

## CHM 100: How to determine the name of an ionic compound.

### IDENTIFY THE CATION AND ANION

Ionic compounds generally contain a metal and a nonmetal. The *metal is the cation*, while the *nonmetal is the anion*.

Some ions contain more than one element. These are usually anions, and they are called polyatomic ions.

Special note: Ionic compounds containing the cation  $\text{NH}_4^+$  do not contain metals at all!

#### NAME THE CATION

1) Group IA or IIA metals: The name of the cation is the name of the metal plus the word "ion".

- Example:  $\text{Na}^+$  = "sodium ion"

2) Transition metals: You must include the charge of the cation as a Roman numeral in the name. The name of the cation is the name of the metal plus the charge in parenthesis and the word "ion".

- Example:  $\text{Fe}^{3+}$  = "iron (III) ion"

3) Polyatomic cations: You only know one polyatomic cation, and that's  $\text{NH}_4^+$ . It's called the "ammonium ion".

- Example:  $\text{NH}_4^+$  = "ammonium ion"

#### NAME THE ANION

1) Monatomic anions: The name of the anion is the *stem name* of the nonmetal plus the suffix "-ide" and the word "ion".

- Example:  $\text{Br}^-$  = "bromide ion"

2) Polyatomic anions: You have memorized a list of these.

- Example:  $\text{PO}_4^{3-}$  = "phosphate ion"

#### NAME THE COMPOUND

The compound is named cation first, anion second. Drop the word "ion" from both the cation and the anion names.

- Example:  $\text{FeSO}_4$  = "iron (II) sulfate"