

## Nomenclature Worksheet 1: Monatomic Ions

Key

Use a periodic table to complete the table below:

Element Name	Element Symbol	Ion Name	Ion Formula
1. sodium	Na		Na <sup>+</sup>
2. bromine	Br	Bromide	Br <sup>-</sup>
3. magnesium	Mg		Mg <sup>+2</sup>
4. chlorine	Cl	Chloride	Cl <sup>-</sup>
5. oxygen	O	OXIDE	O <sup>-2</sup>
6. boron	B		B <sup>+3</sup>
7. lithium	Li		Li <sup>+1</sup>
8. neon	Ne		Ne
9. phosphorus	P	Phosphide	P <sup>-3</sup>
10. aluminum	Al		Al <sup>+3</sup>
11. calcium	Ca		Ca <sup>+2</sup>
12. iodine	I	Iodide	I <sup>-</sup>
13. nitrogen	N	Nitride	N <sup>-3</sup>
14. cesium	Cs		Cs <sup>+1</sup>
15. sulfur	S	Sulfide	S <sup>-2</sup>
16. fluorine	F	Fluoride	F <sup>-</sup>
17. potassium	K		K <sup>+1</sup>
18. barium	Ba		Ba <sup>+2</sup>
19. hydrogen	H		H <sup>+</sup>
20. helium	He		He

O<sub>2</sub>

N<sub>2</sub>

H<sub>2</sub>

\* Blank names = \_\_\_\_\_ ion  
or just element name  
for Nobel Gases

## Nomenclature Worksheet 2: Simple Binary Ionic Compounds

Please complete the following table:

Name of Ionic Compound	Formula of Ionic Compound
1. Sodium bromide <sup>+1</sup> <sup>-1</sup>	Na Br
2. Calcium chloride <sup>+2</sup> <sup>-1</sup>	Ca <sub>2</sub> Cl
3. Magnesium sulfide <sup>+2</sup> <sup>-2</sup>	Mg S
4. Aluminum oxide <sup>+3</sup> <sup>-2</sup>	Al <sub>3</sub> O <sub>2</sub>
5. Lithium phosphide <sup>+1</sup> <sup>-3</sup>	Li <sub>3</sub> P
6. Cesium nitride <sup>+1</sup> <sup>-3</sup>	Cs <sub>3</sub> N
7. Potassium iodide <sup>+1</sup> <sup>-1</sup>	K I
8. Barium fluoride <sup>+2</sup> <sup>-1</sup>	Ba F <sub>2</sub>
9. Rubidium nitride <sup>+1</sup> <sup>-3</sup>	Rb <sub>3</sub> N <sub>1</sub>
10. Barium oxide <sup>+2</sup> <sup>-2</sup>	Ba O
11. Potassium Oxide	K <sub>2</sub> O
12. Magnesium Iodide	MgI <sub>2</sub>
13. Aluminum Chloride	AlCl <sub>3</sub>
14. Calcium Bromide	CaBr <sub>2</sub>
15. Sodium Nitride	Na <sub>3</sub> N
16. Lithium Fluoride	LiF
17. Barium Phosphide	Ba <sub>3</sub> P <sub>2</sub>
18. Cesium Sulfide	Cs <sub>2</sub> S
19. Strontium Fluoride	SrF <sub>2</sub>
20. Sodium Chloride	NaCl

### Nomenclature Worksheet 3: Ionic Compounds Containing Polyatomic Ions

Please complete the following table:

Name of Ionic Compound	Formula of Ionic Compound
1. Sodium <sup>+1</sup> chromate <sup>2-</sup> $\text{CrO}_4^{2-}$	$\text{Na}_2\text{CrO}_4$
2. Calcium <sup>+2</sup> carbonate <sup>2-</sup> $\text{CO}_3^{2-}$	$\text{CaCO}_3$
3. Magnesium <sup>+2</sup> nitrate <sup>1-</sup> $\text{NO}_3^-$	$\text{Mg}(\text{NO}_3)_2$
4. Aluminum <sup>+3</sup> sulfate <sup>2-</sup> $\text{SO}_4^{2-}$	$\text{Al}_2(\text{SO}_4)_3$
5. Lithium <sup>+1</sup> phosphate <sup>3-</sup> $\text{PO}_4^{3-}$	$\text{Li}_3(\text{PO}_4)$
6. Ammonium <sup>+1</sup> chloride <sup>-1</sup> $\text{NH}_4^+$	$\text{NH}_4\text{Cl}$
7. Cesium <sup>+1</sup> chlorate <sup>-1</sup> $\text{ClO}_3^-$	$\text{CsClO}_3$
8. Potassium <sup>+1</sup> sulfate <sup>2-</sup> $\text{SO}_4^{2-}$	$\text{K}_2(\text{SO}_4)$
9. Barium <sup>+2</sup> acetate <sup>-1</sup> $\text{CH}_3\text{COO}^-$	$\text{Ba}(\text{C}_2\text{H}_3\text{O}_2)_2$
10. Rubidium <sup>+1</sup> cyanide <sup>-1</sup> $\text{CN}^-$	$\text{RbCN}$
11. Potassium Acetate	$\text{KCH}_3\text{CO}_2$
12. Magnesium Phosphate	$\text{Mg}_3(\text{PO}_4)_2$
13. Aluminum Chlorate	$\text{Al}(\text{ClO}_3)_3$
14. Calcium Sulfate	$\text{CaSO}_4$
15. Strontium Bicarbonate	$\text{Sr}(\text{HCO}_3)_2$
16. Sodium Nitrate	$\text{NaNO}_3$
17. Lithium Carbonate	$\text{Li}_2\text{CO}_3$
18. Barium Nitrate	$\text{Ba}(\text{NO}_3)_2$
19. Cesium Chromate	$\text{Cs}_2\text{CrO}_4$
20. Ammonium Hydroxide	$\text{NH}_4\text{OH}$

**Nomenclature Worksheet 4:**  
**Ionic Compounds Containing Transition Metals**

Please complete the following table:

Name of Ionic Compound	Formula of Ionic Compound
1. Copper (II) sulfate <sup>-2</sup>	CuSO <sub>4</sub>
2. Copper (I) oxide <sup>-2</sup>	Cu <sub>2</sub> O
3. Chromium (III) cyanide	Cr(CN) <sub>3</sub>
4. Cobalt (II) hydroxide	Co(OH) <sub>2</sub>
5. Silver bromide <sup>-1</sup>	AgBr
6. Zinc nitrate	Zn(NO <sub>3</sub> ) <sub>2</sub>
7. Iron (III) acetate <sup>-1</sup>	Fe(C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> ) <sub>3</sub>
8. Lead (IV) sulfate <sup>-2</sup>	Pb <sub>2</sub> (SO <sub>4</sub> ) <sub>4</sub>
9. Iron (II) Chloride	FeCl <sub>2</sub>
10. Lead Sulfate	PbSO <sub>3</sub>
11. Calcium Carbonate	Ca <sub>2</sub> (CO <sub>3</sub> ) <sub>3</sub> Ca <sub>2</sub> (CO <sub>3</sub> ) <sub>3</sub>
12. Silver Nitrate	AgNO <sub>3</sub>
13. Zinc Cyanide	Zn(CN) <sub>2</sub>
14. Copper (I) Chlorate	CuClO <sub>3</sub>
15. Chromium (III) Hydroxide	Cr(OH) <sub>3</sub>
16. Mercury (I) Oxide	Hg <sub>2</sub> O

## Nomenclature Worksheet 5: Ionic Compounds Summary

Name the following compounds:

1.  $\text{CaF}_2$  Calcium Fluoride
2.  $\text{Na}_2\text{O}$  Sodium Oxide
3.  $\text{BaS}$  Barium Sulfide
4.  $\text{CuSO}_4$  Copper(II) Sulfate
5.  $\text{Fe}_2\text{O}_3$  Iron (III) Oxide
6.  $\text{HgCl}_2$  Mercury (II) Chloride
7.  $\text{AgNO}_3$  Silver Nitrate
8.  $\text{MgCO}_3$  Magnesium Carbonate
9.  $\text{KC}_2\text{H}_3\text{O}_2$  Potassium Acetate
10.  $\text{K}_2\text{Cr}_2\text{O}_7$  Potassium Chromate
11.  $\text{Al}(\text{OH})_3$  Aluminum Hydroxide
12.  $\text{PbBr}_2$  Lead (II) Bromide
13.  $\text{ZnSO}_3$  Zinc Sulfate
14.  $\text{NaHCO}_3$  Sodium Bicarbonate
15.  $\text{NH}_4\text{Cl}$  Ammonium Chloride
16.  $\text{Li}_3\text{PO}_4$  Lithium Phosphate
17.  $\text{SnCl}_2$  tin Chloride
18.  $\text{Al}(\text{NO}_2)_3$  Aluminum Nitrite
19.  $\text{Rb}_2\text{CrO}_4$  Rubidium Chromate
20.  $\text{KMnO}_4$  Potassium Permanganate
21.  $\text{CuCl}$  Copper(I) Chloride
22.  $\text{FeSO}_4$  Iron Sulfate

Give the formula for each compound:

23. sodium fluoride  $\text{NaF}$
24. potassium sulfide  $\text{K}_2\text{S}$
25. calcium carbonate  $\text{CaCO}_3$
26. magnesium hydroxide  $\text{Mg}(\text{OH})_2$
27. zinc nitrate  $\text{Zn}(\text{NO}_3)_2$
28. silver acetate  $\text{AgC}_2\text{H}_3\text{O}_2$
29. copper (II) oxide  $\text{CuO}$
30. iron (III) chloride  $\text{FeCl}_3$
31. barium chromate  $\text{BaCrO}_4$
32. aluminum oxide  $\text{Al}_2\text{O}_3$
33. lead (II) sulfate  $\text{Pb}(\text{SO}_4)$
34. tin (IV) oxalate  $\text{Sn}(\text{C}_2\text{O}_4)_2$
35. calcium phosphate  $\text{Ca}_3(\text{PO}_4)_2$
36. lithium permanganate  $\text{LiMnO}_4$
37. mercury (I) nitrate  $\text{Hg}_2\text{NO}_3$
38. radium sulfite  $\text{RaSO}_3$
39. chromium (III) chloride  $\text{CrCl}_3$
40. ammonium sulfide  $(\text{NH}_4)_2\text{S}$
41. copper (II) acetate  $\text{Cu}(\text{C}_2\text{H}_3\text{O}_2)_2$
42. calcium bicarbonate  $\text{Ca}(\text{HCO}_3)_2$
43. tin (II) oxide  $\text{SnO}$
44. silver sulfite  $\text{Ag}_2\text{SO}_3$

## Nomenclature Worksheet 6: Binary Covalent Compounds

Please complete the following table:

Name of Covalent Compound	Formula of Covalent Compound
1. carbon dioxide	CO <sub>2</sub>
2. phosphorus triiodide	PI <sub>3</sub>
3. sulfur dichloride	SCL <sub>2</sub>
4. nitrogen trifluoride	NF <sub>3</sub>
5. dioxygen difluoride	O <sub>2</sub> F <sub>2</sub>
dinitrogen tetrafluoride	6. N <sub>2</sub> F <sub>4</sub>
Sulfur tetra Chloride	7. SCL <sub>4</sub>
Chlorine trifluoride	8. ClF <sub>3</sub>
Silicon dioxide	9. SiO <sub>2</sub>
tetra phosphorus Decaoxide	10. P <sub>4</sub> O <sub>10</sub>

Determine whether the following compounds are **covalent** or **ionic** and give them their proper names.

- |                                      |          |                        |
|--------------------------------------|----------|------------------------|
| 1. Ba(NO <sub>3</sub> ) <sub>2</sub> | Ionic    | Barium Nitrate         |
| 2. CO                                | Covalent | Carbon monoxide        |
| 3. PCl <sub>3</sub>                  | Covalent | Phosphorus Trichloride |
| 4. KI                                | Ionic    | Potassium Iodide       |
| 5. CF <sub>4</sub>                   | covalent | Carbon tetrafluoride   |
| 6. MgO                               | Ionic    | magnesium oxide        |
| 7. Cu <sub>2</sub> S                 | Ionic    | Copper (I) Sulfide     |
| 8. SO <sub>2</sub>                   | Covalent | Sulfur dioxide         |
| 9. NCl <sub>3</sub>                  | Covalent | Nitrogen trichloride   |
| 10. XeF <sub>6</sub>                 | Xenon    | Xenon Hexafluoride     |