

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. $\text{Zn(s)} + \text{I}_2\text{(s)} \rightarrow \text{ZnI}_2\text{(s)}$ $\text{Na}_2\text{O(s)} + \text{CO}_2\text{(g)} \rightarrow \text{Na}_2\text{CO}_3\text{(s)}$
Decomposition	One reactant, a compound, breaks down to give two or more products. $2\text{H}_2\text{O}_2\text{(aq)} \rightarrow 2\text{H}_2\text{O(l)} + \text{O}_2\text{(g)}$
Single Replacement	An element reacts with a compound and replaces one of the elements in the compound. Metals replace metals; nonmetals replace nonmetals. $3\text{Mg(s)} + 2\text{FeCl}_3\text{(aq)} \rightarrow 2\text{Fe(s)} + 3\text{MgCl}_2\text{(aq)}$ $\text{Cl}_2\text{(aq)} + 2\text{NaI(aq)} \rightarrow \text{I}_2\text{(aq)} + 2\text{NaCl(aq)}$
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). $\text{Cd(NO}_3)_2\text{(aq)} + \text{Na}_2\text{S(aq)} \rightarrow \text{CdS(s)} + 2\text{NaNO}_3\text{(aq)}$ $\text{H}_2\text{SO}_4\text{(aq)} + 2\text{NaOH(aq)} \rightarrow \text{Na}_2\text{SO}_4\text{(aq)} + 2\text{H}_2\text{O(l)}$
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. $\text{C}_4\text{H}_8\text{(g)} + 6\text{O}_2\text{(g)} \rightarrow 4\text{CO}_2\text{(g)} + 4\text{H}_2\text{O(g)}$

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		