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| **Starts with →** | Starts with: ***Metal or NH4+1*** | Starts with: ***H*** | Starts with: ***Nonmetal*** |
| **Compound Type** | **IONIC** | **ACID** | **COVALENT** |
| **Writing Formulas** | 1) Write symbols and charges for ions  BINARY compound names end in –ide.  Compounds with polyatomic anions end  in “–ate or –ite” *except* –OH 1-, CN 1-  and (O2) 1-. *See chart below the*  *periodic table.*  2) Use subscripts to “balance” charge and  produce neutral compound  (total charge = zero)  3) Rewrite formula without charges.  aluminum oxide Al3+ O2-  Al2O3  ammonium iodide NH41- I1- NH4I  bismuth (V) nitrate Bi5+ NO31-  Bi(NO3)5  lead (IV) sulfide Pb4+ S2- PbS2 | 1) Write H+1  2) If name starts with “hydro-”, it is a  BINARY acid (H + nonmetal ion)  Determine symbol of nonmetal ion  from acid name. Write symbols/charges  and use subscripts to produce neutral  compound.  3) If name does not start with “hydro-”,  determine polyatomic ion from root  name and acid ending. “-ic” came from  “-ate” and “-ous” came from “ite”.  hydrochloric acid H+ Cl1- HCl  perchloric acid H1+ ClO41- HClO4  sulfurous acid H1+ SO32- H2SO3 | All of these will be BINARY covalent  (containing 2 nonmetals)  Examine the compound name to  determine the 2 nonmetal elements in  the compound. Determine subscripts  for the formula by looking at the  prefixes in the name.    mono- 1; di- 2; tri- 3; tetra-4;  penta- 5; hexa- 6; hepta- 7;  octa-8, nona-9; deca-10  carbon dioxide CO2  diphosphorus pentoxide P2O5 |
| **Naming**  **Compounds** | 1) *BINARY*  a) fixed charge metals  ***name of metal “root of Nm” + -ide***  BaBr2 barium bromide  b) variable charge metals  determine M charge from Nm charge  ***name of M (Roman #) “root of Nm” ide***  CuCl2 Cu 2+ Cl 1-  copper (II) chloride  2) Compounds with *POLYATOMIC* ions  ***name Metal (R#?) name polyatomic***  ***(or ammonium)***  NH4Iammonium iodide  Bi(NO3)5 bismuth (V) nitrate  Bi5+ NO31-    *Variable Metals “are in the middle”* | *BINARY*  ***hydro(root of Nm)ic acid***  HCl (hydrogen chloride)  ***becomes***  hydrochloric acid  *OXYACIDS*  ***root (ic) acid***  HClO4 (hydrogen perchlorate)  ***becomes***  perchloric acid  H2SO3 (hydrogen sulfite)  ***becomes***  sulfurous acid  Remember “I –ate something –ic ky”  and senior-ite -ous | *Binary Nonmetal /Nometal*  prefix + Nm name prefix + Nm root-ide  (only if >1) (always)  CO2 carbon dioxide    CO carbon ***mon***oxide  P2O5 diphosphorus pentoxide  \*drop “a” or “o” from the prefix when  naming oxides |