Welcome 2018-2019 AP Chemistry students!

We've got a lot of ground to cover next year and too little time together! To save a little time, we are reviewing the first chapters at a fast pace. These chapters are reviews of ideas covered in first year chemistry and the time we save here will allow us extra time to prepare for the AP test later. This is a fast-paced class with little time to spare; you must be committed to homework at an AP level.

These topics should be reviewed over the summer. Element names and properties of groups. Names of common ions. Identification of strong vs. weak acids and bases. Intermolecular Forces. Solubility Rules (these must be memorized for AP)

Your summer school assignment involves preparing for basic information that must be memorized for AP Chemistry. Without memorizing some core content, success in AP Chemistry is very difficult. In particular, the **Ion Test** (knowing the name and formula of common ions), the **Solubility Test** (knowing which common substances are soluble or insoluble in water), and the **Strong/Weak Acid/Base Test** (knowing the strong acids and bases) are critical. Use internet resources to help you, if needed. You will have these tests in the first few days/weeks of school.

Solubility Rules

Given an ionic compound, identify it as soluble or insoluble!

Rules:		X = exceptions to rule
Soluble:	All NO_3^- and $C_2H_3O_2^-$	
	Cl^-	X: silver, mercury (II), and lead (II)
	Br^-	X: silver, mercury (II), and lead (II)
	I^-	X: silver, mercury (II), and lead (II)
	SO_4^{2-}	X: strontium, barium, mercury (II), and lead (II), silver is slightly!!!
	$C_2H_3O_2^-$	X: silver, mercury (II)
Insoluble:	CO_3^{2-}	X: ammonium and IA
	PO_4^{2-}	X: ammonium and IA
	S^{2-}	X: ammonium, IA, calcium, strontium, and barium
	OH^-	X: ammonium, IA, calcium, strontium, and barium
	$C_2O_4^{2-}$	X: ammonium, IA, calcium, strontium, and barium

Acids and Bases

There is not memorized!

Seven strong acids

- Hydrochloric acid, HCl
- Hydrobromic acid, HBr
- Hydroiodic acid, HI
- Chloric acid, $HClO_3$
- Perchloric acid, $HClO_4$
- Nitric acid, HNO_3
- Sulfuric acid, H_2SO_4

Eight strong bases

Group1 hydroxides

LiOH, NaOH, KOH, RbOH, CsOH

Heavy group 2 hydroxides

$Ca(OH)_2$, $Sr(OH)_2$, $Ba(OH)_2$

Ions You Should Know

Given the name, you should know the formula (Yes, this includes charge).

ammonium	NH_4^+	fluoride	F^-
acetate	$C_2H_3O_2^-$	iodide	I^-
bromide	Br^-	oxalate	$C_2O_4^{2-}$
carbonate	CO_3^{2-}	hydrogen oxalate	$HC_2O_4^-$
hydrogen carbonate	HCO_3^-	oxide	O^{2-}
nitrate	NO_3^-	permanganate	MnO_4^-
nitrite	NO_2^-	phosphate	PO_4^{3-}
nitride	N^{3-}	monohydrogen phosphate	HPO_4^{2-}
cyanide	CN^-	dihydrogen phosphate	$H_2PO_4^-$
chlorate	ClO_3^-	hydride	H^-
chloride	Cl^-	hydroxide	OH^-
chlorite	ClO_2^-	sulfate	SO_4^{2-}
hypochlorite	ClO^-	hydrogen sulfate	HSO_4^-
perchlorate	ClO_4^-	sulfide	S^{2-}
chromate	CrO_4^{2-}	hydrogen sulfide	HS^-
dichromate	$Cr_2O_7^{2-}$	sulfite	SO_3^{2-}

Intermolecular Forces

VanderWaals London-dispersion Dipole-Dipole Interactions Hydrogen Bonding

Have a great summer!!

If you have any questions, please do not hesitate to contact me at jana_yetzke@glenbard.org