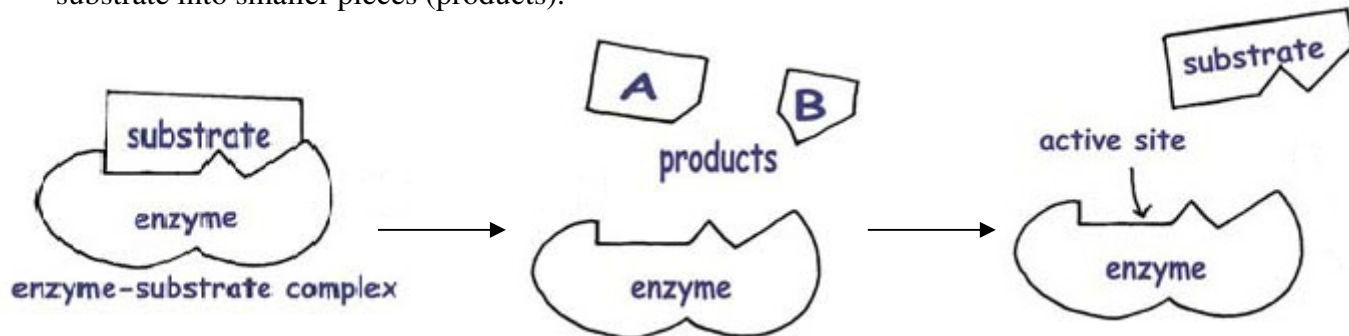


Name \_\_\_\_\_

Date \_\_\_\_\_ Period \_\_\_\_

## Overview: Enzyme Reactions

The pictures below show the *incorrect* sequence of how enzymes work to “breakdown” a substrate into smaller pieces (products).



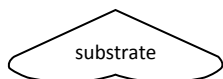
Show how enzymes work by drawing the pictures in the correct order and explain the following:

a) Correct order of pictures: (draw below)

b) What happened to the substrate in the diagram above? \_\_\_\_\_

c) Compare the enzyme at the beginning and end of the reaction, did it change? If so, how?

d) Would the substrate shown below work with the enzyme from question A? EXPLAIN.

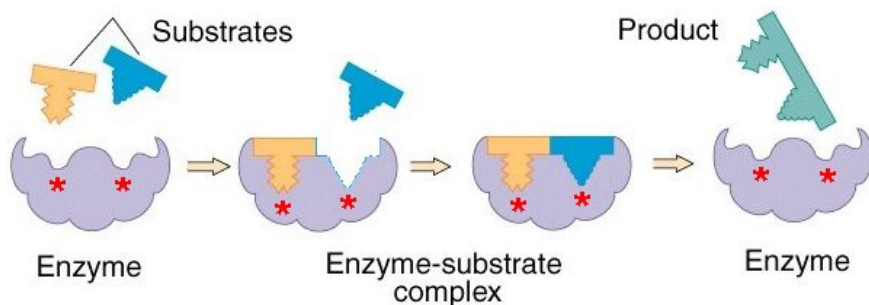


e) What would happen to the substrate if the enzyme was not there?

f) How is the diagram below similar and different than the above process?

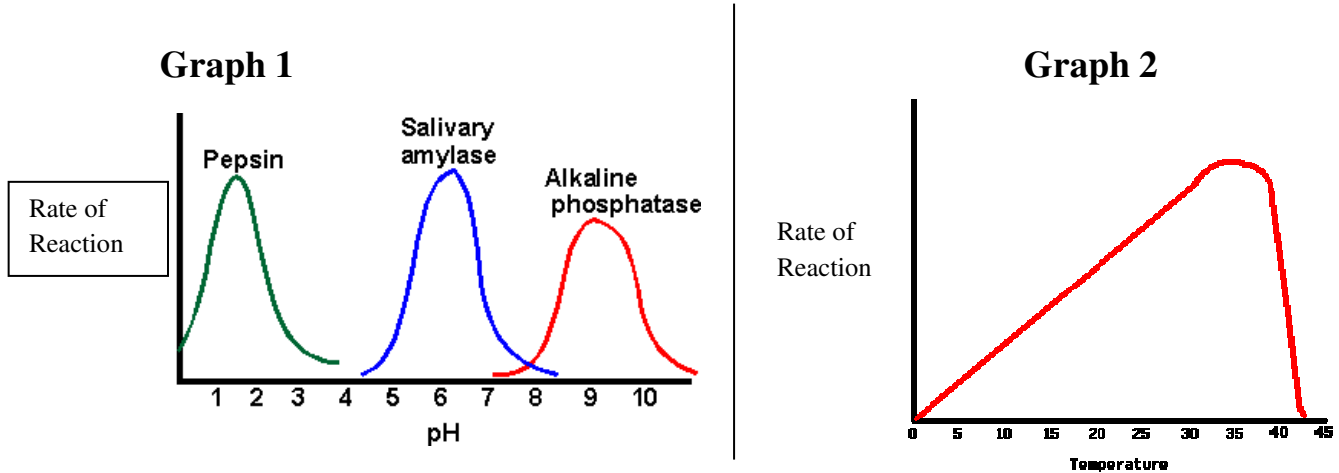
Similar:

Different:



## Environmental Affects on Enzymes

Enzymes can be affected by environmental conditions. Use the graphs below to answer the questions that follow.



- 1) Look at both graphs, explain what environmental conditions can affect the rate of reaction for enzymes.
- 2) What is the best pH for the enzyme salivary amylase? How do you know?
- 3) What is the optimal (best) temperature for the enzyme shown in Graph 2? How do you know?
- 4) Keep in mind that enzymes are special proteins and proteins have a very specific shape. What do you think happens to the shape of the enzyme shown in Graph 2 when the temperature is above 40°C and the enzyme stops working? Explain your prediction.
- 5) Which enzyme from Graph 1 do you think would be found in your stomach? Why?