

**Name:** Michael Czapczynski  
**Course:** CP Biology  
**Unit:** The Working Cell: Energy from Sunlight  
**Period/Time:** Period 1 and 3

**Essential Question:** What are the cellular processes involved in photosynthesis?

<b>Dates:</b>	12/11/2006	12/12/2006-12/14/2006	12/15/2006-12/19/2006
<b>Essential Questions</b>	How does Photosynthesis and the macromolecules produced as a result effect our daily life?	How do the cellular structures of plants make it possible for photosynthesis to occur? What are the products and reactants of photosynthesis? What is the “photo” part of photosynthesis? What is the “synthesis” part of photosynthesis?	How does the “photo” part of photosynthesis function, and what is its importance to the entire process?
<b>Content</b>	<ul style="list-style-type: none"> <li>• chloroplast</li> <li>• chlorophyll</li> <li>• carbohydrates</li> <li>• energy</li> <li>• chocolate</li> </ul>	<ul style="list-style-type: none"> <li>• stroma</li> <li>• thylakoid</li> <li>• light reactions</li> <li>• Calvin cycle</li> <li>• Products / Reactants</li> <li>• Equations</li> <li>• Reconnection with Cellular Respiration (Previous Chapter)</li> <li>• Conservation of mass</li> </ul>	<ul style="list-style-type: none"> <li>• wavelength</li> <li>• electromagnetic spectrum</li> <li>• pigment</li> <li>• paper chromatography</li> <li>• photosystem</li> <li>• spectroscopy</li> <li>• Osmosis</li> <li>• Diffusion</li> <li>• Absorbance/ Reflection / Transmittance</li> </ul>

<b>Skills &amp; Objectives</b>	Explore the connection between photosynthesis and the production of plant matter.	<ul style="list-style-type: none"> <li>• Describe the structure of a chloroplast.</li> <li>• Identify the overall reactants and products of photosynthesis</li> </ul>	<ul style="list-style-type: none"> <li>• Explain how light interacts with pigments.</li> <li>• Describe how photosystems help harvest light energy.</li> <li>• Identify the chemical products of the light reactions.</li> </ul>
<b>Activities/ Instructional Strategies</b>	<p>Students read about Montezuma II (Aztec emperor) and his relationship with various plant products.</p> <p>View photographs of the cacao plant and answer questions about its pods.</p> <p>Study a diagram animating photosynthesis and answer related questions.</p>	<ul style="list-style-type: none"> <li>• Writing Prompt: How did this a seed turn into this log?</li> <li>• Outline Format notes on the material via power point.</li> <li>• Application/synthesis questions check for understanding.</li> <li>• Elodea Photosynthesis Lab</li> </ul>	<ul style="list-style-type: none"> <li>• Outline Format notes on the material via power point.</li> <li>• Application/synthesis questions check for understanding.</li> <li>• Thin Layer chromatography lab</li> <li>• Wavelength spectroscopy lab</li> </ul>
<b>Assessment</b>	Completion of Webquest guiding questions	Completion of Concept Check 8.1	Concept Check 8.2 -8.3 Analysis of TLC product 8.1-8.2 Quiz Analysis of spectroscopy lab
<a href="#">NJCCS or Curriculum Standards</a>	5.2.A 5.2.B 5.1.D 5.5.A 5.6.B	5.1.A 5.1.B 5.3.A 5.3.B 5.3.C 5.3.D 5.5.A 5.6.B	5.1.A 5.1.B 5.3.A 5.3.B 5.3.C 5.3.D 5.5.A 5.6.B
<b>Modification Notes</b>			

<b>Resource Materials</b>	<a href="http://www.pearsonsuccessnet.com/snpapp/iText/products/0-13-115075-8/index.html">http://www.pearsonsuccessnet.com/snpapp/iText/products/0-13-115075-8/index.html</a>	Biology: Exploring Life Text <a href="http://photoscience.la.asu.edu/photosyn/education/photointro.html">http://photoscience.la.asu.edu/photosyn/education/photointro.html</a>	Biology: Exploring Life Text <a href="http://orgchem.colorado.edu/hndbksupport/TLC/TLC.html">http://orgchem.colorado.edu/hndbksupport/TLC/TLC.html</a>  <a href="http://www.cem.msu.edu/~reusch/VirtualText/Spectrpy/UV-Vis/spectrum.htm">http://www.cem.msu.edu/~reusch/VirtualText/Spectrpy/UV-Vis/spectrum.htm</a>
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**Dates to be Taught:** 12/11/06-12/22/06

**Department:** Science

**Grade Level:** 9th

12/19/2006-12/21/2006	12/22/2006
<p>How does the “synthesis” part of photosynthesis function, and what is its importance to the entire process? How do all these pieces fit together? What are common misconceptions about photosynthesis and cellular respiration?</p>	<p>EXAM Chapter 8</p>
<ul style="list-style-type: none"><li>• Calvin cycle</li><li>• Photosynthesis Overview</li><li>• Cellular respiration</li><li>• Photosynthesis</li></ul>	<p>8.1-8.4</p>

<ul style="list-style-type: none"> <li>• Explain how the Calvin cycle makes sugar.</li> <li>• Summarize the overall process of photosynthesis.</li> </ul>	
<ul style="list-style-type: none"> <li>• Outline Format notes on the material via power point.</li> <li>• Application/synthesis questions check for understanding.</li> <li>• Correct misconceptions and misnomers that may have appeared in Writing Prompt.</li> </ul>	15 M.C. 3 Essay 1 Extra Credit
Concept Check 8.4 Writing Prompt correction / reevaluation	
5.1.A 5.1.B 5.3.A 5.3.B 5.3.C 5.3.D 5.5.A 5.6.B	

Biology: Exploring Life Text

<http://www.actionbioscience.org/education/hershey.html>

[http://www.fed.cuhk.edu.hk/~johnson/misconceptions/concept\\_map/respir.html](http://www.fed.cuhk.edu.hk/~johnson/misconceptions/concept_map/respir.html)