

KINETICS UNITS

$$\text{rate} = \frac{\text{quantity of a chemical}}{\text{quantity of time}} \quad \frac{\text{M}}{\text{s}} = \text{M s}^{-1}$$

$\text{mol L}^{-1} \text{s}^{-1}$

[] \Rightarrow molarity

$$\text{rate} = k [\text{A}]^m [\text{B}]^n$$

overall order	k unit
1	s^{-1}
2	$\text{M}^{-1} \text{s}^{-1}$
3	$\text{M}^{-2} \text{s}^{-1}$
4	$\text{M}^{-3} \text{s}^{-1}$
5	$\text{M}^{-4} \text{s}^{-1}$

$\text{L}^2 \text{mol}^{-2} \text{s}^{-1}$

Catalyst

what: speeds up a reaction
how: lowers the activation energy E_a

$E_a \Rightarrow$ "energy barrier"

\hookrightarrow the minimum E the reactants must possess in order to react

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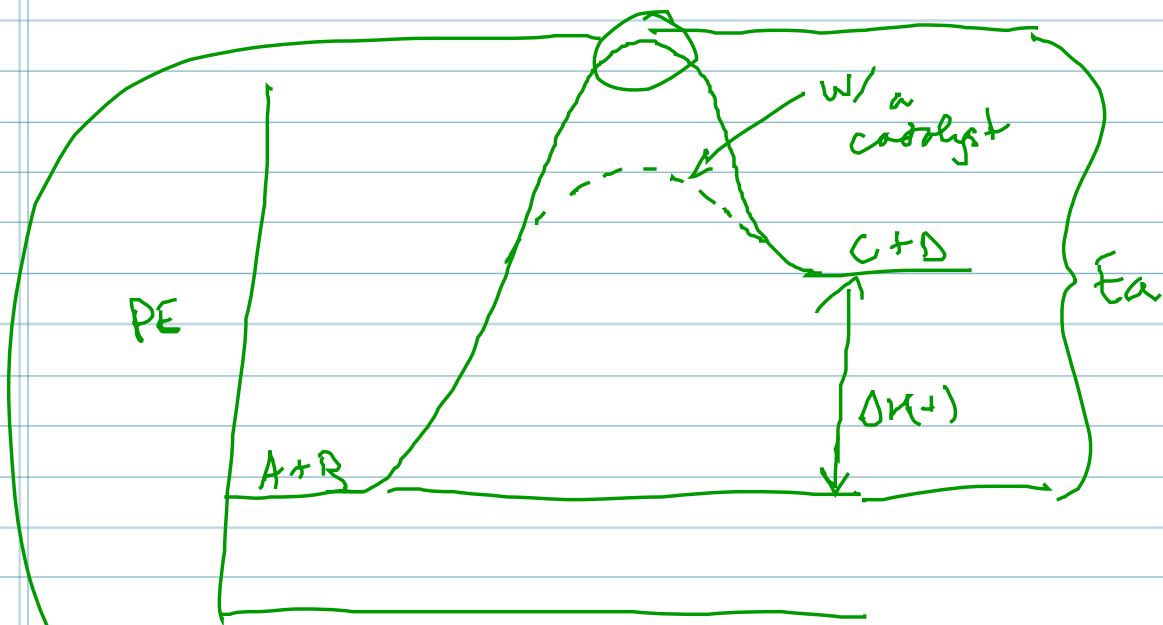
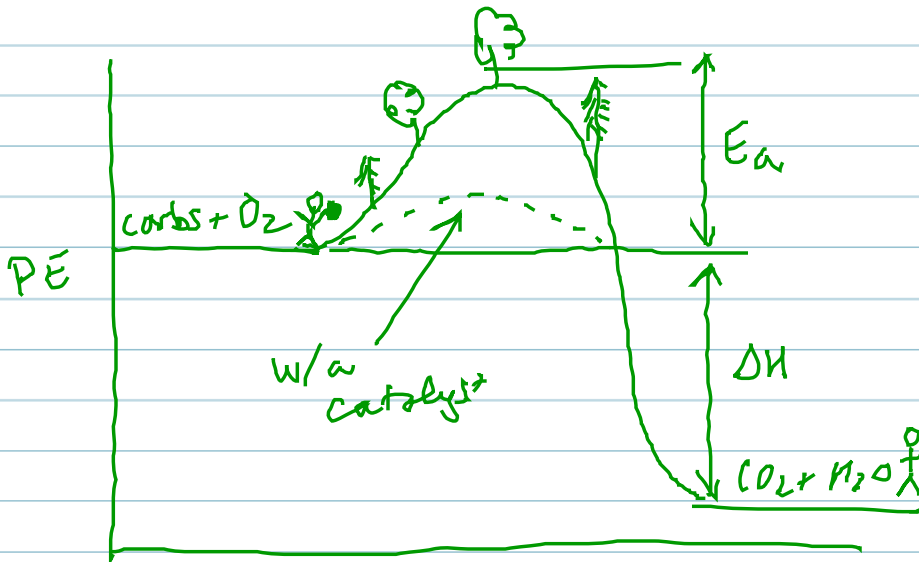
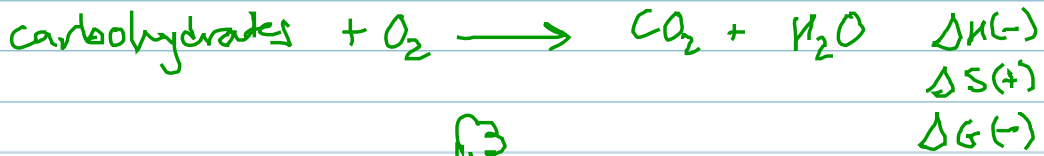
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"activated complex" \Rightarrow old bonds breaking
 "transition state" \Rightarrow new bonds forming