Name: **Partner:**

Reactions Lab Hand-In

Data Table 1: Observations

Reaction #	Reactants	Observations (Evidence for Reaction)
Combination Reactions – Instructor Demonstration		
1	$Mg + O_2$	
2	$NH_3 + HCl$	
Decomposition Reaction		
3	H_2O_2	
Complete Combustion of Organic fuel reaction		
4	$CH_4 + O_2$	
5	$C_2H_5OH + O_2$	
Single Replacement Reactions		
6	$Zn + CuSO_4$	
7	$Mg + HCl$	
Double Replacement Precipitation Reactions		
8	$CuSO_4 + NaOH$	
9	$CaCl_2 + Na_2SO_4$	
10	$K_2CO_3 + CaCl_2$	
Double Replacement Gas forming Reactions		
11	$K_2CO_3 + HCl$	
12	$H_2SO_4 + Na_2CO_3$	
Double Replacement Neutralization Reactions		
13	$HNO_3 + NaOH$	
14	$H_2SO_4 + NaOH$	

Results: Translate and balance each word description chemical reaction.

Combination Reactions

1. magnesium$_{(s)}$ + oxygen$_{(g)}$ → magnesium oxide$_{(s)}$

2. ammonia$_{(g)}$ + hydrogen chloride$_{(g)}$ → ammonium chloride$_{(s)}$

Decomposition Reactions

3. hydrogen peroxide $_{aq)}$ $\xrightarrow{\text{catalase}}$ water$_{(l)}$ + oxygen $_{(g)}$

Complete Combustion of Organic Fuel Reactions

4. methane$_{(g)}$ + oxygen$_{(g)}$ → carbon dioxide$_{(g)}$ + water$_{(g)}$

5. ethanol$_{(l)}$ + oxygen$_{(g)}$ → water$_{(g)}$ + carbon dioxide$_{(g)}$

Single-Replacement Reactions

6. zinc$_{(s)}$ + copper(II) sulfate $_{(aq)}$ → zinc sulfate$_{(aq)}$ + copper $_{(s)}$

7. magnesium$_{(s)}$ + hydrochloric acid$_{(aq)}$ → magnesium chloride$_{(aq)}$ + hydrogen$_{(g)}$

Double-Replacement Reactions

A. Precipitation Reaction

8. copper(II) sulfate$_{(aq)}$ + sodium hydroxide$_{(aq)}$ → copper(II) hydroxide$_{(s)}$ + sodium sulfate$_{(aq)}$

9. calcium chloride$_{(aq)}$ + sodium sulfate$_{(aq)}$ → calcium sulfate$_{(s)}$ + sodium chloride$_{(aq)}$

10. potassium carbonate$_{(aq)}$ + calcium chloride$_{(aq)}$ → calcium carbonate$_{(s)}$ + potassium chloride$_{(aq)}$

B. Gas Forming Reactions

11. potassium carbonate$_{(aq)}$ + hydrochloric acid$_{(aq)}$ → potassium chloride$_{(aq)}$ + water$_{(l)}$ + carbon dioxide$_{(g)}$

12. sulfuric acid$_{(aq)}$ + sodium carbonate$_{(aq)}$ → sodium sulfate$_{(aq)}$ + water$_{(l)}$ + carbon dioxide$_{(g)}$

C. Neutralization Reactions

13. nitric acid$_{(aq)}$ + sodium hydroxide$_{(aq)}$ → sodium nitrate$_{(aq)}$ + water$_{(l)}$

14. sulfuric acid$_{(aq)}$ + sodium hydroxide$_{(aq)}$ → sodium sulfate$_{(aq)}$ + water$_{(l)}$

Conclusion: List some indicators of chemical reactions:

Questions

Balance and Classify the following chemical reactions:

1) $C_2H_{2\ (g)} + O_{2\ (g)} \rightarrow CO_{2\ (g)} + H_2O_{\ (g)}$

Classification:_____

2) $H_3PO_{4\ (aq)} + LiOH_{\ (aq)} \rightarrow Li_3PO_{4\ (aq)} + HOH_{\ (l)}$

Classification:_____

3) $C_2H_{2\ (g)} + H_{2\ (g)} \rightarrow C_2H_{6\ (g)}$

Classification:_____

4) $(NH_4)_2S_{\ (aq)} + ZnCl_{2\ (aq)} \rightarrow ZnS_{\ (s)} + NH_4Cl_{\ (aq)}$

Classification:_____

5) $Al_{\ (s)} + Fe_2O_{3\ (s)} \rightarrow Fe_{\ (s)} + Al_2O_{3\ (s)}$

Classification:_____

6) $CaCO_{3\ (s)} \xrightarrow{\Delta} CaO_{\ (s)} + CO_{2\ (g)}$

Classification:_____

7) $Na_2SO_{3\ (aq)} + HNO_{3\ (aq)} \rightarrow NaNO_{3\ (aq)} + H_2O_{\ (l)} + SO_{2\ (g)}$

Classification:_____

8) $Cl_{2\ (g)} + KI_{\ (aq)} \rightarrow I_{2\ (aq)} + KCl_{\ (aq)}$

Classification:_____