Criss Cross Method Worksheet Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

When you write chemical formulas you can use the criss cross method. To use this method you need to remember there are two places you will see numbers after a chemical symbol for an element.

If the number is above the symbol is tells the charge and is called a **superscript**



**Ca** If the number is below the symbol it tells how many of that type of atoms there are and is called a **subscript**



**Example:** Using the steps of the criss cross method to write the chemical formula for **Calicum Nitride**

1. Write the Symbol for each and write the charge ABOVE the symbol

Ca2+ N3-

1. “criss cross” the numbers only (not the charges) from ABOVE the symbol to BELOW the symbol

Ca 2 + N 3 -



1. Write the formula with the new subscripts. DO NOT write the charges.

Ca3N2

1. If the number you are crossing down is a 1 you do NOT write it as a subscript.
2. If the charges have the same value (both 1’, both 2’, both 3’, both 4’s) they cancel and you DO NOT write the numbers as subscripts.
3. If you are criss crossing down a number (other than 1) to a polyatomic ion, you have to put the ENTIRE polyatomic ion in parentheses.

Calcium Phosphate

Ca 2 + PO4 3 –



Ca3(PO4)2

Directions: Write the chemical formula for the following compounds. You will need your periodic table and list of common polyatomic ions. Follow the steps to help you.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Magnesium Nitride | Lithium Oxide | Beryllium Sulfide | Calcium Phosphite | Magnesium Carbonate |
| Write the symbols with their charges above  Criss Cross down the numbers (not the charges) |  |  |  |  |  |
| Write the new formula (there will be no charges. Remember polyatomic ions need to be in parenthesis if more than one) |  |  |  |  |  |