

## Chemistry: *The Periodic Table and Periodicity*

### The History of the Periodic Table

You will need to understand four types of chemical bonds:

#### Chemical Nomenclature:

In this unit, you will learn how to:

- 1) write the chemical formula if given the name of the compound, and
- 2) name the compound if given its chemical formula.

### Ionic Bonding

#### ionic bond =

Ionic bonds occur most often between metals (the cations, +) and nonmetals (the anions, -).

Sometimes, though, the anion or cation can be a...

#### polyatomic ion =

Several polyatomic ions are listed on the handout: *Chart of Ions and Polyatomic Ions*.

### Writing Chemical Formulas for Ionic Compounds (Salts)

In order to be able to write chemical formulas and name chemical compounds, you must know the charges on the ions in the compound. In terms of finding their charges, we can group ions into three classes:

- 1) ions from Groups 1, 2, 13, 15, 16, and 17:
- 2) polyatomic ions:
- 3) the transition elements, tin (Sn), and lead (Pb):

The “**criss-cross rule**” is a simple method for finding the chemical formula if you know what ions are in the compound.

First rule for writing chemical formulas: *Always write the cation first.*

Second rule for writing chemical formulas: *Never write any charges in the formula.*

The ions in various chemical compounds are given below. Find the formula of each compound

$\text{Cu}^{1+}$      $\text{Br}^{1-}$

$\text{Cu}^{2+}$      $\text{Br}^{1-}$

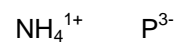
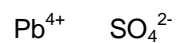
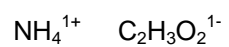
$\text{Fe}^{3+}$      $\text{S}^{2-}$

aluminum    iodine

lithium    oxygen

calcium    oxygen

The process is the same for compounds with polyatomic ions. Find the chemical formulas below.



In writing chemical formulas, use parentheses only when...

