All material things are based on chemicals. Organisms are no exception. This learning aid is for you to focus on the chemical foundation of life. In addition to your textbook, you can use these recommended websites with visual animations.

I. Atoms & Chemical Bonds: Movement of Electrons, bond formation, ionic bond
   Use the supplemental PowerPoint, the textbook, or any other source to refresh your understanding of basics of chemistry and answer the following question:

Atomic structure
1. Fill the table summarizing the components of atoms. (Mark the appropriate cell with an X)

<table>
<thead>
<tr>
<th></th>
<th>Location</th>
<th>Charge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neutron</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proton</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electron</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. Which of the three atomic components are included in each? (Mark the appropriate cell with an X)

<table>
<thead>
<tr>
<th></th>
<th>Atomic number</th>
<th>Atomic weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neutron</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proton</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electron</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3. Why is the atom as a whole uncharged?  

Chemical bonds
5. If electrons are gained or lost by an atom the charged atoms are termed _______.

6. Two oppositely charged atoms attract to form a(an) _________ bond
   a. ionic  b. covalent

7. A _________ is formed when oppositely charged atoms are bonded together.
   a. compound  b. molecule

8. Atoms that share electrons forms a(an)______________ bond.
   a. ionic  b. covalent

9. A _________ is formed when atoms that share electrons are bonded together.
   a. compound  b. molecule

10. In molecules, atoms that share electrons equally are connected by _________
bonds
a. ionic  
b. polar covalent  
c. polar non-covalent

Use the PowerPoint uploaded on the course website or the textbook

11. Name the 6 most common chemical elements found in organic molecules of living tissues

13. Which SPONCH elements can form non-polar covalent bonds? Why?

14. Which two SPONCH elements can form polar covalent bonds? Why?