

Chemistry Reference Sheet

		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18							
		1A		2A		3B		4B		5B		6B		7B		8B		9A		10A		11A		12B		13A		14A		15A		16A		17A		8A							
		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18							
		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18							
		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18							
		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18							
		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18							
		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18							
		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18							
		1	1	3	11	19	37	55	87	101	119	137	152	173	197	223	227	88	88	89	89	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88				
		H	Li	Na	K	Rb	Cs	Fr																																			
		Hydrogen	Lithium	Sodium	Potassium	Rubidium	Cesium	Francium																																			
		1.01	6.94	22.99	39.10	85.47	132.91	(223)																																			
			Be	Mg	Ca	Sr	Ba	Ra																																			
			Beryllium	Magnesium	Calcium	Strontium	Barium	Radium																																			
			9.01	24.31	40.08	87.62	137.33	(226)																																			
			B	Al	Ga	In	Tl	Pb																																			
			Boron	Aluminum	Gallium	Indium	Thallium	Lead																																			
			10.81	26.98	69.72	114.82	204.38	207.2																																			
			C	Si	Ge	Sn	Pb																																				
			Carbon	Silicon	Germanium	Tin	Lead																																				
			12.01	28.09	72.61	118.71	207.2																																				
			N	P	As	Sb	Bi	Po																																			
			Nitrogen	Phosphorus	Arsenic	Antimony	Bismuth	Polonium																																			
			14.01	30.97	74.92	121.76	208.98	(209)																																			
			O	S	Se	Te	Po																																				
			Oxygen	Sulfur	Selenium	Tellurium	Polonium																																				
			16.00	32.07	78.96	127.60	(209)																																				
			F	Cl	Br	I	At																																				
			Fluorine	Chlorine	Bromine	Iodine	Astatine																																				
			19.00	35.45	79.90	126.90	(210)																																				
			Ne	Ar	Kr	Xe	Rn	Og																																			
			Neon	Argon	Krypton	Xenon	Radon	Oganesson																																			
			20.18	39.95	83.80	131.29	(222)	(294)																																			

Key

11 — Atomic number
Na — Element symbol
 Sodium — Element name
22.99 — Average atomic mass*

58	Ce Cerium 140.12	59	Pr Praseodymium 140.91	60	Nd Neodymium 144.24	61	Pm Promethium (145)	62	Sm Samarium 150.36	63	Eu Europium 151.96	64	Gd Gadolinium 157.25	65	Tb Terbium 158.93	66	Dy Dysprosium 162.50	67	Ho Holmium 164.93	68	Er Erbium 167.26	69	Tm Thulium 168.93	70	Yb Ytterbium 173.04	71	Lu Lutetium 174.97
90	Th Thorium 232.04	91	Pa Protactinium 231.04	92	U Uranium 238.03	93	Np Neptunium (237)	94	Pu Plutonium (244)	95	Am Americium (243)	96	Cm Curium (247)	97	Bk Berkelium (247)	98	Cf Californium (251)	99	Es Einsteinium (252)	100	Fm Fermium (257)	101	Md Mendelevium (258)	102	No Nobelium (259)	103	Lr Lawrencium (262)

* If this number is in parentheses, then it refers to the atomic mass of the most stable isotope.

Memorize this stuff NOW!
Pop quizzes all year long!

Ion Sheet

+++ **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(II), 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^- 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.