

Start Strong, Finish Strong



Thurs, Sept 15, 2016

Pick up: none

Please make sure
your phones are
in your bags

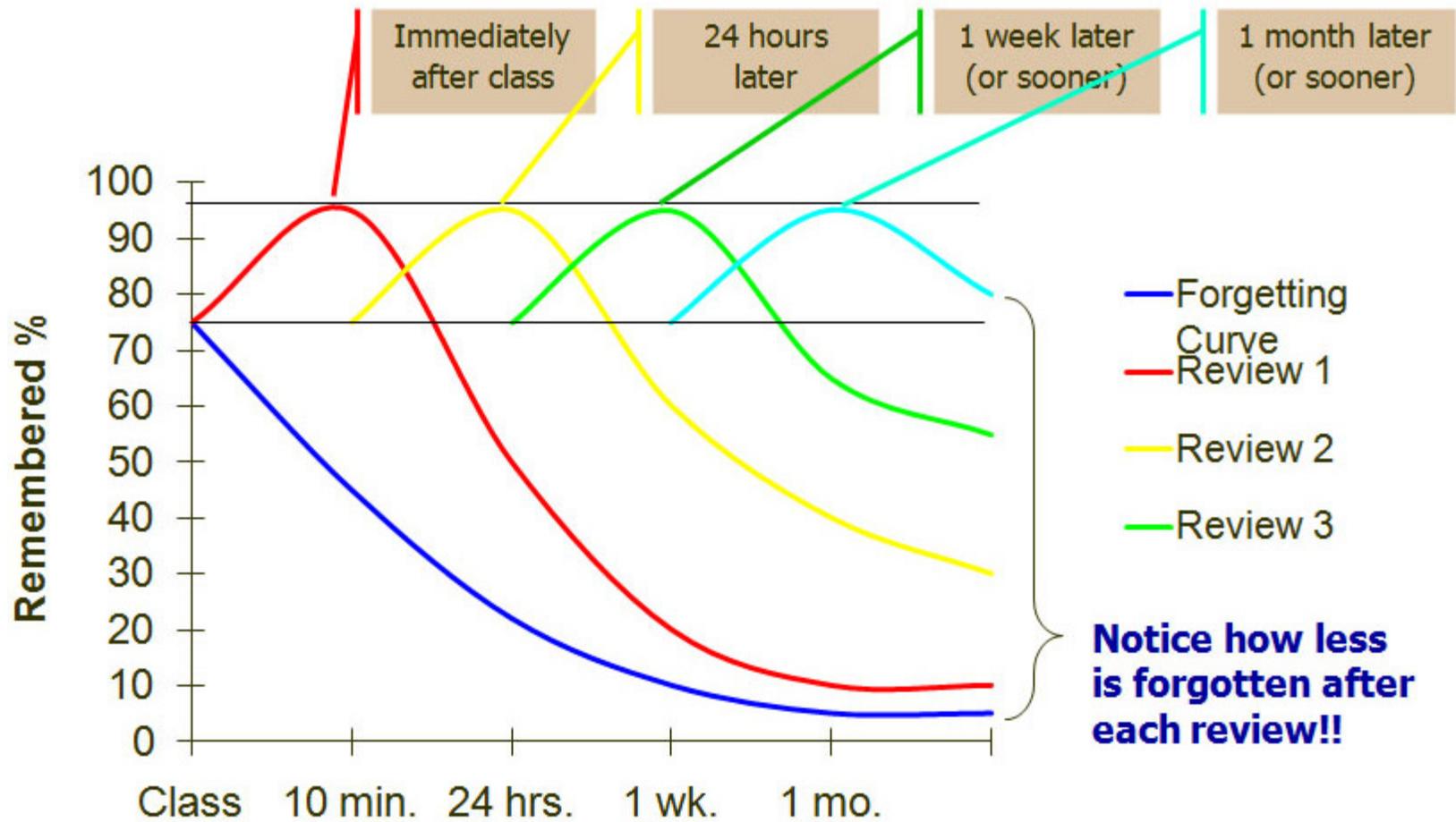
Today you will:

1. Review Enzymes Cornell Notes to understand what enzymes do & what affects their ability to work
2. Draw Enzyme-Substrate Complex

Homework/Planner:

Study! Complete Enzyme CN *ISN pg 31/33*

Overcoming the Curve



<http://www.youtube.com/watch?v=jtTrlxwuReY&safe=active>

DSQ-ISN pg 32

- ***Carbo or enzyme?***

1. ***Sucrose***

2. ***Lactose***

3. ***Cellulose***

4. ***Fructose***

5. ***Lipase***

6. ***Endonuclease***

7. ***Protease***

8. ***Endopeptidase***

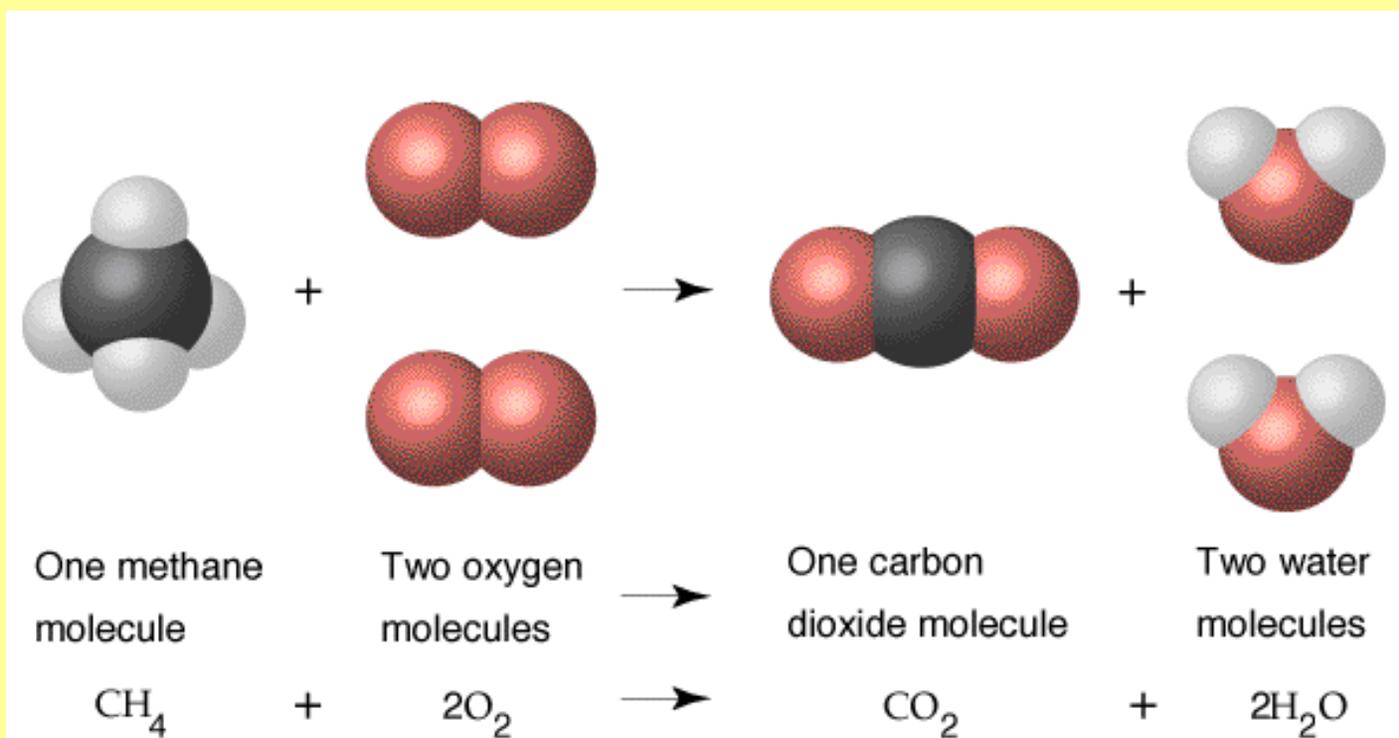
***Carbohydrates*
*end in -ose***

***Enzymes end in -*
*ase***

Why do we study chemical reactions in biology?

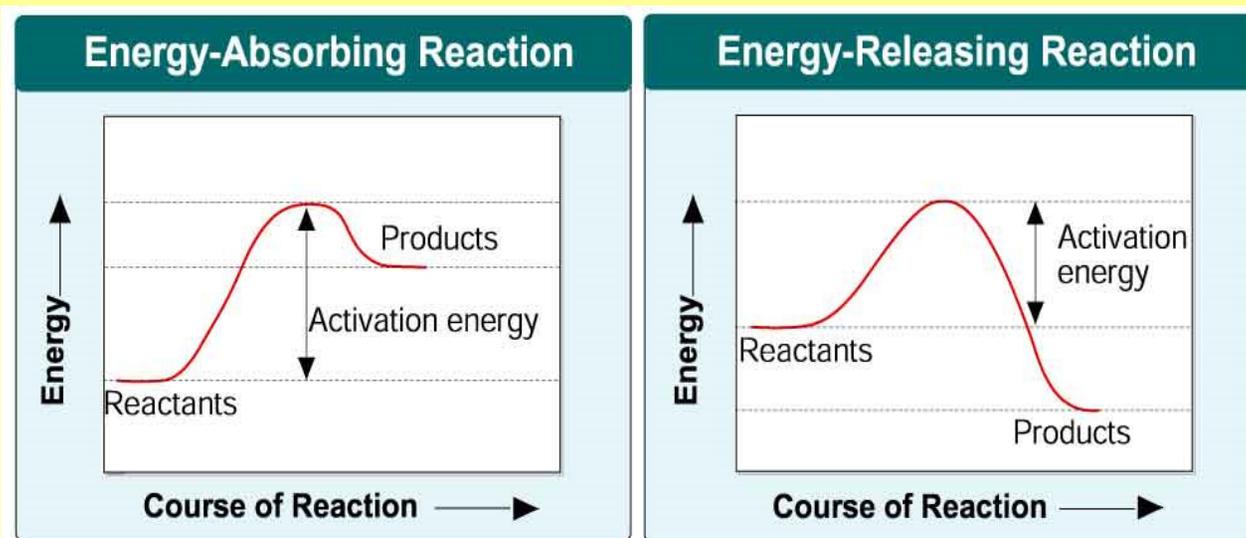
- Chemistry isn't just what life is **made of**, chemistry is also what life **does**
- Everything that happens in an organism is based on chemical reactions (growth, response to environment, etc.)

- Chemical reactions → **breaking** bonds in reactants and **forming** bonds in products



Energy Changes

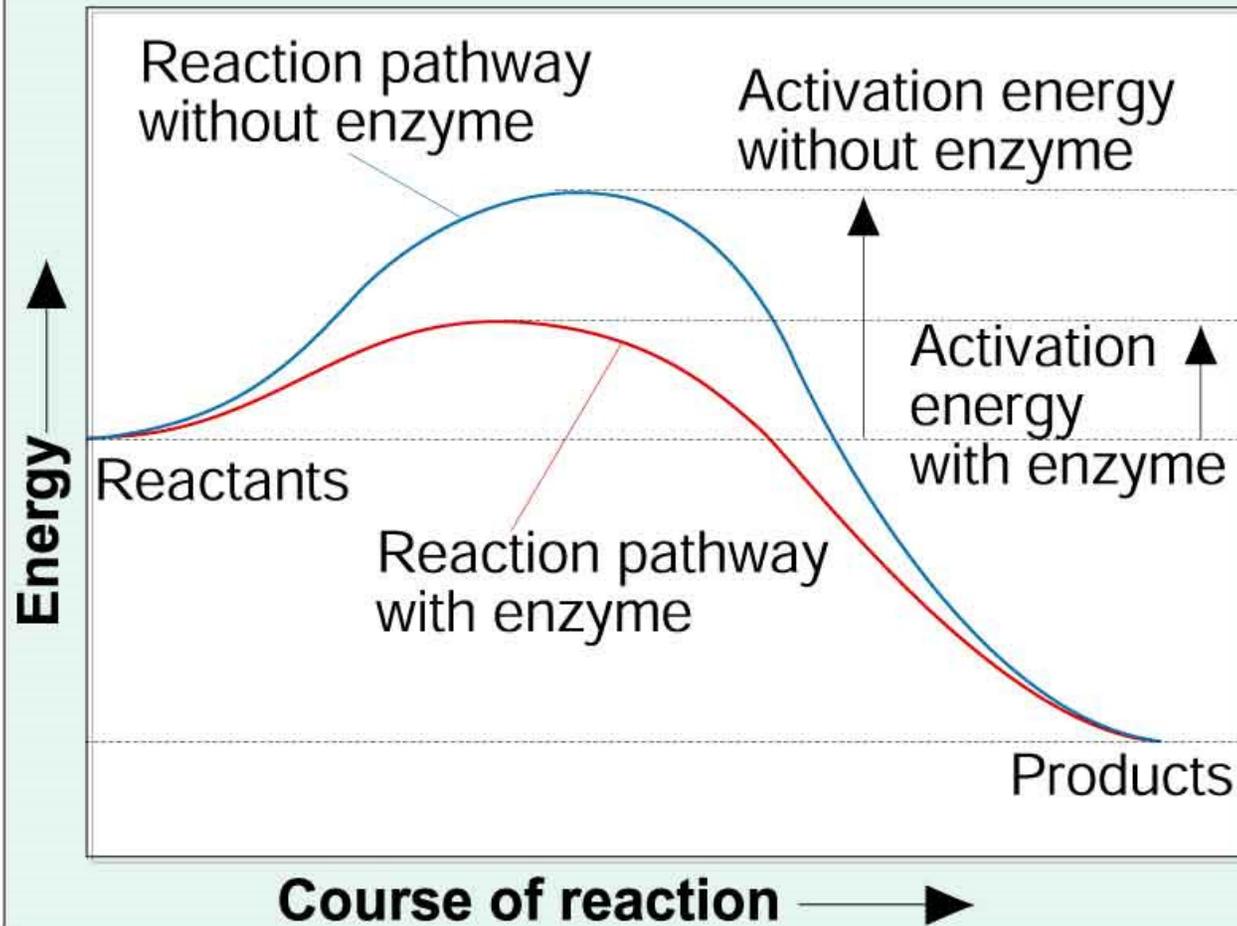
- Some reactions **release** energy and some **absorb** energy
- **Activation Energy**: the energy required to start a reaction



Speeding up Reactions

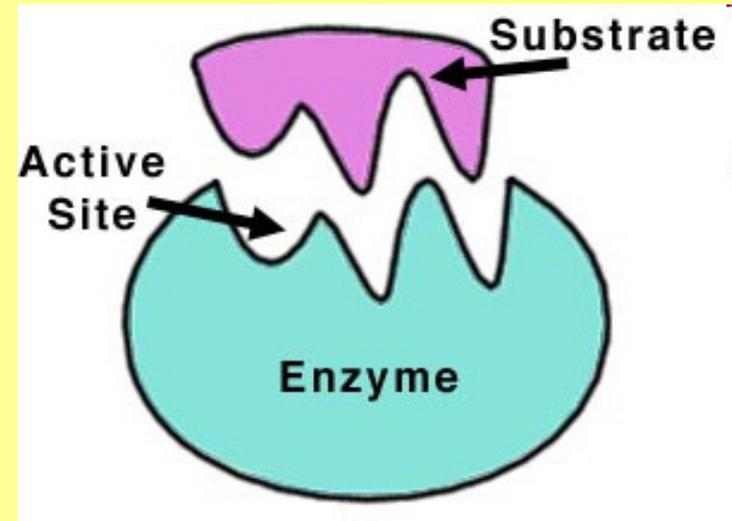
- **Slow** reactions or reactions **with high activation energies** need a catalyst
- **Catalyst** = any substance that lowers the activation energy of a reaction to “speed it up”
- **Enzymes** are catalysts that are **protein molecules.**

Effect of Enzymes

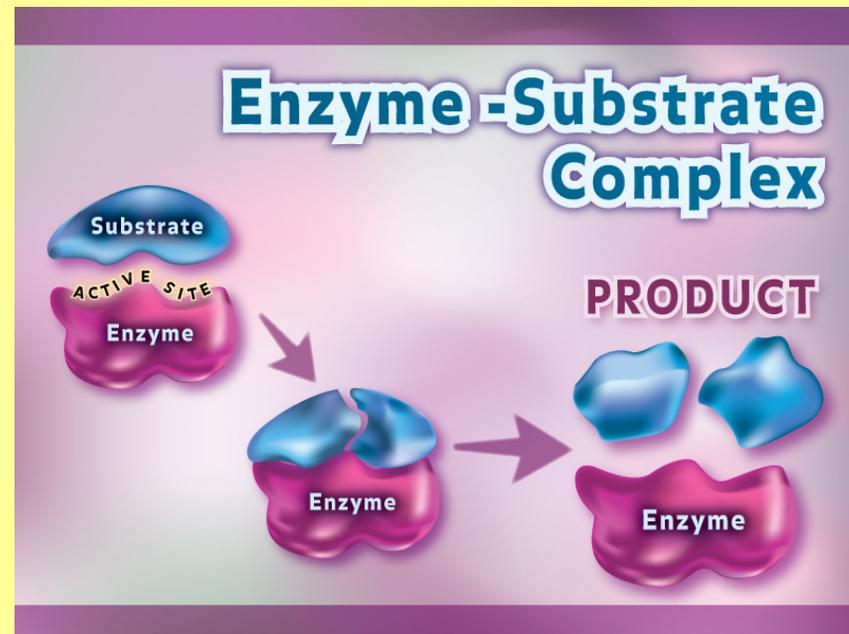


Enzymes

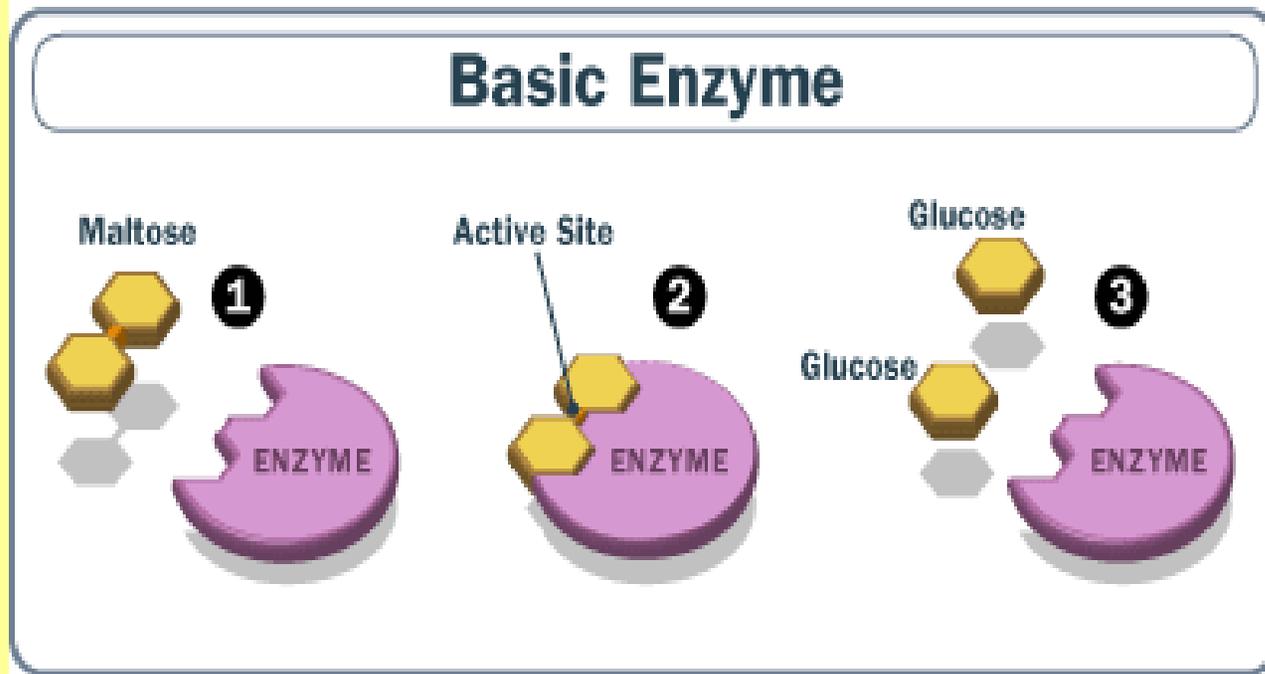
- Enzymes provide a site where **reactants** can be brought together to react.
- In an enzyme-catalyzed reaction, the reactants are called **substrates**.
- Each enzyme has a specific shape and a specific portion called the **active site**, where substrates bind.



- The substrates must fit exactly into the active site. This is called the **lock and key** model.
- Once the reaction is complete, the enzyme releases the **products** of the reaction.
- Enzymes can **join** or **break** substrates into products.

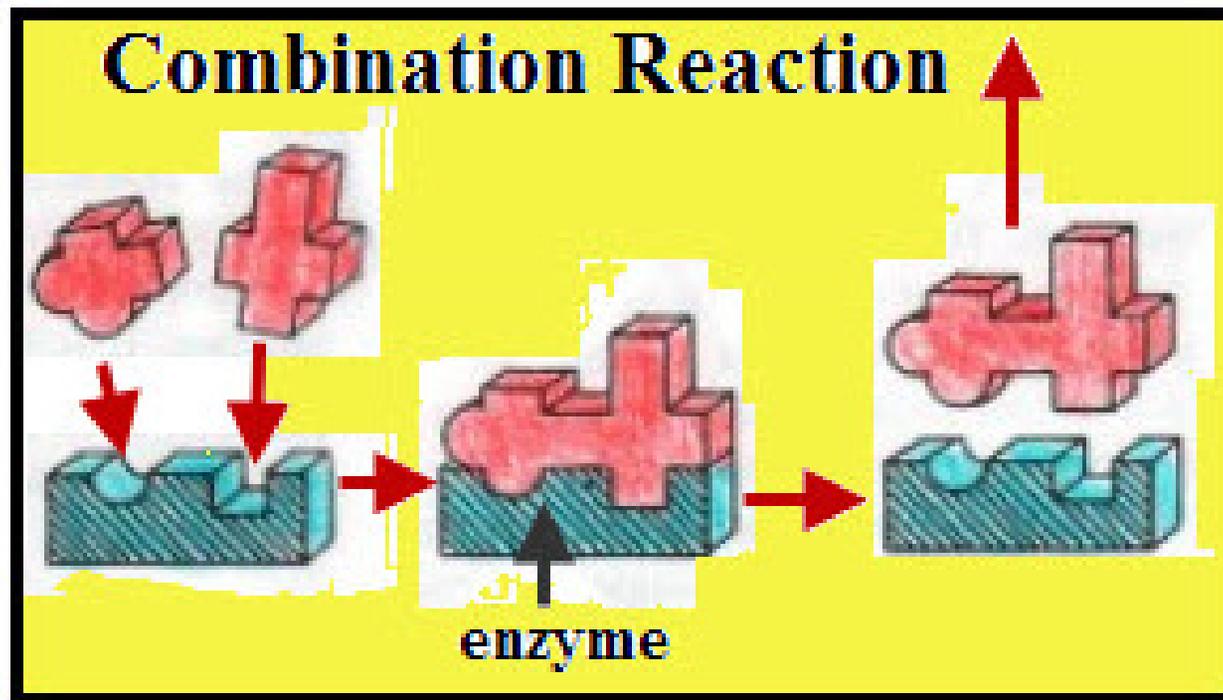


Breaking 1 Substrate into 2 Products



<G:\Teacher Resources\Downloaded Videos\Enzyme Action.avi>

Joining 2 Substrates into 1 Product

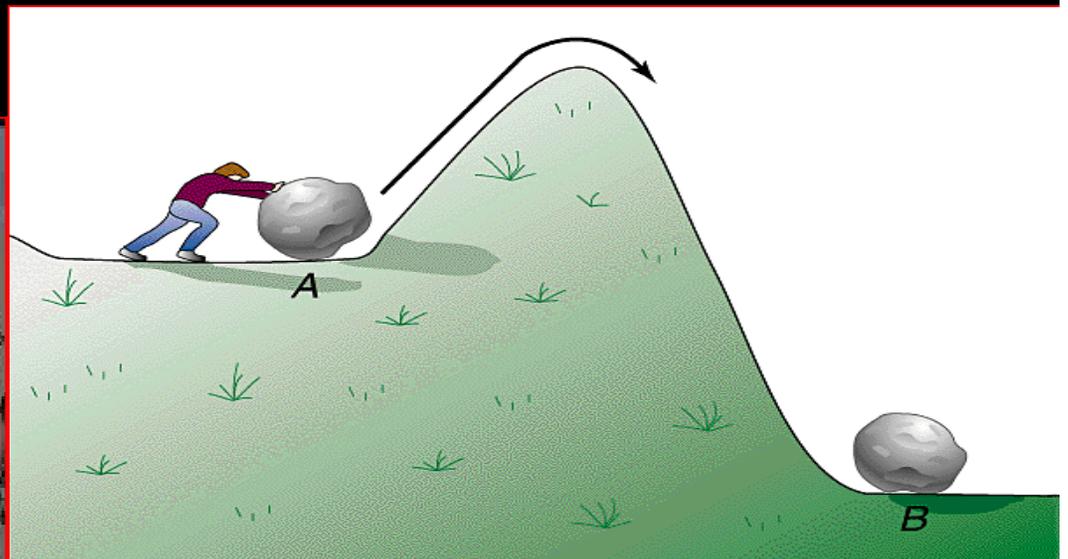


- Enzymes can **break** or **join** substrates into products.
- Enzymes work best at a certain **pH** and **temperature**.
- Roles of Enzymes:
 - 1) regulating chemical pathways
 - 2) making materials
 - 3) releasing energy
 - 4) transferring info



For example...

- Which guy **LOWERS** the Activation Energy →
Which guy would take less “Energy to Activate” the moving of the rock?
- The guy who obviously “includes ENZYMES” in his diet?
- Or the guy who obviously “does NOT include enzymes” in his diet?



1. Enzyme Practice ISN pg 30

2. Enzyme-Substrate Complex-Lock & Key Model
TB pg 56-Draw & Label the diagram

ON TOP HALF

–ISN pg 36

–Use **Color!**

