Enzymes Virtual Lab

Today you will be learning about enzymes and their role in chemical reactions.

Go to the website:

http://www.phschool.com/science/biology\_place/labbench/lab2/intro.html. Read the page and then click on “next.”

1. What is the function of an enzyme?

2. What is a substrate?

3. What happens to the enzyme and the substrate during a chemical reaction?

4. What does it mean by enzymes being “specific”?

5. What does catalase do? Use the terms substrate and product in your response.

6. How can you tell that catalase has been added to hydrogen peroxide?

7. What are enzymes?

8. Why is the active site specific for only one type of substrate?

9. Draw a schematic model of an enzyme.

10. What happens when a substrate with a different shape from the active site tries to enter the active site?

11. What are 2 important influences on enzymatic activity? What happens when these factors are significantly altered?

1.

2.

12. Provide 2 examples of enzymes and the pH of the environment in which it works.

13. Describe the effect of temperature on enzyme function.

14. Click on

http://www.glencoe.com/sites/common\_assets/advanced\_placement/mader10e/v

irtual\_labs\_2K8/labs/BL\_02/index.html. In this experiment you will determine the effects of substrate concentration and pH on the initial rate of an enzyme-catalyzed reaction.

15. What is different in people who suffer from lactose intolerance when compared with “normal individuals”?

16. Read the objectives and procedures. Click the monitor and watch the video about enzyme action. Summarize the video.

17. Conduct the experiment based on the directions specified under procedures. In

test tube 1, adjust the pH to 3; test tube 2, adjust the pH to 5; test tube 3, leave

the pH at 7; test tube 4, adjust the pH to 9 and in test tube 5, adjust the pH to 11.

Add 0.5 g of substrate in each of the 5 test tubes.

18. Why was 0.5g of substrate added to all of the tubes instead of varying amounts

of substrate?

19. What is the independent variable in this experiment?

20. What is the dependent variable in this experiment?

21. Record the data in the data table and in the data table below and repeat the experiment again using the 1.0g lactose. Record your results in the data table and the table below. Repeat the experiment again using 2.0g lactose. Record the data in the data table and in the data table below. Repeat the experiment again using 4.0g lactose. Record the data in the data table and in the data table below. Repeat the experiment again using 8.0g lactose. Record the data in the data table and in the data table below.

Amount of substrate

pH3 pH5 pH7 pH9 pH11

0.5g

1.0g

2.0g

4.0g

8.0g

22. When your online data table is complete, click on “graph”. Draw the graph in the space provided below or attach a copy of the graph to this assignment.