Unit 4: Chemical Reactions

Lesson 4: Getting Connected and Lesson 5: What's in a Name?

Guiding Question (page 16): How are ionic compounds named?

Do Now:

Cross of Guiding Question, Do Now, & Response on page 13

On page 16:

What is the compound that would form between aluminum and sulfur?

Notes (page 13)

- Metal and nonmetal elements combine to form ionic compounds
- The rule of zero charge must be used to determine the chemical formulas of ionic compounds
- The Octet Rule states that in an ionic compound, the positive charges on the metal cations and negative charges on the nonmetal anions must sum to 0.

Notes (page 13)

Chemical Formulas of Ionic Compounds

Example	Number of valence electrons for the metal	Number of valence electrons for the nonmetal	Total number of valence electrons	Total positive charge	Total negative charge	Total charge
NaF	1	7	8	+1	−1	0
MgO	2	6	8	+2	−2	0
AlN	3	5	8	+3	−3	0
K_2Se	1	6	8	2(+1)	−2	0
$MgCl_2$	2	7	16	+2	2(−1)	0
AlF_3	3	7	24	+3	3(−1)	0
Al_2O_3	3	6	24	2(+3)	3(−2)	0

Closure

- Achieve 3000 “Give Up on Oil? Not So Fast! due Friday, 2/9 at 11:59pm (that’s tonight)

- No School on Monday – Enjoy your three day weekend!

Notes (page 16)

- Ionic Bonds form between metals and nonmetals

Notes (page 16)

Metals that form one ion

- If the metal is in group 1A or 2A, it can only have one type of ion (+1 and +2)

metal + nonmetal-ide ending

Notes (page 16)

- Ex. $CaCl_2$ is calcium chloride
  - Li_3N: Lithium Nitride
  - SrS: Strontium Sulfide
  - BeI_2: Beryllium Iodide

Notes (page 16)

Metals that form more than one type of ion

- If the metal is in the transition block or group 3A or 4A, it could have more than one charge. We need to indicate the charge on the metal using a roman numeral.

metal (charge as a roman numeral) + nonmetal-ide ending

Notes (page 16)

- Ex. $FeCl_2$ is iron (II) chloride; AgI is silver (I) iodide
  - $MnCl_2$: Manganese (II) Chloride
  - CoS: Cobalt (II) Sulfide
  - FeN: Iron (III) Nitride

Closure

- Achieve 3000 “Schools Teach Green Classes” due Friday, 2/23 at 11:59pm
- Homework #3 due Friday 2/16
- Quiz #2 next block (2/21 & 2/22)