

AP Environmental Science Summer Assignments

Assignment 1

Sign On to Google Classroom

Class Code: 6rumzf

Register and Respond to first discussion topic by August 15th.

Check back periodically

Assignment 2

Register For Online Textbook Access

To: <https://registration.mypearson.com/#>

Course ID: APESBLODNIK

Create Account (You will need an email address)

Explore Resources

Assignment 3

Take the practice test. Time yourself and give it an honest try. Please see Mr. Blodnik to receive a hard copy of practice exam. This copy must be returned along with answers to multiple choice and free response questions. (3 hours- 90 minutes for 100 multiple choices, 90 minutes for 4 free response questions)

Assignment 4

Complete APES Math Review (see attachment) Don't use a calculator!

Assignment 5

Read and Take Notes Ch. 1 and 2 pages 2-48

#1-15 pg. 21, and #1-17 pg. 47

Assignment 6

Prepare for Test on Chapters 1 and 2, Friday September 7th 2018

Assignment 7

Get outside! Make an effort to go enjoy a natural area. This can be a park, forest, river, lake, or any other space to enjoy. Go with friends or family and take pictures! Please consider some remarks to share about your experience on the first day of school.

Research demonstrates the significance of "nature experience for environmental knowledge, values, and action (Susanne Bögeholz, 2006)." I hope your own adventure to explore your environment will motivate you during the challenging year ahead. Over the summer months, I hope you will find a passion and appreciation for the science of organisms and their interactions with their environment. Rest well and good luck in the year ahead!

APES Math Review

(From Pendleton, 2012 <https://www.smusd.org/cms/lib/CA01000805/.../APES%20Math%20review%202.doc>)

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. No Calculators!!*

- | | |
|----------------|--------------------------|
| 1) one billion | 2) twenty-three thousand |
| 3) 70 trillion | 4) three hundred |
| 5) 0.00025 | 6) 7,310,000 |

Perform the following calculations in scientific notation. No Calculators!!

7) five hundred billion times thirty-five thousand

8) six thousand divided by 300 billion

9) $\frac{3.4 \times 10^{-2}}{1.7 \times 10^{-5}}$

10) $\frac{1.0 \times 10^5}{2.0 \times 10^3}$

11) $(3.5 \times 10^{-3})(2.0 \times 10^{-5})$

12) $(1.11 \times 10^{-5})(6.0 \times 10^9)$

Metric Conversions—All APES students should be comfortable converting between common metric prefixes. Below are common prefixes, and the number of base units each represents. For example, 1 teraWatt = 10^9 Watts; 1 millimeter = 10^{-3} meters

$$n = \text{nano} = 10^{-9}$$

$$k = \text{kilo} = 10^3$$

$$G = \text{Giga} = 10^{12}$$

$$\mu = \text{micro} = 10^{-6}$$

$$M = \text{mega} = 10^6$$

$$m = \text{milli} = 10^{-3}$$

$$T = \text{Tera} = 10^9$$

13) 2.8 mm = _____ m

14) 1.3 nm = _____ μm

15) 300 mg = _____ g

16) 12 μg = _____ ng

17) 250 mL = _____ L

18) 400 GW = _____ W

19) 5×10^4 kg = _____ Mg

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

Use the information below to complete the following. Show all of your work including the canceling of all units. **No Calculators!!**

$$1 \text{ mi}^2 = 640 \text{ acres}$$

$$1 \text{ acre} = 0.405 \text{ hectares}$$

$$1 \text{ barrel oil} = 42 \text{ gallons}$$

$$1 \text{ L} = 0.264 \text{ gallons}$$

$$1 \text{ kilowatt-hour} = 3.4 \times 10^4 \text{ BTU} = 8.6 \times 10^5 \text{ calories}$$

$$1 \text{ metric ton (tonne)} = 1 \times 10^3 \text{ kg}$$

12) A 100 square mile area of national forest is how many acres? how many hectares?

21) A city that uses ten billion BTUs of energy each month is using how many kilowatt-hours of energy?

22) Fifty eight thousand kilograms of solid waste is equivalent to how many metric tons?

- 23). 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?
- 24) 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.

$$\%Change = \frac{Final - Initial}{Initial} \times 100$$

- 25) 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.
- 26) If the concentration of mercury in a water supply changes from 65 parts per million (ppm) to 7 ppm in a ten-year period, what is the percentage change of the mercury concentration? How much per year?
- 27) 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?
- 28) If 35% of a natural area is to be developed, leaving 500 acres untouched, how many acres are to be developed?
- 29) How many gallons are in 15 L of gasoline? What would that cost in 1987, when gas was \$0.89/gal? In 2012, when gas is \$3.60/gal?
- 30) What is the percent change in gasoline prices from 1987 to now?