Keep to review!

Name: _____ Period: _____

2.4: Enzymes & Chemical Reactions Review

Effects of pH (Acid & Base) on Enzyme Activity

1. In chemical reactions, what do you start with? What do you end with?

2. What is a catalyst? What is activation energy?

3. In 1-2 full sentences, describe what enzymes do in cells. (Don't forget, what kind of macromolecules are enzymes?)

4. Describe how enzymes behave like a "lock and key".

5. What are the three factors that speed up chemical reactions?

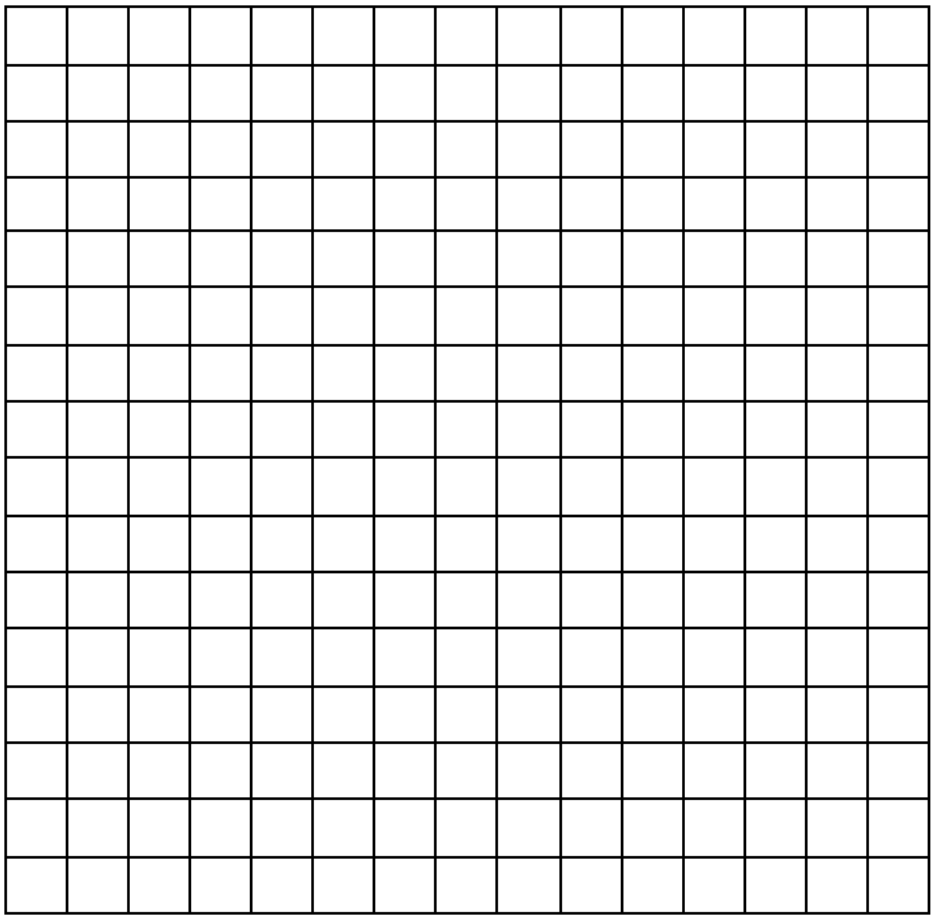
6. In the space provided, draw a rough diagram showing a line for a chemical reaction WITHOUT an enzyme and a line for a chemical reaction WITH an enzyme. Indicate what happened to the activation energy?

The Effect of pH on Enzyme Functioning

Every enzyme has an optimum pH (level of acid or base) at which it functions the best, just like enzymes have an optimum temperature. To the right is the data showing the effect of pH on two different enzymes necessary for digestion, amylase and pepsin. Graph the data in the space provided, and answers the questions that follow.

pH	Amylase Reaction Rate	Pepsin Reaction Rate
1	0	9.5
2	0	10.5
3	0.5	9
4	1	7.5
5	3	2
6	7.5	.5
7	9	.2
8	8	0
9	5.5	0
10	2	0
11	.2	0
12	0	0
13	0	0

Keep to review!



7. Graph the data provided on the opposite page. Be sure to draw two lines in two different colors and to label the x and y axes on the graph!

8. What is the optimum (best) pH for the functioning of amylase? _____

9. What is the optimum (best) pH for the functioning of pepsin? _____

10. Which enzyme works best in a high acidic environment such as your stomach? _____

11. What happens to an enzyme that is placed in an environment drastically different from its optimum pH? (For instance, what happens when you put either of these enzymes in an environment opposite of its optimum pH?)