

Become an expert on Enzymes. Answer questions 1-8 on your own paper.

Part 1

<http://www.sumanasinc.com/webcontent/animations/content/enzymes/enzymes.html>

Listen to or read through the animation.

1. Where does the energy for chemical reactions come from?
2. Why is ATP important?
3. What happens at the transition state?
4. How do catalysts affect the amount of energy releases?
5. How are the induced fit model and the lock and key model different?

Part 2

<http://www.lpscience.fatcow.com/jwanamaker/animations/Enzyme%20activity.html>

Read through the entire animation.

3. What factors can denature an enzyme?
4. How is an enzyme affected by denaturation?

Part 3

http://highered.mcgraw-hill.com/sites/0072495855/student_view0/chapter2/animation_how_enzymes_work.html

Watch animation.

5. How does the enzyme-substrate complex affect the substrates bonds?
6. How many times can an enzyme catalyze a reaction?

Part 4

http://www.kscience.co.uk/animations/anim_2.htm

Read and watch each animation box.

6. Describe what is happening in each animation box. Be specific.
 - a. Some enzymes break down substances (e.g. digestive enzymes).
 - b. Some enzymes build up simple raw materials into more complex substances.
 - c. Enzymes are very specific. The lock and key hypothesis explains this using the idea that each enzyme has a specifically shaped active site.

- d. The lock and key hypothesis explains why high temperatures denature enzymes.
 - e. The lock and key hypothesis explains why some substances can inhibit enzymes.
 - f. Some toxins inhibit enzymes by affecting the shape of the active site.
7. In the "Investigate how enzymes work using this model" box, adjust the conditions to determine different factors on enzyme activity. Describe your findings below.