

Organic Molecules - Enzymes

Enzyme Demonstration:

- What is the chemical formula of Hydrogen Peroxide?

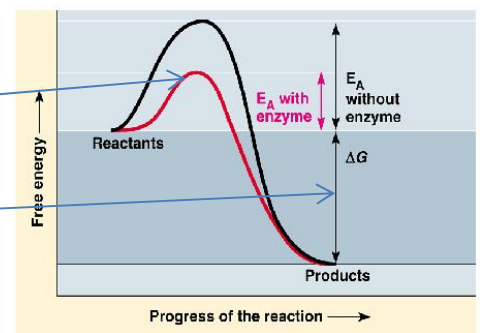
- Why does Peroxide kill living things? _____
- What enzyme do living things have to get rid of Peroxide that forms inside their cells?

- What does that enzyme break peroxide into that makes is safe?

- What happens when I added the artificial enzyme to the Peroxide?

- The enzyme lowered the "activation energy" but it still needed some energy to start the reaction. What was the source of that energy?

- Where did the steam come from that was produced?



The function of enzymes

- Catalyst
- Increase the _____ without being used up themselves.
- NOT CHANGED BY REACTION!

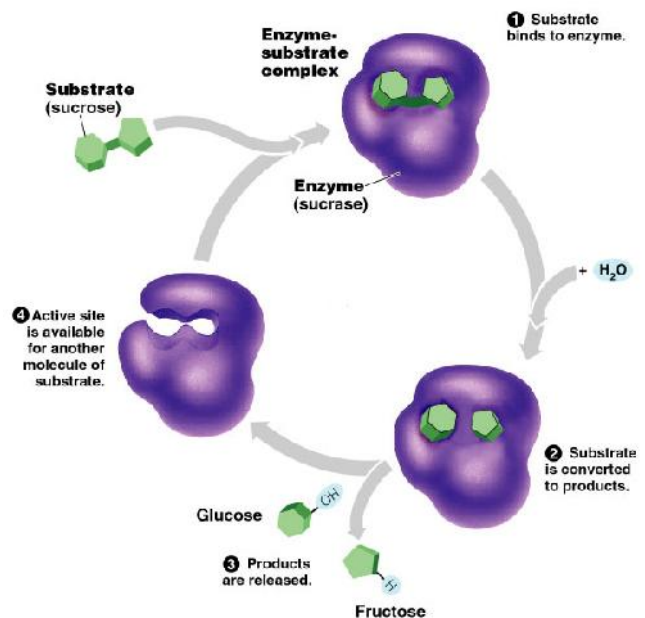
Substrates

- The molecule that _____.
- These are the ones _____ in the reaction.

Enzyme-substrate complex

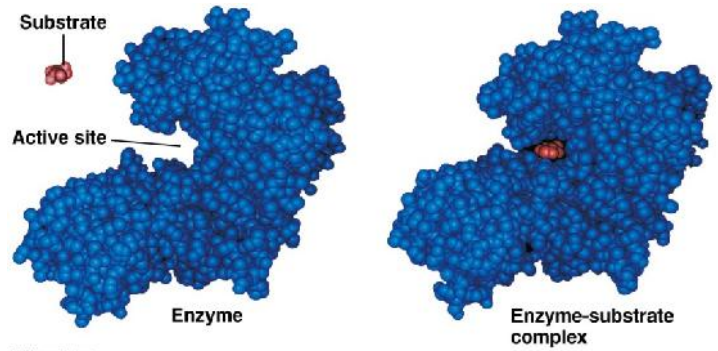
Active site

- The space where the substrate fits.



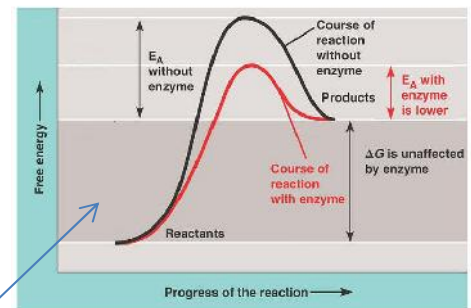
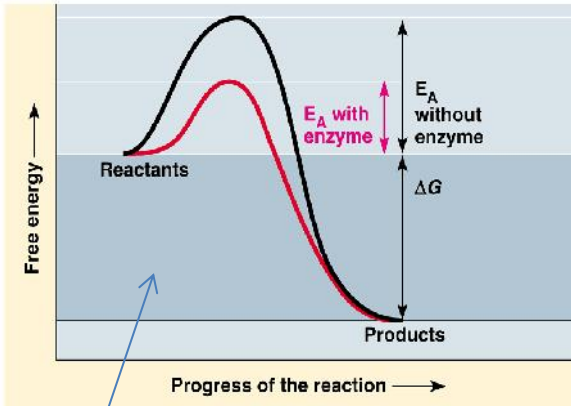
Lock and key

- Each _____ is _____ for one _____ !!
- More like a handshake... see how the enzyme wraps around the substrate. Kind of like the way your hand grips another persons.



Activation Energy

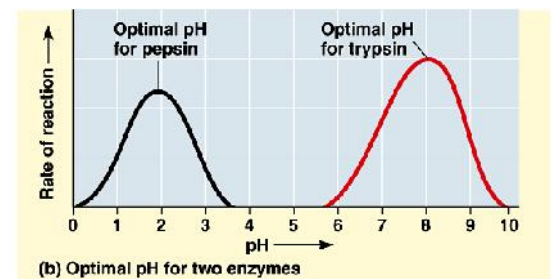
- Energy needed to _____.
- Enzymes _____ a reaction's activation energy
- A lower activation energy makes a reaction _____.



- Exergonic - reactions that _____ more energy than you put in. Reaction happens on its own once it begins. (Burning wood, the demonstration, hand warmers)
- Endergonic - reactions that _____ more energy than they give off. (Building Proteins, Portable Ice Packs)

Enzymes

- _____ in the body are enzymes
- Enzymes work best under certain _____



If the temperature or pH changes, the enzyme may not function.

- If the bonds that hold the enzyme's shape are changed, the enzyme will come apart.
- If this happens, the enzyme will _____.

