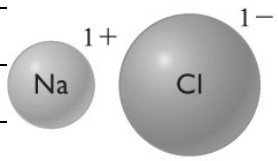
Cornell Notes	Topic/Objective: Ionic Compound Naming and Formulas	Name:
AVID Decades of College Dreams		Class/Period: Chemistry
		Date:

Essential Question: How are ionic compounds (salts) named?

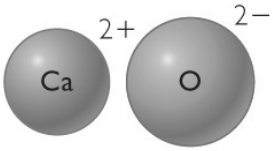
Questions:	Notes:
How is the charge on an ion determined?	
	Rule of Zero Charge:
How do you get zero charge if the atoms have different charges?	

Ion Charges on Main Group Elements

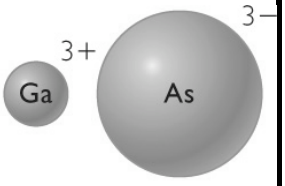
1A	2A	3A	4A	5A	6A	7A	8A
1+							
1 H^+			4+ (or 4−)	3−	2−	1−	2 He
	2+	3+					
3 Li^+	4 Be^{2+}	5 B^{3+}	6 C^{4+}	7 N^{3-}	8 O^{2-}	9 F^-	10 Ne
11 Na^+	12 Mg^{2+}	13 Al^{3+}	14 Si^{4+}	15 P^{3-}	16 S^{2-}	17 Cl^-	18 Ar
19 K^+	20 Ca^{2+}	31 Ga^{3+}	32 Ge^{4+}	33 As^{3-}	34 Se^{2-}	35 Br^-	36 Kr



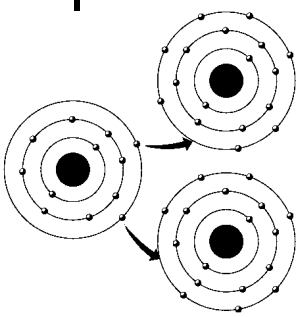
Sodium chloride



Calcium oxide



Gallium arsenide



Some More Complex Ionic Compounds

Compound	Metal	Cations	Nonmetal	Anions
$MgCl_2$	Mg	Mg^{2+}	Cl	Cl^- Cl^-
Na_2O	Na	Na^+ Na^+	O	O^{2-}
Al_2O_3	Al	Al^{3+} Al^{3+}	O	O^{2-} O^{2-} O^{2-}

Note that the charges on cations are equal and opposite to charges on anions. For example for aluminum oxide, +3 + 3 − 2 − 2 − 2 = 0. The total charge on the five atoms in the compound adds up to zero.

What are some rules you should follow when predicting the formula for ionic compounds?	•
How can the Criss-Cross Method be used to predict formulas for ionic compounds?	Magnesium (Mg) and nitrogen (N)
	Sodium (Na) and chlorine (Cl)
How are ionic compounds named?	•
	•
How are ionic compounds named if an ion with multiple charges is present?	
Summary:	

Compound	Name
NaCl	sodium chloride
MgF_2	magnesium chloride
Li_2S	lithium sulfide
Al_2O_3	aluminum oxide
GaP	gallium phosphide

Compound	Cation	Anion	Name
FeO	Fe^{2+}	O^{2-}	iron(II) oxide
Fe_2O_3	Fe^{3+}	O^{2-}	iron(III) oxide