SC.912.L.18.1 Describe the basic molecular structures and primary functions of the four major categories of biological macromolecules.

SC.912.L.18.11 Explain the role of enzymes as catalysts that lower the activation energy of biochemical reactions. Identify factors, such as pH and temperature, and their effect on enzyme activity.

1. In living cells, enzymes act as catalysts, which may reduce the amount of activation energy required for a chemical reaction to occur. In the graphs below, pathway x is a solid line representing the uncatalyzed reaction. The dotted line shows the catalyzed reaction. Which graph best illustrates the changes in a reaction when the catalyst reduces the amount of energy required?

A.  
B.  
C.  
D.  

D.
A catalyst decreases the activation energy needed for a reaction to occur. This allows the reaction to happen faster.

http://www.ecsd-fl.schoolloop.com/biologyeocreview
2. The diagram below shows the general structure of an amino acid. Which type of molecule is formed from amino acids?

- **A. lipids**
- **B. proteins**
- **C. carbohydrates**
- **D. nucleic acids**

**B. protein**
[link](http://www.ecsd-fl.schoolloop.com/biologyeocreview)

3. You are analyzing a compound in the laboratory. You find that it is made up of carbon, hydrogen, and oxygen in a ratio of two hydrogen atoms for each carbon atom. How will you classify the compound?

- **A. lipid**
- **B. protein**
- **C. carbohydrate**
- **D. nucleic acid**

**C. lipids**
[link](http://www.ecsd-fl.schoolloop.com/biologyeocreview)

4. Fats, oils and cholesterol are all types of what?

- **A. cell membranes**
- **B. hormones**
C. lipids
D. fatty acids

C. lipids

http://www.ecsd-fl.schoolloop.com/biologyeocreview

5. RNA and DNA are which type of macromolecules?
A. carbohydrate
B. lipid
C. nucleic acid
D. protein

C. nucleic acids

http://www.ecsd-fl.schoolloop.com/biologyeocreview

6. What will most likely happen if an appropriate enzyme is added to a chemical reaction?
A. The reaction rate will increase.
B. The equilibrium of the reaction will be maintained.
C. The reaction rate will decrease.
D. The reaction will stop.

A. The reaction rate will increase.

http://www.ecsd-fl.schoolloop.com/biologyeocreview

7. A sugar, a phosphate group, and a nitrogen base form the building blocks of which organic compound?
A. carbohydrates
B. lipids
C. nucleic acids
D. proteins

C. nucleic acid

http://www.ecsd-fl.schoolloop.com/biologyeocreview
8. The human body maintains a temperature of around 98.6 degrees at all times. Enzymes are involved in almost every chemical reaction in the body. Which of the following describes the connection between these two statements?

A. Enzymes function best at a specific temperature.
B. The body needs to be warm to prevent hypothermia.
C. The body is kept relatively warm to prevent too much enzyme action.
D. There is no connection between the two statements.

A. Enzymes function best at a specific temperature.

http://www.ecsd-fl.schoolloop.com/biologyeocreview

9. The enzyme lactase will break down the sugar lactose into which of the following components?

A. monosaccharides
B. nucleic acids
C. amino acids
D. phospholipids

A. monosaccharides

http://www.ecsd-fl.schoolloop.com/biologyeocreview

10. At what temperature do the two enzymes have the same amount of activity?

A. 20°C  B. 47°C  C. 100°C  D. Activity levels are never the same.
11. Which enzyme has an optimum temperature of 40°C?
   A. Enzyme X   B. Enzyme Y
   Enzyme X
   Prentice Hall *Biology*

12. Which enzyme would have the most activity in humans?
   A. Enzyme X   B. Enzyme Y
   Enzyme X
   Prentice Hall *Biology*

13. Chemical reactions that absorb more energy than they release are called
   A. exothermic.
   B. catalyzed.
   C. endothermic.
   D. activated.
   C. endothermic.
   Prentice Hall *Biology*

14. In the lock-and-key model of enzyme function shown in Figure 2.2, what is happening in step 2?
   A. The catalyzed reaction is releasing a product.
   B. The active sites are restructuring the enzyme.
   C. The enzyme is causing new bonds to form between the substrates.
   D. The substrates are beginning to bind to the enzyme.
   C. The enzyme is causing new bonds to form between the substrates.
   Prentice Hall *Biology*
15. Which aspect of a chemical reaction is affected by enzymes?
   A. direction
   B. rate
   C. equilibrium
   D. pH

   B. rate

Prentice Hall *Biology*