

LOOK ON BACK FOR
EXAMPLES OF EACH!



Naming Compounds Flowchart

Is there a METAL in the compound?

YES

NO

Is the METAL a TRANSITION METAL?

NO

YES

Count the different elements

Count the different elements

2 elements
Metal / Nonmetal
Ionic Binary

3 or more elements
Metal / Poly Ion
Ionic Ternary

2 elements
Tran Metal / Nonmetal
Ionic Binary

3 or more elements
Tran Metal / Poly Ion
Ionic Ternary

- Name metal first
- Name nonmetal second **and** change ending to “-ide”

- Name metal first
- Name polyatomic ion second
- **DO NOT** change ending to “-ide”

- Name transition metal first
- Determine charge of transition metal and write as Roman Numeral after name
- Name nonmetal second and change ending to “-ide”

- Name transition metal first
- Determine charge of transition metal and write as Roman Numeral after name
- Name polyatomic ion second
- **DO NOT** change ending to “-ide”

Is the first element Hydrogen?

NO

YES

Acid

H + Element
Hydro + *root anion* + -ic acid

H + Polyatomic ion
• Poly ion ending in **-ate**
Root anion + **-ic acid**
• Poly ion ending in **-ite**
Root anion + **-ous acid**

Root anion = 1st part of polyatomic ion name or element

Count the different elements

1 element
Diatomic molecule

Br₂ I₂ N₂ Cl₂ H₂ O₂ F₂
• Name the element

2 elements
Covalent Binary

- Name first element, using prefixes (except “mono-”) (*Prefixes indicate how many of each element is in the compound*)
- Name second element, using prefixes (including “mono-”)
- Change ending to “-ide”

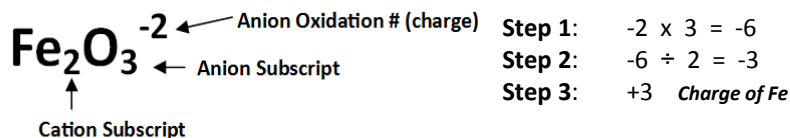
ROMAN NUMERALS

I	one
II	two
III	three
IV	four
V	five

DETERMINING THE CHARGE OF A TRANSITION METAL

- Find the total charge of the **Anion**
Anion Oxidation # X Anion Subscript
- Determine charge of Transition Metal
Total Anion charge ÷ Metal subscript
- Transition metal charge is always **positive (+)**

Example:



Answer: Iron III oxide

PREFIXES

Covalent Compounds ONLY:
Look at the subscripts to tell you how many of each element you have

One	mono-
Two	di-
Three	tri-
Four	tetra-
Five	penta-
Six	hexa-
Seven	hepta-
Eight	octa-
Nine	nona-
Ten	deca-

Polyatomic Ion List

Ammonium	NH ₄ ⁺
Acetate	C ₂ H ₃ O ₂ ⁻
Cyanide	CN ⁻
Carbonate	CO ₃ ⁻²
Chlorate	ClO ₃ ⁻
Chlorite	ClO ₂ ⁻
Chromate	CrO ₄ ⁻²
Dichromate	Cr ₂ O ₇ ⁻²
Hydrogen carbonate	HCO ₃ ⁻
Hydroxide	OH ⁻
Hypochlorite	ClO ⁻
Nitrate	NO ₃ ⁻
Nitrite	NO ₂ ⁻
Perchlorate	ClO ₄ ⁻
Permanganate	MnO ₄ ⁻
Phosphate	PO ₄ ⁻³
Phosphite	PO ₃ ⁻³
Sulfate	SO ₄ ⁻²
Sulfite	SO ₃ ⁻²

IONIC COMPOUNDS EXAMPLES

Metal/Nonmetal

KCl _____
Al₂O₃ _____

Metal/Polyatomic Ion

Mg(NO₃)₂ _____
NaC₂H₃O₂ _____

Transition Metal/Nonmetal

Fe₂O₃ _____
CuCl₂ _____

Transition Metal/Polyatomic Ion

CuCrO₄ _____
Zn(OH)₂ _____

COVALENT COMPOUNDS EXAMPLES

Nonmetal/Nonmetal

P₂O₅ _____
CCl₄ _____

Metal/Polyatomic Ion

Cl₂ _____
Br₂ _____

ACID EXAMPLES

H + Element

• HCl _____
• H₃P _____

H + Polyatomic Ion

• H₂SO₄ _____
• H₂SO₃ _____
• H₃PO₄ _____