**Unit 2: Biochemistry – Understanding the Molecules of Life**

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| **A. Chemical Bonding and its role in molecular biology  *“I can . . .”*** | **Mastery Quiz Results** | **Mastery Reflection:What do I still need to master before the exam?** | **Resources for Mastery** |
| * Distinguish between **Ionic**, **Covalent**, and **Hydrogen** bonds and identify examples of each
* Illustrate and explain how the bonds mentioned above form
* Explain **Polarity** and its effect on bonding
* Contrast hydrophobic and hydrophilic molecules
* Explain the function of chemical bonds in the processes of energy storage and energy release
 |  |  | ***Textbook Sections:**** 3.1-3.2
* 3.4-3.5

***Video Lessons:***<http://www.bozemanscience.com/chemistry/> 4 good videos to watch 1) Atoms and the periodic table 2) Drawing Lewis diagrams 3) Chemical bonds: covalent & ionic 4) Water: a polar molecule***Edline:*** *(PPTs, Links, Labs, Wrkshts)* |

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| **B. The Structure and Function of the major biomolecules  *“I can . . .”*** | **Mastery Quiz Results** | **Mastery Reflection:What do I still need to master before the exam?** | **Resources for Mastery** |
| * Describe the **functions** and **dietary source** of the following biomolecules:
* **Carbohydrates**
* **Lipids**
* **Proteins**
* Construct models or illustrate the **molecular structures** of the biomolecules mentioned above
* Describe the difference between a **monomer** and a  **macromolecule**
* Identify and distinguish between the **monomers** of each of the biomolecules listed above
* Use a model to illustrate the processes of **dehydration synthesis** and **hydrolysis**
 |  |  | ***Textbook Sections:**** 3.7-3.10

***Video Lessons:***<http://www.bozemanscience.com/biology-main-page/> 4 good videos to watch 1) Molecules of Life 2) Carbohydrates 3) Lipids 4) Proteins***Edline:*** *(PPTs, Links, Labs, Wrkshts)* |

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| **C. The importance of Enzymes & their role in biochemical reactions   *“I can . . .”*** | **Mastery Quiz Results** | **Mastery Reflection:What do I still need to master before the exam?** | **Resources for Mastery** |
| * Interpret **chemical reaction equations** and distinguish the **reactants** from the **products**
* Describe the characteristics of **Endothermic** and **Exothermic** reactions and identify each from graphical energy data
* Explain how an **enzyme** acts as a biochemical **catalyst**
* Create a model or make an analogy to illustrate the connection between an **enzyme** and the **energy of activation** for an enzymatic chemical reaction
* Conduct an experiment to investigate how changes to the **environmental conditions** (*like temperature or pH*) or enzyme inhibitors can affect the efficiency of an enzyme.
* Analyze graphical data to determine optimal enzyme conditions
 |  |  | ***Textbook Sections:**** 3.10
* 5.1-5.4

***Video Lessons:***<http://www.bozemanscience.com/biology-main-page/> 1 Good video to watch 1) Enzymes***Edline:*** *(PPTs, Links, Labs, Wrkshts)* |