

Enzyme Web Quest

Instructions: Follow the steps below, and answer the questions listed IN YOUR NOTEBOOK.

Part I: What are Enzymes?

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

Answer the questions below. Click on “Next” until you reach the end of the animation.

1. What are enzymes?
2. What would happen without enzymes?
3. True/False: Enzymes can help many different reactions; they are not specific in their functions.
4. What happens to an enzyme when it performs its function? What does this mean about enzyme molecules?
5. What determines an enzyme’s function, and how many functions does one enzyme have?
6. What can affect the shape of an enzyme molecule?
7. What is *denaturing*?

Part II—Why Enzymes?

Now, you should be at the “Enzyme Menu” webpage. First, select the button “Why Enzymes?”, and answer these questions while clicking through the animations.

Select “Without Enzyme” first.

8. Explain this animation (make sure to play the whole animation). What happens with these molecules?

Now, select “With Enzyme”.

9. Explain this animation (make sure to play the whole animation). What happens this time with the molecules? What happens to the enzyme at the end?

Now, click on “Enzyme Menu”, and then, click on “Specificness” to see why an enzyme can only help one particular reaction.

10. What does it mean to say that enzymes are *specific*?
11. What needs to happen in this situation?
12. Why can the green enzyme not help the digestion?
13. Why can the yellow enzyme help?

Now, click on “Enzyme Menu”, and then, click on “Reusing Enzymes” to see how one enzyme can be used repeatedly to form large molecules.

14. What happens first?
15. What happens next?
16. What happens as the process continues?

17. What are some examples of long chains (polymers) of molecules?

Now, click on “Enzyme Menu”, and then, click on “Denaturing” to see what happens to an enzyme that is heated or placed in acid.

18. Why is the shape of an enzyme important?

19. What will heat or a change in pH do to the shape of an enzyme?

20. Can the denaturing process be reversed?

21. What happens to the enzyme’s ability to do its job?

22. Will the small molecules be able to react?

23. Write a short summary of what you have learned from all the animations on this website (4–5 sentences).

Now, visit this website: http://www.chem4kids.com/files/bio_enzymes.html

1. Write 1–2 sentences summarizing what this website says the job of enzymes is (what do they compare enzymes to in your everyday life)?

2. What is the four-step process of an enzyme at work?

Now, go to this website: http://www.chem4kids.com/files/bio_enzymes2.html

1. How does temperature help control enzymes?

2. How do pH levels affect enzymes?

3. What do inhibitors do to enzyme activity?

4. How could you determine the correct temperature range, salt concentration and pH for a specific enzyme?

Types of Enzymes in the Human Body:

Use your Google or Yahoo search engine to complete the following. For each enzyme listed below, search and read about the enzyme. What does it help the body do? Where is it located in the body? What might happen if that enzyme was not there or did not work properly? Write AT LEAST 3 sentences for EACH enzyme, AND write down which website(s) you got your information from!

1. Salivary Amylase:

Website(s) where I found my information:

2. Pepsin (protease):

Website(s) where I found my information:

3. Lactase:

Website(s) where I found my information:

4. Catalase:

Website(s) where I found my information: