

FCHS 2017-2018 AP Chemistry Summer Assignment

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Be prepared for quizzes and a test on the summer assignment topics below during the first two weeks of school. We will go over this material quickly, so we can spend more time on thermochemistry, chemical kinetics, chemical equilibrium, and acids/bases, which are much more interesting topics and are always on the AP test in detail.

1. Review lab safety rules and lab equipment including identification and use.

Resource: <http://www.sciencegeek.net/Chemistry/Powerpoints2.shtml>

2. Memorize the following (given later in this document).
 - a. names and symbols of common chemical elements
 - b. phases of elements at normal temperature and pressure
 - c. formulas of elements that require subscripts in reference form
 - d. oxidation numbers (charges) of monatomic and polyatomic ions including name, symbol, and charge of common ions
 - e. variable valences of common metals including common names

Resource: <http://www.sciencegeek.net/APchemistry/index.shtml>

To aid in the memorization, make flashcards!

3. Complete the online assignments on the companion website for Chapters 1, 2, and 3 of the textbook: *Chemistry: The Central Science*

Use the Companion Website for the textbook:

http://wps.prenhall.com/esm_brown_chemistry_9/2/660/169060.cw/index.html

Even though this is an older edition of our textbook, the website is great for review.

Use “eChapter” for each chapter to learn and review basic concepts.

Use “Problem Solving Center” to do homework assignments 1-4 and take quiz 1.

Once you do each of these assignments, you will be prompted to e-mail them. These will be your first homework assignments, **due by the first day of school**. You do not need to score a 100%, but the assignment must be e-mailed to me from the program to get full credit.

When you e-mail me, please include your complete name (first and last) in the message.

Memorize These

Element Names and Symbols of Common Elements & Phases

Al	aluminum	Mn	manganese
Sb	antimony	Hg	mercury
Ar	argon	Ne	neon
As	arsenic	Ni	nickel
Ba	barium	N	nitrogen
Be	beryllium	O	oxygen
B	boron	Pd	palladium
Br	bromine	P	phosphorous
Cd	cadmium	Pt	platinum
Ca	calcium	Pu	plutonium
C	carbon	K	potassium
Cs	cesium	Ra	radium
Cl	chlorine	Rn	radon
Cr	chromium	Rb	rubidium
Co	cobalt	Se	selenium
Cu	copper	Si	silicon
F	fluorine	Ag	silver
Fr	francium	Na	sodium
Ge	germanium	Sr	strontium
Au	gold	S	sulfur
He	helium	Te	tellurium
H	hydrogen	Th	thorium
I	iodine	Sn	tin
Fe	iron	W	tungsten
Kr	krypton	U	uranium
Pb	lead	Xe	xenon
Li	lithium	Zn	zinc
Mg	magnesium		

- All metals are solid except for mercury, which is a liquid.

- All metalloids are solids.

- Nonmetals: carbon, phosphorus, sulfur, & selenium are solids; bromine is a liquid; and the rest are gases.

- Elements with subscripts: Br₂, I₂, N₂, Cl₂, H₂, O₂, F₂, P₄, S₈

Common Monatomic Ions

1A	2A											3A	4A	5A	6A	7A	8A
Li ⁺														N ³⁻	O ²⁻	F ⁻	
Na ⁺	Mg ²⁺							8B				Al ³⁺		P ³⁻	S ²⁻	Cl ⁻	
		3B	4B	5B	6B	7B				1B	2B						
K ⁺	Ca ²⁺	Sc ³⁺	Ti ²⁺ Ti ⁴⁺	V ²⁺ V ³⁺	Cr ²⁺ Cr ³⁺	Mn ²⁺ Mn ⁴⁺	Fe ²⁺ Fe ³⁺	Co ²⁺ Co ³⁺	Ni ²⁺	Cu ⁺ Cu ²⁺	Zn ²⁺				Se ²⁻	Br ⁻	
Rb ⁺	Sr ²⁺									Ag ⁺	Cd ²⁺		Sn ²⁺			I ⁻	
Cs ⁺	Ba ²⁺									Au ⁺ Au ³⁺			Pb ²⁺				

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Metals with Multiple Oxidation States

Element	Symbol	Oxidation #	Old System	New System
Iron	Fe	+2	Ferrous	Iron (II)
		+3	Ferric	Iron (III)
Copper	Cu	+1	Cuprous	Copper (I)
		+2	Cupric	Copper (II)
Mercury	Hg ₂	+2	Mercurous	Mercury (I)
	Hg	+2	Mercuric	Mercury (II)
Lead	Pb	+2	Plumbous	Lead (II)
		+4	Plumbic	Lead (IV)
Tin	Sn	+2	Stannous	Tin (II)
		+4	Stannic	Tin (IV)

Polyatomic Ions

H_2PO_4^-	dihydrogen phosphate	BrO_4^-	perbromate
$\text{C}_2\text{H}_3\text{O}_2^-$	acetate	IO^-	hypoiodite
HSO_3^-	hydrogen sulfite (bisulfite)	IO_2^-	iodite
HSO_4^-	hydrogen sulfate (bisulfate)	IO_3^-	iodate
HCO_3^-	hydrogen carbonate (bicarbonate)	IO_4^-	periodate
NO_2^-	nitrite	HPO_4^{2-}	hydrogen phosphate
NO_3^-	nitrate	$\text{C}_2\text{O}_4^{2-}$	oxalate
CN^-	cyanide	SO_3^{2-}	sulfite
SCN^-	thiocyanate	SO_4^{2-}	sulfate
OH^-	hydroxide	CO_3^{2-}	carbonate
MnO_4^-	permanganate	CrO_4^{2-}	chromate
ClO^-	hypochlorite	$\text{Cr}_2\text{O}_7^{2-}$	dichromate
ClO_2^-	chlorite	SiO_3^{2-}	silicate
ClO_3^-	chlorate	O_2^{2-}	peroxide
ClO_4^-	perchlorate	PO_3^{3-}	phosphite
BrO^-	hypobromite	PO_4^{3-}	phosphate
BrO_2^-	bromite	BO_3^{3-}	borate
BrO_3^-	bromate	NH_4^+	ammonium