

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Class: \_\_\_\_\_

## Balancing Equations Lab

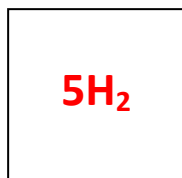
### Purpose:

- To read chemical equations and identify elements by their chemical symbol.
- To count atoms and identify the coefficients, subscripts, reactant, and products in a chemical
- To balance chemical equations

### Materials:

on 3x5 Index Cards	2 orange 6's	1 red "Reactants"	CO <sub>2</sub>	Fe	N <sub>2</sub>	Na <sub>2</sub> SO <sub>4</sub>
4 red 2's	2 black 7's	on 5x8 Index Cards	CH <sub>4</sub>	Fe <sub>3</sub> O <sub>4</sub>	NH <sub>3</sub>	O <sub>2</sub>
4 blue 3's	2 blue "+"	Al	C <sub>2</sub> H <sub>6</sub>	H <sub>2</sub>	Na	P <sub>4</sub>
4 green 4's	1 black "yield" sign --->	Al <sub>2</sub> O <sub>3</sub>	CaCl <sub>2</sub>	H <sub>2</sub> O	NaCl	P <sub>4</sub> O <sub>10</sub>
2 purple 5's	1 purple "Products"	C	CaSO <sub>4</sub>	H <sub>2</sub> O <sub>2</sub>	Na <sub>2</sub> O	

**Pre-Lab Questions:** Answer the following questions before you begin the lab activity.



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.
3. Identify the elements on the reactant side. Record.
4. Count the number of atoms for each element. Record.
5. Identify the elements on the product side. Record.
6. Count the number of atoms on the product side. Record.
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 in the table.

Make the following Equations on your desk	Reactants	Products	Reactants - Final	Products - Final
$H_2 + O_2 \rightarrow H_2O$				
<b>Balanced Equation:</b>				
$H_2O_2 \rightarrow H_2O + O_2$				
<b>Balanced Equation:</b>				
$Na + O_2 \rightarrow Na_2O$				
<b>Balanced Equation:</b>				
$N_2 + H_2 \rightarrow NH_3$				
<b>Balanced Equation:</b>				
$P_4 + O_2 \rightarrow P_4O_{10}$				
<b>Balanced Equation:</b>				
$Fe + H_2O \rightarrow Fe_3O_4 + H_2$				
<b>Balanced Equation:</b>				
$C + H_2 \rightarrow CH_4$				
<b>Balanced Equation:</b>				
$Na_2SO_4 + CaCl_2 \rightarrow CaSO_4 + NaCl$				
<b>Balanced Equation:</b>				

Make the following Equations on your desk	Reactants	Products	Reactants - Final	Products - Final
$C_2H_6 + O_2 \rightarrow CO_2 + H_2O$				
<b>Balanced Equation:</b>				
$Al_2O_3 \rightarrow Al + O_2$				
<b>Balanced Equation:</b>				

**Analysis/Results:**

1. What does " $\rightarrow$ " mean?
2. What side of the equation are the reactants found?
3. What side of the equation are the products found?
4. Why must all chemical equations be balanced?
5. Why can't the subscripts be changed?

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