

Common Ions

Memorize this stuff NOW!

Pop quizzes all year long!

+++ **Positive Ions** +++

1+	2+	3+	4+
Ammonium, NH_4^+ Copper(I), Cu^+ (<i>Cuprous</i>) Silver, Ag^+ Gold (I), Au^+ And all elements in Group IA	Cadmium, Cd^{2+} Chromium(II), Cr^{2+} Cobalt(II), Co^{2+} Copper(II), Cu^{2+} (<i>Cupric</i>) Iron(II), Fe^{2+} (<i>Ferrous</i>) Lead(II), Pb^{2+} (<i>Plumbous</i>) Manganese(II), Mn^{2+} Mercury(II), Hg^{2+} (<i>Mercuric</i>) Nickel(II), Ni^{2+} Tin(II), Sn^{2+} (<i>Stannous</i>) Zinc, Zn^{2+} Mercury(I), Hg_2^{2+} (<i>Mercurous</i>) And all elements in Group 2A	Chromium(III), Cr^{3+} Cobalt(III), Co^{3+} Gold(III), Au^{3+} Iron(III), Fe^{3+} (<i>Ferric</i>) Manganese(III), Mn^{3+} Nickel(III), Ni^{3+} Boron, B^{3+} Aluminum, Al^{3+} Gallium, Ga^{3+} Indium, In^{3+}	Lead(IV), Pb^{4+} (<i>Plumbic</i>) Manganese(IV), Mn^{4+} Silicon(IV), Si^{4+} Tin(IV), Sn^{4+} (<i>Stannic</i>) And Group 4A can potentially make 4+ if under right circumstances

--- **Negative Ions** ---

1-	2-	3-	4-
Acetate, $\text{C}_2\text{H}_3\text{O}_2^-$ Bicarbonate, HCO_3^- Chlorate, ClO_3^- Chlorite, ClO_2^- Cyanide, CN^- Hydride, H^- Hydroxide, OH^- Hypochlorite, ClO^- Nitrate, NO_3^- Nitrite, NO_2^- Perchlorate, ClO_4^- Permanganate, MnO_4^- Thiocyanate, SCN^- And all elements in Group 7A (Halogens)	Carbonate, CO_3^{2-} Peroxide, O_2^{2-} Sulfate, SO_4^{2-} Sulfite, SO_3^{2-} Chromate, CrO_4^{2-} Dichromate, $\text{Cr}_2\text{O}_7^{2-}$ Oxalate, $\text{C}_2\text{O}_4^{2-}$ Thiosulfate, $\text{S}_2\text{O}_3^{2-}$ And all elements in Group 6A	Phosphate, PO_4^{3-} Phosphide, P^{3-} Phosphite, PO_3^{3-} Arsenate, AsO_4^{3-} And all elements in Group 5A	Carbide, C^{4-} And Group 4A can potentially make 4- if under right circumstances

Prefixes		Common Molecular Gases	Common Acids	Diatomic Elements
One- mono	Six – hexa	$\text{F}_2, \text{Cl}_2, \text{H}_2, \text{N}_2, \text{O}_2, \text{SO}_2,$ $\text{SO}_3, \text{CO}, \text{CO}_2, \text{H}_2\text{S},$ $\text{NO}, \text{NO}_2, \text{NH}_3, \text{P}_2\text{O}_3,$ $\text{P}_2\text{O}_5, \text{SiF}_4, \text{HCl}, \text{HBr},$ $\text{HI}, \text{HF}, \text{N}_2\text{O}_5, \text{N}_2\text{O}_3,$ N_2O	Hydrochloric acid HCl	Hydrogen H₂
Two- di	Seven – hepta		Sulfuric acid H₂SO₄	Nitrogen N₂
Three- tri	Eight – octa		Nitric HNO₃	Oxygen O₂
Four – tetra	Nine – nona		Phosphoric H₃PO₄	Flourine F₂
Five- penta	Ten - deca		Acetic HC₂H₃O₂	Chlorine Cl₂
			Common Base	Bromine Br₂
			Ammonia NH₃	Iodine I₂

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.