

## Pre-AP Chemistry Summer Assignment

1. Memorize the elements and polyatomic ions as described on Page Two.
2. Memorize the following prefixes from the metric system:

Prefix	Abbreviation	Definition
nano-	n	$10^{-9}$ or 0.000000001
micro-	$\mu$	$10^{-6}$ or 0.000001
milli-	m	$10^{-3}$ or 0.001
centi-	c	$10^{-2}$ or 0.01
kilo-	k	$10^3$ or 1000

3. Enroll in the Pre-AP Chemistry iTunesU Course using the following code:

**ESL-SCY-YDA**

4. Watch the video on iTunesU titled "Significant Figures." This will be posted by June 15, 2016. We will go over this material very quickly during the first week of class and coming prepared is necessary for your success.
5. Watch the video on iTunesU titled "Unit Conversions." This will be posted by July 1, 2016. We will go over this material very quickly during the first week of class and coming prepared is necessary for your success.

## Things to Memorize for Pre-AP Chem - Week 1

1. Know the names and symbols for all elements #1-50 as well as symbols for lead, tin, barium, cesium, uranium, plutonium, silver and gold.  
Don't worry about atomic #'s (number above or below the letters denoting the chemical symbol)
2. In addition, know that Pb can have a charge of +2 or +4, Fe (+2,+3), and Cu(+1,+2).
3. Know the formula (letters w/ numbers) and name for each polyatomic ion.  
Ions are characterized by their charges (<sup>+2</sup>, <sup>-3</sup>, etc) (listed in columns for ease of studying): Memorize the charge as part of the formula.

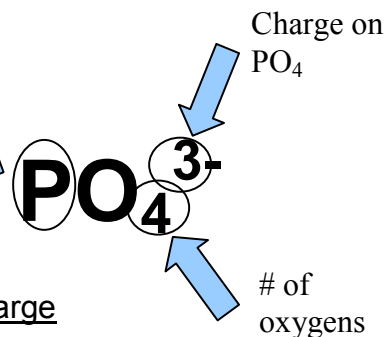
### Common Polyatomic Ions

- = -1 charge

+ = +1 charge

element

example:



- 1 charge

NAME      FORMULA

**nitrate**      **NO<sub>3</sub><sup>-</sup>**

**nitrite**      **NO<sub>2</sub><sup>-</sup>**

**hydroxide**      **OH<sup>-</sup>**

bromate      BrO<sub>3</sub><sup>-</sup>

perchlorate      ClO<sub>4</sub><sup>-</sup>

**chlorate**      **ClO<sub>3</sub><sup>-</sup>**

chlorite      ClO<sub>2</sub><sup>-</sup>

hypochlorite      ClO<sup>-</sup>

cyanide      CN<sup>-</sup>

**permanganate**      **MnO<sub>4</sub><sup>-</sup>**

hydrogen sulfate      HSO<sub>4</sub><sup>-</sup>

hydrogen carbonate      HCO<sub>3</sub><sup>-</sup>

**acetate**      **C<sub>2</sub>H<sub>3</sub>O<sub>2</sub><sup>-</sup>** or CH<sub>3</sub>COO<sup>-</sup>

+ 1 charge

**Ammonium**      **NH<sub>4</sub><sup>+</sup>**

-2 charge

NAME      FORMULA

**sulfate**      **SO<sub>4</sub><sup>2-</sup>**

**sulfite**      **SO<sub>3</sub><sup>2-</sup>**

**carbonate**      **CO<sub>3</sub><sup>2-</sup>**

chromate      CrO<sub>4</sub><sup>2-</sup>

dichromate      Cr<sub>2</sub>O<sub>7</sub><sup>2-</sup>

oxalate      C<sub>2</sub>O<sub>4</sub><sup>2-</sup>

peroxide      O<sub>2</sub><sup>2-</sup>

hydrogen phosphate      HPO<sub>4</sub><sup>2-</sup>

+2 charge

dimercury or mercury (I)      Hg<sub>2</sub><sup>2+</sup>

Note: other names will be encountered. Here is an example of how the same formula can be written differently:

CO<sub>3</sub><sup>2-</sup>  
carbonate

-->  
add H &  
drop 1 charge

HCO<sub>3</sub><sup>-</sup>  
name changes to hydrogen carbonate  
or bicarbonate