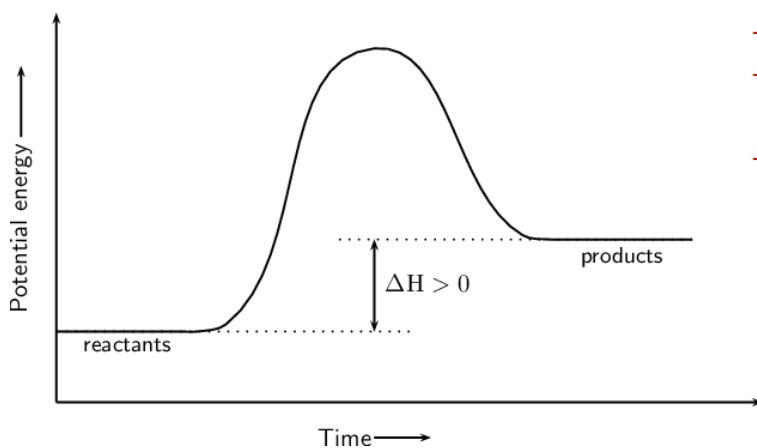


Exothermic and Endothermic Reactions

- Fill in the blanks.
 - During an endothermic reaction, energy is absorbed.
 - During an exothermic reaction, energy is released.
 - When an exothermic reaction takes place, the surroundings heat up.
 - When an endothermic reaction takes place, the surroundings cool down.
 - In an exothermic reaction, the energy absorbed by the reactants is lower than the energy released by the products.
 - In an endothermic reaction, the energy absorbed by the reactants is higher than the energy released by the products.
- Identify the following as exothermic or endothermic.
 - An egg cooking. exo
 - During a chemical reaction, the beaker containing the reactants get colder. endo
 - Robert mixed sulfuric acid and powdered sugar. The mixture became extremely hot. exo
 - Wood burning. exo
 - $6C + 3H_2 + \text{energy} \rightarrow C_6H_6$ endo
 - Charles puts hot paws in his mittens during a ski trip. exo
 - $4Fe + 3O_2 \rightarrow 2Fe_2O_3 + \text{energy}$ exo
 - Emission of light by a lantern fish. exo
 - $N_2 + 3H_2 \rightarrow 2NH_3 + 611 \text{ kJ}$ exo
 - Water boiling. endo
 - $2H_2O \rightarrow 2H_2 + O_2 \quad \Delta H = +488 \text{ kJ}$ endo
 - $2NaNO_3 + \text{heat} \rightarrow 2NaNO_2 + O_2$ endo
 - $C + O_2 \rightarrow CO_2 + 394 \text{ kJ}$ exo
 - An ice cube forming. exo
 - $CH_4 + 2O_2 \rightarrow CO_2 + 2H_2O \quad \Delta H = -686 \text{ kJ}$ exo
 - $C_3H_8 + 5O_2 \rightarrow 3CO_2 + 4H_2O + 1662 \text{ kJ}$ exo
 - A light bulb turns on in your room. exo
- Does the following graph represent an exothermic or an endothermic reaction? Justify your choice.



- The reaction is endothermic.
- The products have more energy than the reactants.
- Energy has been absorbed.