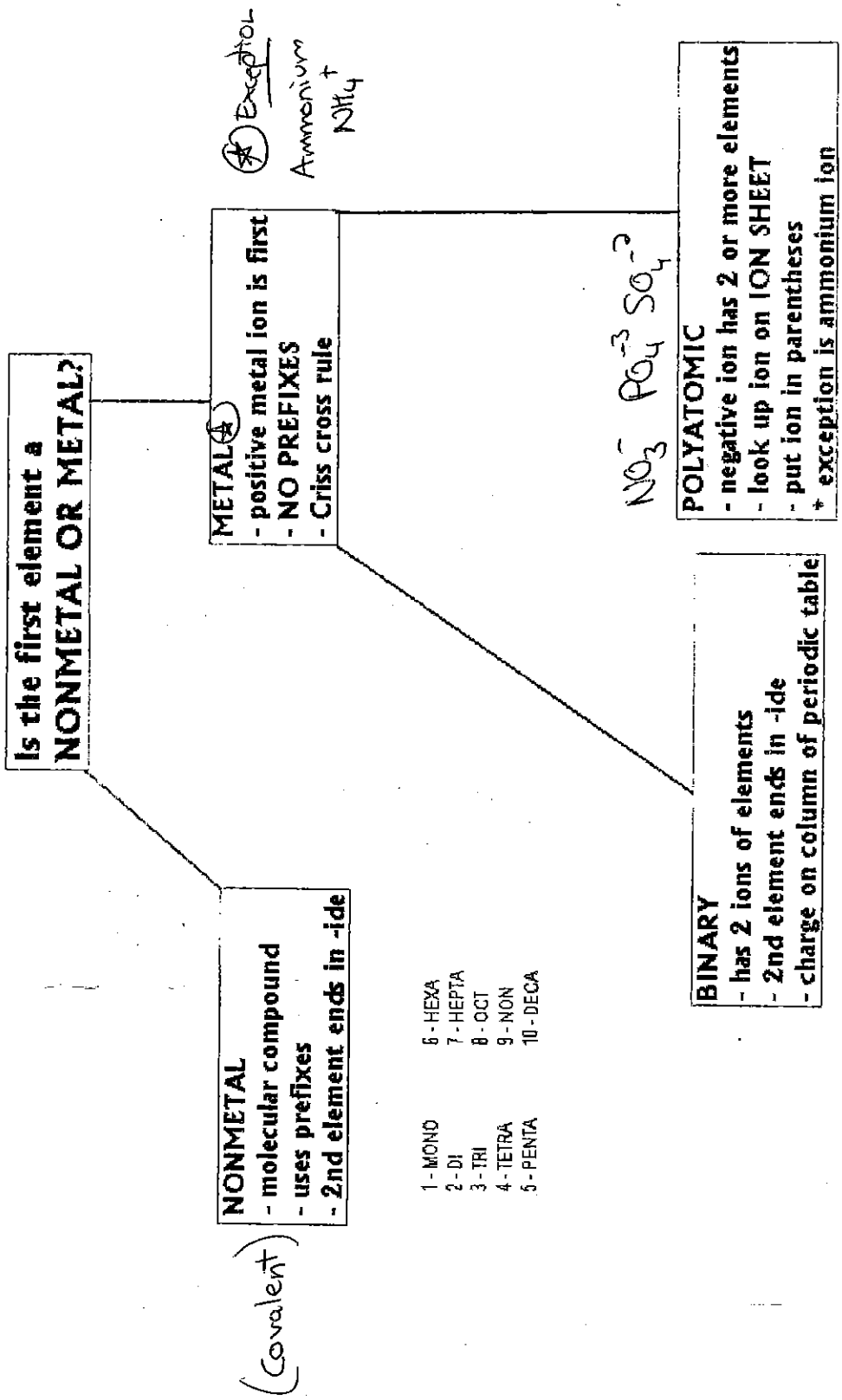


Chemistry

Naming Compounds Flow Chart  
Use this Chart to aid you naming compounds



## WORKSHEET: BINARY MOLECULAR COMPOUNDS

### PREFIXES USED FOR WRITING FORMULAS FOR BINARY MOLECULAR COMPOUNDS:

Mono-	1	Hexa-	6
Di-	2	Hepta-	7
Tri-	3	Octa-	8
Tetra-	4	Nona-	9
Penta-	5	Deca-	10

Part I. Write formulas for the following compounds using prefixes and chemical symbols for the elements.

- a. nitrogen dioxide  $\text{NO}_2$
- b. nitrogen monoxide  $\text{NO}$
- c. diphosphorus pentasulfide  $\text{P}_2\text{S}_5$
- d. iodine heptachloride  $\text{ICl}_7$
- e. silicon tetrafluoride  $\text{SiF}_4$
- f. oxygen difluoride  $\text{OF}_2$
- g. disulfur dibromide  $\text{S}_2\text{Br}_2$
- h. carbon tetraiodide  $\text{CI}_4$
- i. diphosphorus trioxide  $\text{P}_2\text{O}_3$
- j. arsenic tribromide  $\text{AsBr}_3$

Part II. Name the following binary molecular compounds using the prefix system.

- a.  $\text{NH}_3$  Nitrogen Trihydride
- b.  $\text{SF}_6$  Sulfur Hexafluoride
- c.  $\text{N}_2\text{O}$  Dinitrogen Oxide
- d.  $\text{PCl}_3$  Phosphorus Trichloride
- e.  $\text{Cl}_2\text{O}_8$  Dichlorine Octoxide

NAME \_\_\_\_\_

PERIOD \_\_\_\_\_

## I. WRITE FORMULAS FOR THE FOLLOWING BINARY MOLECULAR COMPOUNDS:

(a) hydrogen chloride  $\text{HCl}$ (i) tetraphosphorus heptoxide  $\text{P}_4\text{O}_7$ (b) sulfur dichloride  $\text{SCl}_2$ (j) arsenic pentachloride  $\text{AsCl}_5$ (c) nitrogen trifluoride  $\text{NF}_3$ (k) iodine tribromide  $\text{IBr}_3$ (d) aluminum trifluoride  $\text{AlF}_3$ (l) silicon dioxide  $\text{SiO}_2$ (e) dinitrogen difluoride  $\text{N}_2\text{F}_2$ (m) iron dichloride  $\text{FeCl}_2$ (f) carbon disulfide  $\text{CS}_2$ (n) diphosphorus pentoxide  $\text{P}_2\text{O}_5$ (g) phosphorus pentachloride  $\text{PCl}_5$ (o) nitrogen trihydride  $\text{NH}_3$ (h) tungsten hexachloride  $\text{WCl}_6$ (p) iron tribromide  $\text{FeBr}_3$ 

## II. NAME THE FOLLOWING BINARY COMPOUNDS:

(a)  $\text{HF}$  Hydrogen Fluoride(b)  $\text{NO}_2$  Nitrogen Dioxide(c)  $\text{SO}_3$  Sulfur Trioxide(d)  $\text{PCl}_5$  Phosphorus Pentachloride(e)  $\text{NO}$  Nitrogen Monoxide(f)  $\text{IBr}_3$  Iodine Tribromide(g)  $\text{S}_4\text{N}_2$  Tetrasulfur Dinitride(h)  $\text{SiC}$  Silicon Carbide

Name: \_\_\_\_\_ Date: \_\_\_\_\_

	Name	Formula
1	Dibromine Monoxide	$Br_2O$
2	Heptacarbon NonaSulfide	$C_7S_9$
3	Trinitrogen Octahydride	$N_3H_8$
4	Phosphorus Pentachloride	$PCl_5$
5	Tetraselenium Heptafluoride	$Se_4F_7$
6	Arsenic Trichloride	$AsCl_3$
7	Diiodine HeptaFluoride	$I_2F_7$
8	Tetraphosphorus Decoxide	$P_4O_{10}$
9	Tetrahydrogen Telleride	$H_4Te$
10	Iron Trichloride	$FeCl_3$

# NAMING MOLECULAR COMPOUNDS

Name \_\_\_\_\_

Name the following covalent compounds.

1.  $\text{CO}_2$  Carbon Dioxide
2.  $\text{CO}$  Carbon Monoxide
3.  $\text{SO}_2$  Sulfur Dioxide
4.  $\text{SO}_3$  Sulfur Trioxide
5.  $\text{N}_2\text{O}$  Dinitrogen Monoxide
6.  $\text{NO}$  Nitrogen Monoxide
7.  $\text{N}_2\text{O}_3$  Dinitrogen Trioxide
8.  $\text{NO}_2$  Nitrogen Dioxide
9.  $\text{N}_2\text{O}_4$  Dinitrogen Tetroxide
10.  $\text{N}_2\text{O}_5$  Dinitrogen Pentoxide
11.  $\text{PCl}_3$  Phosphorus Trichloride
12.  $\text{PCl}_5$  Phosphorus Pentachloride
13.  $\text{NH}_3$  Nitrogen Trihydride
4.  $\text{SCl}_6$  Sulfur hexachloride
5.  $\text{P}_2\text{O}_5$  Diphosphorus Pentoxide
6.  $\text{CCl}_4$  Carbon Tetrachloride
7.  $\text{SiO}_2$  Silicon Dioxide
3.  $\text{CS}_2$  Carbon Disulfide
7.  $\text{OF}_2$  Oxygen Difluoride
1.  $\text{PBr}_3$  Phosphorus Tribromide

# NAMING IONIC COMPOUNDS

Name \_\_\_\_\_

Name the following compounds using the Stock Naming System.

1.  $\text{CaCO}_3$  Calcium Carbonate
2.  $\text{KCl}$  Potassium Chloride
3.  $\text{FeSO}_4$  Iron (II) Sulfate
4.  $\text{LiBr}$  Lithium Bromide
5.  $\text{MgCl}_2$  Magnesium Chloride
6.  $\text{FeCl}_3$  Iron (III) Chloride
7.  $\text{Zn}_3(\text{PO}_4)_2$  Zinc Phosphate
8.  $\text{NH}_4\text{NO}_3$  Ammonium Nitrate
9.  $\text{Al}(\text{OH})_3$  Aluminum Hydroxide
10.  $\text{CuC}_2\text{H}_3\text{O}_2$  Copper (II) Acetate
11.  $\text{PbSO}_3$  Lead (II) Sulfite
12.  $\text{NaClO}_3$  Sodium Chlorate
13.  $\text{CaC}_2\text{O}_4$  Calcium Oxalate
14.  $\text{Fe}_2\text{O}_3$  Iron (III) Oxide
15.  $(\text{NH}_4)_3\text{PO}_4$  Ammonium Phosphate
16.  $\text{NaHSO}_4$  Sodium Bisulfate or Sodium Hydrogen Sulfate
17.  $\text{Hg}_2\text{Cl}_2$  Mercury (I) Chloride
18.  $\text{Mg}(\text{NO}_2)_2$  Magnesium Nitrite
19.  $\text{CuSO}_4$  Copper (II) Sulfate
20.  $\text{NaHCO}_3$  Sodium Bicarbonate or Sodium Hydrogen Carbonate
21.  $\text{NiBr}_3$  Nickel (III) Bromide
22.  $\text{Be}(\text{NO}_3)_2$  Beryllium Nitrate
23.  $\text{ZnSO}_4$  Zinc Sulfate
24.  $\text{AuCl}_3$  Gold Chloride
25.  $\text{KMnO}_4$  Potassium Permanganate

## Lots of Ionic Naming Practice Problems

Name the following ionic compounds:

- 1)  $\text{NaBr}$  Sodium Bromide
- 2)  $\text{Sc(OH)}_3$  Scandium Hydroxide
- 3)  $\text{V}_2(\text{SO}_4)_3$  Vanadium (III) Sulfate
- 4)  $\text{NH}_4\text{F}$  Ammonium Fluoride
- 5)  $\text{CaCO}_3$  Calcium Carbonate
- 6)  $\text{NiPO}_4$  Nickel (II) Phosphate
- 7)  $\text{Li}_2\text{SO}_3$  Lithium Sulfite
- 8)  $\text{Zn}_3\text{P}_2$  Zinc Phosphide
- 9)  $\text{Sr}(\text{C}_2\text{H}_3\text{O}_2)_2$  Strontium Acetate
- 10)  $\text{Cu}_2\text{O}$  Copper (I) Oxide
- 11)  $\text{Ag}_3\text{PO}_4$  Silver Phosphate
- 12)  $\text{YClO}_3$  Yttrium Chlorate
- 13)  $\text{SnS}_2$  Tin (IV) Sulfide
- 14)  $\text{Ti}(\text{CN})_4$  Titanium (IV) Cyanide
- 15)  $\text{KMnO}_4$  Potassium Permanganate
- 16)  $\text{Pb}_3\text{N}_2$  Lead (II) Nitride
- 17)  $\text{CoCO}_3$  Cobalt Carbonate
- 18)  $\text{CdSO}_3$  Cadmium Sulfite
- 19)  $\text{Cu}(\text{NO}_2)_2$  Copper (II) Nitrite
- 20)  $\text{Fe}(\text{HCO}_3)_2$  Iron (II) Bicarbonate

Write the formulas for the following ionic compounds:

- 21) lithium acetate  $\text{Li}^+ \text{C}_2\text{H}_3\text{O}_2^-$   $\text{LiC}_2\text{H}_3\text{O}_2$
- 22) iron (II) phosphate  $\text{Fe}^{+2} \text{PO}_4^{-3}$   $\text{Fe}_3(\text{PO}_4)_2$
- 23) titanium (II) selenide  $\text{Ti}^{+2} \text{Se}^{-2}$   $\text{TiSe}$
- 24) calcium bromide  $\text{Ca}^{+2} \text{Br}^-$   $\text{CaBr}_2$
- 25) gallium chloride  $\text{Ga}^{+3} \text{Cl}^-$   $\text{GaCl}_3$
- 26) sodium hydride  $\text{Na}^+ \text{H}^-$   $\text{NaH}$
- 27) beryllium hydroxide  $\text{Be}^{+2} \text{OH}^-$   $\text{Be}(\text{OH})_2$
- 28) zinc carbonate  $\text{Zn}^{+2} \text{CO}_3^{-2}$   $\text{ZnCO}_3$
- 29) manganese (VII) arsenide  $\text{Mn}^{+7} \text{As}^{-3}$   $\text{Mn}_3\text{As}_7$
- 30) copper (II) chlorate  $\text{Cu}^{+2} \text{ClO}_3^-$   $\text{Cu}(\text{ClO}_3)_2$
- 31) cobalt (III) chromate  $\text{Co}^{+3} \text{CrO}_4^{-2}$   $\text{Co}_2(\text{CrO}_4)_3$
- 32) ammonium oxide  $\text{NH}_4^+ \text{O}^{-2}$   $(\text{NH}_4)_2\text{O}$
- 33) potassium hydroxide  $\text{K}^+ \text{OH}^-$   $\text{KOH}$
- 34) lead (IV) sulfate  $\text{Pb}^{+4} \text{SO}_4^{-2}$   $\text{Pb}(\text{SO}_4)_2$
- 35) silver cyanide  $\text{Ag}^+ \text{CN}^-$   $\text{AgCN}$
- 36) vanadium (V) nitride  $\text{V}^{+5} \text{N}^{-3}$   $\text{V}_2\text{N}_5$
- 37) strontium acetate  $\text{Sr}^{+2} \text{C}_2\text{H}_3\text{O}_2^-$   $\text{Sr}(\text{C}_2\text{H}_3\text{O}_2)_2$
- 38) molybdenum sulfate  $\text{Mo}^{+6} \text{SO}_4^{-2}$   $\text{Mo}(\text{SO}_4)_3$
- 39) platinum (II) sulfide  $\text{Pt}^{+2} \text{S}^{-2}$   $\text{PtS}$
- 40) ammonium sulfate  $\text{NH}_4^+ \text{SO}_4^{-2}$   $(\text{NH}_4)_2\text{SO}_4$



# WRITING FORMULAS FROM NAMES

Name \_\_\_\_\_

Write the formulas of the following compounds.

- ammonium phosphate  $\text{NH}_4^+ \text{PO}_4^{3-}$   $(\text{NH}_4)_3\text{PO}_4$
- iron (II) oxide  $\text{Fe}^{+2} \text{O}^{-2}$   $\text{FeO}$
- iron (III) oxide  $\text{Fe}^{+3} \text{O}^{-2}$   $\text{Fe}_2\text{O}_3$
- carbon monoxide  $\text{CO}_2$  Molecular
- calcium chloride  $\text{Ca}^{+2} \text{Cl}^-$   $\text{CaCl}_2$
- potassium nitrate  $\text{K}^+ \text{NO}_3^-$   $\text{KNO}_3$
- magnesium hydroxide  $\text{Mg}^{+2} \text{OH}^-$   $\text{Mg}(\text{OH})_2$
- aluminum sulfate  $\text{Al}^{+3} \text{SO}_4^{2-}$   $\text{Al}_2(\text{SO}_4)_3$
- copper (II) sulfate  $\text{Cu}^{+2} \text{SO}_4^{2-}$   $\text{CuSO}_4$
- lead (IV) chromate  $\text{Pb}^{+4} \text{CrO}_4^{2-}$   $\text{Pb}(\text{CrO}_4)_2$
- diphosphorus pentoxide  $\text{P}_2\text{O}_5$  Molecular
- potassium permanganate  $\text{K}^+ \text{MnO}_4^{-1}$   $\text{KMnO}_4$
- sodium hydrogen carbonate  $\text{Na}^+ \text{HCO}_3^-$   $\text{NaHCO}_3$
- zinc nitrate  $\text{Zn}^{+2} \text{NO}_3^{-1}$   $\text{Zn}(\text{NO}_3)_2$
- aluminum sulfite  $\text{Al}^{+3} \text{SO}_3^{2-}$   $\text{Al}_2(\text{SO}_3)_3$

# NAMING MOLECULAR COMPOUNDS

- |   |   |
|---|---|
| <p>1. <math>\text{CaCl}_2</math>     <u>Calcium chloride</u></p>                    | <p>11. <math>\text{MgO}</math>     <u>Magnesium Oxide</u></p>                             |
| <p>2. <math>\text{CO}_2</math>     <u>Carbon dioxide</u> -Molecular</p>             | <p>12. <math>\text{NH}_4\text{Cl}</math>     <u>Ammonium Chloride</u></p>                 |
| <p>3. <math>\text{H}_2\text{O}</math>     <u>dihydrogen monoxide</u> -Molecular</p> | <p>13. <math>\text{HCl}</math>     <u>Hydrogen Chloride</u> -Molecular</p>                |
| <p>4. <math>\text{BaSO}_4</math>     <u>Barium Sulfate</u></p>                      | <p>14. <math>\text{KI}</math>     <u>Potassium Iodide</u></p>                             |
| <p>5. <math>\text{K}_2\text{O}</math>     <u>Potassium Oxide</u></p>                | <p>15. <math>\text{NaOH}</math>     <u>Sodium Hydroxide</u></p>                           |
| <p>6. <math>\text{NaF}</math>     <u>Sodium Fluoride</u></p>                        | <p>16. <math>\text{NO}_2</math>     <u>Nitrogen Dioxide</u> -Molecular</p>                |
| <p>7. <math>\text{Na}_2\text{CO}_3</math>     <u>Sodium Carbonate</u></p>           | <p>17. <math>\text{AlPO}_4</math>     <u>Aluminum Phosphate</u></p>                       |
| <p>8. <math>\text{CH}_4</math>     <u>Carbon Tetrahydride</u> -Molecular</p>        | <p>18. <math>\text{FeCl}_3</math>     <u>Iron (III) Chloride</u></p>                      |
| <p>9. <math>\text{SO}_3</math>     <u>Sulfur Trioxide</u> -Molecular</p>            | <p>19. <math>\text{P}_2\text{O}_5</math>     <u>Diphosphorus Pentoxide</u> -Molecular</p> |
| <p>10. <math>\text{LiBr}</math>     <u>Lithium Bromide</u></p>                      | <p>20. <math>\text{N}_2\text{O}_3</math>     <u>Dinitrogen Trioxide</u> -Molecular</p>    |