

# AP CHEMISTRY

*Aim at perfection in everything, though in most things it is unattainable. However, they who aim at it, and persevere, will come much nearer to it than those whose laziness and despondency make them give it up as unattainable.*

*-Lord Chesterfield*

Congratulations on your decision to take Advanced Placement Chemistry! This course will be challenging, but it may also be one of the most rewarding experiences of your high school years. AP classes are taught as college courses—not just college-level courses, but actual college courses. This means that:

- I will do as much as I can to *help* you learn, but you and you alone are responsible for learning and understanding everything covered in class.
- I will tell you when everything is due, but I won't chase after you. If you were absent and you need to turn in an assignment late, *you* need to remember to show it to me; do not assume I will ask you for it.
- If you're having trouble with something, you need to be proactive about learning it, either by coming in for help after school, consulting with your classmates, or by getting outside help. This expectation is effective immediately, and it applies to this summer assignment. Remember—*your* job is to succeed; *my* job is to do everything in my power to help you be successful.
- The requirements for this course are comparable for any college course, except that this course is a full year (not just a semester) of college chemistry. It will require much more time and effort than did your first high school chemistry course and most of your other courses. Each chapter has problem sets at the end and completing these problems will be an expected routine part of your homework. In addition, I will assign problems from other sources. I expect you to put forth your best efforts. If you do, you will succeed in this course and earn a 5 on the AP Exam (up to 8 college credits.)
- The goals of this summer assignment are to make sure you haven't completely forgotten Chemistry I, to give you a "warm-up" for AP Chemistry, and to frighten off anyone who's not serious about doing the work.

The assignment consists of nomenclature review worksheets and some textbook problems that combine multiple concepts from Chemistry I.

*All parts* of the assignment are due on **the first day of class**.

You may work with your friends in the class, as long as you list the names of the people you worked with and each person turns in a separate copy.

I am assuming that you are comfortable with the basics: stoichiometry, equation and formula writing, balancing, gas laws, etc. The first three chapters of Masterton & Hurley Chemistry will be used for your summer assignment. The textbook for the course, General Chemistry 4<sup>th</sup> ed. by Hill, Petrucci, McCreary, & Perry, will be given to you the first day of school. There will be a quick review during the first two weeks of school and then a test. After that, we will move at a pace of approximately one chapter every two weeks. This course also includes laboratory experiments which require writing pre-labs and some formal lab reports. The AP exam is scheduled first next year on May 7, 2012, and I expect everyone to take the exam. Additional time after school will also be required to prepare for the AP exam. If you have questions this summer, please e-mail me.

Ms. M. Morse

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# AP Chemistry Summer Assignment

This should be a good review of what you mastered in your first chemistry course.

**Part I :** Inorganic Nomenclature Worksheets 1 & 2 (below)

**Part II** Memorize the names and formulas of all the polyatomic ions on the sheet.

**Part II:** Read the Masterton & Hurley textbook (Chapters 1-3) and study the example problems in the chapters before attempting to solve the problems.

Chapter One : problems # 17, 21, 23, 37, 45, 51, 53, 61

Chapter Two : problems # 3, 7, 47, 57, 62

Chapter Three: problems # 3, 7, 13, 23, 29, 33, 35, 45, 51, 55, 65, 73

This summer assignment will be your first grade of the year and will be worth at least 100 points.

- Your work should be neat and organized.
- Show all work where applicable. Credit will be given only if work is shown.
- The answers to the Exercises and even numbered problems are at the back of the book in Appendix E, so you may try those problems and check your answers.
- **There will be a test on this material second week of school**

This summer assignment is posted on the Kempsville HS website.

If you did not sign out a textbook with me, then you may get a book in the Guidance Office from Monday to Thursday this summer.

A person who doubts himself is like a man who would enlist in the ranks of his enemies and bear arms against himself. He makes his failure certain by himself being the first person to be convinced of it.

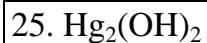
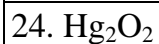
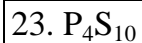
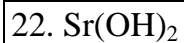
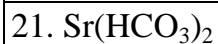
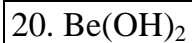
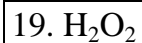
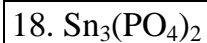
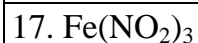
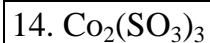
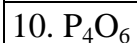
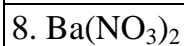
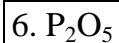
-Ambrose Bierce

**Inorganic Nomenclature WS 1- Write the formulas for the following compounds.**

1. mercury(II) fluoride	26. phosphoric acid
2. potassium chloride	27. lithium permanganate
3. potassium permanganate	28. iron(III) hydrogen phosphate
4. potassium perchlorate	29. sodium carbonate
5. zinc oxide	30. magnesium hydrogen carbonate
6. barium hydroxide	31. tin(IV) phosphate
7. ammonium permanganate	32. nitric acid
8. calcium carbonate	33. zinc chloride
9. barium phosphate	34. sodium dihydrogen phosphate
10. iron(III) oxide	35. mercury(I) chloride
11. cobalt(III) fluoride	36. iron(II) nitrite
12. carbonic acid	37. copper(II) ammonium phosphate
13. potassium sulfate	38. sodium magnesium phosphate
14. sodium hydrogen sulfate	39. tin(IV) hydrogen carbonate
15. phosphorus pentafluoride	40. sodium permanganate
16. silver oxide	41. potassium fluoride
17. lead(II) chlorite	42. calcium sulfate
18. copper(I) chromate	43. hydrochloric acid
19. calcium perchlorate	44. antimony trichloride
20. acetic acid	45. tetraarsenic decoxide
21. lithium iodide	46. ammonium chloride
22. aluminum sulfate	47. ammonium nitrate
23. hydrobromic acid	48. iodine pentafluoride
24. mercury(I) hypochlorite	49. sodium hydrogen carbonate
25. chromium(III) chloride	50. barium hydroxide

## Inorganic Nomenclature Worksheet 2

Print the name of each of the following compounds on the line next to the formula.



26. $\text{NH}_4\text{F}$
27. $\text{XeF}_6$
28. $\text{K}_2\text{Cr}_2\text{O}_7$
29. $\text{NH}_4\text{OH}$
30. $(\text{NH}_4)_3\text{PO}_4$
31. $\text{N}_2\text{O}_5$
32. $\text{SnCrO}_4$
33. $\text{Al}_2\text{O}_3$
34. $\text{CuCO}_3$
35. $\text{ClO}_2$
36. $\text{CuS}$
37. $\text{MgI}_2$
38. $\text{CoCl}_3$
39. $\text{NaCN}$
40. $\text{Hg}_3\text{N}_2$
41. $\text{BrO}_3$
42. $\text{SiF}_4$
43. $\text{Sb}_2\text{O}_5$
44. $\text{LiH}$
45. $\text{SF}_6$
46. $\text{SnI}_4$
47. $\text{KOH}$
48. $\text{K}_2\text{O}$
49. $\text{H}_2\text{SO}_4$
50. $\text{Li}_2\text{O}$

### Symbols and Charges for Polyatomic Ions

<u>Formula</u>	<u>Name</u>	<u>Formula</u>	<u>Name</u>
$\text{NO}_3^-$	nitrate	$\text{ClO}_4^-$	perchlorate
$\text{NO}_2^-$	nitrite	$\text{ClO}_3^-$	chlorate
$\text{CrO}_4^{2-}$	chromate	$\text{ClO}_2^-$	chlorite
$\text{Cr}_2\text{O}_7^{2-}$	dichromate	$\text{ClO}^-$	hypochlorite
$\text{CN}^-$	cyanide	$\text{IO}_4^-$	periodate
$\text{CNO}^-$	cyanate	$\text{IO}_3^-$	iodate
$\text{OH}^-$	hydroxide	$\text{IO}^-$	hypoiodite
$\text{O}_2^{2-}$	peroxide	$\text{BrO}_3^-$	bromate
$\text{NH}_2^-$	amide	$\text{BrO}^-$	hypobromite
$\text{CO}_3^{2-}$	carbonate	$\text{HCO}_3^-$	hydrogen carbonate (bicarbonate)
$\text{SO}_4^{2-}$	sulfate	$\text{HSO}_4^-$	hydrogen sulfate (bisulfate)
$\text{SO}_3^{2-}$	sulfite	$\text{MnO}_4^-$	permanganate
$\text{C}_2\text{O}_4^{2-}$	oxalate		
$\text{PO}_4^{3-}$	phosphate	$\text{HPO}_4^{2-}$	hydrogen phosphate
$\text{PO}_3^{3-}$	phosphite	$\text{H}_2\text{PO}_4^-$	dihydrogen phosphate
$\text{S}_2\text{O}_3^{2-}$	thiosulfate	$\text{HS}^-$	hydrogen sulfide
$\text{AsO}_3^{3-}$	arsenite	$\text{BO}_3^{3-}$	borate
$\text{AsO}_4^{3-}$	arsenate	$\text{SiO}_3^{2-}$	silicate
$\text{SeO}_4^{2-}$	selenate	$\text{C}_2\text{H}_3\text{O}_2^-$	acetate

(alternate way to write acetate is  $\text{CH}_3\text{COO}^-$ )

**There is one positive polyatomic ion. It is  $\text{NH}_4^+$  and is called the ammonium ion.**

Writing just the plus sign or minus sign for ions with +1 or -1 charges is standard practice