

## Sophomore Biology Curriculum Map 2012-13

Month/SLEs	Content/Skills	Essential Questions	Assessments & Lab Activities	Resources & Literacy
August				
Nature of Science				
<p><b>Nature of Science</b></p> <p>Standard 10: Students shall demonstrate an understanding that science is a way of knowing.</p> <p>Explain why science is limited to natural explanations of how the world works</p> <p><b>NS.10. B.1</b> Explain why science is limited to natural explanations of how the world works</p> <p><b>NS.10. B.2</b> Compare and contrast hypotheses, theories, and laws</p> <p><b>NS.10. B.3</b> Distinguish between a scientific theory and the term "theory" used in general conversation</p> <p><b>NS.10. B.4</b> Summarize the guidelines of science: A. Explanations are based on</p>	<p><b>Nature of Science</b></p> <p>The major content themes of biology</p> <ul style="list-style-type: none"> <li>Ø Matter and Energy</li> <li>Ø Cells</li> <li>Ø Interdependence</li> <li>Ø Reproduction and Inheritance</li> <li>Ø Evolution</li> <li>Ø Homeostasis and Stability</li> </ul> <p>What science is and is not</p> <ul style="list-style-type: none"> <li>Ø Deals only with natural world</li> <li>Ø Explanations can be tested</li> <li>Ø Explanations are used to make predictions</li> <li>Ø Is revised to account for new evidence</li> <li>Ø Also refers to a body of knowledge that has accumulated after repeated attempts to verify/refute</li> </ul> <p>Process of science</p> <ul style="list-style-type: none"> <li>Ø Starts with observation</li> <li>Ø Form inferences</li> <li>Ø Develop hypotheses</li> <li>Ø Test hypotheses</li> <li>Ø Form Theories</li> </ul> <p>Hypotheses vs. theories vs. laws</p>	<p><b>Nature of Science</b></p> <p><b>Essential Question:</b> <i>How can you use the same skills and strategies as a scientist to learn about your world?</i></p> <p><b>Guiding Questions</b></p> <ol style="list-style-type: none"> <li>1. What is the importance of the major themes of biology?</li> <li>2. What is the role of experimental design in biology?</li> <li>3. What systematic procedures are necessary to investigate biological problems?</li> <li>4. What are important tools used in the study of biology?</li> <li>5. What are useful data types and how are they analyzed?</li> <li>6. What important mathematical manipulations should be performed on qualitative data?</li> <li>7. Why is the scientific</li> </ol>	<p><u>Outline for Lab Reports</u></p> <p><u>Rubric for Lab Reports</u></p> <p><u>Rules for Laboratory Drawings</u></p> <p><u>Lab Safety Contract</u></p> <p><u>Lab Safety Test</u></p> <p><u>Solutions and Dilutions</u></p> <p><u>Experimental Design Presentation Rubrics</u></p> <p><u>Scientific Method Lab Vitruvian Man</u></p> <p><u>Printable Metric Meter Stick</u></p> <p><u>Printable Tape Measure</u></p> <p><u>Careers in Life Science Term Paper and Presentation</u></p> <p><u>Equipment Survey</u></p> <p><u>Problem Solving Lab</u></p> <p><u>Liquid Volume Lab OR Volume Lab</u></p> <p><u>Mystery Canisters OR Length Lab</u></p>	<p>Literacy Items (found in Biology Literacy Notebook):</p> <p><u>"Owls use dung to "Fish" for Beetles"</u></p> <p><u>"Distinguishing Science and Pseudoscience"</u></p> <p><u>"Scientific Laws, Hypotheses, and Theories"</u></p> <p><u>"Designing an Experiment"</u></p> <p><u>"Experimental Design/Presentation Rubric"</u></p> <p><u>"Experimental Design Reference"</u></p> <p><u>"Natural plant defenses- fight or flight?"</u></p> <p><u>"Suicide grasshoppers - Brainwashed by Parasite Worms"</u></p> <p><u>"Toads that Go Pop in the night"</u></p> <p><u>"Weapons of Mouse Destruction?"</u></p> <p><u>"A Weed, a Fly, a Mouse"</u></p>