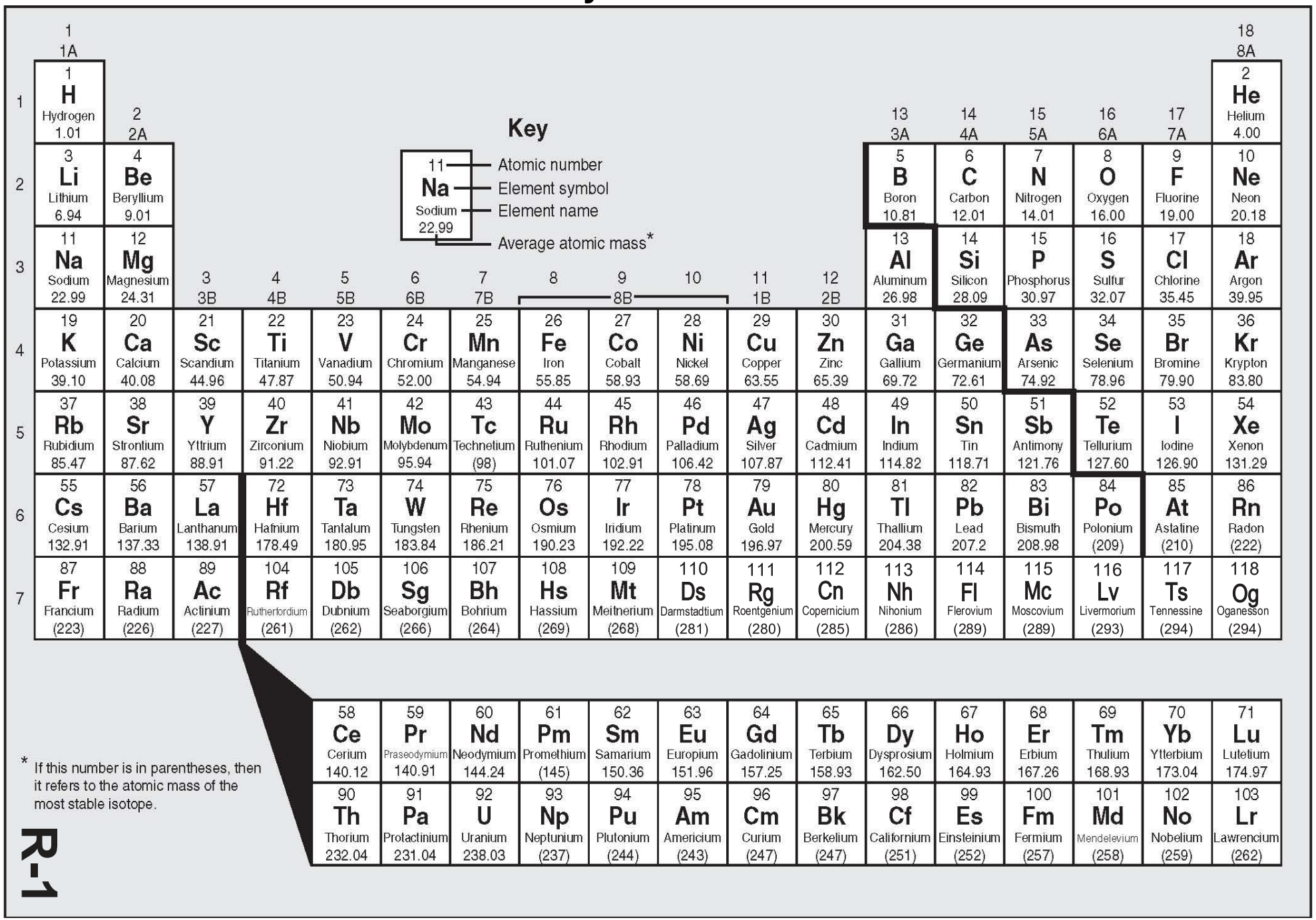
Chemistry Reference Sheet



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

R-1

Common Ions

Memorize this stuff NOW!
Pop quizzes all year long!

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

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

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

1-	2-	3-	4-
Acetate, $C_2H_3O_2^-$ 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 elemens 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, $Cr_2O_7^{2-}$ Oxalate, $C_2O_4^{2-}$ Thiosulfate, $S_2O_3^{2-}$ **And all elements in Group 6A**	Borate, BO_3^{3-} 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 Two- di Three- tri Four – tetra Five- penta	Six – hexa Seven – hepta Eight – octa Nine – nona Ten - deca	F_2, Cl_2, H_2, N_2, O_2, SO_2, SO_3, CO, CO_2, H_2S, NO, NO_2, NH_3, P_2O_3, P_2O_5, SiF_4, HCl, HBr, HI, HF, N_2O_5, N_2O_3, N_2O	Hydrochloric acid **HCl** Sulfuric acid **H_2SO_4** Nitric **HNO_3** Phosphoric **H_3PO_4** **Common Base** Ammonia **NH_3**	Hydrogen **H_2** Nitrogen **N_2** Oxygen **O_2** Flourine **F_2** Chlorine **Cl_2** Bromine **Br_2** Iodine **I_2**

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.