Post-Hurricane Sandy Review

Let’s go over a few concepts we talked about before the stupid hurricane ☺ See how much of this you remember!

**O 2-**

**Al 3+**

**I. Making Compounds** (criss cross method).

1. Fill in the blanks to complete the paragraph on **oxidation number**:

Oxidation number is the number of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ an atom loses or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ when forming bonds. A positive “+” number means the atoms \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ electrons, while a negative “-” number means the atoms \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ electrons. Metals tend to have \_\_\_\_\_\_\_\_\_\_\_ oxidation numbers because they \_\_\_\_\_\_\_\_\_\_\_\_ electrons. Nonmetals tend to have \_\_\_\_\_\_\_\_\_\_\_ oxidation numbers because they usually \_\_\_\_\_\_\_\_\_\_\_\_ electrons.

**O 2-**

**Al 3+**

2. Use the “criss cross” method to form compounds. Use the example to help you.

**Al2O3**

Remember the charges must cancel each other out! 2 Aluminum atoms

bond with 3 Oxygen atoms to form neutral Aluminum Oxide.

Try these! Remember to treat polyatomic ions (like SO4, CO3, etc.) as one unit separated by ( )s.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Na and Cl | | Al and Br | | Li and S | | B and O | | Mg and P | |
| Ion  Na 1+ | Ion  O 2- | Ion  Al 3+ | Ion  Br 1- | Ion  Li 1+ | Ion  S 2- | Ion  B 3+ | Ion  O 2- | Ion  Mg 2+ | Ion  P 3- |
| Compound | | Compound | | Compound | | Compound | | Compound | |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| K and CO3 | | Al and SO4 | | Fe and NO3 | | Zn and OH | | NH4 and PO4 | |
| Ion  K 1+ | Ion  CO3 1- | Ion  Al 3+ | Ion  SO4 2- | Ion  Fe 3+ | Ion  NO3 1- | Ion  Zn 2+ | Ion  OH1- | Ion  NH4 1+ | Ion  PO4 3- |
| Compound | | Compound | | Compound | | Compound | | Compound | |

**II. Ionic and Covalent Bonds.**

1. Fill in the blanks to complete the paragraph on ionic and covalent bonding.

Ionic bonds form between \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and nonmetals. The metal transfers its extra \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to the nonmetal. An example would be \_\_\_\_\_\_\_\_\_\_\_\_\_. Covalent bonds are formed between \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ which share pairs of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. An example of this would be \_\_\_\_\_\_\_\_\_\_\_\_\_.

2. State whether the following compounds are ionic or covalent:

NaF \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ CO2 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

CaCO3 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ H2O \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

NH3 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ C3H8 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

MgSO4\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ HCl (careful!) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3. Match the properties of ionic and covalent compounds.

\_\_\_\_\_1. usually form liquids or gases a. ionic

\_\_\_\_\_2. forms solids that break up in water b. covalent

\_\_\_\_\_3. CO2

\_\_\_\_\_4. forms between nonmetals

\_\_\_\_\_5. involves a sharing of electron pairs between atoms

\_\_\_\_\_6. usually form liquids or gases

\_\_\_\_\_7. Form when metals transfer electrons to nonmetals

4. Identify the following as either **ionic or covalent** and show the dot diagrams for each.

|  |  |
| --- | --- |
| Cl2  Ionic or Covalent? | MgI2  Ionic or Covalent? |
| CaCl2  Ionic or Covalent? | CO  Ionic or Covalent? |
| CO2  Ionic or Covalent? | Na2O  Ionic or Covalent? |