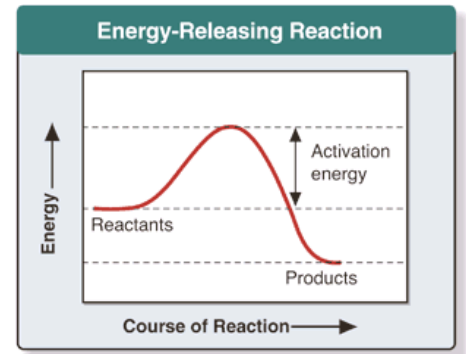
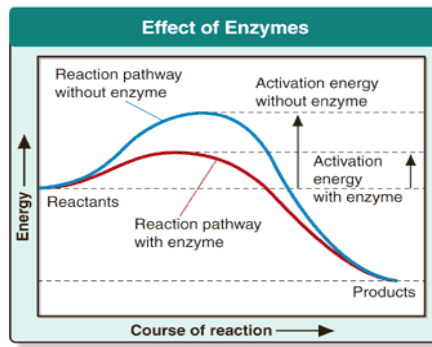
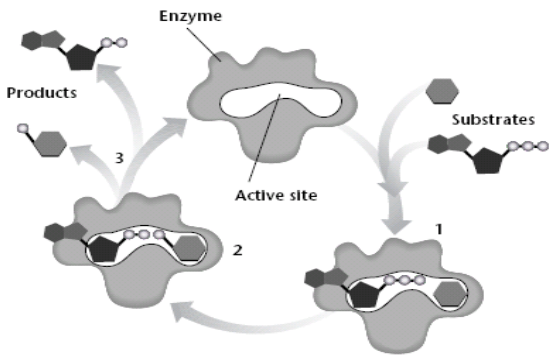


Worksheet

Enzymes and Chemical Reaction Rates

I. Review

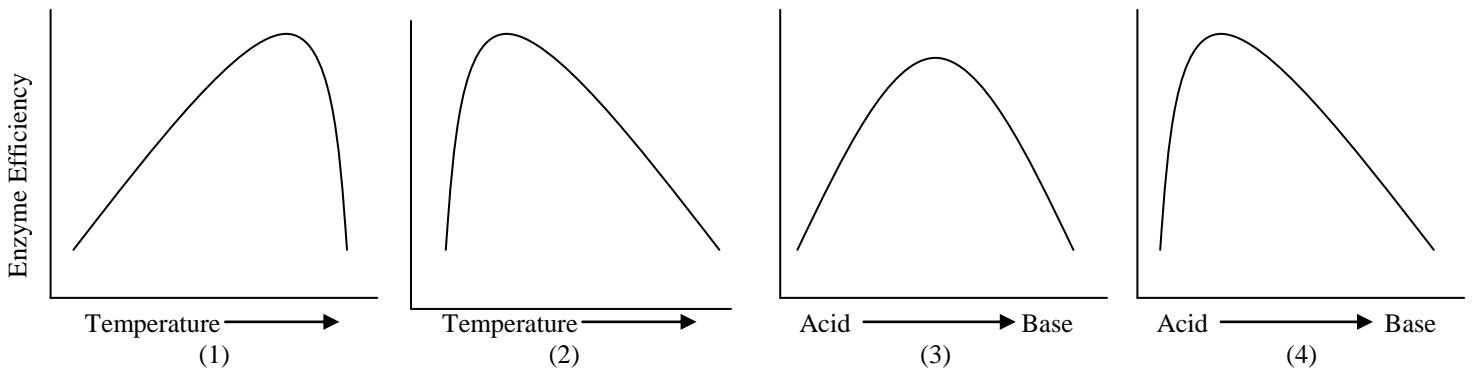
- a. Enzymes are proteins that have a special function in the cells.
 - 1. Enzymes make chemical reactions go faster by lowering the activation energy of the reactions.
 - 2. The activation energy is the amount of energy it takes to get a reaction started.
 - By lowering the amount of energy needed to get reactions started, the reactions can start sooner and thus end sooner, making the reaction go faster.
- b. Enzymes work by binding the substrate at the active site, changing the substrate into the product, and then becoming available again for another reaction by releasing the product
 - 1. The substrate fits into the active site like a lock fitting a key; only one key can unlock one lock.



II. What Affects Enzymes

- a. There are two main factors that affect enzymes: temperature and pH
 - 1. Depending on how hot or cold it is, an enzyme might work better or worse.
 - 2. Most enzymes work best at a neutral pH (pH = 7), but some enzymes work well in acidic (below 7) or basic (above 7) conditions
- b. How well an enzyme works is called its efficiency or activity.
 - 1. The higher an enzyme's activity, the faster it works.

III. Basic Graphs of Enzymes



- a. Graph (1) shows that this enzyme will work best at what types of temperatures? _____
- b. Graph (2) shows that this enzyme will work best at what types of temperatures? _____
- c. Graph (3) shows that this enzyme will work best at what type of pH? _____
- d. Graph (4) shows that this enzyme will work best at what type of pH? _____

