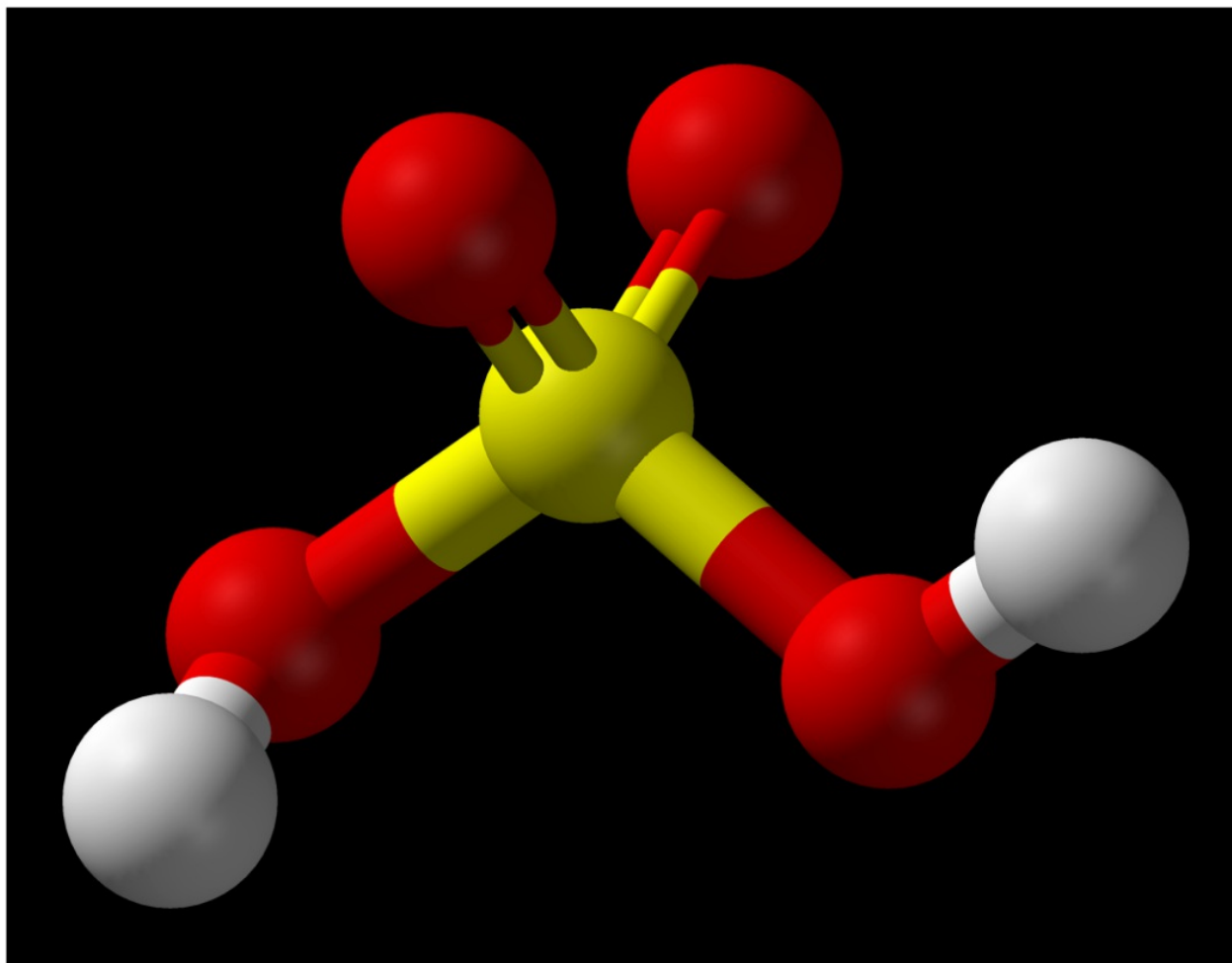
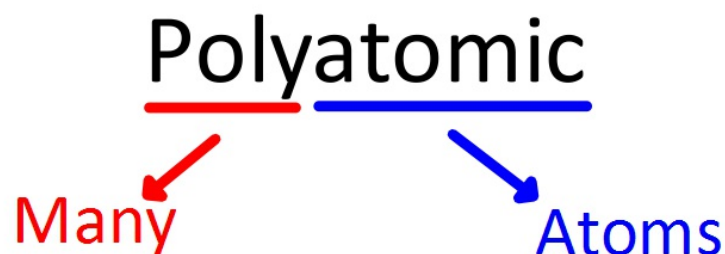


Day 3 Lecture



Writing & Naming Compounds
w/ Polyatomic Ions

Polyatomic Ions



- Are covalently bonded groups of atoms that act as a single unit
- In formulas, one of the easiest ways to locate them is to see the parenthesis ()
 - Ex: $\text{Al}_3(\text{PO}_4)_2$
- Although parenthesis help, often parenthesis may not be present. You then need to look at the number of elements present.
- **Rule**: If there is more than 2 different elements within the formula, then you have a polyatomic ion present

Polyatomic Ion & Charges

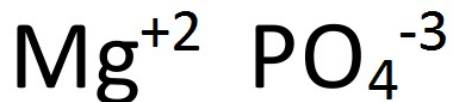
Charge	Name	Formula
1+	Ammonium	NH_4^+
1-	Chlorate	ClO_3^-
1-	Hydroxide	OH^-
1-	Nitrite	NO_2^-
1-	Nitrate	NO_3^-
2-	Carbonate	CO_3^{2-}
2-	Sulfite	SO_3^{2-}
2-	Sulfate	SO_4^{2-}
3-	Phosphate	PO_4^{3-}

You will need to recognize the name & formula of these.

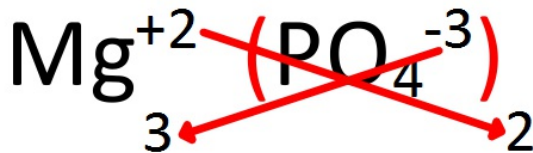
Rules: WRITING Formulas w/ Polyatomic Ions

Example: Magnesium & Phosphate

1. Write down the symbol and the oxidation number for each element and polyatomic ion



2. Criss-cross the oxidation numbers to get the correct subscript (add parenthesis to the polyatomic ion if its subscript is greater than 1)
3. Leave off the signs (+ or -)



Rules: WRITING Formulas w/ Polyatomic Ions

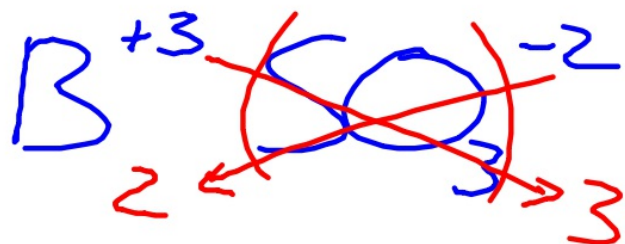
4. Drop out the "1's"
5. Cancel out the numbers if they are the same
6. Simplify the numbers (ex: both divisible by 2)



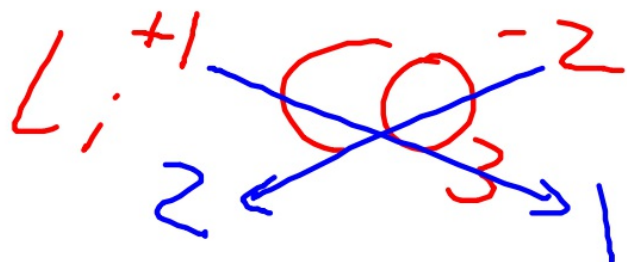
Independent Practice

Write the formulas for the following:

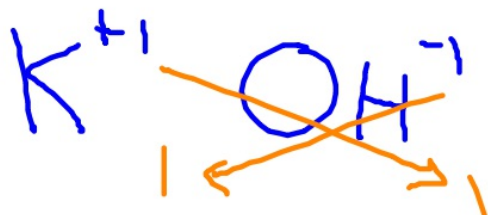
a. Boron & Sulfite



b. Lithium & Carbonate



c. Potassium & Hydroxide



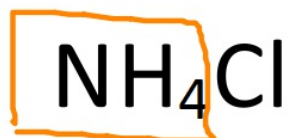
Rules: NAMING Compounds w/ Polyatomic Ions

Example: K_2SO_4

1. Write the name of the metal first
2. Write the name of the polyatomic ion (look at your chart)

Potassium Sulfate

Special Rules: Ammonium (NH_4^{+1}) + Non-metal
NAMING the compound:



1. Write the name of the polyatomic ion first
2. Write the name of the non-metal changing its ending to "ide"

Ammonium Chloride

Independent Practice

Name the following compounds:



Ammonium Nitride

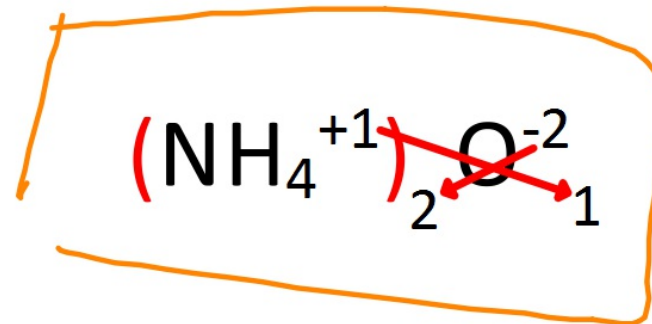
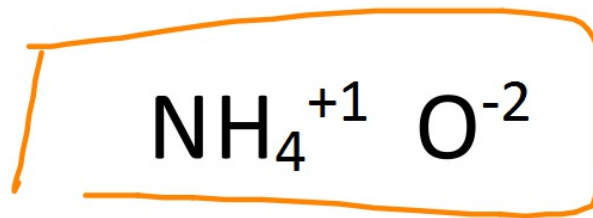


Ammonium Nitrate

Special Rules: Ammonium (NH_4^{+1}) + Non-metal
WRITING the formula:

Ammonium & Oxygen

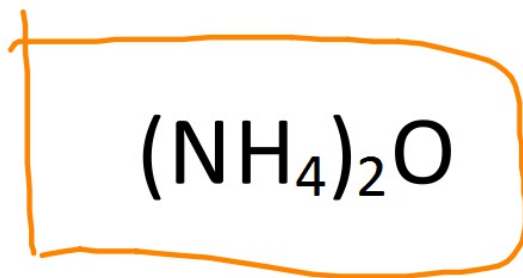
1. Write the symbol and oxidation number for both the polyatomic ion and the non-metal
2. Criss-cross the oxidation numbers to get the subscripts (adding parenthesis to the polyatomic ion if its subscript is larger than 1)
3. Leave off the signs (+ or -)



Special Rules: Ammonium (NH_4^+) + Non-metal
WRITING the formula:

Ammonium & Oxygen

4. Drop out the "1's"
5. Cancel out the numbers if they are the same (leave the subscripts inside the parenthesis alone)
6. Simplify the numbers (ex: both divisible by 2) (again, leave the subscripts inside the parenthesis alone)



Independent Practice

Write the formulas for the following:

a. Ammonium & Sulfur



b. Ammonium & Nitrate

