

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

Section: \_\_\_\_\_

## Balancing



## Equations

**Objective:** For this activity you will work in groups of 3-4 to try to balance chemical equations.

### Procedures:

1. Using your set of laminated cards, replicate the chemical equation onto your desk.
2. Label the reactant side and the product side.

Record the following information into the Chemical Equations Data Table:

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 can **not** 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?

Answer the following before you begin the 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? \_\_\_\_\_

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## Chemical Equations Data Table

Make the following Equations on your desk	Reactants (#of each type of atom)	Products (#of each type of atom)	Balanced Equation	Final Reactants (#of each type of atom)	Final Products (#of each type of atom)
$H_2 + O_2 \rightarrow H_2O$	H = 2 O = 2	H = 2 O = 1	$2H_2 + O_2 \rightarrow 2H_2O$	H = 4 O = 2	H = 4 O = 2
$H_2O_2 \rightarrow H_2O + O_2$					
$Na + O_2 \rightarrow Na_2O$					
$N_2 + H_2 \rightarrow NH_3$					
$P_4 + O_2 \rightarrow P_4O_{10}$					
$Fe + H_2O \rightarrow Fe_3O_4 + H_2$					
$C + H_2 \rightarrow CH_4$					
$Na_2SO_4 + CaCl_2 \rightarrow CaSO_4 + NaCl$					
$C_2H_6 + O_2 \rightarrow CO_2 + H_2O$					
$Al_2O_3 \rightarrow Al + O_2$					

## Analysis Questions:

1. What does " $\rightarrow$ " mean?
2. What side of the equation are the reactants found on? The products?
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?