


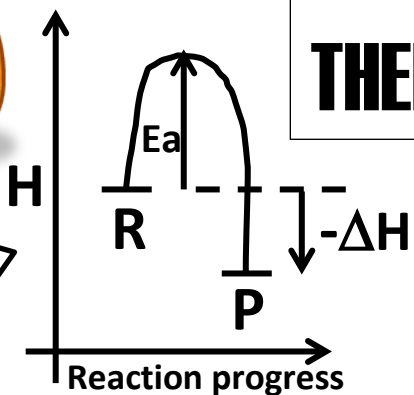
EXOTHERMIC


 ● reaction mixture **HEATS UP** as reactants (R) lose chemical energy to their surroundings
Out!!

- Examples**
- combustion
 - respiration
 - dissolving NaOH in water
 - changes of state $G \rightarrow L$ or $L \rightarrow S$
 - Mg & acid



- $-\Delta H$ is negative
- products (P) have less enthalpy than reactants (R)



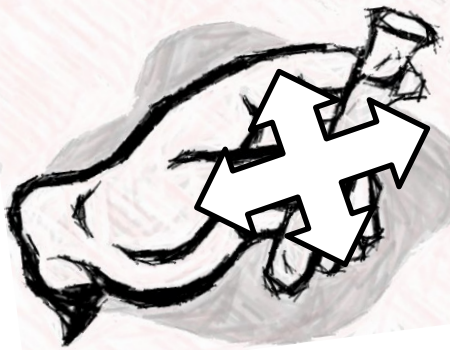
THERMOCHEMISTRY

H = ENTHALPY, is chemical potential energy


E_a = activation energy

REMEMBER

Bond breaking is endothermic
 ...you have to put in energy to break bonds e.g. if you glue (bond) your fingers together you have to put in energy to get them apart!!!
 Bond making is exothermic



ENDOTHERMIC


in
 ● reaction surroundings cool down as the reactants (R) gain chemical energy ● $+\Delta H$ is positive
 ● products (P) have more enthalpy than reactants (R)

H E_a

Examples

Photosynthesis



Some chemicals dissolving in water e.g. NH_4Cl

Changes of state $S \rightarrow L$ or $L \rightarrow G$

