

## Types of Reactions

How to identify the five different types

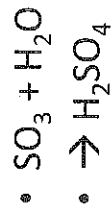
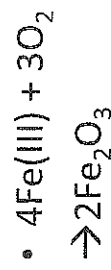
### Double replacement

Start with two compounds, makes two new compounds



### Combination (Synthesis)

• Two or more substances combine to form a compound.



Decomposition Reactions A single compound reacts to give to or more products



Single Replacement Reaction  
an element replaces an ion of another  
element in a compound

- $F_2 + 2 KBr \rightarrow$
- $2KF + Br_2$
- $2Al + 3FeSO_4 \rightarrow$
- $Al_2(SO_4)_3 + 3Fe$
- $Cu + HCl \rightarrow$
- No reaction

### Combustion

A hydrocarbon plus  $O_2$  yield to make  
carbon dioxide( $CO_2$ ) and water ( $H_2O$ )  
(in a complete reaction only, in an  
incomplete reaction makes other  
compounds including CO)

- $CH_4 + 2O_2 \rightarrow CO_2 + 2H_2O$
- $2C_2H_6 + 7O_2 \rightarrow 4CO_2 + 6H_2O$

### Precipitation reactions

- Molecular:
  - $AgNO_3(aq) + KCl(aq) \rightarrow AgCl(s) + KNO_3(aq)$
- Complete Ionic:
  - $Ag^+(aq) + NO_3^-(aq) + K^+(aq) + Cl^-(aq) + Cl^-(aq) \rightarrow AgCl(s) + K^+(aq) + NO_3^-(aq)$
- Net Ionic:
  - $Ag^+(aq) + Cl^-(aq) \rightarrow AgCl(s)$