

## Kuwait Bilingual School

Quarter 4 syllabus 2016-2017

Mar 23<sup>rd</sup> –Jun 11<sup>rd</sup>, 2017

Subject: Biology Grade: 9

Cycle #	Cycle of	Standard/Benchmark	Concept & Knowledge	Skills	Resources
21	Mar 23 To Mar 30	<p>Students will describe or compare how different organisms have mechanisms that work in a coordinated way to obtain energy, grow, move, respond, provide defences, enable reproduction, or maintain internal balance (e.g., cells, tissues, organs and systems).</p>	<ul style="list-style-type: none"> <li>• The Calvin Cycle: Reducing CO<sub>2</sub> to Sugar</li> <li>• ATP and NADPH power sugar synthesis in the Calvin cycle</li> <li>• Other methods of carbon fixation have evolved in hot, dry climates.</li> <li>• Photosynthesis may moderate global climate change</li> <li>• Scientific study of Earth's ozone layer has global significance</li> </ul>	<ul style="list-style-type: none"> <li>• Explain how the cell, as the basic unit of life, has the same survival needs as an organism (i.e., obtain energy, grow, eliminate waste, reproduce, provide for defense).</li> <li>• Investigate and describe how cells, grow, divide, and take in nutrients, which they use to provide energy for cellular functions.</li> <li>• Identify the General functions of the major systems of the human body (digestion, respiration, reproduction, circulation, excretion, protection from disease, and movement, control, and coordination) and describe ways that these systems interact with each other.</li> <li>• Identify and contrast the structures of plants and animals that serve similar functions (e.g., taking in water and oxygen, support, response to stimuli, obtaining energy, circulation, digestion, excretion, reproduction).</li> <li>• Describe the importance of the transport and exchange of oxygen and carbon dioxide to the survival of the organism.</li> <li>• Explain that oxygen is needed by all cells of most organisms for the release of energy from nutrient (sugar) molecules.</li> <li>• Describe photosynthesis as a chemical change with reactants (water and carbon dioxide) and products (energy-</li> </ul>	<p><b>Campbell, Biology: Concepts and Connections</b>, Seventh Edition</p> <p><a href="http://wps.aw.com/bc_campbell_concepts_8_ir/">http://wps.aw.com/bc_campbell_concepts_8_ir/</a></p> <p><b>McDougal Littell Life Sciences</b>  <a href="http://www.biology4kids.com/files/cell">http://www.biology4kids.com/files/cell</a></p>

				rich sugar molecules and oxygen) that takes place in the presence of light and chlorophyll	
22	Apr 2 To Apr 16	Students will be able to relate the importance of cell division and differentiation to development and organization in organisms.	<ul style="list-style-type: none"> <li>CELL DIVISION AND REPRODUCTION</li> <li>Introduction to cell division in cancer cells</li> <li>Cell division plays many important roles in the lives of organisms (chapter 8)</li> <li>Prokaryotes reproduce by binary fission</li> </ul>	<ul style="list-style-type: none"> <li>Compare the daughter cells of cell division to the parent cells to include chromosome number.</li> <li>Diagram chromosome movement during the process of mitosis.</li> <li>State that different types of cells are different from one another in multicellular organisms due to expression of different genes during development.</li> <li>Describe ways in which cellular processes are regulated by internal and external signals.</li> </ul>	<p><b>Campbell, Biology: Concepts and Connections</b>, Seventh Edition</p> <p><a href="http://wps.aw.com/bc_campbell_concepts_8_ir/">http://wps.aw.com/bc_campbell_concepts_8_ir/</a></p> <p><b>McDougal Littell Life Sciences</b>  <a href="http://www.biology4kids.com/files/cell">http://www.biology4kids.com/files/cell</a></p>
23	Apr 17 To Apr 24	Students will be able to relate the importance of cell division and differentiation to development and organization in organisms.	<ul style="list-style-type: none"> <li>THE EUKARYOTIC CELL CYCLE AND MITOSIS</li> <li>The large, complex chromosomes of eukaryotes duplicate with each cell division</li> <li>The cell cycle multiplies cells</li> </ul>	<ul style="list-style-type: none"> <li>Compare the daughter cells of cell division to the parent cells to include chromosome number.</li> <li>Diagram chromosome movement during the process of mitosis.</li> <li>State that different types of cells are different from one another in multicellular organisms due to expression of different genes during development.</li> <li>Describe ways in which cellular processes are regulated by internal and external signals.</li> </ul>	<p><b>Campbell, Biology: Concepts and Connections</b>, Seventh Edition</p> <p><a href="http://wps.aw.com/bc_campbell_concepts_8_ir/">http://wps.aw.com/bc_campbell_concepts_8_ir/</a></p> <p><b>McDougal Littell Life Sciences</b>  <a href="http://www.biology4kids.com/files/cell">http://www.biology4kids.com/files/cell</a></p>

24	Apr 25 To May 2	Students will be able to relate the importance of cell division and differentiation to development and organization in organisms.	<ul style="list-style-type: none"> <li>• Cell division is a continuum of dynamic changes</li> <li>• Cytokinesis differs for plant and animal cells</li> <li>• Anchorage, cell density, and chemical growth factors affect cell division</li> </ul>	<ul style="list-style-type: none"> <li>• Compare the daughter cells of cell division to the parent cells to include chromosome number.</li> <li>• Diagram chromosome movement during the process of mitosis.</li> <li>• State that different types of cells are different from one another in multicellular organisms due to expression of different genes during development.</li> <li>• Describe ways in which cellular processes are regulated by internal and external signals.</li> </ul>	<p><b>Campbell, Biology: Concepts and Connections</b>, Seventh Edition</p> <p><a href="http://wps.aw.com/bc_campbell_concepts_8_ir/">http://wps.aw.com/bc_campbell_concepts_8_ir/</a></p> <p><b>McDougal Littell Life Sciences</b> <a href="http://www.biology4kids.com/files/cell">http://www.biology4kids.com/files/cell</a></p>
25	May 3 To May 10	Students will be able to relate the importance of cell division and differentiation to development and organization in organisms.	<ul style="list-style-type: none"> <li>• Growth factors signal the cell cycle control system</li> <li>• Growing out of control, cancer cells produce malignant tumors</li> <li>• Mitosis provides for growth, cell replacement, and asexual reproduction</li> </ul>	<ul style="list-style-type: none"> <li>• Compare the daughter cells of cell division to the parent cells to include chromosome number.</li> <li>• Diagram chromosome movement during the process of mitosis.</li> <li>• State that different types of cells are different from one another in multicellular organisms due to expression of different genes during development.</li> <li>• Describe ways in which cellular processes are regulated by internal and external signals.</li> </ul>	<p><b>Campbell, Biology: Concepts and Connections</b>, Seventh Edition</p> <p><a href="http://wps.aw.com/bc_campbell_concepts_8_ir/">http://wps.aw.com/bc_campbell_concepts_8_ir/</a></p> <p><b>McDougal Littell Life Sciences</b> <a href="http://www.biology4kids.com/files/cell">http://www.biology4kids.com/files/cell</a></p>
26	May 11 To May 18	Students will be able to describe gamete production.	<ul style="list-style-type: none"> <li>• Chromosomes are matched in homologous pairs</li> <li>• Gametes have a single set of chromosomes</li> <li>• Meiosis reduces</li> </ul>	<ul style="list-style-type: none"> <li>• Compare and contrast haploid and diploid cells.</li> <li>• Illustrate and annotate the production of gametes through meiosis</li> </ul>	<p><b>Campbell, Biology: Concepts and Connections</b>, Seventh Edition</p> <p><a href="http://wps.aw.com/bc_campbell_concepts_8_ir/">http://wps.aw.com/bc_campbell_concepts_8_ir/</a></p>

			<p><b>the chromosome number from diploid to haploid</b></p>	<p><b>8_ir/</b>  <b>McDougal Littell Life Sciences</b>  <a href="http://www.biology4kids.com/files/cell">http://www.biology4kids.com/files/cell</a></p>
27	<p>May 21  To  May 28</p>		<p><b>Exam Review days/Study leave</b></p>	<p><b>Campbell, Biology: Concepts and Connections, Seventh Edition</b>    <a href="http://wps.aw.com/bc_campbell_concepts_8_ir/">http://wps.aw.com/bc_campbell_concepts_8_ir/</a>    <b>McDougal Littell Life Sciences</b>  <a href="http://www.biology4kids.com/files/cell">http://www.biology4kids.com/files/cell</a></p>

28	May 29 To Jun 5		Final Exams	•	
29	Jun 6 To Jun 11		Final Exams	•	