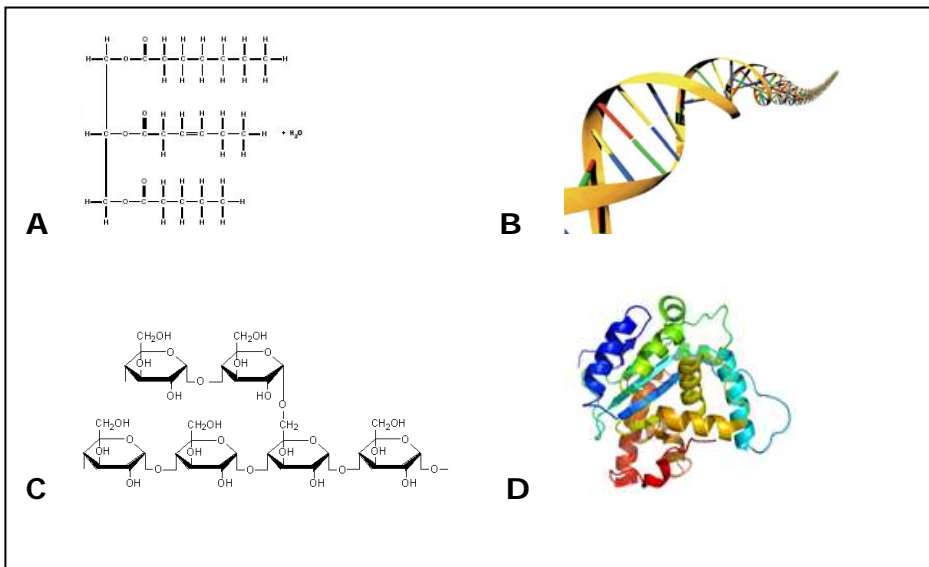


**TEKS 9A** – compare the structures and functions of different types of biomolecules, including carbohydrates, lipids, proteins, and nucleic acids (Reporting Category 1)

1. Like complex carbohydrates, proteins are biomolecules that serve many functions and can be chemically broken down and restructured. Both proteins and complex carbohydrates are which of the following?

- A** Polymers of smaller subunits
- B** Sequences of sugars
- C** Lipids of large molecules
- D** Nucleotides of DNA

2. Each of these represents a different biomolecule. Which of the following is a carbohydrate?



3. Which biomolecule is properly matched to its monomer?

- A** nucleic acid : amino acid
- B** polypeptide : 1 glycerol + 3 fatty acids
- C** lipid : nucleotide
- D** carbohydrate : monosaccharide

4. Nucleic acids are biomolecules. Which of the following is the function of nucleic acids?

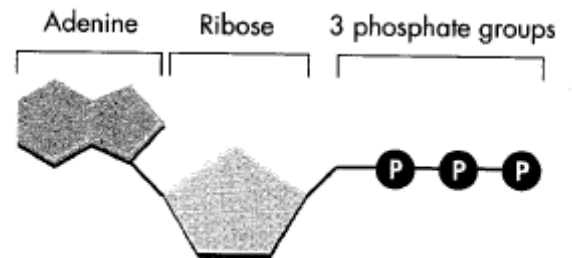
- A** Serve as the primary structural unit of biological membranes
- B** Serve as energy storage
- C** Store and transmit genetic information
- D** Serve as biological catalysts

5. One function of lipids is to store energy. What is another function of lipids in the human body?

- A** To form plasma membranes
- B** To make energy from the sun
- C** To control chemical reactions
- D** To provide quick energy for the cell

6. The molecule in the diagram plays what role in the body?

- A** Releasing energy
- B** Forming part of the sugar-phosphate backbone of DNA
- C** Storing fat
- D** Controlling blood glucose levels



**TEKS 9C – identify and investigate the role of enzymes**  
(Reporting Category 4)

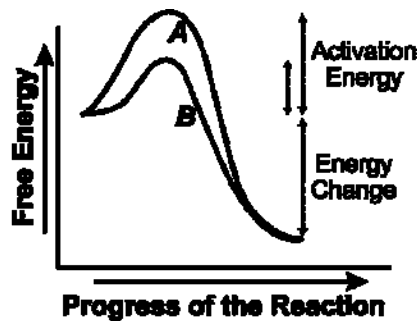
Use the following reading passage for question 7.

Organisms living in a bog environment must be able to tolerate nitrogen-poor acidic conditions. Bog plants such as the Venus flytrap and sundew are able to obtain their nitrogen by attacking and consuming insects. These plants produce chemicals that break down the insects into usable compounds.

7. These chemicals present in the bog plants that break down the insects mentioned in the reading passage are most likely—

- A hormones.
- B lipids.
- C enzymes.
- D carbohydrates.

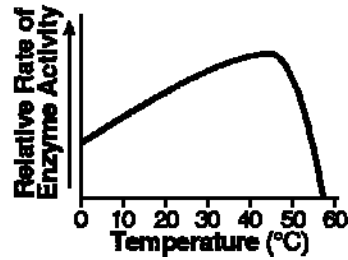
8. Line B in the given graph represents the reaction with an enzyme added to substrates.



How did the enzyme affect the reaction?

- A Increased the activation energy
- B Increase the energy change
- C Lowered the energy change
- D Lowered the activation energy

9. Which statement is a valid conclusion based on the information in the graph below?



- A** Temperature can influence the rate of action of an enzyme.
  - B** The maximum rate of human respiration occurs at about 57°C.
  - C** Growth can be controlled by enzyme action.
  - D** The maximum rate of human digestion occurs at about 45°C.
10. Why is maintenance of a constant blood pH critical for body processes?
- A** Blood with a high pH helps prevent cancer.
  - B** Enzymes work best within a narrow pH range.
  - C** The production of vitamin C by skin cells requires low pH values.
  - D** Some bacteria thrive in very acidic conditions.