Chemical Reactions & Energy

Chapter 21, Section 4

Energy Exchanges

- All chemical reactions _____ or _____
- Energy can take many forms such as _____ _____ _____
- _____are the source of this energy (when chemical reactions take place, bonds are broken)

Energy OUT

- **Exergonic** reactions- _____
  - **Exothermic** reactions -reactions that give off _____. (temperature _____ because it is _____ to its surroundings)
  - Sometimes the reaction proceeds so slow that it's difficult to detect any _____

Energy OUT

- Exothermic reactions provide most of the _____ used in homes (fossil fuels like _____ _____react with oxygen to yield carbon dioxide gas & ENERGY.)

Energy IN

- **Endergonic** Reactions -reactions that require energy to be _____ in order for it to occur.
  - **Endothermic** Reaction -reactions that _____ _____ (temperature _____ because it is _____ _____ from its surroundings)

Example Equations

- _____Reaction

  $Mg + Cl_2 \rightarrow MgCl_2 +$ _____

- _____Reaction

  $2H_2O +$ _____ $\rightarrow 2H_2 + O_2$

Too SLOW or Too FAST?

- Catalyst-substance added to _____. The catalyst is not changed itself.
- Inhibitors-substance that _____ a chemical reaction.
- _____ _____can also affect the rate of reaction.

Quick Check

- Photosynthesis is a chemical reaction that requires energy to proceed. Is it endergonic or exergonic?
- You are developing a product that warms people's hands. Would you choose to use an exothermic or endothermic?
- Your dad is grilling hamburgers. Is burning the propane an exothermic or endothermic reaction?