

SI #5 LIFE 1010-01

- 1) While researching a local stream, you discover an unidentified organism. You are tasked to determine whether this organism is prokaryotic or eukaryotic. Use the characteristics below to determine this:
 - a) Contains ribosomes
 - b) Has a single circular DNA
 - c) Has no membrane bound organelles
 - d) Has somewhat of a cytoskeleton

- 2) What are the advantages of compartmentalization in eukaryotic cells?

- 3) Ribosomes can be found in two main places within the cell. Discuss with your group where ribosomes can be found and the similarities and differences between the two ribosomes.

- 4) Discuss with your group the basis of endosymbiosis theory. Then, give 2 pieces of evidence supporting this theory.

- 5) Compare and contrast Endocytosis and exocytosis.

6) Complete the table of organelles below.

Organelle	Function	Plant, Animal, or Both
Rough ER		
	Synthesizes Lipids	
	Site of photosynthesis, synthesis of glucose.	
Nucleus		
	Site of cellular respiration to produce ATP	
Cell wall		
	Used to move solutes throughout the cell and from structural support	
Lysosome		
	Processing and targeting of proteins, lipids, and Carbohydrates	
	Synthesizes proteins within the cytosol	
Vacuole		

Review

- 1) Draw a diagram of an alpha glycosidic linkage and a diagram of a beta glycosidic linkage and compare the two linkages.

- 2) Draw a diagram for each level of protein structure up to the tertiary level.

- 3) Complete the table below regarding macromolecules.

Macromolecule	Monomer	Bond Name
Polypeptide		
		Phosphodiester
	Monosaccharide	

- 4) Draw a molecule of water along with all partial charges and show the interaction it has with another water molecule.

- 5) Draw the molecular structure of an amino acid (N-terminus to C-terminus and an R group). Then draw another and show how the two amino acids bond to form a polypeptide.
- 6) List the 5 fundamental characteristics of life.
- 7) List C H N O from most electronegative to least electronegative.
- 8) What pH corresponds to acids and what pH corresponds to Bases?
- 9) Draw a phospholipid and label what parts are hydrophobic and what parts are hydrophilic.