# Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Period: \_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_

# THE MOLECULES OF THE CELL STUDY GUIDE

1. What two elements are in a hydrocarbon?

2. Draw a methane, ethane, propane, and butane. What are the molecular formulas for each?

3. Draw a propene and a propyne.

4. Draw the six functional groups.

5. Define *monomer* –

6. Define *polymer* –

7. Define *dehydration synthesis* –

8. Define *hydrolysis* –

9. What are the four categories of macromolecules?

10. If two molecules have the same number of carbons, what could make their characteristics different?

# Carbohydrates

11. What monomer makes up carbohydrates?

12. What are some examples of monosaccharides? What is the general formula?

13. Complete the following, also describe where each sugar is found.

Glucose + Glucose =

Glucose + Galactose =

Glucose + Fructose =

14. What are the 4 different polysaccharides? Give examples of each.

# Lipids

15. What is the most concentrated form of stored energy? \_\_\_\_\_\_\_\_

16. What two monomers make up fats and how many of each?

17. What are two characteristics of all lipids?

18. What are four examples of lipids?

19. Define *saturated fats* and give examples –

20. Define *unsaturated fats* and give examples –

21. What are phospholipids for?

22. What are waxes for?

23. What are steroids for?

# Proteins

24. What are the 7 types of proteins?

25. Draw an amino acid and label the functional groups.

26. How many amino acids are there?

27. What type of bonds do amino acids form when they join? How do 2 amino acids join together?

28. Describe the four structural levels of proteins.

Which level shows the folding of the polypeptide chain? \_\_\_\_\_\_\_\_

What type of bonds hold them there? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

29. Define *denature –*

30. What are two ways to denature a protein?

31. What level of the structure of proteins is not denatured when it is heated?

# Nucleic Acids

32. What are 2 examples of nucleic acids?

33. What monomer makes up a nucleic acid? Draw one and label all parts.

33. What is the function of nucleic acids?

34. What are some differences between RNA and DNA?