

## Writing Ternary Formulas

Name Mr. Sudbury Key Period       

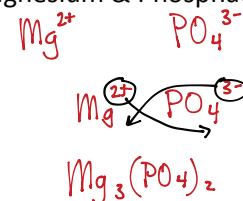
A ternary formula is a formula that contains three types of elements. A ternary formula is typically an ionically bonded compound that contains a polyatomic ion. To write the formula of a ternary ionic compound, you must know the charges of the ions that will form the compound. Remember that you can determine charge of a monatomic ion from the location on the periodic table of elements. Polyatomic ions are not so simple, you will have to memorize or look up the formula and charge. We still can criss-cross the charges so that the overall charge of the compound is neutral

### Steps:

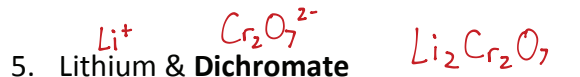
1. Write the ion and polyatomic ion symbol with the ionic charge for the cation (+) and the anion (-).
2. Determine the ratio that these must combine to cancel out the charge.  
(or criss - cross)
3. Write the formula for the ternary compound with the cation (+) first and then the anion (-) second. Use subscripts after the element if there are more than 1. IF YOU CROSS A NUMBER DOWN ON A POLYATOMIC ION< PUT THE POLYATOMIC ION IN PARENTHESES.
4. Reduce subscripts if possible. (BUT DON'T CHANGE THE SUBSCRIPTS OF THE POLYATOMIC ION.)

### Example:

Magnesium & Phosphate



Write the formulas for the compounds formed from the following elements: (Hint: Polyatomic ions are bold)



**Working Backwards:** You can look at a formula and determine what ions are involved in the bond by "un-criss-crossing" the subscripts. (Be careful, some of them may have been reduced.)

Write the ions (with charges) that are involved in these bonds.

