**BALANCING CHEMICAL EQUATIONS WORKSHEET**

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| Name: |
| Date: |
| Pd: |

Balance the following equations by inserting the proper coefficients. For selected reactions, draw before and after particle diagrams to show the particles involved in the reaction. Be sure to provide a key.

**1. \_ 1**  C +  **1**  H2O →  **1**  CO +  **1**  H2

**2. 2**  MgO →  **2**  Mg +  **1**  O2

**3. 4**  Al +  **3**  O2 →  **2**  Al2O3

**4. 1**  Zn +  **1**  H2SO4 →  **1**  ZnSO4 +  **1**  H2

**5. 1**  Cl2 +  **2**  KI →  **2**  KCl +  **1**  CI2

**6. 2**  CuCl →  **2**  Cu +  **1**  Cl2

**7. 2**  Na +  **1**  Cl2 →  **2**  NaCl

**8. 2**  Al +  **6**  HCl →  **2**  AlCl3 +  **3**  H2

**9. 2**  Fe2O3 →  **4**  Fe +  **3**  O2

**10. 4**  P +  **5**  O2 →  **2**  P2O5

**11. 1**  Mg +  **2**  HCl →  **1**  MgCl2 +  **1**  H2

**12. 1**  H2 +  **1**  N2 →  **2**  NH3

**13. 1**  BaCl2 +  **1**  H2SO4 →  **1**  BaSO4 +  **2**  HCl

**14. 1**  CH4 +  **2**  O2 →  **1**  CO2 +  **2**  H2O

**Part II: Write the formulas of the reactants and products, and then balance the equations. (See Clues and Hints below.)**

1. Nitric oxide (NO) reacts with ozone (O3) to produce nitrogen dioxide and oxygen gas.

**1**  NO+  **1**  O3 🡪  **1**  NO2 + **1**  O2

1. Iron burns in air to form a black solid, Fe3O4.

**3**  Fe +  **2**  O2 🡪  **1**  Fe3O4

1. Sodium metal reacts with chlorine gas to form sodium chloride.

**2**  Na +  **1**  Cl2 🡪  **2**  NaCl

1. Acetylene, C2H2, burns in air to form carbon dioxide and water.

**2**  C2H2 +  **5**  O2 🡪  **4**  CO2 +  **2**  H2O

1. Hydrogen peroxide (H2O2) easily decomposes into water and oxygen gas.

**2**  H2O2 🡪  **2**  H2O +  **1**  O2

1. Hydrazine (N2H4) and hydrogen peroxide are used together as rocket fuel. The products are nitrogen gas and water.

**1**  N2H4 +  **2**  H2O2 🡪  **1**  N2 + **4** H2O

1. If potassium chlorate is strongly heated, it decomposes to yield oxygen gas and

Potassium chloride.

**2** KClO3 🡪 **3**  O2 + **2** KCl

1. When sodium hydroxide is added to sulfuric acid (H2SO4), the products are water and Sodium sulfate.

**2**  NaOH +  **1**  H2SO4 🡪 **2**  H2O +  **1**  Na2SO4

1. In the Haber process, hydrogen gas and nitrogen gas react to form ammonia, NH3.

**3**  H2 +  **1**  N2 🡪 **2**  NH3