AP Environmental Science (APES) Summer Work

You may be aware that this course has an extensive syllabus and is more interdisciplinary than most other science courses you have taken. We will be incorporating aspects of Earth Science, Biology, Chemistry, Physics, Economics, Government, and more. It is important that you come to class in August with a basis from which to begin the year. Below you will find your work for the summer. You will be expected to bring this to class on the **first day** of school and it will be graded.

Part 1: Movie Assignment

1. You are to watch a movie selected from the list below.
2. From this movie, you are to write a report (2-4 pages) that addresses the following aspects. Be sure that your report is in paragraph format and not submitted as a list of questions and answers.

    a. What was the environmental situation addressed in the book or movie?
    b. Was this situation natural or man-made?
    c. Exactly how did this situation occur (what is the cause)?
    d. What were the positive and/or negative effects of this situation? (Any legislation created is a positive effect)
    e. How was this situation fixed – if at all?
    f. Was anyone held responsible for this situation?
    g. How was fault determined?
    h. What consequences did they face – if any?
    i. What were the long-term ecological impacts of this event – if any?
    j. What did you already know about this situation before this project?
    k. What is the most interesting thing(s) you learned by doing this project?

Movie Suggestions:

- An Inconvenient Truth (PG)
- Blue Vinyl (NR)
- Erin Brockovich (R)
- Fern Gully (G)
- Fire Down Below (R)
- Gorillas in the Mist (PG-13)
- Happy Feet (PG)
- Ice Age (PG)
- Ice Age: The Meltdown (PG)
- Outbreak (R)
- Pelican Brief (PG-13)
- Recycled Life (NR)
- The China Syndrome (PG)
- Wall-E (G)
- Contagion(PG-13)
- Avatar (PG-13)
- The Day After Tomorrow (PG-13)
- The Perfect Storm (PG-13)
- Promised Land (R)

Part 2: Summer Math Review:

The following problems represent some of the basic math skills that are required to be successful in AP Environmental Science. Use this sheet over the summer to review. There will be a math quiz the first week of school. **NO CALCULATORS!! SHOW ALL OF YOUR WORK!!**

Put the following numbers into scientific notation.

1) 0.00003 = _____
2) 170,000 = _____
3) 0.005 = _____
4) 376 = _____
5) 4160 = _____

Write the following numbers in standard notation (convert from scientific)

6) 3×10^{7} = _____
7) 5.6×10^{3} = _____
8) 8.2×10^{8} = _____
9) 7×10^{1} = _____
10) 2.1×10^{0} = _____
11) 3.4×10^{-2} = _____
12) 5.1×10^{-1} = _____
13) 4.7×10^{-4} = _____
14) 6×10^{-9} = _____

Solve the following

15) $10^{2} \times 10^{5}$ = _____
16) $10^{1} \times 10^{2}$ = _____
17) $10^{2} \times 10^{-5}$ = _____
18) $10^{-1} \times 10^{7}$ = _____
19) $10^{-3} \times 10^{-3}$ = _____
20) $10^{-4} \times 10^{-2}$ = _____
21) $10^{4} / 10^{5}$ = _____
22) $10^{1} / 10^{3}$ = _____
23) $10^{2} / 10^{-3}$ = _____
24) $10^{-6} / 10^{-4}$ = _____
25) $10^{-2} / 10^{-6}$ = _____

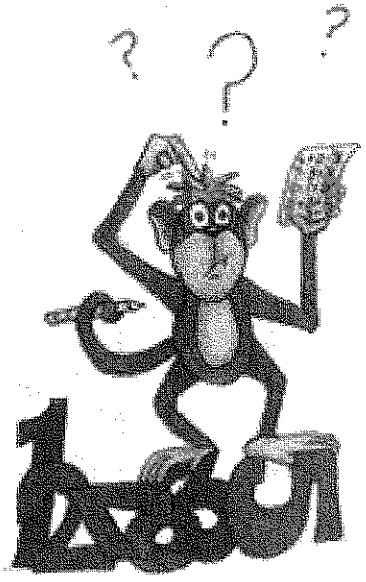
Solve the following using scientific notation

26) 0.004 X 0.006=

27) 0.025 X 0.004=

28) 0.00005 X 0.000007=

29) 26,000 X 1,000=



30) 237 X 1,000,000=

31) 320,000,000 X 0.0005=

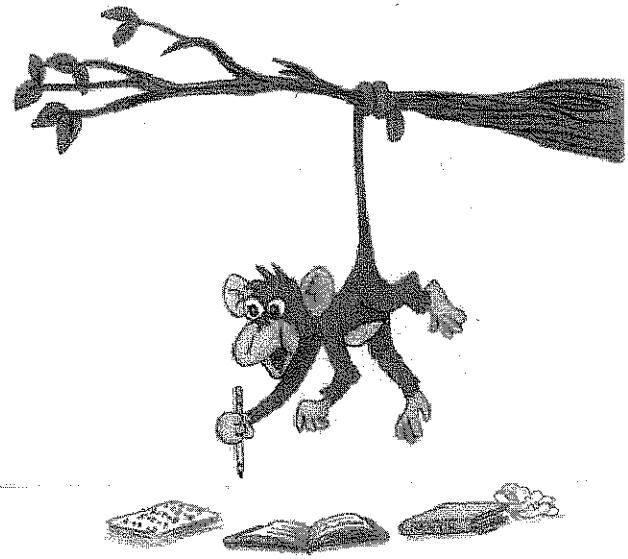
32) 0.003 X 4,000=

33) 2,000 / 13,000=

34) 25/ 0.0015=

35) 200/ 1,000,000=

36) 0.001/ .00001=



Percentages

37) 10 is what percent of 1,000?

38) What is 25% of 2,500?

39) What is 30% of 3,000,000?

40) 25 is what percent of 4,000?

41) You start with 100 units and end with 150 units, what is the percentage increase?

42) You start with 100 units and end with 50 units, what is the percentage decrease?

43) You start with 25 units. How many units would you have after a 400% increase?

44) You start with 200 units. How many units would you have after a 75% decrease?

45) You use 1,000 kilowatts of power. You increase your usage by 40%. How many total kilowatts are you using?

46) Your old microwave used 2 kilowatts an hour. Your new microwave uses 1.5 kilowatts an hour. What is your percent energy savings?

47) A light bulb uses 100 watts of power. 95 watts are wasted as heat. What percentage of energy is used to light the bulb?

48) A fluorescent bulb uses 24 watts and gives off the same amount of light as a 100 watt regular bulb. What is the percentage in energy savings by switching to a fluorescent bulb?

49) A population starts the year with 1,000 residents. By the end of the year, 100 new babies were born. What is the percent increase for this population?

50) You dissolve 5 grams of salt into 95 grams of water. What is your percent salt solution?

Dimensional Analysis
Set up and solve the following equations using all units and showing all work. Conversion factors are included. Use scientific notation when appropriate.

51) There are 2.2 pounds in 1 kilogram. How many pounds in 140 kilograms?

52) There are 2.53 centimeters in one inch. How many centimeters are in 32 inches?

53) There are 36 inches in one yard, how many centimeters are in two yards?

54) There are 100 centimeters in 1 meter. How many yards are in one meter?

55) Given 1000 watts in 1 kilowatt, how many watts are in 2.4 kilowatts?

56) 1 megawatt is 10^6 watts. How many kilowatts are there in one megawatt?

57) There are 1,000 grams in one kilogram, and 1,000 micrograms in one gram. How many micrograms are in 2,500 kilograms?

58) You have 24 light bulbs, each using 100 watts an hour. How many watts will be used in 120 hours?

59) 1,000 homes are in a city. Each home uses 200 kilowatt hours a month. How many kilowatt hours does the entire city use in a month?

Have a wonderful summer and get excited for an excellent year!!!