1. How many valence electrons does C have? _____
2. What are the 6 main elements found in living things? ________________________________
3. The single units that make up macromolecules are called ________________.
4. ________________ are molecules that are made of many single units joined together.

5. The molecule to the right is ____________________________________________.
6. This molecule is used by plants for ________________________________________.
7. In this picture it is made of ____ glucose molecules.
8. It was formed by joining glucose molecules through the process called ________________.
9. How many water molecules were released in this process? ________

10. The molecule to the right is a _____________________________ or single sugar.
11. Its chemical formula is ______________________________.

12. By looking at the chemical structure above, draw two monomers that have joined together by a condensation reaction

13. What is the type of molecule that you drew? __________________________

Matching

14. ______ Starch
15. ______ Glycogen
16. ______ Cellulose
17. ______ Glucose
18. ______ Fructose
19. ______ Sucrose

A. Major source of energy in cells (it is converted into ATP)
B. Energy storage in plants
C. Monosaccharide found in fruit.
D. A disaccharide made of one glucose and one fructose molecule
E. Energy storage in animals
F. Structural support in plant

20. What is the chemical formula for 2 glucose molecules joined together? (The formula for glucose is C₆H₁₂O₆)
Protein Practice Worksheet

1. What are the monomers of protein?
2. What is the polymer of a protein called?
3. What type of bonds form between amino acids?
4. What is the process called that joins amino acids?
5. What is the process called that breaks apart polypeptides?
6. What elements are found in proteins?
7. Which of the following relates to a function of proteins? (circle them)
   - Growth
   - Provide the majority of energy to cells
   - Transport material in and out of the cells
   - Store hereditary information
   - Help carry out chemical reactions
   - Build muscle
   - Fight infection
   - Store energy

8. Draw a box around each amino acid in the molecule below.
9. Draw a circle around each peptide bond in the molecule below.
10. How many water molecules were produced when this molecule was assembled?
11. What is the process called that assembled this molecule?
12. What is this molecule called?
13. How many DIFFERENT amino acids are in the molecule below?

14. Proteins that act as catalysts in living organisms are called _________________.
15. They work by lowering the ________________ required to start a reaction.

True or false:

16. The enzyme changes during the reaction.
17. An enzyme can be used over and over again.
18. The substrate changes during the reaction.
19. An enzyme is a type of carbohydrate.
Protein Practice Worksheet

Label the following terms in the diagram on the left.

20. Substrate
21. Enzyme
22. Product
23. Active site

On the graph on the right label:

24. The activation energy for each reaction
25. The energy of the reactants
26. The energy of the products
27. The reaction that involved an enzyme
28. The reaction that did not involve an enzyme

Make a concept map below involving the following terms:

- Protein
- Macromolecule
- Polypeptide
- Amino acid
- Dipptide
- Peptide bond
- Condensation reaction
- Hydrolysis

- The function of proteins
- Enzyme
Lipids Practice Worksheet

1. What are 2 properties of all lipids?
2. What 2 elements are lipids mostly made of?
3. What are the 2 types of fatty acids (and explain what each means, and an example)?
   a. 
   b. 
4. What are the 3 types of lipids and what are the basic components of each?
   a. 
   b. 
   c. 
5. Name several functions of lipids.

6. What type of lipid is shown in the picture below?
7. What are the components of this molecule?
8. Draw a box around each fatty acid tail in the molecule below.
9. Are the fatty acid tails saturated or unsaturated?
10. Draw a circle around each water molecule that will form when this molecule is made (show the H and OH that will combine).
11. How many water molecules are produced when this molecule is assembled?
12. What is the process called that assembled this molecule?
13. What are 2 main functions of this type of lipid?
14. What type of lipid is shown in the picture below?
15. What is the main function of this lipid?
16. What are the components of this molecule?
17. Draw a circle around each fatty acid tail.
18. Label each tail as saturated or unsaturated.

19. What type of lipid is shown in the picture below?
20. What is the main function of this lipid?
21. What is the basic structure of all molecules like this one? (how can you identify it?)

Make a concept map below involving the following terms:

- Lipid
- triglyceride
- phospholipid
- steroid
- fatty acid
- saturated fatty acid
- unsaturated fatty acid
- hydrophobic
- The function of lipids
Nucleic Acid Worksheet

Name ____________________________ Per ____________

Vocabulary

The monomers that make up nucleic acids are ________________________.

2 types of nucleic acids are _________ and _________.

What is the function of DNA? ______________________________________

Nucleotides are composed of ____________, ____________, & ____________

How many different nucleotides exist? _________

For the following descriptions write DNA, RNA, or BOTH

- ______ Made of nucleotides
- ______ Contains deoxyribose
- ______ Contains ribose
- ______ Contains a sugar
- ______ Contains a nitrogen base
- ______ Contains a phosphate group
- ______ Is made of 2 strands of nucleotides
- ______ Is made of 1 strand of nucleotides
- ______ Its structure is a double helix (twisted ladder)

Examine the molecule on the right

What is the type of molecule shown on the right?

What type of reaction is joining the nucleotides together?

How many water molecules will be formed by forming this molecule?

Label

- Sugar
- Phosphate
- Base
- Draw a box around each nucleotide

Review: Label each molecule below as belonging to: carbohydrate, lipid, nucleic acid, or protein AND explain how you determined this.