Medium Worksheet

Classwork Part 1: Naming Ionic Compounds

How to name an ionic compound:

Ex: Naming "NaCl"

Step 1: Write the name of the metal. "Sodium"

Step 2: Write the name of the non-metal, but change the ending to "-ide": "Chloride" (instead of "Chlorine")

***The name of NaCl is "Sodium Chloride."**

***The name of LiO is "Lithium Oxide."**

Write the name of each ionic compound:

1. MgCl _____

2. LiF _____

3. KBr_____

Practice:

1. Each pair of elements includes a metal and non-metal that will form an ionic bond.
   a) Write the charge that each atom will have.
   b) Write the ionic compound formula.

sodium chloride _____	magnesium sulfide _____	beryllium phosphide _____
calcium fluoride _____	potassium oxide _____	strontium bromide _____
potassium iodide _____	lithium bromide _____	barium nitride _____

Transition Metals

- Where are the transition metals on the periodic table? **Take 30 seconds to label these metals**.
- Transition Metals often have the ability to **lose a different number of electrons**. This way they can create **multiple ions** with **different charges**.

Ion Symbol	Ion Name	Ion Symbol	Ion Name
Cu^{+}	Copper(I) ion	Sn^{2+}	Tin(II) ion
Cu^{2+}	Copper(II) ion	Sn^{4+}	Tin(IV)
Fe^{2+}	Iron(II) ion	Cr^{2+}	Chromium(II) ion
Fe^{3+}	Iron(III) ion	Cr^{3+}	Chromium(III) ion
Hg^{1+}	Merury(I) ion	Mn^{2+}	Manganese(II) ion
Hg^{2+}	Mercury(II) ion	Mn^{3+}	Manganese(III) ion
Pb^{2+}	Lead(II) ion	Co^{2+}	Cobalt(II) ion
Pb^{4+}	Lead(IV) ion	Co^{3+}	Cobalt(III) ion

In your Interactive Notebook, answer the following question:

Based on the above chart, try to explain the meaning of the <u>ROMAN NUMERAL.</u>

Practice!

Write the formula or determine the Chemical Name for the following compounds.
Hint: Use the criss-cross rule, but use the proper charge!

Hint: Use the criss-cross rule, but use the proper charge, given in the roman numeral!

1. Copper(I) and Fluorine:
2. Mercury(II) and Oxygen:
3. Lead (II) and Sulfur:
4. Iron (III) and Oxygen:
5. Lead (IV) and Nitrite:

Hint: Use the reverse criss-cross method. Then use the charge to write the name!

1. $CrBr_2$
7. Co_2S_3
8. PbO
9. $FeCl_3$
10. CrF_2

Multiple Choice Practice

1. A barium atom attains a stable electron configuration when it bonds with….
   (Annotation - write the charge and number of atoms needed for each element)
   a) one chlorine atom
   b) two chlorine atoms
   c) one sodium atom
   d) two sodium atoms

2. In which compound have electrons been transferred to the oxygen atom? (which represents an ionic compound made of a metal and a non-metal? – label all elements as M or NM)
   (1) CO_2
   (2) NO_2
   (3) N_2O
   (4) Na_2O

3. Which formula represents an ionic compound?
(Hint: Think about each element to determine which has the M and NM pair)
   (1) NaCl
   (2) N_2O
   (3) HCl
   (4) H_2O

4. Which elements combine by forming an ionic bond?
(Hint: Think about each element to determine which has the M and NM pair)
   (1) sodium and potassium
   (2) sodium and oxygen
   (3) carbon and oxygen
   (4) carbon and sulfur

5. Which type of bond is formed when electrons are transferred from one atom to another?
   (1) covalent
   (2) ionic
   (3) hydrogen
   (4) metallic

6. Base your answer to the question on the balanced equation below.
   $2Na(s) + Cl_2(g) \rightarrow 2NaCl(s)$
   Explain, in terms of electrons, why the bonding between NaCl is ionic?

   _____
   _____

7. If X_1Cl_2 represents an ionic compound where X stands for an unknown metal, which element could be X?
(Annotation: What charge will the carbon atoms have? What charge must "X" have?)
(a) N (b) Li
(c) Mg (d) F

8. If X_2O_1 represents an ionic compound where X stands for an unknown metal, element X could be a member of which group? (Annotation: What charge will the carbon atoms have? What charge must "X" have?)

(a) Group 1 (b) Group 2
(c) Group 16 (c) Group 1