

Tustin HS AP Chemistry SUMMER ASSIGNMENT

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Textbook: *Chemistry: The Central Science*, Brown, LeMay, Bursten, 11th edition (2006).
Publisher: Prentice Hall
Due Date: 1st day of school (August 22th, 2017)

In order to complete the summer assignment you may need to access to the textbook. A copy of the textbook is available for checkout at the THS library.

****YOU WILL NEED ACCESS TO THE INTERNET****

There are TWO PARTS to the AP Chemistry Summer Assignment:

Part 1: Common POLYATOMIC IONS TO KNOW!! There will be an assessment on these ions on the 2nd day of school. See next page 2 & 3 for more info.

Part 2: Flinnprep.com is an online review of the most important concepts in chemistry to help prepare for AP Chemistry. In each UNIT, there are overviews, videos, quick quizzes, images, practice problems, simulations, summaries and other online resources to review.

At the end of each UNIT, there is an ASSESSMENT. You will need to complete each Assessment with a score of 80% or higher. If you do not score an 80% or higher, you will need to retake the assessment until you do. I do not see your results until you EARN A SCORE OF 80%.

Go to www.flinnprep.com Enter the TEACHER CODE: cjgrz

You will need to register. Choose "I'm a Student"

Fill in your information. You will need to use an email that is *NOT your mytusd.org email*
****IF YOU NEED HELP SETTING UP AN ACCOUNT, EMAIL ME ASAP (DO NOT WAIT UNTIL THE WEEK BEFORE SCHOOL)**

You will need to complete the following units on www.flinnprep.com:

Unit 01	Nomenclature	Date completed _____ Score _____
Unit 02	Atomic Structure & Periodic Trends	Date completed _____ Score _____
Unit 03	Chemical Reactions	Date completed _____ Score _____
Unit 04	Bonding Basics	Date completed _____ Score _____
Unit 07	Gases	Date completed _____ Score _____

Part 1: Common Ions to KNOW!!

This part of the summer assignment is quite simple. Just give yourself enough time to master the formulas, charges and names of the common ions. On the 2nd day of school, you will be given a quiz on these ions. DO NOT PROCRASTINATE!!

You will be asked to:

- Write the names of these ions given the formula and charge
- Write the formula and charge when given the names

TABLE 1: Ionic Charges of Representative Elements

Cations: Full Name					Anions: End in "-ide"			
1	2	3-11	12	13-14	15	16	17	18
Li ⁺	Be ²⁺				N ³⁻	O ²⁻	F ⁻	
Na ⁺	Mg ²⁺			Al ³⁺	P ³⁻	S ²⁻	Cl ⁻	
K ⁺	Ca ²⁺		Zn ²⁺			Se ²⁻	Br ⁻	
Rb ⁺	Sr ²⁺	Ag ⁺	Cd ²⁺				I ⁻	
Cs ⁺	Ba ²⁺							

"From the Table" Ions: For the ions in Table 1, their placement in the Periodic Table suggest the charge on the ion, since the neutral atom gains or loses a predictable number of electrons in order to obtain a noble gas configuration. This was a focus in first year chemistry, so if you are unsure what this means, get HELP BEFORE the start of the year. Three transition metals are also included (silver, cadmium and zinc). These three elements will always have the charge given in the table and should be also be memorized. You will have a periodic table to reference for this ion quiz, so the above ions should be quite easy.

Polyatomic Ions: The common ions in Table 2 need to be MEMORIZED. Below are a number of patterns that can be used to greatly reduced the amount of memorizing one must do.

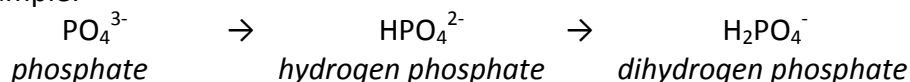
Hint 1: “-ate” ions have *one more oxygen* than the corresponding “-ite” ions, but the same charge. If you memorize the “-ate” ions, then you should also be able to memorize the “-ite” ions quite easily, and vice versa.

Example: Sulfate is SO_4^{2-} , so sulfite is the same charge with one less oxygen (SO_3^{2-})

Example: Nitrate is NO_3^- , so nitrite is the same charge with one less oxygen (NO_2^-)

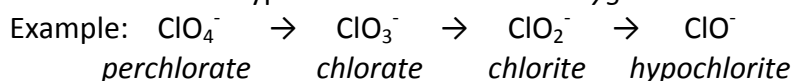
Hint 2: If you know that a sulfate ion is SO_4^{2-} , then to get the formula for hydrogen sulfate, you add a hydrogen ion to the front of the formula. Since hydrogen has a 1+ charge, the net charge on the new ion is less negative by one.

Example:



Hint 3: Other prefixes: “Per-” indicates *one more oxygen* than the “-ate” form

“Hypo-” indicates *one less oxygen* than the “-ite” form



- The Halogens are all the same: F, Cl, Br, I all behave the same, so if chlorate is ClO_3^- , Bromate is BrO_3^- !!!

Hint 4: Make FLASHCARDS to help with your memorization!

TABLE 2: Common Polyatomic Ions

1- charge		2- charge		3- charge	
Formula	Name	Formula	Name	Formula	Name
H_2PO_4^-	Dihydrogen Phosphate	HPO_4^{2-}	Hydrogen Phosphate	PO_4^{3-}	Phosphate
$\text{C}_2\text{H}_3\text{O}_2^-$	Acetate	$\text{C}_2\text{O}_4^{2-}$	Oxalate	PO_3^{3-}	Phosphite
HSO_3^-	Hydrogen Sulfite	SO_3^{2-}	Sulfite		
HSO_4^-	Hydrogen Sulfate	SO_4^{2-}	Sulfate		
HCO_3^-	Hydrogen Carbonate	CO_3^{2-}	Carbonate		
NO_2^-	Nitrite	CrO_4^{2-}	Chromate		
NO_3^-	Nitrate	$\text{Cr}_2\text{O}_7^{2-}$	Dichromate		
CN^-	Cyanide	SiO_3^{2-}	Silicate		
OH^-	Hydroxide	O_2^{2-}	Peroxide		
MnO_4^-	Permanganate	$\text{S}_2\text{O}_3^{2-}$	Thiosulfate		
ClO^-	Hypochlorite				
ClO_2^-	Chlorite				
ClO_3^-	Chlorate				
ClO_4^-	Perchlorate				
BrO_3^-	Bromate				
SCN^-	Thiocyanate				
IO_3^-	Iodate				