

This summer assignment will help you get ready for AP Environmental Science in a few ways. First, you must review some of the basic material you have previously learned so that we can spend class time on information that is new to you. Second, it will give you an idea of the amount of time and independent work it takes to be successful in the class. Third, it will give you a jumpstart to knowing some of the chemistry basics for this course. You may email me with questions at jtargett@eustace.org. I look forward to meeting you in the fall. You do not need your APES textbook for this summer assignment. **Good luck!**

Class Info: Purchase textbook via Follett or other website. The textbook is Living In the Environment, 20th edition, by G. Tyler Miller and Scott Spoolman (2021). In addition, one may choose to rent the textbook. No lab manual to purchase; no workbook to purchase. Three- to five-subject notebook with lined paper AND 2-pocket folder to be purchased.

I. Review your basic chemistry - use any source that you like (old notes, books, websites, etc.). Expect a quiz on these topics during the first cycle. Know these terms/concepts:

Atomic structure

Atomic number, mass number
Isotopes, radioisotopes, half-life
pH and pH scale

Covalent vs. ionic bonds

Chemical formulas
Compounds, molecules, ions
Acids and bases

II. Learn the names and symbols of important ions, molecules, and elements. Here are lists on which you will be tested, during the first week of classes. Yes, spelling counts. No, the electrical charges do not need to be learned.

Polyatomic Ions:

NH ₄	ammonium ion (+1 charge)	CO ₃	carbonate ion (-2 charge)
NO ₂	nitrite ion (-2 charge)	PO ₄	phosphate ion (-3 charge)
NO ₃	nitrate ion (-3 charge)	SO ₃	sulfite ion (-2 charge)
OH	hydroxide ion (-1 charge)	SO ₄	sulfate ion (-2 charge)

Compounds/Molecules:

H ₂	hydrogen gas	O ₂	oxygen gas
N ₂	nitrogen gas	O ₃	ozone
CO	carbon monoxide	H ₂ S	hydrogen sulfide
CO ₂	carbon dioxide	NH ₃	ammonia
NO ₂	nitrogen dioxide	SO ₂	sulfur dioxide
N ₂ O	nitrous oxide	SO ₃	sulfur trioxide
HNO ₃	nitric acid	CH ₄	methane
H ₂ SO ₄	sulfuric acid	C ₆ H ₁₂ O ₆	glucose

Element Names and Symbols to Know for APES:

Aluminum – Al

Helium -- He

Platinum -- Pt

Arsenic – As

Hydrogen – H

Plutonium -- Pu

Barium – Ba

Iodine – I

Polonium -- Po

Beryllium – Be

Iron – Fe

Potassium -- K

Bromine – Br

Krypton – Kr

Radon – Rn

Cadmium – Cd

Lead – Pb

Selenium -- Se

Calcium – Ca

Magnesium – Mg

Silicon -- Si

Carbon -- C

Mercury – Hg

Silver -- Ag

Chlorine – Cl

Neptunium – Np

Sodium -- Na

Chromium – Cr

Nickel – Ni

Sulfur -- S

Cobalt – Co

Nitrogen – N

Tin -- Sn

Copper – Cu

Oxygen – O

Titanium -- Ti

Fluorine -- F

Phosphorus – P

Uranium -- U

Gold – Au

Phosphorus – P

Vanadium -- V

Zinc -- Zn

III. Chemical Formulas Practice Worksheet. You should be able to total atoms in a chemical formula. Also, you should know how to work with coefficients, subscripts, and parentheses in a chemical formula. Below is a compilation of eight chemical formulas to practice.

Worksheet: Counting Atoms

A) Count the number of atoms of EACH ELEMENT in the substances below.

B) Count the TOTAL NUMBER OF ATOMS in each substance below.



Answers for Part B

1) 15 total atoms

2) 18 total atoms

3) 56 total atoms

4) 35 total atoms

5) 84 total atoms

6) 45 total atoms

7) 25 total atoms

8) 38 total atoms

IV. Maps

Learn the names and locations of countries in Asia. *Some of you might be thinking.....*

why study Asia?? Asia is both the largest continent and the most populated continent in the world. It contains 30% of the entire land area on Earth. Approximately 60% of the world's population lives in Asia. In addition, six of the top ten most populated countries are located in Asia.

Study the map of Asia from the website www.ilike2learn.com On this website, there are interactive map quizzes on this website, as well as printable copies. **There will be a map quiz on Asia in early September.** There will be a word bank with the names of the countries, so do not be concerned with the correct spelling for each country.

Expect additional map quizzes on Europe and South America in September. Use the www.ilike2learn.com website to study.