**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Section: \_\_\_\_\_** 11/21/2011

**Reactants and Products Homework (SPI.9.10, SPI.9.8, SPI 9.2)**

**Part I: Defining Reactants and Products**

1. Define the following terms in your own words.

**4 things that occur in all chemical reaction:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Chemical Equation:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Reactant :** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Product:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Mass: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Law of Conservation of Mass: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Part II: Reading Chemical Equations to Identify Reactants and Products**

For the following reactions, circle the reactants and underline the products.

1. Fe2O3 (s) + CO (g) 🡪 FeO(s) + CO2 (g)
2. FeO (s) + CO (g) 🡪 Fe (s) + CO2 (g)
3. C12H22O11 (s) + O2 🡪 CO2 (g) + H2O (g)
4. Fe (s) + O2 (g) 🡪 Fe2O3 (s)

*For the following chemical reactions, fill in the missing information to describe the substances as elements or compounds and as reactants or products.*

1. Magnesium (Mg) + oxygen (O)🡪 magnesium oxide (MgO)

|  |  |  |
| --- | --- | --- |
| **Substance** | **Element or Compound?** | **Reactant or Product?** |
| Magnesium (Mg) |  |  |
| Oxygen (O) |  |  |
| Magnesium oxide |  |  |

2. 

|  |  |  |
| --- | --- | --- |
| **Substance** | **Element or Compound?** | **Reactant or Product?** |
| Pb |  |  |
| PbBr2 |  |  |
| Br2 |  |  |

3. 

|  |  |  |  |
| --- | --- | --- | --- |
| **Substance** | **Phase of matter** | **Element or Compound?** | **Reactant or Product?** |
| H2O(water) | liquid |  |  |
| Carbon |  |  |  |
| Sugar (C12H22O11) |  |  |  |

4. A solid AgCl precipitate forms when two clear solutions [silver nitrate (AgNO3) and sodium chloride (NaCl)] are mixed

|  |  |  |
| --- | --- | --- |
| **Substance** | **Element or Compound?** | **Reactant or Product?** |
| AgCl |  |  |
| AgNO3 |  |  |
| NaCl |  |  |

**Part III: Applying Our Knowledge to the Real World**

1. Lead nitrate is a white, crystalline solid. When heated, it starts decomposing with a crackling sound, producing a reddish brown gas called nitrogen dioxide, and a colorless gas, oxygen. A yellow residue of lead monoxide is left behind in the test tube.

1. What are the products in this chemical reaction?
2. What scientific evidence do you have to prove that a chemical change is occurring?
3. Write a word equation to describe this chemical reaction.

2. Give an example of a chemical reaction and identify the reactants and the products.

**Identify the different elements in the products and reactants in the box below. Count how many atoms of each element are on each side.**

|  |  |
| --- | --- |
| **Example:** **1.** 2 H2O2 🡪 2 H2O + O2 Reactants: Products: **H : 4 H:4** **O : 4 O: 4** | **2.** CaCO3 🡪 CaO + CO2 + Heat**Reactants: Products:**  |
| **3.** 2 NaCl + Ca(OH)2 🡪 CaCl2 + 2 NaOH**Reactants: Products:**  | **4.** 2 Mg + O2 🡪 2MgO**Reactants: Products:**  |
| **5.** Sn + 2HFl 🡪 SnFL­2­ + H2**Reactants: Products:**  | **6.** SnO2 + 2H2 🡪 Sn + H2O**Reactants: Products:**  |