Unit 2: Biochemistry – Understanding the Molecules of Life

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)*

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)*

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)*