

# Ion Sheet

## +++ Positive Ions +++

1+	2+	3+	4+
Ammonium, $\text{NH}_4^+$ Copper(I), $\text{Cu}^+$ ( <b>Cuprous</b> ) Silver, $\text{Ag}^+$ Gold (I), $\text{Au}^+$  <b>All elements in Group IA</b>	Cadmium(II), $\text{Cd}^{2+}$ Chromium(II), $\text{Cr}^{2+}$ Cobalt(II), $\text{Co}^{2+}$ Copper(II), $\text{Cu}^{2+}$ ( <b>Cupric</b> ) Iron(II), $\text{Fe}^{2+}$ ( <b>Ferrous</b> ) Lead(II), $\text{Pb}^{2+}$ ( <b>Plumbous</b> ) Manganese(II), $\text{Mn}^{2+}$ Mercury(II), $\text{Hg}^{2+}$ ( <b>Mercuric</b> ) Nickel(II), $\text{Ni}^{2+}$ Tin(II), $\text{Sn}^{2+}$ ( <b>Stannous</b> ) Zinc, $\text{Zn}^{2+}$ Mercury(I), $\text{Hg}_2^{2+}$ ( <b>Mercurous</b> )  <b>All elements in Group 2A</b>	Chromium(III), $\text{Cr}^{3+}$ Cobalt(III), $\text{Co}^{3+}$ Gold(III), $\text{Au}^{3+}$ Iron(III), $\text{Fe}^{3+}$ ( <b>Ferric</b> ) Manganese(III), $\text{Mn}^{3+}$ Nickel(III), $\text{Ni}^{3+}$ Boron, $\text{B}^{3+}$ Aluminum, $\text{Al}^{3+}$ Gallium, $\text{Ga}^{3+}$ Indium, $\text{In}^{3+}$	Lead(IV), $\text{Pb}^{4+}$ ( <b>Plumbic</b> ) Manganese(IV), $\text{Mn}^{4+}$ Silicon(IV), $\text{Si}^{4+}$ Tin(IV), $\text{Sn}^{4+}$ ( <b>Stannic</b> )  <b>Group 4A</b>

## --- Negative Ions ---

1-	2-	3-	4-
Acetate, $\text{C}_2\text{H}_3\text{O}_2^-$ Bicarbonate, $\text{HCO}_3^-$ Chlorate, $\text{ClO}_3^-$ Chlorite, $\text{ClO}_2^-$ Cyanide, $\text{CN}^-$ Hydroxide, $\text{OH}^-$ Hypochlorite, $\text{ClO}^-$ Nitrate, $\text{NO}_3^-$ Nitrite, $\text{NO}_2^-$ Perchlorate, $\text{ClO}_4^-$ Permanganate, $\text{MnO}_4^-$ Thiocyanide, $\text{SCN}^-$  <b>All elements in Group 7A (Halogens)</b>	Carbonate, $\text{CO}_3^{2-}$ Peroxide, $\text{O}_2^{2-}$ Sulfate, $\text{SO}_4^{2-}$ Sulfite, $\text{SO}_3^{2-}$ Chromate, $\text{CrO}_4^{2-}$ Dichromate, $\text{Cr}_2\text{O}_7^{2-}$ Oxalate, $\text{C}_2\text{O}_4^{2-}$ Thiosulfate, $\text{S}_2\text{O}_3^{2-}$  <b>All elements in Group 6A</b>	Phosphate, $\text{PO}_4^{3-}$ Phosphide, $\text{P}^{3-}$ Phosphite, $\text{PO}_3^{3-}$ Arsenate, $\text{AsO}_4^{3-}$  <b>All elements in Group 5A</b>	Carbide, $\text{C}^{4-}$  <b>Group 4A</b>

Prefixes		Common Molecular Gases	Common Acids	Diatomic Elements
One- mono	Six – hexa	$\text{F}_2, \text{Cl}_2, \text{H}_2, \text{N}_2, \text{O}_2, \text{SO}_2,$ $\text{SO}_3, \text{CO}, \text{CO}_2, \text{H}_2\text{S},$ $\text{NO}, \text{NO}_2, \text{NH}_3, \text{P}_2\text{O}_3,$ $\text{P}_2\text{O}_5, \text{SiF}_4, \text{HCl}, \text{HBr},$ $\text{HI}, \text{HF}, \text{N}_2\text{O}_5, \text{N}_2\text{O}_3,$ $\text{N}_2\text{O}$	Hydrochloric acid <b>HCl</b>	Hydrogen <b>H<sub>2</sub></b>
Two- di	Seven – hepta		Sulfuric acid <b>H<sub>2</sub>SO<sub>4</sub></b>	Nitrogen <b>N<sub>2</sub></b>
Three- tri	Eight – octa		Nitric <b>HNO<sub>3</sub></b>	Oxygen <b>O<sub>2</sub></b>
Four – tetra	Nine – nona		Phosphoric <b>H<sub>3</sub>PO<sub>4</sub></b>	Flourine <b>F<sub>2</sub></b>
Five- penta	Ten - deca		Acetic <b>HC<sub>2</sub>H<sub>3</sub>O<sub>2</sub></b>	Chlorine <b>Cl<sub>2</sub></b>
			<b>Common Base</b>	Bromine <b>Br<sub>2</sub></b>
			Ammonia <b>NH<sub>3</sub></b>	Iodine <b>I<sub>2</sub></b>

Polyatomic Ions Containing Oxygen**		Acid Nomenclature*	
Per-.....-ate	Greatest number of oxygens	Per-.....-ic	Greatest number of oxygen atoms
.....-ate	Greater	.....-ic	Greater
.....-ite	Smaller	.....-ous	Smaller
Hypo.....-ite	Smallest number of oxygens	Hypo.....-ous	Smallest number of oxygen atoms

\*Acids- Acids are molecular compounds that contain hydrogen bonded to a nonmetal to a group of atoms that behave like a nonmetal. Acids can be either binary or ternary compounds. The names of binary acids have the form Hydro-.....-ic acids. The names of ternary acids use a series of prefixes and suffixes to specify the relative number of oxygen atoms in the molecule.

\*\*Names of polyatomic ions containing oxygen- some elements form several polyatomic ions with oxygen. A series of suffixes and prefixes is used to specify the relative number of oxygen atoms.

# Dougherty Valley HS Honors Chemistry

## Strong Acid, Strong Base Handout

7 Strong Acids (H <sup>+</sup> ) All other acids are weak			8 Strong Bases (OH <sup>-</sup> ) All other bases are weak	
Hydrochloric acid	HCl		Lithium hydroxide	LiOH
Hydrobromic acid	HBr		Sodium hydroxide	NaOH
Hydroiodic	HI		Potassium hydroxide	KOH
Perchloric acid	HClO <sub>4</sub>		Rubidium hydroxide	RbOH
Chloric acid	HClO <sub>3</sub>		Cesium hydroxide	CsOH
Nitric acid	HNO <sub>3</sub>		Calcium hydroxide	Ca(OH) <sub>2</sub>
Sulfuric acid	H <sub>2</sub> SO <sub>4</sub>		Strontium hydroxide	Sr(OH) <sub>2</sub>
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Memorize these 15, ALL ELSE ARE considered WEAK