calculators are not allowed on the APES test. If you cannot do the math on this sheet, you are starting at a disadvantage. That doesn’t mean you shouldn’t take the class, it just means that you have more work ahead of you. You will turn in the math the first week of school. Once I have assessed our abilities I will provide opportunities to help you improve.

Living in the Environment Ch 2-3 Quiz

Question #	Correct	Incorrect	Section to study in the textbook
<i>Example</i>		✓	Ch 1 Section 2
1			Ch 2 Section 1
2			Ch 2 Section 1
3			Ch 2 Section 1
4			Ch 2 Section 1
5			Ch 2 Section 1
6			Ch 2 Section 2
7			Ch 2 Section 2
8			Ch 2 Section 2
9			Ch 2 Section 2
10			Ch 2 Section 2
11			Ch 2 Section 2
12			Ch 2 Section 2
13			Ch 2 Section 2
14			Ch 2 Section 2
15			Ch 2 Section 2
16			Ch 2 Section 2
17			Ch 2 Section 2
18			Ch 2 Section 2
19			Ch 2 Section 2
20			Ch 2 Section 2
21			Ch 2 Section 2
22			Ch 2 Section 2
23			Ch 2 Section 2
24			Ch 2 Section 3
25			Ch 2 Section 3
26			Ch 2 Section 3
27			Ch 2 Section 4
28			Ch 2 Section 4
29			Ch 2 Section 4
30			Ch 2 Section 4
31			Ch 2 Section 4
32			Ch 2 Section 4
33			Ch 2 Section 4
34			Ch 2 Section 4
35			Ch 2 Section 4
36			Ch 2 Section 4
37			Ch 2 Section 4
38			Ch 2 Section 4
39			Ch 2 Section 4
40			Ch 2 Section 5

Question #	Correct	Incorrect	Section to study in the textbook
41			Ch 2 Section 5
42			Ch 2 Section 5
43			Ch 2 Section 5
44			Ch 2 Section 5
45			Ch 2 Section 5
46			Ch 2 Section 5

APES Mathematics Review

The APES Examination will require you to do mathematical calculations. Occasionally these calculations may be somewhat esoteric, and you may find it possible to do them in your head; nonetheless, it is mandatory to show all work for all calculations on the free-response section of the APES exam. This worksheet is designed help to prepare you for the type of calculations you may encounter on this year's APES exam.

Use a separate piece of paper, and for each problem, show every step of your work, and indicate the cancellation of all units...No Calculators!!

Scientific Notation—All APES students should be able to work comfortably with numbers in scientific notation.

➤ Place the following numbers into scientific notation.

1. one billion
2. twenty three thousand
3. 70 trillion
4. three hundred

➤ Do the following calculations in scientific notation.

5. five hundred billion times thirty five thousand
6. six thousand divided by 300 billion
7. one ten thousandth of three million
8. 6 billion divided by 35 trillion

Unit conversions—All APES students should be able to convert from one system of units to another.

➤ Use Appendix C to complete the following. Show all of your work including the canceling of all units.

9. A 100 square mile area of national forest is how many acres? how many hectares?
10. A city that uses ten billion BTUs of energy each month is using how many kilowatt-hours of energy?
11. Fifty eight thousand kilograms of solid waste is equivalent to how many metric tons?
12. If one barrel of crude oil provides six million BTUs of energy, how many BTUs of energy will one liter of crude oil provide? How many calories of energy will one gallon of crude oil provide?
13. For crude oil, if 150 pounds of CO₂ is released per million BTUs of energy, how much CO₂ is produced by each barrel of crude oil? (use information from the previous problem)

Percentages—All APES students should be able to work comfortably with percentages.

14. A natural gas power plant is 60% efficient. If one cubic meter of natural gas provides 1000 BTUs of electricity. How many BTUs of waste heat were produced?
15. If 35% of a natural area is to be developed, leaving 500 acres untouched, how many acres are to be developed?
16. Calculate the percentage growth rate for a country with a population of 6 million: in a year in which it had 100,000 births, 70,000 deaths, 30,000 immigrants, and 50,000 emigrants.
17. If the concentration of mercury in a water supply changes from 65 ppm to 7 ppm in a ten-year period, what is the percentage change of the mercury concentration?

Energy—The APES exam always has questions about energy use. Be prepared!

➤ One BTU is the energy required to raise the temperature of one pound of water by one degree Fahrenheit.
➤ The density of water is 1 gram/milliliter or approximately 8 pounds/gallon (U.S.).

18. How much energy is required to raise the temperature of one thousand gallons of water by 25°F?
19. By how many degrees Fahrenheit can the temperature of one metric ton of water be raised with the addition of 110 thousand BTUs of heat?
20. If 500 thousand BTUs of energy are available to raise the temperature of a water boiler from 20°F to 100°F, how many gallons of water can be added to the boiler?