# Biology I
## INSTRUCTIONAL PACING GUIDE
(DAYS BASED ON 90 MINUTE BLOCK)

**RICHLAND COUNTY SCHOOL DISTRICT ONE**  
© CANNOT BE REPRODUCED WITHOUT PERMISSION  
CURRICULUM AND INSTRUCTION  
JUNE 2012  

<table>
<thead>
<tr>
<th>DATES TAUGHT</th>
<th>SUGGESTED PACING</th>
<th>OBJECTIVES</th>
<th>RESOURCES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FIRST NINE WEEKS</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Lesson 1</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Textbook / Study Guide Resources:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Biology McDougall Littell</td>
<td>2.3 Carbon Based Molecules , 32.1 Nutrients and Homeostasis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Modern Biology (Holt, Rinehart and Winston)</td>
<td>3.1 Carbon Compounds , 3.2 Molecules of Life, 48.1 Nutrients</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Literacy Element</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Organic Molecule Comparisons (Graphic Organizers)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Instructional Activities</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- 33 Activities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- B-3.4a - Calorimeter lab, 3.5a - Biological Compounds Foldable, 3.5b - Biological Compounds Review</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Interactive Websites</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Calorie Counter <a href="http://www.my-calorie-counter.com/about.asp">http://www.my-calorie-counter.com/about.asp</a> or <a href="http://www.principalhealthnews.com/topic/macronutrient">http://www.principalhealthnews.com/topic/macronutrient</a> contains a calculator which allows one to input biofacts and receive the amount of macronutrients needed daily</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- What’s in a Label - <a href="http://biology4teachers.com/biochemistry/Percentage%20of%20Lipids,%20Carb,%20Proteins%20in%20foods.pdf">http://biology4teachers.com/biochemistry/Percentage%20of%20Lipids,%20Carb,%20Proteins%20in%20foods.pdf</a> -</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Food Chemistry Testing for Sugar, Starch, Protein, or Fat <a href="http://www.sciencecompany.com/sci-exper/food_chemistry.htm">http://www.sciencecompany.com/sci-exper/food_chemistry.htm</a></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- <a href="http://biology4teachers.com/index_biochemistry_files/slide0001.htm">http://biology4teachers.com/index_biochemistry_files/slide0001.htm</a> (click on macromolecule graphic organizer on the right) different graphic organizer for macromolecules</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- <a href="http://www.lessonsplansinc.com/docs/pdf/moleculelife.pdf">http://www.lessonsplansinc.com/docs/pdf/moleculelife.pdf</a> reading information with questions following</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- <a href="http://www.lessonsplansinc.com/science.php/biology/types/Worksheet/P10/Go">http://www.lessonsplansinc.com/science.php/biology/types/Worksheet/P10/Go</a> to the macromolecule handout on this page Tutorial</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>ADMINISTER SCHOOL-BASED INTERIM ASSESSMENT</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Lesson 2</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Textbook / Study Guide Resources:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Biology McDougall Littell</td>
<td>2.4 Chemical Reactions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Modern Biology (Holt, Rinehart and Winston)</td>
<td>2.2 Energy</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Literacy Element</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Factors Affecting Rates of Reaction Concept Map</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Instructional Activities</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- 33 Activities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- B-2.8a - Catalyst of Life Lab, B-2.8b, Enzyme Activity Review, B-2.8d, Enzymatic Activity Lab</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Interactive Websites</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- The Role of Enzymes <a href="http://highered.mcgraw-hill.com/sites/0072495855/student_view0/chapter2/animation">http://highered.mcgraw-hill.com/sites/0072495855/student_view0/chapter2/animation</a> how enzymes work.html</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DATES TAUGHT</td>
<td>SUGGESTED PACING</td>
<td>OBJECTIVES</td>
<td>RESOURCES</td>
</tr>
<tr>
<td>--------------</td>
<td>------------------</td>
<td>------------</td>
<td>-----------</td>
</tr>
<tr>
<td><strong>FIRST NINE WEEKS (CONTINUED)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Lesson 3</strong></td>
<td> </td>
<td><strong>Textbook /Study Guide Resources:</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Biology McDougall Littell</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3.1 Cell Theory, 3.2 Cell Organelles, 3.3 Cell Membrane, 5.5 Multicellular Life</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Modern Biology Holt, Rinehart and Winston</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4.1 Cell Theory, 4.2 Introduction to Cells, 4.3 Cell Organelles and Features, 4.4 Unique Features of Plant Cells, 1.1 The World of Biology</td>
<td></td>
</tr>
<tr>
<td>16 Days (90 min. block)</td>
<td><strong>B-2.1</strong> Recall the three major tenets of cell theory (all living things are composed of one or more cells, cells are the basic units of structure and function in living things; and all presently existing cells arose from previous existing cells).</td>
<td><strong>Literacy Element:</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>B-2.2</strong> Summarize the structures and functions of organelles found in a eukaryotic cell (including the nucleus, mitochondria, chloroplasts, lysosomes, vacuoles, ribosomes, endoplasmic reticulum [ER], Golgi apparatus, cilia, flagella, cell membrane, nuclear membrane, cell wall, and cytoplasm).</td>
<td>• Cell Structure/Function Visual and Word Association</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>B-2.3</strong> Compare the structures and organelles of prokaryotic and eukaryotic cells.</td>
<td><strong>Instructional Activities:</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>B-2.4</strong> Explain the process of cell differentiation as the basis for the Hierarchical organization of organisms (including cells, tissues, organs, and organ systems).</td>
<td>• 53 Activities</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Scientific Inquiry</strong></td>
<td><strong>B-2.1a-Cell Theory Microscope Lab, 2.1b-Cell Theory Foldable, 2.3a-Cell Comparison Activity, 2.3b-Cell Organelle Quiz, 2.3c-Prokaryote and Eukaryote Microscope Lab, 2.2a-Cell Functions, 2.2b-Plant vs. Animal Cells, 2.2c-Athletic Cell Project, 2.2e-Cell Analogies Book Project, 2.2f-Eukaryote Organelles</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>B-1 The student will demonstrate an understanding of how scientific inquiry and technological design, including mathematical analysis, can be used appropriately to pose questions, seek answers, and develop solutions.</strong></td>
<td><strong>Lab:</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Interactive Websites:</strong></td>
<td><strong>Microscope, Viewing cells under microscope</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Cells Alive</td>
<td><strong>Organelle/Cell Types/Kinds</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Animated Biology, Chapter 1: Cells Through Different Microscopes</td>
<td><strong>A Hard Sell on Stem Cells: Learning About Different Types of Stem Cells:</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Cell Structure</td>
<td><strong>Instructional Videos</strong> (United Streaming)</td>
<td></td>
</tr>
<tr>
<td></td>
<td><a href="http://www.wiley.com/legacy/college/boyer/0470003790/animations/cell_structure.html">http://www.wiley.com/legacy/college/boyer/0470003790/animations/cell_structure.html</a></td>
<td>United Streaming Videos:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Cell Membranes Tutorial</td>
<td>• Prokaryotes vs. Eukaryotes</td>
<td></td>
</tr>
<tr>
<td></td>
<td><a href="http://www.biology.arizona.edu/cell_bio/problem_sets/membranes/index.html">http://www.biology.arizona.edu/cell_bio/problem_sets/membranes/index.html</a></td>
<td>• Plant and Animal Cells</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• The Cell Membrane and Surface Area</td>
<td>• The Cell</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Demoshophttp://www.accessexcellence.org/AE/ATG/data/released/0307-TrumanHoltzclaw/index.php</td>
<td>• Organelles</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Drag and Drop Cell Organelleshttp://www.execulink.com/~ekimmel/drag_gr11/organell.htm</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Biology I

### INSTRUCTIONAL PACING GUIDE

(DAYS BASED ON 90 MINUTE BLOCK)

<table>
<thead>
<tr>
<th>DATES TAUGHT</th>
<th>INDICATORS</th>
<th>SUGGESTED PACING</th>
<th>RESOURCES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SECOND NINE WEEKS</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| **Lesson 1** | B-2.5 Explain how active, passive, and facilitated transport serve to maintain the homeostasis of the cell. | 8 Days | **Textbook/Study Guide Resources:**
  - Biology McDougall Littell
  3.3 Cell Membrane, 3.4 Diffusion and Osmosis, 3.5 Active Transport
  - Modern Biology Holt, Rinehart and Winston
  5.1 Passive Transport 5.2 Active Transport

  **Literacy Element:**
  Compare/Contrast active, passive, and facilitated transport (Graphic Organizer)

  **Instructional Activities:**
  - S3 Activities
    - Activity 2.5a – Cellular Transport Foldable, Activity 2.5b – Cellular Transport Quiz, Activity 2.5c – Egg Lab, Activity 2.5d – Plastic Bag Lab

  **Interactive Websites:**
  - Passive Transport
  - How Facilitated Diffusion Works
    - [http://highered.mcgraw-hill.com/sites/0072495855/student_view0/chapter2/animation__how_the_sodium_potassium_pump_works.html](http://highered.mcgraw-hill.com/sites/0072495855/student_view0/chapter2/animation__how_the_sodium_potassium_pump_works.html)

  **Instructional Videos (United Streaming):**
  - Passive Transport
  - Simply Science: Matter and Energy on The Move

| **Lesson 2** | B-2.6 Summarize the characteristics of the cell cycle: interphase (called G1, S, G2); the phases of mitosis (called prophase, metaphase, anaphase, and telophase); and plant and animal cytokinesis. | 14 Days | **Textbook/Study Guide Resources**
  - Biology McDougall Littell
    5.1 Cell Cycle, 5.2 Mitosis and Cytokinesis, 5.3 Regulation of the Cell Cycle, 6.1 Chromosome and Meiosis, 6.2 Stages of Meiosis
  - Modern Biology Holt, Rinehart and Winston
  8.1 Chromosomes, 8.2 Cell Division, 8.3 Meiosis, 10.3 DNA Replication

  **Literacy Element:**
  Cell Cycle Foldable
  - [http://www.cellsalive.com/cell_cycle.htm](http://www.cellsalive.com/cell_cycle.htm)
  - [http://www.science-class.net/Graphic_Organizers/GO_meiosis.pdf](http://www.science-class.net/Graphic_Organizers/GO_meiosis.pdf)
  - Summary: [http://www.science-class.net/Graphic_Organizers/GO_meiosis_results.pdf](http://www.science-class.net/Graphic_Organizers/GO_meiosis_results.pdf)

  **Instructional Activities:**
  - S3 Activities
    - Activity 2.6a - How Cells Reproduce – Mitosis, Activity 2.6b - Mitosis Diagram Identification, Activity 2.6c - What Happens When Cells Divide?, Activity 2.6a - Meiosis Web Quest, Activity 2.6b - Meiosis Concentration, Activity 2.6c - Meiosis Diagrams, Activity 2.6d - Meiosis Sketches

  **Interactive Websites:**
  - Control of the Cell Cycle
  - The Cell Cycle and Mitosis Tutorial
  - Mitosis: A Stage of the Cell Cycle
  - Virtual Lab: The Cell Cycle and Cancer
  - Cell Biology and Cancer
  - A Hard Sell on Stem Cells

  **Instructional Videos (United Streaming):**
  - Biologic: Cell Cycle, Mitosis, and Cytoplasmic Streaming
  - Video segment: Life Cycle of the Cell and Cell Division
  - How Cancer Spreads
  - Bioclips: Cell Division
<table>
<thead>
<tr>
<th>DATES TAUGHT</th>
<th>INDICATORS</th>
<th>SUGGESTED PACING</th>
<th>RESOURCES</th>
</tr>
</thead>
</table>
| Lesson 3     | B-3.3 Recognize the overall structure of adenosine triphosphate (ATP)—namely, adenine, the sugar ribose, and three phosphate groups—and summarize its function (including the ATP-ADP [adenosine diphosphate] cycle). | 8 Days | Textbook /Study Guide Resources:  
Biology McDougall Littell  
4.1 Chemical Energy and ATP, 4.2 Overview of Photosynthesis, 4.3 Photosynthesis in Detail, 4.4 Overview of Cellular Respiration, 4.5 Cellular Respiration in Detail, 4.6 Fermentation  
Modern Biology Holt, Rinehart and Winston  
6.1 The Light Reactions, 6.2 The Calvin Cycle, 7.1 Glycolysis and Fermentation, 7.2 Aerobic Respiration |
|             | B-3.1 Summarize the overall process by which photosynthesis converts solar energy into chemical energy and interpret the chemical equation for the process |             | Literacy Element  
- ATP Compare/Contrast Graphic Organizer  
- ATP-ADP Cycle Graphic Organizer  
- Cellular Respiration Storyboard  
- Photosynthesis Flowchart |
|             | B-3.2 Summarize the basic aerobic and anaerobic processes of cellular respiration and interpret the chemical equation for cellular respiration |             | Instructional Activities  
- S3 Activities  
Activity B-3.1a - Examining the Relationship Between Photosynthesis and Cellular Respiration, Activity B-3.2a - Terrestrial Sequestration Photosynthesis and Cellular Respiration, Activity B-3.2b - Anaerobic Cellular Respiration, Activity B-3.2c - How does exercise affect cellular respiration? |
|             | Scientific Inquiry  
B-1. The student will demonstrate an understanding of how scientific inquiry and technological design, including mathematical analysis, can be used appropriately to pose questions, seek answers, and develop solutions |             | Interactive Websites  
- Photosynthesis Overview  
http://academic.cengage.com/biology/discipline_content/animations/photosynthesis_summary_v2.html  
- Cellular Respiration  
http://www.sumanasinc.com/webcontent/animations/content/cellularrespiration.html  
- How Cells Release Chemical Energy  
http://www.wadsworthmedia.com/biology/0495119814_starr/big_picture/ch07_bp.html |
|             |             |             | Instructional Videos  
- Cellular Respiration and Photosynthesis  

ADMINISTER SCHOOL-BASED INTERIM ASSESSMENT

ADMINISTER DISTRICT WINTER ASSESSMENT
### Biology I

#### INSTRUCTIONAL PACING GUIDE

(DAYS BASED ON 90 MINUTE BLOCK)

<table>
<thead>
<tr>
<th>DATES TAUGHT</th>
<th>INDICATORS</th>
<th>SUGGESTED PACING</th>
<th>RESOURCES</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td><strong>THIRD NINE WEEKS</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Lesson 1</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Textbook/Study Guide Resources:</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Biology McDougal Littell</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>8.2 Structure of DNA, 8.3 DNA Replication, 8.4 Translation, 8.6 Gene Expression and Regulation, 6.4 Traits, Genes, and Alleles,</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Modern Biology Holt, Rinehart and Winston</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>8.1 Chromosomes, 10.2 DNA Structure, 10.4 Protein Synthesis</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Literacy Element</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Compare/contrast DNA and RNA</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• DNA, Genes, Chromosomes</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><a href="http://www.science-class.net/Graphic_Organizers/GO_3definitions_DNA.pdf">http://www.science-class.net/Graphic_Organizers/GO_3definitions_DNA.pdf</a></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Concept map – Function of DNA</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Protein Synthesis Storyboard</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Instructional Activities</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 53 Activities</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Activity B-4.1a - Building RNA And DNA, Activity B-4.1b - Comparing DNA And RNA, Activity B-4.1c - Comparing DNA And RNA, Activity B-4.2a - Chromosome Packing, Activity B-4.2b - What’s In Common?, Activity B-4.3a - DNA - The Double Helix, Activity B-4.4a/B-4.8 - How Proteins Are Made, Activity B-4.4b - Groovy DNA Beads, Activity B-4.4c - Translation Activity, Activity B-4.4d – Bug Lab Project, Activity B-4.4e - DNA Dry Lab</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Interactive Websites</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Transcribe and Translate a Gene</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><a href="http://learn.genetics.utah.edu/content/begin/dna/transcribe/">http://learn.genetics.utah.edu/content/begin/dna/transcribe/</a></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• DNA Workshop</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Journey into DNA</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Create a DNA Fingerprint</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><a href="http://www.pbs.org/wgbh/nova/teachers/body/create-dna-fingerprint.html">http://www.pbs.org/wgbh/nova/teachers/body/create-dna-fingerprint.html</a></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• DNA to Protein</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><a href="http://learn.genetics.utah.edu/content/begin/dna/">http://learn.genetics.utah.edu/content/begin/dna/</a></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Instructional Videos</strong> (United Streaming)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Biology: The Science of Life: DNA: The Master Molecule of Life</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Biologic: Transcription of DNA to Messenger RNA</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Biologic: DNA Replication</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Biologic: Translation and Protein Synthesis</td>
<td></td>
</tr>
</tbody>
</table>

12 Days

**Scientific Inquiry**

B-1 The student will demonstrate an understanding of how scientific inquiry and technological design, including mathematical analysis, can be used appropriately to pose questions, seek answers, and develop solutions.
## Third Nine Weeks (Continued)

<table>
<thead>
<tr>
<th>DATES TAUGHT</th>
<th>INDICATORS</th>
<th>SUGGESTED PACING</th>
<th>RESOURCES</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B-4.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Scientific Inquiry</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>B-1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Lesson 2**

**Textbook /Study Guide Resources**
- Biology McDougall Littell
  - 6.3 Mendel and Heredity, 6.4 Traits, Genes, and Alleles, 6.5 Traits and Probability, 7.1 Chromosomes and Phenotype, 7.2 Complex Patterns of Inheritance, 7.4 Human Genetics and Pedigrees,
- Modern Biology Holt, Rinehart and Winston
  - 9.1 Mendel’s Legacy, 9.2 Genetic Crosses, 12.1 Chromosomes and Inheritance, 12.2 Human Genetics

**Literacy Element**
- Genetics Vocabulary
  - [http://www.science-class.net/Graphic_Organizers/GO_4squarevocab_genetics.pdf](http://www.science-class.net/Graphic_Organizers/GO_4squarevocab_genetics.pdf)
- Matrix for Mendel’s Laws
- Punnett Squares – Monohybrid and Dihybrid Crosses

**Instructional Activities**
- 53 Activities
  - Activity B-4.6e - Chromosomal Traits (Pipe Cleaner Babies)
  - Genetic Science Learning Center
    - [http://learn.genetics.utah.edu/](http://learn.genetics.utah.edu/)
  - Genetics For The Whole Family-Mendelian Genetics

**Interactive Websites**
- The Biology Project: Mendelian Genetics
  - [http://www.biology.arizona.edu/mendelian_genetics/mendelian_genetics.html](http://www.biology.arizona.edu/mendelian_genetics/mendelian_genetics.html)
- Drag-and-Drop Genetics
- Pea Experiment
  - [http://sonic.net/~nbs/projects/anthro201/exper/](http://sonic.net/~nbs/projects/anthro201/exper/)
- Lab Center: Mendelian Genetics
  - [http://labcenter.dnalc.org/labs/mendeliangenetics/mendeliangenetics_h.html](http://labcenter.dnalc.org/labs/mendeliangenetics/mendeliangenetics_h.html)

**Instructional Videos (United Streaming)**
- Understanding Genetics
- Biologic: Alternate Patterns of Inheritance
- Elements of Biology: Genetics: The Molecular Basis of Heredity
- Greatest Discoveries with Bill Nye: Genetics
- Biologic: Alternate Patterns of Inheritance
### Biology I

#### INSTRUCTIONAL PACING GUIDE

(DAYS BASED ON 90 MINUTE BLOCK)

<table>
<thead>
<tr>
<th>DATES TAUGHT</th>
<th>INDICATORS</th>
<th>SUGGESTED PACING</th>
<th>RESOURCES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Lesson 3</strong></td>
<td></td>
<td><strong>6 Days</strong></td>
<td></td>
</tr>
</tbody>
</table>
| B-4.7 | Summarize the chromosome theory of inheritance and relate that theory to Gregor Mendel’s principles of genetics. | **Textbook /Study Guide Resources:**  
  * Biology McDougal Littell  
    - 6.1 Chromosome and Meiosis, 6.3 Mendel and Heredity, 6.4 Traits, Genes, and Alleles, 6.6 Meiosis and Genetic Variation, 7.1 Chromosomes and Phenotype, 7.3 Gene Linkage and Mapping,  
    * Modern Biology Holt, Rinehart and Winston  
      - 9.1 Mendel’s Legacy, 9.2 Genetic Crosses, 12.1 Chromosomes and Inheritance, 12.2 Human Genetics  
  | **Literacy Element:**  
    - Concept Map-Chromosome Theory of Inheritance  
    - Punnett squares – Incomplete dominance, codominance, multiple alleles, polygenic traits, sex-linked traits  
    - Pedigree Practice Problems  
    - Cause/Effect Graphic Organizer – Consequences of Mutations  
  | **Instructional Activities:**  
    - 53 Activities  
      - Activity B-4.7a - Genetics: X Linked Genes, Activity B-4.7b – Pedigrees, Activity B-4.7c-Mend-Aliens, Activity B-4.7d - Genetics – Multiple Alleles, Activity B-4.8a - A Chromosome  
      - Study, Activity B-4.8b - Making Karyotypes, Activity B-4.8c - Chromosomal Mutations, Activity B-4.8a - Genetic Mutation, Activity B-4.8b - Venn Diagram, Activity B-4.8c - Autosomal Disorders In Humans  
      - Recovering the Romanovs  
      - Pick the Risk: The Polygenic Pedigree Challenge  
      - Finding a Gene on the Chromosome Map  
      - Cast Your Net: Adventures With Blood  
  | **Interactive Websites:**  
    - Drag-and-Drop Pedigree  
      - Heredity and Traits  
      - http://learn.genetics.utah.edu/content/begin/traits/  
      - Drag-and-Drop Pedigree: Tongue Rolling  
  | **Instructional Videos:**  
    - Elements of Biology: Genetics: The Molecular Basis of Heredity  
    - Genetics, Genes, and DNA  

Scientific Inquiry

B-1 The student will demonstrate an understanding of how scientific inquiry and technological design, including mathematical analysis, can be used appropriately to pose questions, seek answers, and develop solutions.

| **Textbook /Study Guide Resources:**  
  * Biology McDougal Littell  
    - 6.1 Chromosome and Meiosis, 6.3 Mendel and Heredity, 6.4 Traits, Genes, and Alleles, 6.6 Meiosis and Genetic Variation, 7.1 Chromosomes and Phenotype, 7.3 Gene Linkage and Mapping,  
    * Modern Biology Holt, Rinehart and Winston  
      - 9.1 Mendel’s Legacy, 9.2 Genetic Crosses, 12.1 Chromosomes and Inheritance, 12.2 Human Genetics  
  | **Literacy Element:**  
    - Concept Map-Chromosome Theory of Inheritance  
    - Punnett squares – Incomplete dominance, codominance, multiple alleles, polygenic traits, sex-linked traits  
    - Pedigree Practice Problems  
    - Cause/Effect Graphic Organizer – Consequences of Mutations  
  | **Instructional Activities:**  
    - 53 Activities  
      - Activity B-4.7a - Genetics: X Linked Genes, Activity B-4.7b – Pedigrees, Activity B-4.7c-Mend-Aliens, Activity B-4.7d - Genetics – Multiple Alleles, Activity B-4.8a - A Chromosome  
      - Study, Activity B-4.8b - Making Karyotypes, Activity B-4.8c - Chromosomal Mutations, Activity B-4.8a - Genetic Mutation, Activity B-4.8b - Venn Diagram, Activity B-4.8c - Autosomal Disorders In Humans  
      - Recovering the Romanovs  
      - Pick the Risk: The Polygenic Pedigree Challenge  
      - Finding a Gene on the Chromosome Map  
      - Cast Your Net: Adventures With Blood  
  | **Interactive Websites:**  
    - Drag-and-Drop Pedigree  
      - Heredity and Traits  
      - http://learn.genetics.utah.edu/content/begin/traits/  
      - Drag-and-Drop Pedigree: Tongue Rolling  
  | **Instructional Videos:**  
    - Elements of Biology: Genetics: The Molecular Basis of Heredity  
    - Genetics, Genes, and DNA  

| **Textbook /Study Guide Resources:**  
  * Biology McDougal Littell  
    - 6.1 Chromosome and Meiosis, 6.3 Mendel and Heredity, 6.4 Traits, Genes, and Alleles, 6.6 Meiosis and Genetic Variation, 7.1 Chromosomes and Phenotype, 7.3 Gene Linkage and Mapping,  
    * Modern Biology Holt, Rinehart and Winston  
      - 9.1 Mendel’s Legacy, 9.2 Genetic Crosses, 12.1 Chromosomes and Inheritance, 12.2 Human Genetics  
  | **Literacy Element:**  
    - Concept Map-Chromosome Theory of Inheritance  
    - Punnett squares – Incomplete dominance, codominance, multiple alleles, polygenic traits, sex-linked traits  
    - Pedigree Practice Problems  
    - Cause/Effect Graphic Organizer – Consequences of Mutations  
  | **Instructional Activities:**  
    - 53 Activities  
      - Activity B-4.7a - Genetics: X Linked Genes, Activity B-4.7b – Pedigrees, Activity B-4.7c-Mend-Aliens, Activity B-4.7d - Genetics – Multiple Alleles, Activity B-4.8a - A Chromosome  
      - Study, Activity B-4.8b - Making Karyotypes, Activity B-4.8c - Chromosomal Mutations, Activity B-4.8a - Genetic Mutation, Activity B-4.8b - Venn Diagram, Activity B-4.8c - Autosomal Disorders In Humans  
      - Recovering the Romanovs  
      - Pick the Risk: The Polygenic Pedigree Challenge  
      - Finding a Gene on the Chromosome Map  
      - Cast Your Net: Adventures With Blood  
  | **Interactive Websites:**  
    - Drag-and-Drop Pedigree  
      - Heredity and Traits  
      - http://learn.genetics.utah.edu/content/begin/traits/  
      - Drag-and-Drop Pedigree: Tongue Rolling  
  | **Instructional Videos:**  
    - Elements of Biology: Genetics: The Molecular Basis of Heredity  
    - Genetics, Genes, and DNA  

### RICHLAND COUNTY SCHOOL DISTRICT ONE
© CANNOT BE REPRODUCED WITHOUT PERMISSION
CURRICULUM AND INSTRUCTION
JUNE 2012
<table>
<thead>
<tr>
<th>DATES TAUGHT</th>
<th>INDICATORS</th>
<th>SUGGESTED PACING</th>
<th>RESOURCES</th>
</tr>
</thead>
</table>
|              | **B-4.9** Exemplify ways that introduce new genetic characteristics into an organism or a population by applying the principles of modern genetics. | **6 Days** | **Textbook /Study Guide Resources:**  
  - Biology McDougall Littell  
    9.4 Genetic Engineering, 9.5 Genomics and Bioinformatics, 9.6 Genetic Screening and Gene Therapy  
    - Modern Biology Holt, Rinehart and Winston  
    13.3 Genetic Engineering  
  
**Literacy Element**  
- Genetic Engineering Concept Map  

**Instructional Activities**  
- S3 Activities  
  Activity B-4.9a - Stem Cell Research Flier  
  - Genetic Engineering  
  - From Genes to Jeans  
  - What Do You Think About Stem Cell Research?  
    [http://teach.genetics.utah.edu/content/tech/stemcells/What%20do%20you%20think.pdf](http://teach.genetics.utah.edu/content/tech/stemcells/What%20do%20you%20think.pdf)  
  - Cloning  
    [http://learn.genetics.utah.edu/content/tech/cloning/](http://learn.genetics.utah.edu/content/tech/cloning/)  

**Interactive Websites**  
- Harvest of Fear  
- Gene Therapy: Molecular Bandage?  
  [http://learn.genetics.utah.edu/content/tech/genetherapy/](http://learn.genetics.utah.edu/content/tech/genetherapy/)  
- DNA Extraction Virtual Lab  
  [http://learn.genetics.utah.edu/content/labs/extraction/](http://learn.genetics.utah.edu/content/labs/extraction/)  

**Instructional Videos**  
- The Power of Genes  

**ADMINISTER SCHOOL-BASED INTERIM ASSESSMENT**

**ADMINISTER DISTRICT WINTER ASSESSMENT**
### FOURTH NINE WEEKS

#### Lesson 1

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Suggested Pacing</th>
<th>Resources</th>
</tr>
</thead>
</table>
| B-5.1 Summarize the process of natural selection. | | Textbook /Study Guide Resources:  
- Biology McDougall Littel  
  10.2 Darwin’s Observations, 10.3 Theory of Evolution, 10.4 Evidence of Evolution, 10.5 Evolutionary Biology Today, 11.1 Genetic Variation Within Populations, 11.2 Natural Selection in Populations, 11.3 Other Mechanisms of Evolution, 11.4 Hardy-Weinberg, Equilibrium, 11.5 Speciation Through Isolation, 11.6 Patterns in Evolution  
- Modern Biology Holt, Rinehart and Winston  
  15.1 History of Evolutionary Thought, 15.2 Evidence of Evolution, 15.3 Evolution in Action, 16.1 Genetic Equilibrium, 16.2 Disruption of Genetic Equilibrium, 16.3 Formation of Species |
| B-5.2 Explain how genetic processes result in the continuity of life-forms over time. | 6 Days |  
- Scientific Inquiry  
  B-1 The student will demonstrate an understanding of how scientific inquiry and technological design, including mathematical analysis, can be used appropriately to pose questions, seek answers, and develop solutions.  
- Instructional Activities  
  - 53 Activities  
    Activity B-5.1a – Quiz (Charles Darwin), Activity B-5.1b - Peppered Moth Simulation, Activity B-5.1c - Evolution Lab Activity, Activity B-5.1d - Peppered Moth Simulation, Activity B-5.1e - Evolution Crossword, Activity B-5.1f - Review Guide  
    - Genes, Variation and Human History [http://www.genome.gov/25019893](http://www.genome.gov/25019893)  
    - Teaching Hardy-Weinberg in the Classroom [http://www.carolina.com/category/teacher+resources/classroom+activities/teaching+hardy+weinberg+in+the+classroom.do](http://www.carolina.com/category/teacher+resources/classroom+activities/teaching+hardy+weinberg+in+the+classroom.do)  
- Interactive Websites  
  - An introduction to evolution [http://evolution.berkeley.edu/evolibrary/article/0_0_0/evo_02](http://evolution.berkeley.edu/evolibrary/article/0_0_0/evo_02)  
  - Hardy-Weinberg Conditions Animation [http://zoology.okstate.edu/zoo_lrc/biol1114/tutorials/Flash/life4e_15-6-OSU.swf](http://zoology.okstate.edu/zoo_lrc/biol1114/tutorials/Flash/life4e_15-6-OSU.swf)  
  
<table>
<thead>
<tr>
<th>Indicator</th>
<th>Suggested Pacing</th>
<th>Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>B-5.2 Explain how genetic processes result in the continuity of life-forms over time.</td>
<td>6 Days</td>
<td></td>
</tr>
</tbody>
</table>
- Literacy Element  
  - Natural Selection Concept Map  
  - Genetic Variability Cause/Effect, Main Idea Graphic Organizers  
- Instructional Activities  
  - 53 Activities  
    Activity B-5.1a – Quiz (Charles Darwin), Activity B-5.1b - Peppered Moth Simulation, Activity B-5.1c - Evolution Lab Activity, Activity B-5.1d - Peppered Moth Simulation, Activity B-5.1e - Evolution Crossword, Activity B-5.1f - Review Guide  
  - Genes, Variation and Human History [http://www.genome.gov/25019893](http://www.genome.gov/25019893)  
  - Teaching Hardy-Weinberg in the Classroom [http://www.carolina.com/category/teacher+resources/classroom+activities/teaching+hardy+weinberg+in+the+classroom.do](http://www.carolina.com/category/teacher+resources/classroom+activities/teaching+hardy+weinberg+in+the+classroom.do)  
- Interactive Websites  
  - An introduction to evolution [http://evolution.berkeley.edu/evolibrary/article/0_0_0/evo_02](http://evolution.berkeley.edu/evolibrary/article/0_0_0/evo_02)  
  - Hardy-Weinberg Conditions Animation [http://zoology.okstate.edu/zoo_lrc/biol1114/tutorials/Flash/life4e_15-6-OSU.swf](http://zoology.okstate.edu/zoo_lrc/biol1114/tutorials/Flash/life4e_15-6-OSU.swf)  
- Instructional Videos (United Streaming)  
  - Icons of Science: Evolution  
  - Biology: The Hardy-Weinberg Principle  

**ADMINISTER SCHOOL-BASED INTERIM ASSESSMENT**
### Fourth Nine Weeks (continued)

**Lesson 2**

<table>
<thead>
<tr>
<th>INDICATORS</th>
<th>SUGGESTED PACING</th>
<th>RESOURCES</th>
</tr>
</thead>
<tbody>
<tr>
<td>B-5.5</td>
<td>Exemplify scientific evidence in the fields of anatomy, embryology, biochemistry, and paleontology that underlies the theory of biological evolution.</td>
<td>Textbook /Study Guide Resources: Biology McDougall Littell 12.1 Fossil Record, 12.2 The Geologic Time Scale, 12.3 Origin of Life, 12.4 Early Single-Celled Organisms, 12.5 Radiation of Multicellular Life, 12.6 Primate Evolution</td>
</tr>
<tr>
<td>B-5.6</td>
<td>Summarize ways that scientists use data from a variety of sources to investigate and critically analyze aspects of evolutionary theory.</td>
<td>Modern Biology Holt, Rinehart and Winston 15.2 Systematics</td>
</tr>
<tr>
<td>B-5.7</td>
<td>Use a phylogenetic tree to identify the evolutionary relationships among different groups of organisms.</td>
<td>Literacy Element: Various concept maps, main idea graphic organizers</td>
</tr>
<tr>
<td><strong>Scientific Inquiry</strong></td>
<td><strong>B-1</strong> The student will demonstrate an understanding of how scientific inquiry and technological design, including mathematical analysis, can be used appropriately to pose questions, seek answers, and develop solutions.</td>
<td>Instructional Activities: 53 Activities Activity B-5.5a - Homologous Lab, Activity B-5.7a – Caminalcules, Activity B-5.7b - Cladogram Practice</td>
</tr>
<tr>
<td><strong>Interactive Websites</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Exploring Evolution WebLab <a href="http://www2.edc.org/weblabs/exploringevolution/evolution.swf">http://www2.edc.org/weblabs/exploringevolution/evolution.swf</a></td>
<td></td>
</tr>
</tbody>
</table>

### Lesson 3

<table>
<thead>
<tr>
<th>INDICATORS</th>
<th>SUGGESTED PACING</th>
<th>RESOURCES</th>
</tr>
</thead>
<tbody>
<tr>
<td>B-3.6</td>
<td>Illustrate the flow of energy through ecosystems (including food chains, food webs, energy pyramids, number pyramids, and biomass pyramids.</td>
<td>Textbook /Study Guide Resources: Biology McDougall Littell 13.3 Energy I Ecosystems, 13.4 Food Chains and Food Webs, 13.6 Pyramid Models Modern Biology Holt, Rinehart and Winston 18-3 Energy Transfer, 20.1 Species Interactions</td>
</tr>
<tr>
<td><strong>Scientific Inquiry</strong></td>
<td><strong>B-1</strong> The student will demonstrate an understanding of how scientific inquiry and technological design, including mathematical analysis, can be used appropriately to pose questions, seek answers, and develop solutions.</td>
<td>Literacy Element: Food Chain Graphic Organizer <a href="http://www.science-class.net/Graphic_Organizers/GO_food_chains.pdf">http://www.science-class.net/Graphic_Organizers/GO_food_chains.pdf</a> Transfer of Energy Graphic Organizer <a href="http://www.science-class.net/Graphic_Organizers/GO_energy_transfer.pdf">http://www.science-class.net/Graphic_Organizers/GO_energy_transfer.pdf</a> Food Web Graphic Organizer <a href="http://www.exploringnature.org/graphics/graphic_organizers/Graphic_Org_food_webs.pdf">http://www.exploringnature.org/graphics/graphic_organizers/Graphic_Org_food_webs.pdf</a> Energy, Number, and Biomass Pyramids Compare/Contrast Food Chains and Food Webs Compare/Contrast Energy, Number, and Biomass Pyramids</td>
</tr>
<tr>
<td><strong>Instructional Activities / Interactive Websites</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Food Chains and Webs</td>
<td>Instructional Videos: Food Chains and Webs</td>
</tr>
<tr>
<td>DATES TAUGHT</td>
<td>INDICATORS</td>
<td>SUGGESTED PACING</td>
</tr>
<tr>
<td>--------------</td>
<td>------------</td>
<td>------------------</td>
</tr>
</tbody>
</table>
|              | **B-6.1** Explain how the interrelationships among organisms (including predation, competition, parasitism, mutualism, and commensalism) generate stability within ecosystems | **6 Days** | **Textbook /Study Guide Resources:**  
- Biology McDougall Littell  
  13.3 Energy in Ecosystems, 13.4 Food Chains and Food Webs, 14.1 Habitat and Niche,  
  14.2 Community Interactions, 14.3 Population Density and Distribution, 14.4 Population Growth Patterns, 15.1 Life in the Earth System, 15.2 Climate  
- Modern Biology Holt, Rinehart and Winston  
  18.2 Ecology of Organisms, 18.3 Energy Transfer, 19.1 Understanding Populations, 19.2 Measuring Populations, 20.1 Species Interactions,  

**Literacy Element**  
- Interrelationships Among Organisms Concept Map/Cause and Effect Graphic Organizer  
  Limiting Factors Concept Map/Cause and Effect Graphic Organizer  

**Instructional Activities /Interactive Websites**  
- NSTA Galapagos Classroom: Tortoise Tales  
- Symbiotic Strategies  
- Limiting Factors of the Cedar Glade  
  [http://frank.mtsu.edu/~gladectr/teaching/21_Limiting%20Factors%20in%20the%20Cedar%20Glades.pdf](http://frank.mtsu.edu/~gladectr/teaching/21_Limiting%20Factors%20in%20the%20Cedar%20Glades.pdf)  
- Limiting Factors  

**Instructional Videos**  
- Biologix: Interactions and Relationships among Organisms |

|              | **B-6.2** Explain how populations are affected by limiting factors (including density-dependent, density-independent, abiotic, and biotic factors). | **6 Days** |  

**Scientific Inquiry B-1** The student will demonstrate an understanding of how scientific inquiry and technological design, including mathematical analysis, can be used appropriately to pose questions, seek answers, and develop solutions.  

**Textbook /Study Guide Resources:**  
- Biology McDougall Littell  
  14.5 Ecological Succession  
- Modern Biology Holt, Rinehart and Winston  
  20.2 Patterns in Communities  

**Literacy Element**  
- Primary Succession Flowchart  
  [http://www.science-class.net/Graphic_Organizers/GO_Primary_Succession.pdf](http://www.science-class.net/Graphic_Organizers/GO_Primary_Succession.pdf)  
- Secondary Succession Flowchart  
- Compare/Contrast Primary and Secondary Succession  

**Instructional Activities /Interactive Websites**  
- Ecological Succession Internet Activity  
- Primary and Secondary Succession in America’s Forests  
  [http://www.pbs.org/americanfieldguide/teachers/forests/forests_unit.html#2](http://www.pbs.org/americanfieldguide/teachers/forests/forests_unit.html#2)  

**Instructional Videos**  
- Biologix: Succession and Climax Communities |

|              | **B-6.3** Illustrate the processes of succession in ecosystems. Scientific Inquiry B-1 The student will demonstrate an understanding of how scientific inquiry and technological design, including mathematical analysis, can be used appropriately to pose questions, seek answers, and develop solutions. | **3 Days** |  

**Textbook /Study Guide Resources:**  
- Biology McDougall Littell  
  14.5 Ecological Succession  
- Modern Biology Holt, Rinehart and Winston  
  20.2 Patterns in Communities  

**Literacy Element**  
- Primary Succession Flowchart  
  [http://www.science-class.net/Graphic_Organizers/GO_Primary_Succession.pdf](http://www.science-class.net/Graphic_Organizers/GO_Primary_Succession.pdf)  
- Secondary Succession Flowchart  
- Compare/Contrast Primary and Secondary Succession  

**Instructional Activities /Interactive Websites**  
- Ecological Succession Internet Activity  
- Primary and Secondary Succession in America’s Forests  
  [http://www.pbs.org/americanfieldguide/teachers/forests/forests_unit.html#2](http://www.pbs.org/americanfieldguide/teachers/forests/forests_unit.html#2)  

**Instructional Videos**  
- Biologix: Succession and Climax Communities |
### Fourth Nine Weeks (continued)

<table>
<thead>
<tr>
<th>Dates Taught</th>
<th>Indicators</th>
<th>Suggested Pacing</th>
<th>Resources</th>
</tr>
</thead>
</table>
| B-6.4        | Exemplify the role of organisms in the geochemical cycles (including the cycles of carbon, nitrogen, and water). | 9 Days | Textbook /Study Guide Resources:  
- Biology McDougall Littell  
  13.5 Cycling of Matter, 16.1 Human Population Growth and Natural Resources, 16.2 Air Quality, 16.3 Air Quality, 16.4 Threats to Biodiversity, 16.5 Conservation  
- Modern Biology Holt, Rinehart and Winston  
  18-4 Ecosystem Recycling, 19.3 Human Population Growth, 20.2 Patterns In Communities, 22.1 An Interconnected Planet, 22.2 Environmental Issues, 22.3 Environmental Solutions |
| B-6.5        | Explain how ecosystems maintain themselves through naturally occurring processes (including maintaining the quality of the atmosphere, generating soils, controlling the hydrologic cycle, disposing of wastes, and recycling nutrients). | 9 Days | Literacy Element  
- Main Idea Graphic Organizer – Role of Organisms in Geochemical Cycles,  
- Cause/Effect – Human Impact on the Environment  
- Sequencing/Flowchart – Interactions of Environmental Systems |
| B-6.6        | Explain how human activities (including population growth, technology, and consumption of resources) affect the physical and chemical cycles and processes of Earth. | 9 Days | Instructional Activities/Interactive Websites  
- Geochemical Cycles (9-12)  
  http://www.learningscience.org/esc3bggeochemicalcycles.htm  
- Biogeochemical Cycles Jigsaw Activity  
  http://www.yayscienceclass.com/uploads/Pre-AP_Biology_Unit_05_-_Biogeochemical_Cycles_Activity_Part_1.pdf  
- Using The Carbon Cycle Interactive Game In the Classroom  
  http://www.windows2universe.org/teacher_resources/teach_carbongame.html  
- Carbon Cycle-Kids Newsroom  
  http://www.kidsnewsroom.org/climatechange/movies/carbon_cycle_version2.swf  
- Traveling Nitrogen  
  http://www.windows2universe.org/teacher_resources/teach_nitrogen.html  
- Modeling the Water Cycle  
  http://www.science-class.net/Lessons/Water%20Cycle/demo_w_c.pdf  
- POV Borders: Environment  
- Changing Nature’s Course: A Look At the Kissimmee River  
  http://www.nationalgeographic.com/xpeditions/lessons/14/g912/kissimmee.html  
- “The Lorax” – An Environmental Issue  
  http://alex.state.al.us/lesson_view.php?id=23952 |
| B-1          | The student will demonstrate an understanding of how scientific inquiry and technological design, including mathematical analysis, can be used appropriately to pose questions, seek answers, and develop solutions. | 9 Days | Instructional Videos:  
- Elements of Biology: Ecosystems: Organisms and Their Environment |

### Standards Review in Preparation for Biology I EOCEP

- **Administer School-Based Interim Assessment**

---

**RICHLAND COUNTY SCHOOL DISTRICT ONE  © CANNOT BE REPRODUCED WITHOUT PERMISSION**

**CURRICULUM AND INSTRUCTION  JUNE 2012**