

Creating Compounds

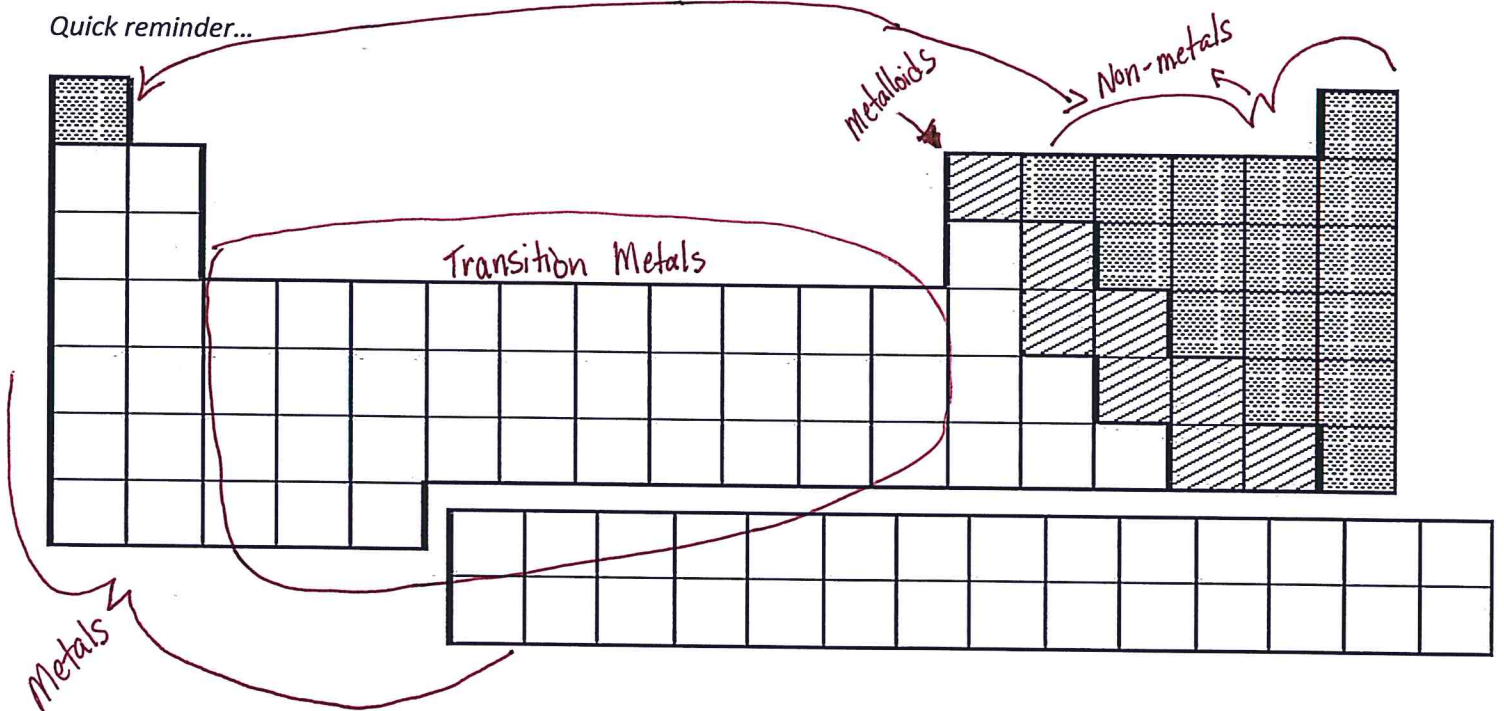
There are two types of compounds:

One of the easiest ways to know which type of compound it is by looking at what it's made out of

Metal and Non-metal = ionic compound (Brittany + Kevin)

2 or More Non-metals = covalent compounds (care bears)

Quick reminder...



For this class we are just going to focus on ionic compounds.

Ionic Compounds are composed of ions. = atom with a charge

- Cation (metal) = have a positive charge

- Anion (non-metal) = have a negative charge

*Remember opposites attract! Because an ionic compound is created out of a cation⁺ and anion⁻ they end up being neutral (having no charge). In order to be neutral the charges of each ion must cancel or balance each other out.

Let's try another one... what if I have K and S... what kind of compound would they make?

Step 1 and 2:



Step 3: What's the compound?



Your Turn... Figure out what kind of compound the following would make, show your work below and put a box around the compound formula you come up with.

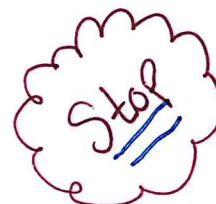
1. Barium and Chlorine
Ba Cl

2. Magnesium and Oxygen
mg O

3. Sodium and Sulfur
Na S

4. Potassium and Sulfur
K S

5. Calcium and Oxygen
Ca O



Let's brush up quick on our Lewis dot structures...

¹⁺ H·	²⁺ ·Be·										³⁺ ·B·	⁴⁺ ·C·	³⁻ ·N·	²⁻ ·O·	¹⁻ ·F·	Stable (neutral) ·Ne·
Li·	·Mg·										·Al·	·Si·	·P·	·S·	·Cl·	·Ar·
K·	·Ca·										·Ga·	·Ge·	·As·	·Se·	·Br·	·Kr·
Rb·	·Sr·										·In·	·Sn·	·Sb·	·Te·	·I·	·Xe·
Cs·	·Ba·										·Tl·	·Pb·	·Bi·	·Po·	·At·	·Rn·
Fr·	·Ra·															

metals (circled in red)

Non-metals (circled in red)

- Lewis dot structures show only the electrons on the outermost shell = VALENCE ELECTRONS

- "Magic number" to be stable is 8 (except Hydrogen need 2)

So atoms want to be stable... in order to form a stable compound they must bond together with other atoms that have "needs" that complement each other.

Rules to remember...

- 1) Always a metal and a non-metal
- 2) metal ALWAYS is listed first in the compound

OK let's get practicing... If I have magnesium and chlorine... what kind of compound would they make?

Step 1: Draw out the Lewis dot structures for each



Step 2: Determine what each element "wants" to do in order to be stable, in order to get that... how many of each will it need?

Step 3: Based on their wants... write out the chemical formula using subscripts to tell how many of each element are needed.



6. Sodium and Bromine

7. Barium and Iodine

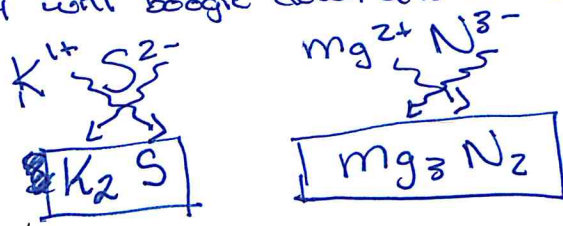
8. Potassium and Iodine

9. Francium and Oxygen

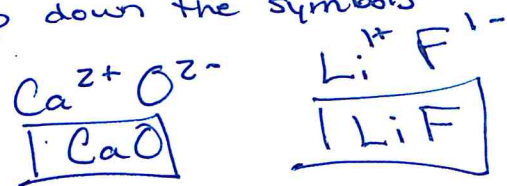
10. Magnesium and Fluorine

Criss Cross Method

- If charges are different they will boogie down and across



- If they are the same, the number cancels and just drop down the symbols



REVIEW: More Practice Reading a Chemical Formula

Given	$Mg_3(PO_4)_2$	$4Al_2(SO_4)_3$	$2Na_2SO_4$
Atomic Tally	Total # of Atoms =	Total # of Atoms =	Total # of Atoms =