

RCSS High School Science Unit Plans

Subject: Biology

Unit: Biochemistry

of Days: 7

Essential Standards: **4.1.1 – 4.1.2 – 4.1.3 – 1.2.1 – 2.1.1**

- Clarifying Objective: Understand how biological molecules are essential to the survival of living organisms

<p>Big Ideas in NOUNS and ADJECTIVES (Vocabulary): Carbohydrates/glucose/cellulose/starch /glycogen/ Protein/insulin/enzymes/hydrolysis/ substrate/Reactant/active site/ hemoglobin/lipids/steroids/ Phospholipids/nucleic acids/DNA/RNA/ nucleotide/amino acids/activation energy/product/catalyst/ Fatty acid (unsaturated and saturated)/monomer/ Polymer/monosaccharides/poly-saccharides/ Buffer/base/acid/pH scale/metabolism</p>	<p>Real World Performance in VERBS</p> <ul style="list-style-type: none"> • Understand • Analyze
<p>Understanding(s):</p> <ul style="list-style-type: none"> • Structure & function of organic molecules • Nucleic acids & protein synthesis (relationship/central dogma) • Enzymes • pH and homeostasis • Nitrogen cycle in relation to nucleic acids and protein 	<p>Essential Questions/I Can Statements:</p> <ul style="list-style-type: none"> • I can compare the structure and function of carbohydrates • I can compare the structure and function of proteins • I can compare the structure and function of lipids • I can compare the structure and function of nucleic acids • I can understand how to build proteins into DNA • I can identify the 5 nitrogen bases • I can understand that enzymes are a protein’s best friend • I can compare the structure and function of enzymes • I can communicate how enzymes act as catalysts for reactions, such as digestion • I can clarify that enzymes are re-usable and specific • I can describe the effect of pH and temperature on an enzyme • I can explain the role of homeostasis in an organism • I can summarize the nitrogen cycle

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<p>Performance Task Ideas/Activities:</p> <p>Food Testing Lab Buffer Lab Crossword puzzle: carbs and lipids Crossword puzzle: proteins and nucleic acids Organic molecule chart Enzyme substrate complex activity Biochemistry concept map</p>	<p>Websites:</p> <p>http://www.jonesbiology.com/biology-1/chapter-2 http://biologyjunction.com/biochemistry_notes_bi_ch3.htm http://www.explorebiology.com/documents/LE/05BiochemConceptMap.pdf http://www.explorebiology.com/regentsbiology/handouts/ http://biologyjunction.com/curriculum_map.htm</p>
<p>Literacy Shift Ideas: (Reading/writing)</p> <p>Read an article on lactose tolerance and answer questions</p>	<p>21st Century Themes</p> <ul style="list-style-type: none"> ○ Global Awareness ○ Financial, Economic, Business & Entrepreneurial Literacy ○ Civic Literacy ○ Health Literacy ○ Environmental Literacy
<p>Assessments</p> <p>Benchmark Testing</p>	<p>Additional Info:</p>