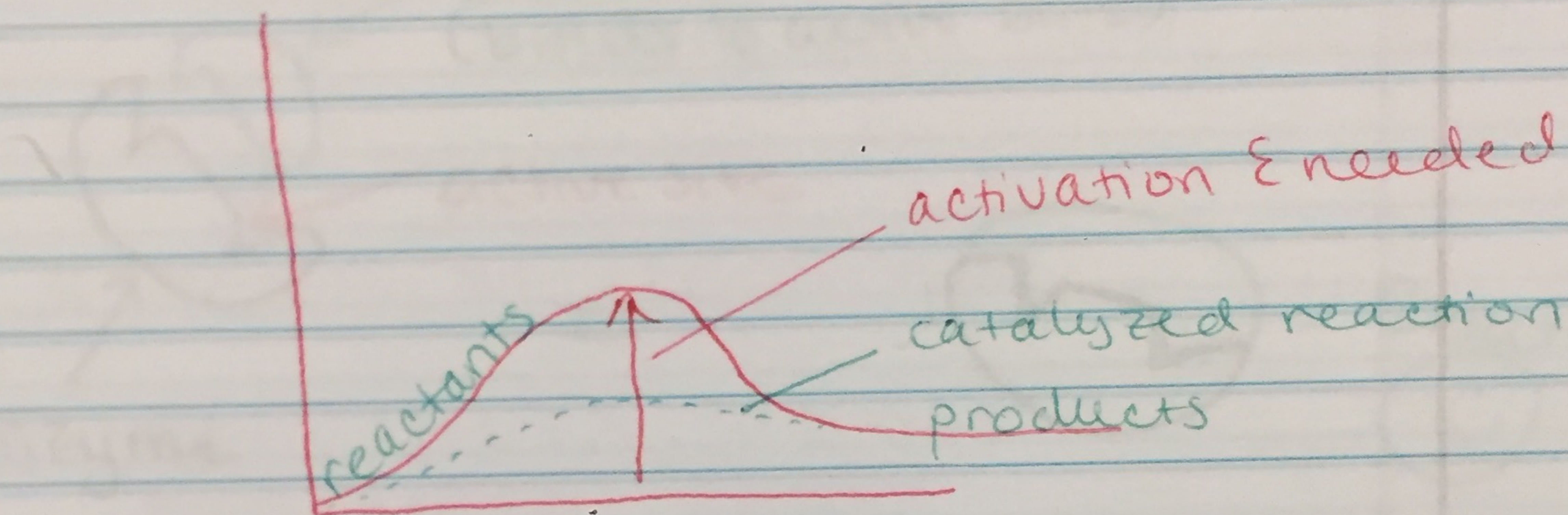


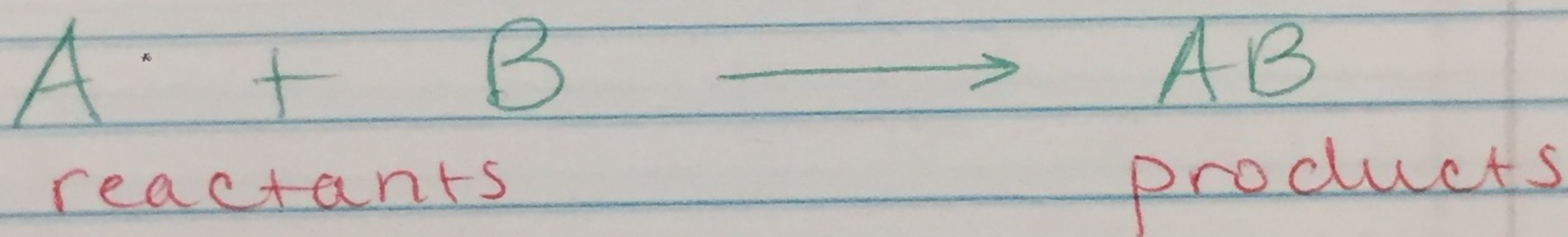
# Enzymes

\* Enzymes are catalysts

↳ catalyst = LOWERS ACTIVATION ENERGY



\* speeds up chemical rxns!



\* Enzymes allow chemical rxns to occur under tightly controlled conditions

- affected by:

- TEMPERATURE
- pH

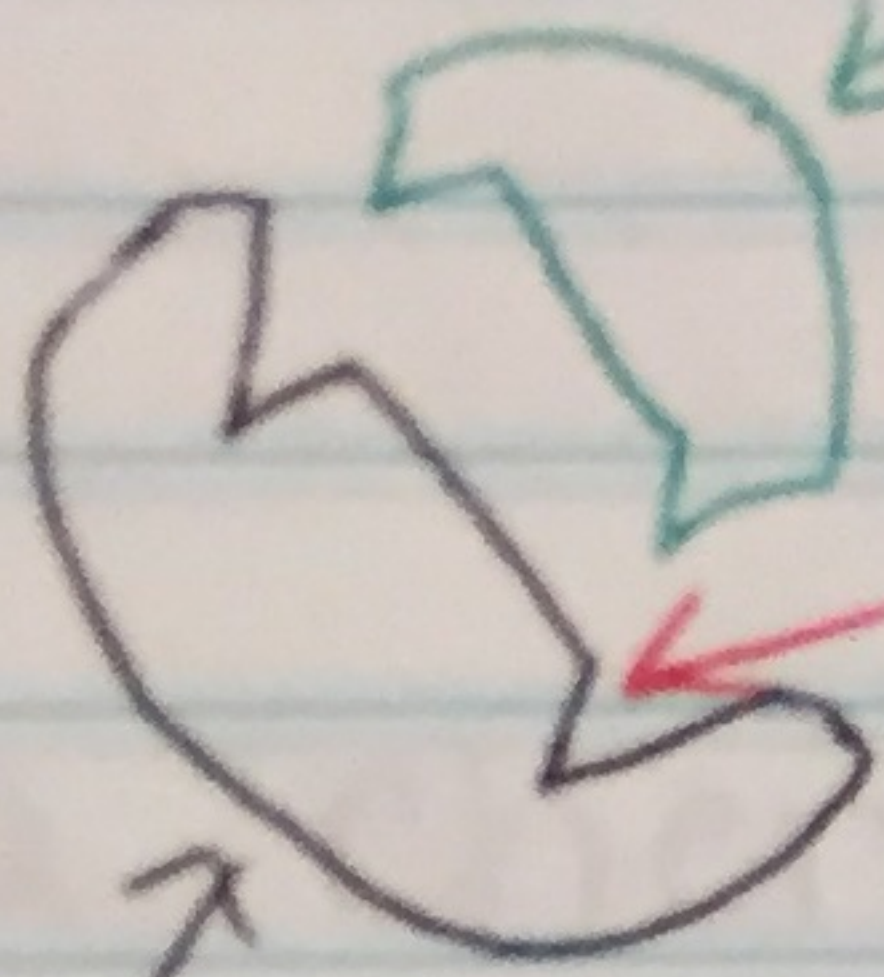
\* Enzymes use a "lock + key"

chemical reactions in living things

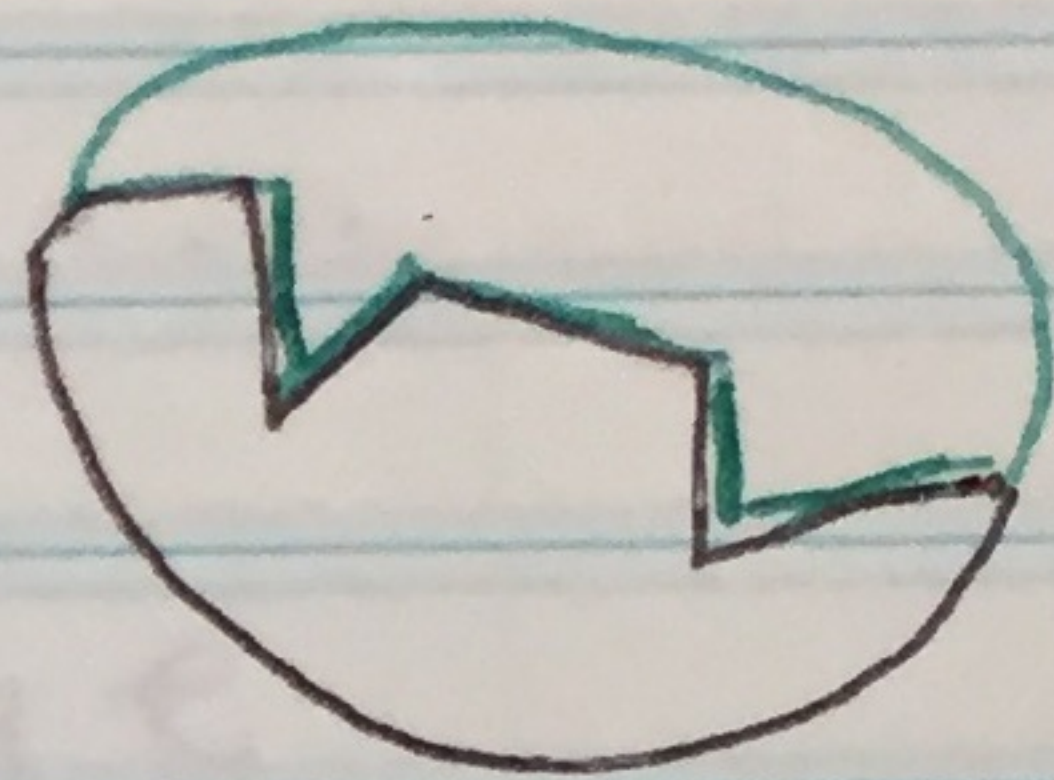
• SPEEDS UP REACTIONS!

Substrate (binds to active site)

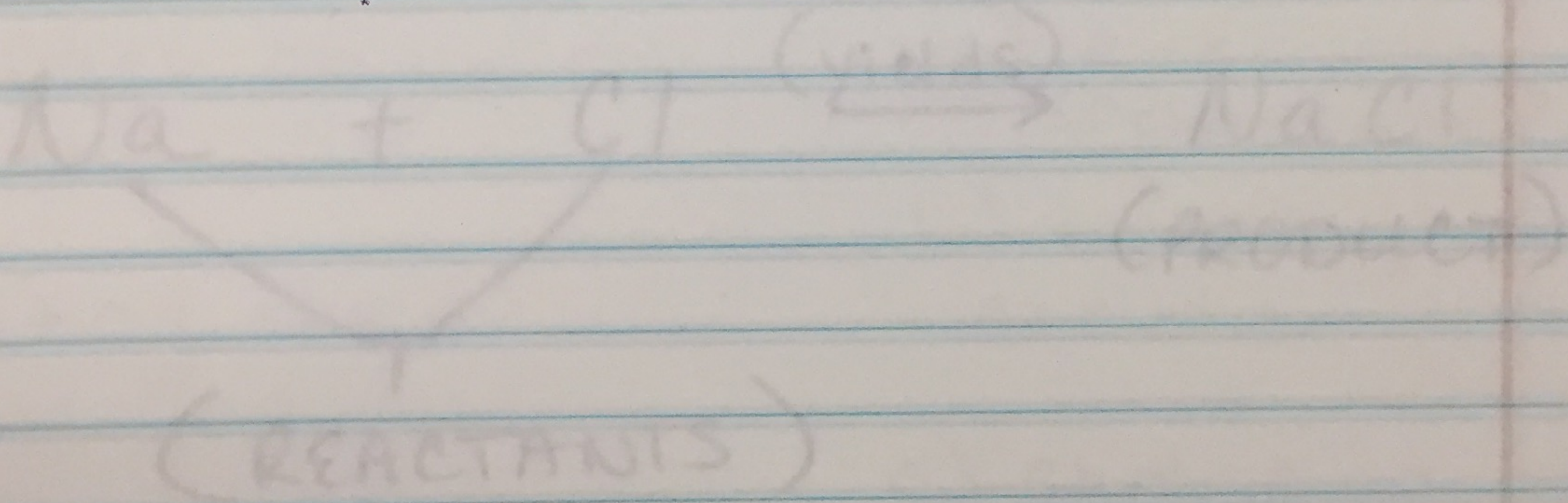
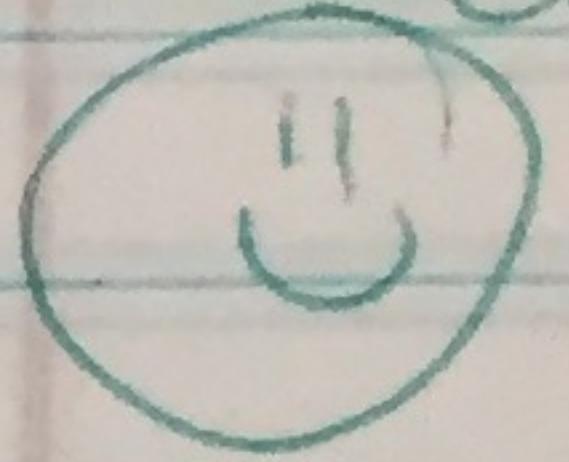
active site



enzyme



= Reaction!



Activation energy = energy needed to make a chemical rxn happen

reaction! - product

(1) energy needed like

Endothermic  
Rxn

Exothermic  
Rxn

(Endo sounds like IN)

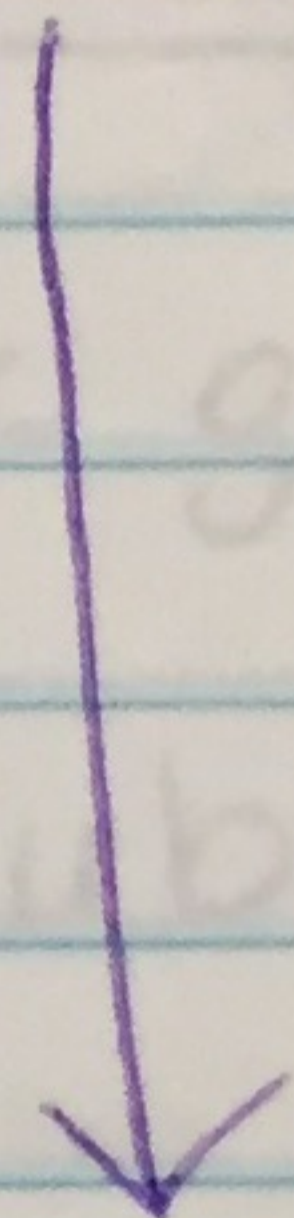
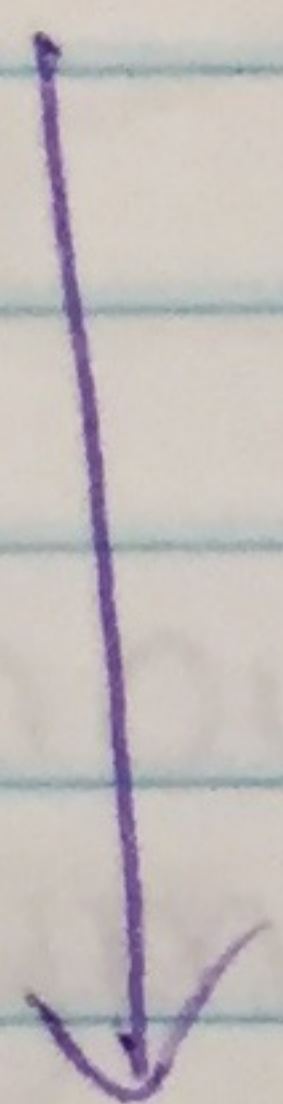
(Exo = exit)

Absorbs energy!  
- absorbs heat  
(feels cooler)

Releases energy!  
- gives off heat  
(feels warmer)

has  $\uparrow$  potential En.

has  $\downarrow$  potential En.



a) Ice pack on your arm

b) melting ice

a) exercising (respiration)

b) burning a candle

c) exploding fireworks