

Magnets & Whiteboards.

POST LAB DISCUSSION: EXOTHERMIC & ENDOTHERMIC REAX.

Julie Andrews - Sound of Music
"Nothing comes from nothing, nothing ever could."

$$TE = KE + PE \quad PE = \text{Potential energy} \quad KE = \text{kinetic energy}$$
$$TE = \text{Total energy}$$

Review:

PE = energy due to position
KE = energy from motion.

- * When bonds form, atoms (+ molecules) get closer, so, PE does what? increases
- * Where does that energy go? KE ↑ in the form of heat.

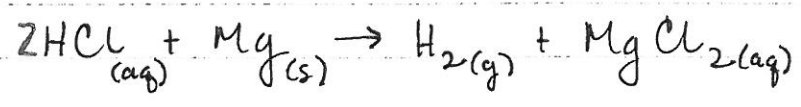
When bonds break, energy is absorbed.

From where? surroundings. That is why thermometer read a lower temp. The Reax was taking energy from the thermometer.

Whiteboards

Consider our reactions:

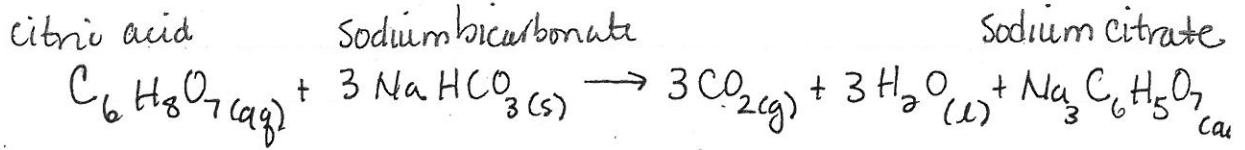
EXOTHERMIC



If this reaction was exothermic, did it take more or less energy to break the bonds of HCl than was released when MgCl₂ was formed?

energy absorbed (<) energy released.

ENDOTHERMIC



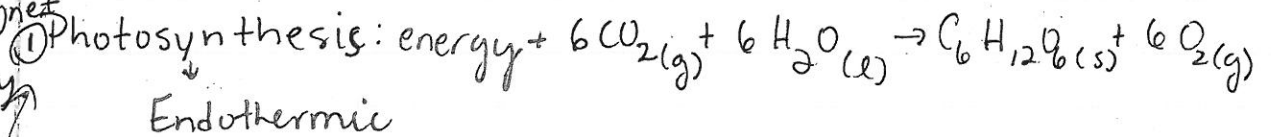
energy absorbed \rightarrow energy released

Students write \Rightarrow

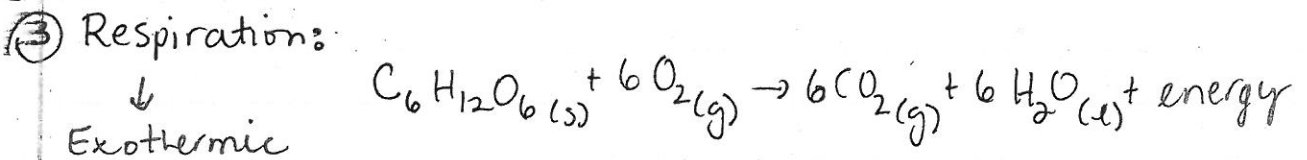
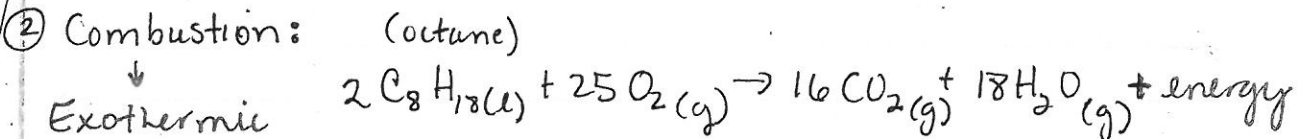
Statement: The energy absorbed to break the bonds of citric acid + sodium bicarbonate was greater than the energy released by the formation of bonds to make CO_2 , H_2O , + $Na_3C_6H_5O_7$.

Reinforcement: Qualify each reaction as endothermic or exothermic.

Use a magnet w/ energy \rightarrow



Notice these are reverse reactions \rightarrow



- ④ Glow sticks
- Thermal packs
- Cold packs