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Classifying Chemical Reactions Worksheet

Type of Reaction	General Description and Example(s)
Combination	Two reactants combine to form a single product. The reactants may be elements or compounds. $Zn(s) + I_2(s) \rightarrow ZnI_2(s)$ $Na_2O(s) + CO_2(g) \rightarrow Na_2CO_3(s)$
Decomposition	One reactant, a compound, breaks down to give two or more products. $2H_2O_2(aq) \rightarrow 2H_2O(l) + O_2(g)$
Single Replacement	An element reacts with a compound and replaces one of the elements in the compound. Metals replace metals; nonmetals replace nonmetals. $3Mg(s) + 2FeCl_3(aq) \rightarrow 2Fe(s) + 3MgCl_2(aq)$ $Cl_2(aq) + 2NaI(aq) \rightarrow I_2(aq) + 2NaCl(aq)$
Double Replacement	Two ionic compounds (or compounds that break apart to form ions in solution) exchange ions to form two new compounds. Examples include precipitation reactions (driving force is formation of a precipitate) and acid-base reactions (driving force is formation of water). $Cd(NO_3)_2(aq) + Na_2S(aq) \rightarrow CdS(s) + 2NaNO_3(aq)$ $H_2SO_4(aq) + 2NaOH(aq) \rightarrow Na_2SO_4(aq) + 2H_2O(l)$
Combustion	A compound burns in the presence of oxygen, producing energy in the form of heat and light. The combustion of organic compounds produces carbon dioxide and water. $C_4H_8(g) + 6O_2(g) \rightarrow 4CO_2(g) + 4H_2O(g)$

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Data Table

Reaction	Appearance of Reactant(s), Evidence of Chemical Reaction, and Properties of Product(s)	Type of Reaction
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		