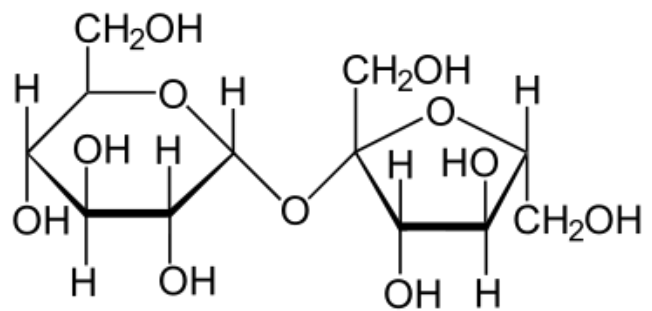
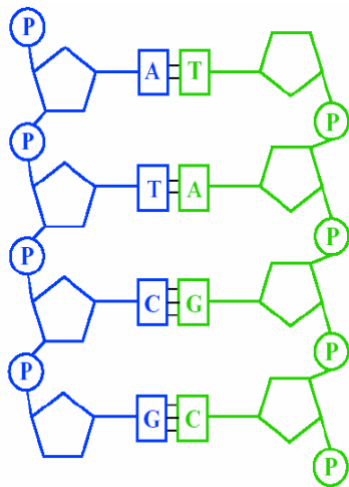
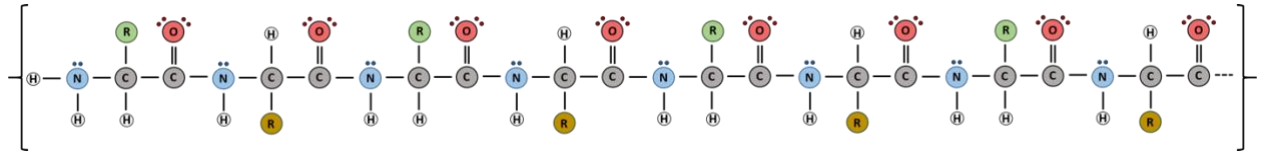
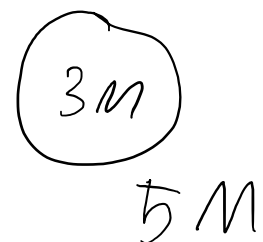
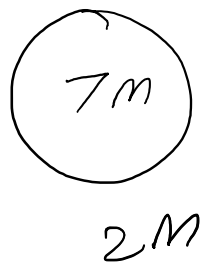
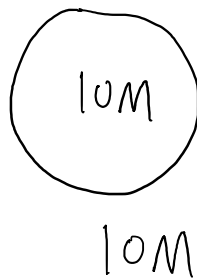


LIFE 1010-01 SI Session #4

- 1) Observe the diagrams below and determine 1) what macromolecule each diagram is and 2) what bond each diagram possesses.

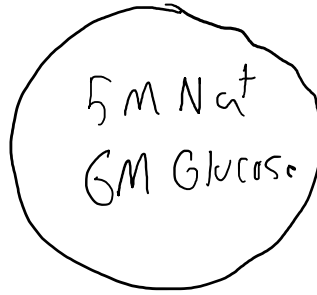


- 2) Label whether each cell is hypotonic, isotonic, or hypertonic to the environment.



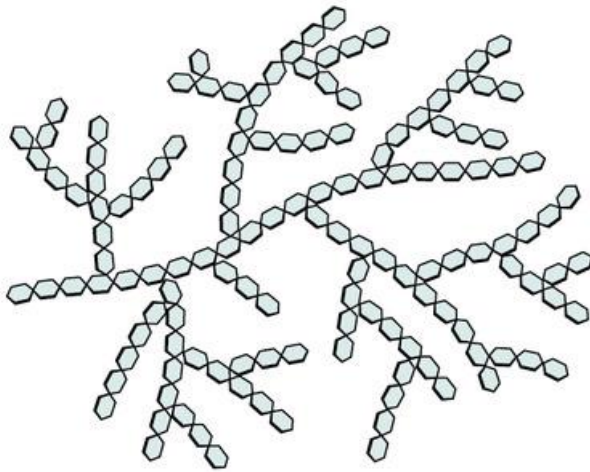
- 3) What does it mean for something to be amphipathic?

- 4) The cell below is only permeable to water. Will water move into or out of the cell?

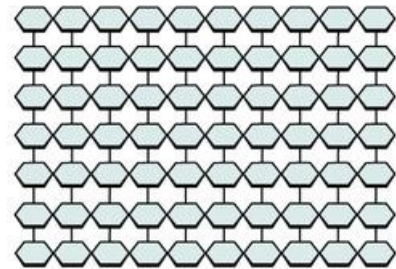


1 M Na<sup>+</sup>  
1 M Glucose

- 5) The diagram below shows the structures of glycogen and cellulose. With your group, determine what function they may serve and what about their structure influences their function.



**Glycogen**



**Cellulose (fiber)**

- 6) Observe the bonds below and determine if they have low or high potential energy.

C----O

C----C

C----H

O----H

- 7) A man comes into the ER with extreme blood loss and is in critical need of a blood transfusion. The individual has the type B glycoprotein on his red blood cells and thus needs Type B blood. What function of carbohydrates is displayed in this scenario?
- 8) What type of reaction would be used to separate a polysaccharide into many monosaccharides?
- 9) Use the space below to draw 1 saturated fatty acid and 1 unsaturated fatty acid. Explain what makes something saturated.

Saturated

Unsaturated

- 10) Discuss with your group why lipids don't dissolve very well in water.
- 11) At room temperature, would you expect butter and olive oil to be saturated or unsaturated?

**Medical Matters**

A patient you're treating has chronic hypocalcemia so they must take 500mg of calcium during breakfast and dinner every day to prevent osteoporosis from developing later-on. Calcium is often present as an ion ( $\text{Ca}^{2+}$ ) and can't pass through cell membranes very well. Draw a cell membrane in the space below and add a structure that will help your patients' cells absorb calcium. In addition, explain why calcium cannot pass through the cell membrane by itself.