Do Now: What is the chemical formula of aluminum oxide?



Man, this is too much work! Is there an easier way????

Aim: How do we get the formula of a binary ionic compound?

Refer to the PERIODIC TABLE

1. To get the subscripts, just **"criss-cross"** the oxidation states and drop the signs (+/-).



-Don't write "1" for a subscript; the symbol of the element stands for "1".

-All of these compounds end in **–ide** b/c they are **binary** = consist of only 2 elements.

-The subscripts in a formula indicate the number of ions of each element needed to form a neutral compound.







CaO

-Simplify when needed.



2. For **nonmetals** with multiple oxidation states, take the "**top one**" (most common).



beryllium chloride



BeCl₂

3. For **metals** with multiple oxidation states, the **Roman numerals** in the names of their compounds indicate the charges of the metals. (This is called the **Stock System** of nomenclature.)



Note: the Roman numeral is the **actual charge**, not the order in which it appears.



Again, the Roman numeral is the **oxidation state of the 1**st element.





homium (UI SulFide

 $Cr_2S_6 \rightarrow CrS_3$ (Don't forget to simplify!)

For metals with only one oxidation state, **don't** write a Roman numeral; examples, Na^{+1} , Mg^{+2} , Zn^{+2} ...