

**UNIT 1 - CHEMISTRY****FORMING IONIC COMPOUNDS**

An ionic compound is formed when a cation (positive ion) is bonded to an anion (negative ion). The positive and negative charges need to cancel to form a neutral compound.

If more than one ion is needed to cancel out the charges, we use a subscript. For example, when combining  $\text{Ca}^{2+}$  and  $\text{Cl}^-$ , we need one  $\text{Ca}^{2+}$  and *two*  $\text{Cl}^-$  ions, so the formula is  $\text{CaCl}_2$ . Finally, we can name the compound simply by writing the name of the positive ion and the name of the negative ion.

If we need more than one of a *polyatomic* ion, then we need to write subscript outside of parentheses.

Formula of Cation	Formula of Anion	# of Cation Needed	# of Anion Needed	Formula for Ionic Compound	Name of Ionic Compound
$\text{Ca}^{2+}$	$\text{Cl}^-$	1	2	$\text{CaCl}_2$	Calcium chloride
$\text{Ca}^{2+}$	$\text{NO}_3^-$	1	2	$\text{Ca}(\text{NO}_3)_2$	Calcium nitrate
$\text{Na}^+$	$\text{Cl}^-$				
$\text{Na}^+$	$\text{O}^{2-}$				
$\text{Na}^+$	$\text{NO}_3^-$				
$\text{Na}^+$	$\text{SO}_4^{2-}$				
$\text{Na}^+$	$\text{PO}_4^{3-}$				
$\text{NH}_4^+$	$\text{Cl}^-$				
$\text{NH}_4^+$	$\text{O}^{2-}$				
$\text{NH}_4^+$	$\text{NO}_3^-$				
$\text{NH}_4^+$	$\text{SO}_4^{2-}$				
$\text{NH}_4^+$	$\text{PO}_4^{3-}$				
$\text{Ca}^{2+}$	$\text{Cl}^-$				

Formula of Cation	Formula of Anion	# of Cation Needed	# of Anion Needed	Formula for Ionic Compound	Name of Ionic Compound
$\text{Ca}^{2+}$	$\text{O}^{2-}$				
$\text{Ca}^{2+}$	$\text{NO}_3^-$				
$\text{Ca}^{2+}$	$\text{SO}_4^{2-}$				
$\text{Ca}^{2+}$	$\text{PO}_4^{3-}$				
$\text{Al}^{3+}$	$\text{Cl}^-$				
$\text{Al}^{3+}$	$\text{O}^{2-}$				
$\text{Al}^{3+}$	$\text{NO}_3^-$				
$\text{Al}^{3+}$	$\text{SO}_4^{2-}$				
$\text{Al}^{3+}$	$\text{PO}_4^{3-}$				
$\text{Sn}^{4+}$	$\text{Cl}^-$				
$\text{Sn}^{4+}$	$\text{O}^{2-}$				
$\text{Sn}^{4+}$	$\text{NO}_3^-$				
$\text{Sn}^{4+}$	$\text{SO}_4^{2-}$				
$\text{Sn}^{4+}$	$\text{PO}_4^{3-}$				

Nomenclature Worksheet 2:  
Simple Binary Ionic Compounds

Please complete the following table:

Name of Ionic Compound	Formula of Ionic Compound
1. Sodium bromide	
2. Calcium chloride	
3. Magnesium sulfide	
4. Aluminum oxide	
5. Lithium phosphide	
6. Cesium nitride	
7. Potassium iodide	
8. Barium fluoride	
9. Rubidium nitride	
10. Barium oxide	
11.	$K_2O$
12.	$MgI_2$
13.	$AlCl_3$
14.	$CaBr_2$
15.	$Na_3N$
16.	$LiF$
17.	$Ba_3P_2$
18.	$Cs_2S$
19.	$SrF_2$
20.	$NaCl$

