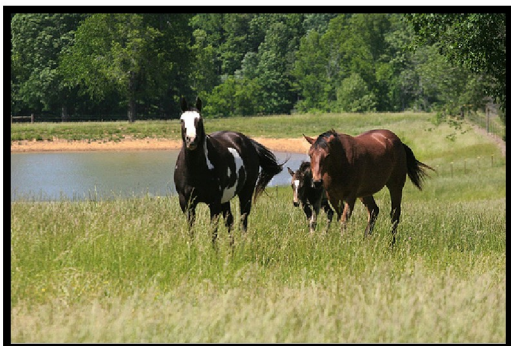


# Roland-Story Biology Class

## Chapter 2 Study Guide

### Chemistry of Life

Name \_\_\_\_\_



What do these horses have in common with the grass they are walking on?

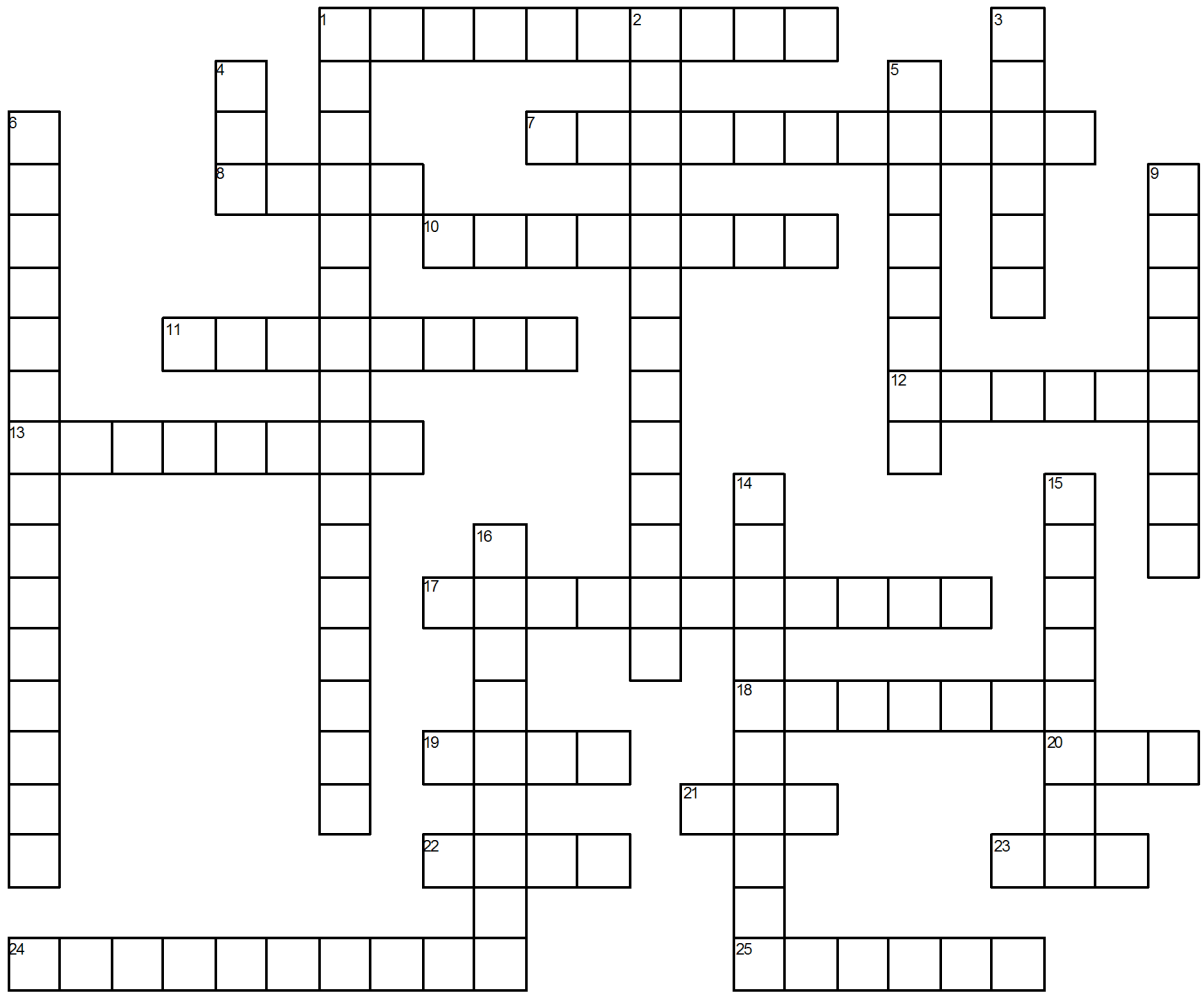
1. The carbon atoms in organic molecules are bonded to other atoms by \_\_\_\_\_ bonds.
2. What is the difference between atoms and elements.
3. Describe how an atom differs from a molecule.
4. What is the difference between covalent and ionic bonds?
5. What type of bond forms between water molecules?
6. Describe the difference between polar and nonpolar molecules. Give an example of polar molecules.

7. The four major classes of organic compounds are:
  
8. The building blocks of carbohydrates are?
  
9. Identify what all organic compounds have in common.
  
10. List four principle classes of organic compounds.
  
11. Compare structures of saturated and unsaturated lipids.
  
12. Describe the three parts of a nucleotide and how they are attached to each other.
  
13. Compare the role of ATP in cells with the roles of RNA.
  
14. If a carbohydrate molecule contained six carbon atoms, it would also contain \_\_\_\_\_ hydrogen atoms.

15. Humans can not digest the carbohydrate \_\_\_\_\_.
16. Fats are lipids that store \_\_\_\_\_.
17. Lipids will dissolve in \_\_\_\_\_.
18. Fats are composed of three fatty acid molecules joined to a molecule of \_\_\_\_\_.
19. At room temperature, \_\_\_\_\_ fats are usually liquids.
20. A protein is a chain of linked smaller molecules called \_\_\_\_\_.
21. What two factors determine the shape of a protein?
22. What roles do proteins play in organisms?
23. List the three ways that organisms use energy.
24. Explain how energy is made available by chemical reactions.
25. Explain how enzymes increase the speed of chemical reactions.

26. Describe how the enzyme amylase affects starch.
27. Predict the effect that a molecule that interferes with the action of carbonic anhydrase would have on your body.
28. Describe how an enzyme can function in speeding up a chemical reaction within a cell.

29. Complete the crossword puzzle of vocabulary words.



www.CrosswordWeaver.com

**Clues on next page**

## ACROSS

- 1 are the building blocks of proteins.
- 7 contain long strands of DNA which stores hereditary information
- 8 pH of 0-6
- 10 a substance made of the joined atoms of two or more different elements
- 11 a large molecule formed by linked smaller molecules of amino acids
- 12 are nonpolar molecules that are not soluble in water
- 13 attraction between molecules of the same substance
- 17 a long chain of smaller molecules
- 18 made of only one type of atom
- 19 basic unit of matter
- 20 positively or negatively charged atom
- 21 is a single nucleotide with 2 extra energy storing phosphate groups
- 22 pH of 8-14
- 23 consists of a single strand of nucleotides
- 24 the forms or folds on surface of enzymes
- 25 substances that increase the speed of chemical reactions

## DOWN

- 1 the energy needed to start a chemical reaction
- 2 organic compounds consisting of C, H, and O
- 3 the ability to move or change matter
- 4 an acid that consists of two strands of nucleotides
- 5 is a group of atoms held together by covalent bonds
- 6 simple sugars that are the building blocks of carbohydrates
- 9 attraction between different substances
- 14 consists of sugar base, phosphate group and and oxygen atoms
- 15 evenly distributed mixture
- 16 a substance on which an enzyme acts during a chemical reaction