Student Name: _____

AP Chemistry
Summer Work Packet

WELCOME to AP chemistry! The AP curriculum includes all of the topics and the labs that we need to complete before the 2019 AP test. All of you will find AP chemistry to be challenging and some of you will find it to be down-right hard. There is a lot to cover and while we can do it we will all need to work very hard. You should expect this class to be SIGNIFICANTLY more difficult than your first chemistry class. This means that we cannot slow down if you don't understand a topic. You need to make sure that you are staying up with all assignments, and coming in for help if you need extra help.

One stereotype of chemists is that they lead uninteresting lives hidden in a laboratory. In reality, chemistry can lead to very interesting and exciting careers in research, medicine, engineering, law, etc. Here are a few examples of famous chemists who do not fit the stereotype:

Chaim Wieizmann – First President of Israel
Knute Rockne – legendary football coach of Notre Dame
Mario Molina – co-discovered that fluorocarbons could destroy the earth's ozone layer
Marye Anne Fox – former chancellor of UCSD
Samuel Massie Jr. - the first African-American professor at the U.S. Naval Academy
Linus Pauling – winner of the Nobel Prize in both Chemistry AND Peace.

Dream about the day when your name might be added to this kind of list!

A hallmark of AP chemistry is the opportunity to perform chemistry experiments. You will have lots of hands on laboratory experience with chemicals, glassware, and instruments which will allow you to experience the theoretical concepts of the discipline. Most students find that being in the lab and "doing" things is the most exciting part of the course.

All students taking AP science courses are required to complete a review packet prior to the start of the course. Each course's packet is designed to help the student review material that was learned in prerequisite science classes. The material is necessary for the student to successfully begin the AP course that he/she has chosen. A pretest will be administered the first day of class to assess the students' knowledge of the science concepts covered in the packet. This pretest will not be reflected on the marking period grade, however the work done in the summer packet will be graded.

The teacher will personally consult with the parent/student to discuss their future in the class if:

1. the student does not show adequate knowledge of the subject material covered on the pretest.
2. the student does not complete the summer work packet by the first day of class.
3. the student does not hand in the summer work packet on the first day of class.

AP Chemistry will be taught with the assumption that all students are taking the AP exam in the spring. Although some students may not take the test due to circumstances that can be discussed at a later time.

If you have any questions, please e-mail either Mr. Dellamorte at: adellamo@psd202.org

We need to use our class time effectively so the goal of this summer packet is that you will have reviewed much of the material from your first chemistry class. We will not just review material from before.

This assignment should be completed and ready to turn in by the FIRST day of class.

We will have take-home work over all academic year breaks (fall, Thanksgiving, winter, and spring) this will be to cover and review material without wasting class time.

WHY DO **WE** HAVE TO DO SUMMER WORK?

- It is a review of basic content covered in chemistry I, which you may not have seen for over a year.
- It provides the necessary fundamentals you will need to be successful in AP chemistry. To not do the summer assignment or to do it poorly is to seriously endanger your prospects of being successful in AP chemistry.
- There will not be enough time before the AP exam to cover the necessary content without this head start.

Students are encouraged to work together to complete the summer assignment. THAT DOES NOT MEAN COPY! You should spread the out the following assignments over several weeks. Do not try to cram them in towards the end of the summer or you will get stressed out before school starts.

AP Chemistry First Day Test – will consist of the following areas, be cool = be prepared!

1) polyatomic ions (including name, symbol, and charge)
2) Variable charges for transition metals
3) Naming Acids
4) Naming Ionic Compounds
5) Naming Covalent Compounds

SO WHAT IS THE SUMMER WORK? All work should be done neatly and clearly on paper and organized in the order it was assigned. All work for every problem including units throughout is necessary for AP. This is an expectation on the AP exam in the spring and we want to get into the good habit early

____ Part 1 – Why are you taking this course?

- A short concise paragraph answering the following questions (1) Why are you taking this course? And (2) What do you hope/expect to get out of the course?

____ Part 2 - Memorize Charges of Common Ions

- If you know me or had me before you know I am not a big memorization person however this is a vital part of AP chemistry. They will not give you an ion chart so it is essential that you have this done prior to school beginning. I suggest flash cards and lots of practice.

____ Part 3 – Read, Outline, and Review Pages in Book

– *You must outline each chapter, marking areas that you are unfamiliar with or feel you might struggle with so you know what to come back to and study.*

GET USED TO READING! This is ABSOLUTELY necessary for AP Chemistry!
Success in chemistry is directly related to problem solving. The more problems you do, the more you will learn! *You are encouraged to set up a study group!*

College level work requires reading material written in academic language. It takes consistent practice to adapt to this (just as it takes practice to become used to Shakespearean English). It might be helpful to preview the some concept by using a simple, easy to read text such as The Cartoon Guide to Chemistry (Gonick & Criddle) or even Chemistry for Dummies (Moore). Look in the library, or check Amazon (used books, of course).

- Read chapters 1-3 in your textbook (Zumdahl and Zumdahl).
  Use the questions and exercises to check yourself as you read.
- Complete the following problem sets. This material should be largely review; refer to your textbook as needed.

Answers to certain problems can be found in the back of the textbook. Some problems are more challenging, but they are all solvable.

- Chapter 1: Matter and Measurement
    - Everything in this chapter is basic but important. You may skim through if you find it easy. Learn all of table 1.4 (S.I. Base units) except Luminous intensity, and table 1.5.
    - Make sure you know the names of the common devices in figure 1.20 on page 17.
    - Pay particular attention to rules for significant figures.

Chapter 1 problems

Required text problems (pg 32) 29 - 81 odd

- Chapter 2: Atoms, Molecules, and Ions
    - Simple review. All sections are important.

Chapter 2 problems

i. Required text problems: 31-37, 41, 47-79, 59,65,67,69,107,109 only odd problems

Chapter 3 problems

i. Required text problems: (pg 119) 33,37,41,45-49,53,59,63,67,73,81,87,89,93,97,99,171 only odd problems

____ Part 4 – Read through the various handouts regarding work ethic and requirements at the end of this packet!!

____ Part 5 – LAST PART – Come to school in August with your COMPLETED Summer packet (See Parts 1-3 & the nomenclature worksheet at the end of this packet.)

Sample of a chapter outline:

AP Chemistry

Chapter 1 Outline

a) The Study of Chemistry
   i) Matter: the physical material of the universe; has mass and occupies space
   ii) Property: any characteristic that allows us to recognize a particular type of matter and to distinguish it from other types
   iii) Element: basic substance of matter; about 100 different types; can't be broken down into simpler substances
   iv) Atom: tiny building blocks of matter; each element has its own kind of atom (1) Composition: summary of the kinds atoms in a particular type of matter (2) Structure: the arrangement of the atoms in a particular type of matter
   v) Molecules: two or more atoms joined in specific arrangements/shapes
   vi) Goal of chemistry: explaining macroscopic behaviors using submicroscopic descriptions

   MOST IMPORTANT POINT TO ME FROM THIS SECTION_____

   _____

b) <u>Classifications of matter</u>
   i) Physical State, aka states of matter
      (a) Gas
      (b) Liquid
      (c) Solid
   ii) Pure substance: matter that has distinct properties, uniform composition from sample to sample
      (1) Elements: contain only 1 type of atom
         (a) 116 known elements
         (b) Chemical symbols arranged in periodic table
      (2) Compounds: contain 2 or more kinds of atoms, but only 1 kind of molecule; (a) Can be decomposed into simpler substances by chemical means
         (b) Have different properties from their constituent elements
         (c) Law of Definite Proportions (aka constant composition)—**Joseph Proust** (~1800)—the elemental composition of a pure substance is always the same iii)

   Mixtures: combinations of 2 or more substances in which each substance retains its chemical identity
      (a) May be heterogeneous: composition, properties and appearance vary throughout
      (b) May be homogeneous: uniform throughout; also known as solutions

   MOST IMPORTANT POINT TO ME FROM THIS SECTION_____

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c) Properties of Matter
   i) Every substance has a unique set of properties.
   ii) Physical properties: can be measured without changing identity or composition of substance

(a) Color, odor, density, melting point, hardness, etc.

iii) Chemical properties: describe the way a substance may change (react) to form other substances

iv) Intensive properties: do not depend on amount of substance

(1) Temperature, melting point, density

(2) Can be used to identify substances

v) Extensive properties: depend on the quantity/amount of substance

(1) Mass, volume

vi) Physical changes: physical appearance of substance changes, but not its composition

(1) Changes of state

vii) Chemical changes (aka chemical reactions): substance transformed into a chemically different substance

viii) Separation of mixtures by taking advantage of the different properties of the components

(1) Filtration: separation of a solid from a liquid by passing it over a porous medium (filter paper

(2) Distillation: separation based on different boiling points of substances

(3) Chromatography: separation based on different abilities of substances to adhere to the surfaces of various solids

MOST IMPORTANT POINT TO ME FROM THIS SECTION_____

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d) Units of Measurement

i) Quantitative Measurements: associated with numbers ii)

SI units:

Physical Quantity	Name of Unit	Abbreviation
Mass	Kilogram	Kg
Length	Meter	M
Time	Second	s (or sec)
Temperature	Kelvin	K
Amount of substance	Mole	Mol
Electric current	Ampere	A
Luminous intensity	Candela	cd

(1) Prefixes: See Table 1.5 for the complete list. These are **especially important conversions: 10^{6} μg = 10^{3} mg = 1 g = 10^{-3} kg**

(2) $K = {}^{o}C + 273.15$

(3) ${}^{o}C = \frac{5}{9}({}^{o}F - 32)$ *OR* ${}^{o}F = \frac{9}{5}({}^{o}C) + 32)$

(4) Absolute zero: lowest possible temperature
(5) Common non-SI volume units: mL, cm^3, L, dm^3
(a) Common devices to measure volume: syringes, burets, pipets, graduated cylinders, volumetric flask
(b) density = mass/volume

a) Densities are temperature dependent; therefore, temperature should be specified when reporting density of a substance

MOST IMPORTANT POINT TO ME FROM THIS SECTION_____

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e) Uncertainty in measurement
i) Exact numbers: defined values (in conversion factors) or counted
ii) Inexact numbers: numbers obtained by measurement; inexact due to equipment errors or human errors
iii) Uncertainty always exists for measured quantities.
iv) Precision: measure of how closely individual measurements agree with each other
v) Accuracy: how closely individual measurements agree with correct value
vi) **Significant figures**: Measured quantities are generally reported in such a way that only the last digit is uncertain.
vii) All digits of a measured quantity are significant figures.
(1) ± notation: one way to express uncertainty, but often not shown (however, it may become relevant in error analysis)
(2) Counted values have infinite significant figures
(3) **Significant Figure Rules**:
(a) All non-zero digits are significant.
(b) Captive zeroes are significant.
(c) Leading zeroes are never significant.
(d) Trailing zeroes are significant only if the number contains a decimal.
(e) In scientific notation, all digits before the exponential term are significant.
(f) When performing calculations using measured quantities, the least certain measurement limits the certainty of the calculate quantity.
(i) When adding and subtracting, round based on fewest decimal places.
(ii) When multiplying and dividing, round based on fewest significant figures.

MOST IMPORTANT POINT TO ME FROM THIS SECTION_____

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f) Dimensional Analysis
i. Use of "conversion factors" with accompanying units to aid in problem solving
1. Ratios, often considered to have infinite significant figures

$$? \text{ s} = 2.0 \text{ yr} \times \frac{365 \text{ days}}{1 \text{ yr}} \times \frac{24 \text{ hr}}{1 \text{ day}} \times \frac{60 \text{ min}}{1 \text{ hr}} \times \frac{60 \text{ s}}{1 \text{ min}}$$
$$= 6.3 \times 10^7 \text{ s (to 2 significant figures)}$$

AP Required Memorization – Charges of Ions

POSITIVE IONS: - periodic table connections

+1		+2		+3		+4		+5	
Group 1		Group 2		Group 13		Group 14		Group 15	
Alkali		Alkaline Earth		Boron		Carbon		Nitrogen	
Li^{+1}	Lithium	Be^{+2}	Beryllium	Al^{+3}	Aluminum	Si^{+4}	Silicon(IV)	As^{+5}	Arsenic (V)
Na^{+1}	Sodium	Mg^{+2}	Magnesium	Ga^{+3}	Gallium	Ge^{+4}	Germanium(IV)	Bi^{+5}	Bismuth(V)
K^{+1}	Potassium	Ca^{+2}	Calcium						
Rb^{+1}	Rubidium	Sr^{+2}	Strontium						
Cs^{+1}	Cesium	Ba^{+2}	Barium						
Fr^{+1}	Francium	Ra^{+2}	Radium						

NEGATIVE IONS: - periodic table connections

-4		-3		-2		-1	
Group 14		Group 15		Group 16		Group 17	
Carbon		Nitrogen		Oxygen		Halogens	
C^{-4}	Carbide	N^{-3}	Nitride	O^{-2}	Oxide	F^{-1}	Fluoride
		P^{-3}	Phosphide	S^{-2}	Sulfide	Cl^{-1}	Chloride
				Se^{-2}	Selenide	Br^{-1}	Bromide
						I^{-1}	Iodide

VARIABLE CHARGES/TRANSITION METALS:

Hydrogen	+1 or -1	Chromium (II) or (III)	+2 or +3
Iron (II) or (III)	+2 or +3	NO ROMAN NUMERALS	
Copper (I) or (II)	+1 or +2	Silver	+1
Mercury (I) or (II)	+1 or +2	Zinc	+2
Tin (II) or (IV)	+2 or +4	Cadmium	+2
Lead (II) or (IV)	+2 or +4	Nickel	+2
Cobalt (II) or (IV)	+2 or +4		
Manganese (II) or (IV)	+2 or +4		

POLYATOMICS IONS

<u>+1</u>

ammonium	NH_4^{+1}
hydronium	H_3O^{+1}

<u>-1</u>

Acetate	$C_2H_3O_2^{-1}$ or	Hydroxide	OH^{-1}
CH_3COO^{-1}		Nitrate	NO_3^{-1}
Azide	N_3^{-1}	Nitrite	NO_2^{-1}
Bromate	BrO_3^{-1}	Perchlorate	ClO_4^{-1}
Cyanide	CN^{-1}	Chlorate	ClO_3^{-1}
Dihydrogen phosphate	$H_2PO_4^{-1}$	Chlorite	ClO_2^{-1}
Bicarbonate or	HCO_3^{-1}	Hypochlorite	ClO^{-1}
Hydrogen carbonate		Iodate	IO_3^{-1}
Bisulfate or	HSO_4^{-1}	Permanganate	MnO_4^{-1}
Hydrogen sulfate		Thiocyanate	SCN^{-1}

-2

Carbonate	CO_3^{-2}	Oxalate	$C_2O_4^{-2}$
Chromate	CrO_4^{-2}	Silicate	SiO_3^{-2}
Dichromate	$Cr_2O_7^{-2}$	Tetraborate	$B_4O_7^{-2}$
Hydrogen phosphate	HPO_4^{-2}	Peroxide	O_2^{-2}
Sulfate	SO_4^{-2}	Selenate	SeO_4^{-2}
Sulfite	SO_3^{-2}	Tartrate	$C_4H_4O_6^{-2}$
Thiosulfate	$S_2O_3^{-2}$		

-3

Phosphate	PO_4^{-3}
Phosphite	PO_3^{-3}
Arsenate	AsO_4^{-3}
Borate	BO_3^{-3}

**Reminder NH_3 = ammonia*

Prefixes for naming molecular (covalent) compounds – Greek

1 = mono-	5 = penta-	9 = nona-
2 = di-	6 = hexa-	10 = deca-
3 = tri-	7 = hepta-	
4 = tetra-	8 = octa-	

Elements that exist as diatomic molecules

BrINClHOF Br_2 I_2 N_2 Cl_2 H_2 O_2 F_2
Other weirdos P_4 and S_8

Naming Acids

Binary acids – named after anion
Hydro-(element)-ic acid Ex. HBr hydrobromic acid

Oxyacids – named after polyatomic anion, no hydro prefix

-ate becomes –ic acid	Ex.	H_3PO_4	phosphoric acid
-ite becomes –ous acid	Ex.	H_2SO_3	sulfurous acid

. Strong acids: There are 8 common strong acids:

HCl - hydrochloric acid	HBr - hydrobromic acid	HI - hydriodic acid
$HClO_4$ – perchloric acid	HNO_3 – nitric acid	HIO_4 – periodic acid
H_2SO_4 – sulfuric acid	$HClO_3$ – chloric acid	

"Strong" means that that are dissociated in aqueous solution. All other acids are weak acids (especially remember CH_3COOH, acetic acid and HF, hydrofluoric acid as weak acids). You should immediately be able to distinguish an acid as weak or strong.

ADDENDUMS: Requirements for the course and things to think about!!

SHOW YOUR WORK

What does SHOW YOUR WORK even mean? You see it everywhere. It means different things to different people. But when in Chemistry, SHOW YOUR WORK means something very specific.

When showing work, you're describing a narrative, giving a step by step recipe for solving a problem. Even if you know how to solve the problem in your head, SHOW YOUR WORK means that you need to know how to express that know-how onto paper. It's a way of explaining your thought processes- even the ones you don't realize that you have. It is a systematic way of describing your work. And on top of that, if a person grading your work does not understand what it is you're trying to do, they will give up and you won't get to take part in any of that sweet partial credit everyone always talks about. Often times, poorly shown work will even result in a loss of credit, all because SHOW YOUR WORK is a very specific statement.

I'll use an example, and you may not understand the problem, but the step by step process is how to solve it.

How many moles of Sodium are in a 120.0g sample of Sodium?

Step 1: Identify Variables and Constants
To perform this calculation, write out what you're given and identify what dimension the value measures. Include units and give the number as written (to keep significant figures).

Mass = 120.0 g

Also, other information is provided. Though you will learn about it this year, with the periodic table, knowing that the substance is sodium will give you that the Molar Mass of Sodium is 22.99 g/mol. Even though this isn't a variable, it is a constant (or tabulated value) so you should list it as well:

Mass = 120.0 g Molar Mass = 23.0 g/mol (we always round our molar masses to one decimal)

Last, identify what it is you're trying to find. You can do this by writing the dimension you're looking for and signal it's the missing one with a "?".

Mass = 120.0 g Molar Mass = 23.0 g/mol n (moles) = ??

So now you've listed out your 'givens,' you can either use this to identify what equation to use, or you can simply state the equation. Write the equation out that you're going to use.

Mass = 120.0 g Molar Mass = 23.0 g/mol n (moles) = ??	Molar Mass = mass/moles

In this case, we're using the Molar Mass equation where Molar Mass equals mass over moles.

Now, beneath the used equation, rearrange the equation to solve for the unit you're trying to find. Do this BEFORE you input your numbers in, so that you can see the proper rearrangement of the equation before it becomes a mess:

Mass = 120.0 g	Molar Mass = mass/moles
Molar Mass = 23.0 g/mol	Moles = mass/molar mass
n (moles) = ??	

This requires algebra, but it's easier to do algebra with letters than with numbers and units.

Once you have the variables declared and the equation solved for the variable you want to find, plug the numbers in:

Mass = 120.0 g	Molar Mass = mass/moles
Molar Mass = 23.0 g/mol	Moles = mass/molar mass n
(moles) = ??	Moles = $\frac{120.0\ g}{23.0\ g/mol}$

With the problem clearly described, the numbers clearly entered, it is time to check your work by checking the units. This is a form of dimensional analysis. If your units don't come out right, then something went wrong.

To check this, cross out the units that cancel out in the numerator and denominator. In this case, grams cancels with grams and moles is left in the denominator of a denominator (This means it goes to the numerator. Check your algebra books for this if this confuses you.)

Mass = 120.0 g	Molar Mass = mass/moles
Molar Mass = 23.0 g/mol	Moles = mass/molar mass n
(moles) = ??	Moles = $\frac{120.0\ \cancel{g}}{23.0\ \cancel{g}/mol}$

Finally, give your answer to the correct number of significant figures (in this case, 4 based on the measurement given in the original problem) and the correct unit.

Mass = 120.0 g	Molar Mass = mass/moles
Molar Mass = 23.0 g/mol	Moles = mass/molar mass n
(moles) = ??	Moles = $\frac{120.0\ \cancel{g}}{23.0\ \cancel{g}/mol}$ Moles = 5.217391304347 = 5.217 moles Na

Often times, units should include substances. Think logically on these counts. If you say "5.220 moles," the question is 'moles of what?' Say moles of Sodium or "mol Na" to be clear.

SHOW YOUR WORK FAQ

Q: Do I have to show my work all the time?
A: When there is math or conversions involved, yes, it is appropriate to show your work.

Q: If I don't, can I lose points?
A: Frequently, and this also goes for work that is not coherent and clear. Don't make a grader search for the answer.

Q: What if that's how I solve a problem?
A: Unfortunately, SHOW YOUR WORK doesn't include the following:
· Cross multiplying. This is not work, it's unsolved algebra problems

· Long division or addition/subtraction/multiplication that is written out. Use a calculator for these.
Show me what the operation is neatly and then grab the calculator.
· A mess of numbers and lines that Pablo Picasso couldn't make sense of. Just writing it on the page doesn't count. Again: Don't make the grader search for the answer. **Better yet, put a box around your answer.**

Q: Is this always how I should show my work?
A: Different teachers may expect different things from students, but this is the clearest and most evident way of showing your thought process, so you should get used to it. The short answer is YES. In my class show your work.

Q: Should every number have a unit?
A: Yes. Always.* A number without a unit is nothing.

*There are exceptions to this rule, but you will be directed to when this is the case.

DESIRED QUALITIES OF AP STUDENT

In addition to the PNHS mindset the following are other habits that you should cultivate.

· Intelligence

This quality is not just about being "smart". It is being "smart" enough to identify what you do not know or understand and then actively seeking sources of help. This also includes knowing when you "get it", and when you need to stay after/ask for help.

· Self-Motivation

This quality describes your attitude. Enrollment in this class is voluntary. Your desire to learn the material should be your chief motivation. You understand that the teacher will not cajole, plead, beg, etc. an AP level student to do the assigned work. You should be ready and willing to learn each day.

· Integrity / Character

This quality is about doing the right thing in all situations. If you have integrity, you do not cheat on any assignment, be it a test, quiz, project or homework. You do your own work. If you have integrity it means you do not help others to cheat, be it providing homework for someone to copy or providing the questions / answers for a test or quiz in class or for another class.

· Work Ethic / Industriousness

This quality means that the work you turn in is of your highest quality. You show complete and organized work on all assignments (tests, quizzes, homework, projects) clearly identifying how you arrived at the solutions. Showing just answers does not show any work ethic at all and is unacceptable.

Industriousness means that you use all available time to learn and improve. This could simply be starting your homework if there is time left in class. It could mean asking questions about a concept of which you are unsure. When given an extended problem / project / reading assignment industriousness means that you start on the assignment promptly and not wait until the night before the test or due date. This quality means you do not do work for another class or play games on your calculator during class time.

· Safety

AP students treat the lab and lab materials with respect. While they may not yet know all the safety regulations, they do know that horsing around or misbehaving in the lab can potentially cause injury or worse to themselves and their peers. AP students do not need to be told how to behave properly in a lab, or when to appropriately observe safe and correct lab techniques. AP students ensure the lab is cleaner than when they found it. Labs should be read, at a minimum, the night before. You should highlight and write notes on your procedure. All prelab assignments should be done promptly and if there are questions you should discuss those with Dr. Fabian BEFORE the class period in which you are supposed to perform the lab.

· Inquisitiveness

This quality means that if you have a question you ask the question as soon as possible. An honors student does not just sit there and take notes, they think: Did I understand? Does it make sense? What if? Do not make the mistake of assuming that a concept you do not understand now in class will all make sense later on. Being inquisitive also means taking advantage of all opportunities to help yourself including your teacher in class, your teacher OUT of class, your textbook, and other students who may have a grasp of the concept.

· Ingenuity

This quality is about applying knowledge, not just rote memorization. An honors student is able to devise solutions to problems they have never seen before. They are able to take what they have cumulatively learned in this class and all of their current and previous classes and apply it toward the solution of a new problem.

AP Chemistry Class Perception and Reality

Students need to be realistic about the expectations for this course. Many students THINK they are ready for college level work, but really don't know what that means. In order to get a more realistic view of this course, I have included some perceptions entering students have, and the reality of the situation.

1. PERCEPTION: I can miss class (sports, activities, family vacations, jobs, field trips, etc.) and catch up on my own. I always have before.
   REALITY: You can't!!! In AP Chemistry, you have to give up a lot to get a lot. Missing class is the number one reason why students fall behind, get lost, give up, and either drop the class or get a low grade. You cannot be gone for three days, and expect to get caught up with a 10 minute session after school. We cannot teach in 10 minutes what it took 3 hours to teach earlier. (Amazingly some students expect that!)

2. PERCEPTION: Like all teachers, Mr. Dellamorte is exaggerating about how much work there is, and how tough it really is.
   REALITY: I am NOT exaggerating. Probably the best way to check this is to talk with students who have taken the class before.

3. PERCEPTION: Mr. Dellamorte is making this class a lot tougher than it really needs to be.
   REALITY: Never forget-this is a college level course. NOT an advanced high school course. If we are doing our job, students in this course should learn as much as they would if they were taking Freshman Chemistry at any college or university in the United States. A second goal is to properly prepare students for the AP Exam in May. We cannot make the course easier and still accomplish the above goals. Every former student who has taken Freshman College Chemistry has found he or she had a tremendous advantage over other students. We have NEVER had former students come back and say they wish we hadn't made it so tough.

4. PERCEPTION: If the majority of the class falls behind, Mr. Dellamorte will just have to slow down so that we can catch up.
   REALITY: We can't!!! You will find that time is of the essence in this course. As much as we may like to and as much as the students may need it, our schedule cannot be adjusted to accommodate those who cannot keep up. Students will be expected to study the text on their own, and class time will be use more for clearing up questions than for introducing new material. There is really no other way to cover the vast amount of material required by the AP exam. If we slow down to make the course easier, or allow students to catch up, we will not cover the required subject matter, and students will have to face exam questions on material not covered in class. As a result we will make a schedule that will allow us to complete all required material prior to the exam, and students MUST keep to this schedule. Chemistry topics build on each other, and students who get behind have a (nearly) impossible task in catching up. Students can expect to spend about one hour outside of class time just in the study of chemistry each night. Certainly any students who have after-school jobs, or who are heavily involved in after-school activities will have to budget their time very carefully.

5. PERCEPTION: All this work Mr. Dellamorte is talking about must be just for the "dummies" I'm smarter than that!
   REALITY: All students who are successful in this course will have to spend time after

school—either by getting help on an assignment, completing lab work, or reviewing for tests. If you are never available immediately after school to do chemistry work, you should not take this course! Our availability before and after school will be announced and it is expected you will spend time outside of class, in class! Students will be encouraged to form study groups to get many of their questions answered.

6. PRECEPTION: Mr. Dellamorte doesn't really expect us to do a summer assignment, and they aren't really going to give us a test the first day of class in August.
   REALITY: You betcha, we will! —The summer assignment is mainly a review of first year chemistry. The test will encourage you to do most of the memorization for the course before the school year begins. This early work will allow us to spend additional time later on more difficult topics. You will find the summer assignment and information regarding the "first day test" at the end of this sheet.

7. PRECEPTION: I have always been a "straight A" student and always will be.
   REALITY: AP Chemistry can mean death to a 5.0 grade average. Although there are many "A's (often as many as 1/3 to ½ the class) there are also "B's " C's "D'sand "F's If your main purpose in taking this class is to collect one more "A" you are taking the class for the wrong reason, and may be disappointed. There are easier classes in which to get an "A".

I will say that this is a very fun course, but it comes with WORK.
You should be proud that you are challenging yourself to the limit of your academic ability.

Writing Formulas and Naming Compounds – Do WITHOUT an ion chart! You need to have these memorized. DO THIS ASSIGNMENT NEATLY ON A SEPARATE SHEET OF PAPER.

1. Name each of the following compounds:
   a. $NaCl$
   b. Rb_2O
   c. $FeBr_3$
   d. Cr_2O_3
   e. $CaBr_2$
   f. CsF
   g. CaS
   h. AlI_3
   i. Al_2O_3
   j. $ZnCl_2$
   k. Li_3N
   l. Ag_2S
   m. $KClO_4$
   n. $Al_2(SO_4)_3$
   o. $BaSO_3$
   p. $KMnO_4$
   q. Sr_3P_2
   r. $Ca_3(PO_4)_2$
   s. $Pb(NO_3)_2$
   t. $NaNO_2$
   u. $K_2Cr_2O_7$

2. Name each of the following compounds:
   a. NI_3
   b. PCl_3
   c. SO_2
   d. ICl_3
   e. SF_2
   f. N_2F_4
   g. P_2S_5
   h. N_2O_4

3. Name each of the following compounds:
   a. HCl
   b. H_3PO_4
   c. HIO_3
   d. HNO_2
   e. HI
   f. H_2SO_3

4. Name each of the following compounds:
   a. HgO
   b. CuI
   c. CuI_2
   d. CoI_2
   e. Na_2CO_3
   f. $NaHCO_3$
   g. $HC_2H_3O_2$
   h. NH_4NO_2
   i. Co_2S_3
   j. ICl
   k. $Pb_3(PO_4)_2$
   l. KIO_3
   m. $Ca(OH)_2$
   n. CoS
   o. S_3N_4
   p. SF_6
   q. $NaClO$
   r. $BaCrO_4$
   s. NH_4NO_3
   t. H_2SO_4
   u. Sr_3N_2
   v. $Al_2(SO_3)_3$
   w. SnO_2
   x. Na_2CrO_4
   y. $HClO$
   z. NO

5. Write the formula for each of the following compounds:
   a. Cesium bromide
   b. Barium sulfate
   c. Chlorine trifluoride
   d. Ammonium chloride
   e. Beryllium oxide
   f. Chlorine monoxide
   g. Magnesium fluoride
   h. Sulfur difluoride
   i. Sulfur hexafluoride
   j. Sodium dihydrogen phosphate
   k. Silicon tetrachloride
   l. Lithium nitride
   m. Chromium (III) carbonate
   n. Tin (II) fluoride
   o. Ammonium acetate
   p. Ammonium hydrogen sulfate
   q. Cobalt (III) nitrate
   r. Copper (I) sulfide
   s. Potassium chlorate
   t. Lithium tartrate

6. Write the formula for each of the following compounds:
   a. sodium oxide
   b. Sodium peroxide
   c. Potassium cyanide
   d. Copper (II) nitrate
   e. Silicon tetrafluoride
   f. Lead (II) sulfide
   g. Lead (IV) sulfide
   h. Copper(I) chloride
   i.Cadmium selenide
   j. Zinc sulfide
   k. Ammonium hydrogen phosphate
   l. Hydrobromic acid
   m. Bromous acid
   n. Perchloric acid