

TOPIC 1: Biochemistry and the Molecules of Life

Please use the podcast from Council Rock High School for TOPIC 1 to guide you. The podcast can be found at <http://www.crsd.org/Page/31715>

1. What does it mean for a compound to be organic?
2. Water is (circle one) **polar** / **nonpolar** because the electrons are not evenly shared.
3. What two properties of water are mentioned?
 - a.
 - b.
4. What is the difference between a monomer and polymer?
5. Dehydration synthesis _____ water to _____ a bond, while hydrolysis _____ water to _____ a bond.
6. Carbohydrates have a ___: ___: ___ ratio of the elements C:H:O. Carbohydrates are the main _____ source for a cell.
7. What are the two monomers of lipids?
 - a.
 - b.
8. Lipids make up the majority of the cell _____.
9. Nucleic acids have the following elements: _____. Nucleic acids store our _____.
10. Amino acids (the monomers of a protein are made up of what three parts?)
 - a.
 - b.
 - c.
11. How do enzymes act as biological catalysts?

| Macromolecule | Elements | Monomer and polymer | Roles |
|---------------|-------------------|-------------------------------------|---|
| Carbohydrates | CHO | Monosaccharide/ polysaccharide | Quick/main source of energy |
| Lipids | CH and a little O | Glycerol and fatty acid/lipid | Long-term source of energy; cell membrane |
| Nucleic acids | CHOPN | Nucleotide / nucleic acid | Genetic material |
| Proteins | CHOSN | Amino acid / polypeptide or protein | Structure and enzymes |