

Source: [KBhBIO101StructuresofCarbs](#)

## 1 | Enthalpy

- To do a reaction, a system needs to break some bonds and form new bonds
- Break all of the bonds. Breaking bonds require energy (high heat states called “transition phrase”)
- Form new bonds
- End up with product — either cause negative pre-post reaction potential energy difference (extothermic — release heat) or positive pre-post reaction potential energy (endothermic — take in heat)

Definition 1 · **Enthalpy Equation**  $\Delta H_{rxn} = \sum \Delta H_{breaking} + \sum \Delta H_{Forming}$

"The heat difference after a reaction is equal to the heat needed to break bonds and the head used to form bonds. Both values could be negative."

With a positive delta H, you have an endothermic reaction. With an negative delta H, you have an extothermic reaction. Extothermic reactions are favorable => they give out energy instead of needing it