

## Chemical Names & Formulas 101

**Background Terminology** – Write the definitions of the following and give an example of each:

- Ion \_\_\_\_\_
- Anion \_\_\_\_\_
- Cation \_\_\_\_\_
- Compound \_\_\_\_\_
- Chemical formula \_\_\_\_\_

**Binary Ionic compounds are** \_\_\_\_\_

You need to know the \_\_\_\_\_ / \_\_\_\_\_ in order to write the chemical formula.

- How can you tell the charge of an element? \_\_\_\_\_

Ex: K = \_\_\_\_\_, Cl = \_\_\_\_\_

Ex: Be = \_\_\_\_\_, O = \_\_\_\_\_

Chemical formula = \_\_\_\_\_

Chemical formula = \_\_\_\_\_

**But what if...**

Ex: Be = \_\_\_\_\_, F = \_\_\_\_\_

- This means for every \_\_\_\_\_ Beryllium there must be \_\_\_\_\_ Fluorine to \_\_\_\_\_ out the charges
- Chemical formula = \_\_\_\_\_ (Remember...do not put \_\_\_\_\_ when writing subscripts)

Write the 2 methods showed in the video below

- Cross Method
- Balance Charges Method

**Use the oxidation chart to complete. Remember to use either the cross or balanced charges method**

Calcium =	Magnesium =
Fluorine =	Oxygen =
Chemical Formula =	Chemical Formula =
Lithium =	Sodium =
Sulfur =	Sulfur =
Chemical Formula =	Chemical Formula =
Aluminum =	Sodium =
Bromine =	Chlorine =
Chemical Formula =	Chemical Formula =

+1		+2		+3		+4		-3		-2		-1		0																	
IA	IIA	IIIA	IVA	VA	VIA	VIIA	VIIIA	VIIIA	VIIIA	VIIIA	VIIIA	VIIIA	VIIIA	VIIIA	VIIIA																
1 H	2 He	3 Li	4 Be	5 B	6 C	7 N	8 O	9 F	10 Ne	11 Na	12 Mg	13 Al	14 Si	15 P	16 S	17 Cl	18 Ar														
19 K	20 Ca	21 Sc	22 Ti	29 Cu	30 Zn	31 Ga	32 Ge	33 As	34 Se	35 Br	36 Kr	37 Rb	38 Sr	39 Y	40 Zr	47 Ag	48 Cd	49 In	50 Sn	51 Sb	52 Te	53 I	54 Xe								
55 Cs	56 Ba	57 La	58 Ce	59 Pr	60 Nd	61 Pm	62 Sm	63 Eu	64 Gd	65 Tb	66 Dy	67 Ho	68 Er	69 Tm	70 Yb	71 Lu	72 Hf	73 Ta	74 W	75 Re	76 Os	77 Ir	78 Pt	79 Au	80 Hg	81 Tl	82 Pb	83 Bi	84 Po	85 At	86 Rn
87 Fr	88 Ra	89 Ac	90 Th	91 Pa	92 U	93 Np	94 Pu	95 Am	96 Cm	97 Bk	98 Cf	99 Es	100 Fm	101 Md	102 No	103 Lr	104 Rf	105 Db	106 Sg	107 Bh	108 Hs	109 Mt	110 Ds	111 Nh	112 Fl	113 Mc	114 Lv	115 Ts	116 Og	117 Tennessine	118 Oganesson

## How to name Binary Ionic Compounds

1. Write the name of the \_\_\_\_\_ (\_\_\_\_\_)
  2. Write the first part of the \_\_\_\_\_ element but end it with the suffix \_\_\_\_\_ (\_\_\_\_\_)
- Example: The chemical name for **NaF** is \_\_\_\_\_

Practice a few...

CaO \_\_\_\_\_ Al<sub>2</sub>S<sub>3</sub> \_\_\_\_\_ BeCl<sub>2</sub> \_\_\_\_\_

MgF<sub>2</sub> \_\_\_\_\_ Na<sub>2</sub>O \_\_\_\_\_

**Transition metals** - Most transition metals can form \_\_\_\_\_

The name of the \_\_\_\_\_ will contain a \_\_\_\_\_ to indicate the \_\_\_\_\_ of that ion

- Example: Copper (Cu) can have a \_\_\_\_\_ or \_\_\_\_\_ charge.
- It will be written like \_\_\_\_\_ or \_\_\_\_\_

## Practice writing chemical names and chemical formulas with Transition Metals

Manganese (III) = Oxygen = Chemical Formula = Chemical Name:	Tin (IV) = Sulfur = Chemical Formula = Chemical Name:
Copper (II) = Nitrogen = Chemical Formula = Chemical Name:	Iron (III) = Oxygen = Chemical Formula = Chemical Name:
Lead (II) = Chlorine = Chemical Formula = Chemical Name =	Cobalt (III) = Bromine = Chemical Formula = Chemical Name:

**Binary Covalent Compounds** – when 2 nonmetal atoms bond by \_\_\_\_\_ electrons. It is the same as with binary ionic compounds BUT element names also include a \_\_\_\_\_ that shows the number of \_\_\_\_\_ of that element in each molecule, and second element ends with \_\_\_\_\_.

**Practice!!!** Phosphorus = \_\_\_\_ Oxygen = \_\_\_\_ Chemical formula = \_\_\_\_ Chemical Name = \_\_\_\_\_

1. Write either the prefix number or charge for each  
Di \_\_\_\_ C \_\_\_\_ Hepta \_\_\_\_ Penta \_\_\_\_ Ne \_\_\_\_ O \_\_\_\_ H \_\_\_\_ Tri \_\_\_\_ Ca \_\_\_\_ Tetra \_\_\_\_\_
2. Write whether the following chemical formulas are ionic or covalent compounds then write their chemical names: KCl \_\_\_\_ CaS \_\_\_\_ NO \_\_\_\_ BeO \_\_\_\_ PCl<sub>3</sub> \_\_\_\_\_
3. Write whether the following are ionic or covalent compounds then write either the chemical formula or chemical name for the following:  
LiF \_\_\_\_\_ Sulfur Dioxide \_\_\_\_\_ NO \_\_\_\_\_ Aluminum Sulfide \_\_\_\_\_  
P<sub>2</sub>S<sub>4</sub> \_\_\_\_\_ NaCl \_\_\_\_\_ Disulfur Difluoride \_\_\_\_ NO<sub>2</sub> \_\_\_\_\_
4. Write the chemical formula for the following:  
Iron (III) Chloride \_\_\_\_ Titanium (III) Nitride \_\_\_\_ Copper (I) Oxide \_\_\_\_\_

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