NAME: _____ PERIOD: _____ DATE: _____

# BALANCING CHEMICAL EQUATIONS

## Objectives:

- to read chemical equations
- to identify and count the coefficients and subscripts in a chemical equation.
- to label the reactants and products of a chemical equation
- to balance chemical equations

## Pre Lab Questions:

Answer the following before you begin the activity: $5H_2$

1. What number represents the Coefficient? _____

2. What number represents the Subscript?_____

3. What element is represented by the letter "H"?_____

4. How many "H's" do you have? _____

## Procedure:

1. Using your set of index cards, replicate the chemical equation onto your desk.

2. Label the reactant side and the product side.

## Record the following results into Table 1:

3. Identify the elements on the reactant side.

4. Count the number of atoms for each element.

5. Identify the elements on the product side.

6. Count the number of atoms on the product side.

7. Are the 2 sides equal? If not, the equation is not balanced.

8. The index cards numbered 2 – 7 are your coefficients. They can ONLY be placed in front of the elements. You cannot change the subscripts.

9. Choose an element that is not balanced and begin to balance the equations.

10. Continue until you have worked through all the elements.

11. Once they are balance, count the final number of Reactants and Products.

12. Write the balanced equation.

13. Can your equation be simplified?

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# Data Table : Chemical Equations

| Make the following Equations on your desk | Reactants | Products | Reactants – Final | Products – Final | Balanced Equation |
|---|---|---|---|---|---|
| H2+ O2--> H2O | | | | | |
| H2O2--> H2O + O2 | | | | | |
| Na + O2--> Na2O | | | | | |
| N2+ H2--> NH3 | | | | | |
| P4+ O2--> P4O10 | | | | | |
| Fe + H2O --> Fe3O4+ H2 | | | | | |
| C + H2--> CH4 | | | | | |
| Na2SO4+ CaCl2-->CaSO4+ NaCl | | | | | |
| C2H6+ O2--> CO2+ H2O | | | | | |
| Al2O3--> Al + O2 | | | | | |

## Analysis/Results:

1. What does "-->" mean? _____

2. What side of the equation are the reactants found? _____

What side of the equation are the products found? _____

3. Why must all chemical equations be balanced? _____

4. Why can't the subscripts be changed? _____

5. What does it mean to "simplify" the equation? _____