## ORGANIC REACTIONS

1. Substitution - Only saturated compounds undergo substitution (alkanes only)

Example, 
$$H = C - H + Br - Br - H - C - Br + H - Br$$
  
H H H H

2. Addition - Only unsaturated compounds undergo addition (alkenes and alkynes only)  $\begin{array}{cccc}
H & H \\
H & -C = C - H \\
H & -C = C - H \\
H & -C - H \\
Br & Br \\
\end{array}$ 

Hydrogenation: Alkene + hydrogen = Alkane ( $C_2H_4 + H_2 = C_2H_6$ )

3. Esterification - The reaction between an acid and alcohol to produce an ester and water

Example 
$$\begin{array}{c} \begin{array}{c} H & O \\ - & H \\ H \\ - & C \\ - & C \\ - & C \\ - & O \\ - & H \end{array} + \begin{array}{c} H \\ - & C \\ - & H \\ - & C \\ - & - \\ - & H \\ - &$$

4. Fermentation - Fermentation of an alcohol gives alcohol and carbon dioxide

yeast  $C_6H_{12}O_6(aq) \rightarrow 2CO_2(g) + 2C_2H_5OH(aq)$ sugar carbon dioxide alcohol

5. Oxidation of a primary alcohol gives an aldehyde

6. Combustion - Complete combustion always gives carbon dioxide and water

Example 
$$2C_8H_{18}(R) + 25O_2(g) + 18H_2O(g) + 18H_2O(g)$$

7. Dehydration of alcohols yield an ether and water



Example

