

Anoka-Hennepin Secondary Curriculum Unit Plan

Department:	Science	Course:	Science 7 (Life Science)	Unit 3 Title:	Cellular Structures, Functions and Processes	Grade Level(s):	7th Grade
Assessed Trimester:	Trimester 2	Pacing:	20-25 Days	Date Created:		Last Revision Date:	6.24.14

<b>Course Understandings:</b> <i>Students will understand that:</i> <ul style="list-style-type: none"><li>All living things are made of one or more cells and share common characteristics and needs which are met by interacting with the environment.</li><li>All living things are composed of one or more cells and multicellular organisms have specialized cells, tissues, organs and organ systems that work together to maintain internal balance (homeostasis).</li></ul>
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DESIRED RESULTS (Stage 1) - WHAT WE WANT STUDENT TO KNOW AND BE ABLE TO DO?

Established Goals
<ul style="list-style-type: none"><li><b>Standard:</b> Tissues, organs and organ systems are composed of cells and function to serve the needs of all cells for food, air and waste removal. <b>Benchmark:</b> <b>7.4.1.1.1:</b> Recognize that all cells do not look alike and that specialized cells in multicellular organisms are organized into tissues and organs that perform specialized functions. <i>For example:</i> Nerve cells and skin cells do not look the same because they are part of different organs and have different functions.</li><li><b>Standard:</b> Structure and Function in Living Systems All living organisms are composed of one or more cells, which carry on the many functions needed to sustain life. <b>Benchmark:</b> <b>7.4.1.2.2:</b> Recognize that cells repeatedly divide to make more cells for growth and repair. <b>7.4.1.2.3:</b> Use the presence of the cell wall and chloroplasts to distinguish between plant and animal cells. <i>For example:</i> Compare microscopic views of plant cells and animal cells. <b>Reading Benchmark:</b> <i>Craft and structure</i> <b>6.13.4.4:</b> Determine the meaning of symbols, equations, graphical representations, tabular representations, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to <i>grades 6–8 texts and topics</i>. <b>6.13.5.5:</b> Analyze the structure an author uses to organize a text, including how the major sections contribute to the whole and to an understanding of the topic. <i>Range of reading and level of text complexity</i> <b>6.13.10.10:</b> By the end of grade 8, read and comprehend science/technical texts in the grades 6–8 text complexity band independently and proficiently. <b>Writing Benchmark:</b> <i>Range of writing</i> <b>6.14.10.10:</b> Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.</li></ul>
Transfer
<b>Students will be able to independently use their learning to: (product, high order reasoning)</b> <ul style="list-style-type: none"><li>To understand different cells have different structure and function. 7.4.1.1.1, 7.4.1.2.1</li><li>To understand bigger organisms have more cells not bigger cells. 7.4.1.2.2</li><li>Cells are the basic unit of life 7.4.1.2.1</li><li>Specialized cells are cells are found in all complex multicellular organisms. 7.4.1.1.1</li><li>To understand the language of science allows us to communicate effectively and efficiently.</li></ul> <b>Students will be able to independently use their learning about cells and cell processes to describe how a wound heals or how cancer affects the body.</b>

Meaning	
<div><div>Unit Understanding(s):</div><div>Students will understand that:<ul style="list-style-type: none"><li>The basic units of life are cells 7.4.1.2.1</li><li>Specialized cells carry out specific life function 7.4.1.1.1</li><li>Plant and animal cells have similarities and differences 7.4.1.2.3</li><li>Differences exist between unicellular and multicellular organisms 7.4.1.1.1</li><li>Cells repeatedly divide for growth and repair 7.4.1.2.2</li><li>Organisms use different element combinations for the processes of photosynthesis and respiration. 7.4.2.2.1</li></ul></div></div>	<div><div>Essential Question(s):</div><div>Students will keep considering:<ul style="list-style-type: none"><li>How do we know we are made of cells?</li><li>How do I grow?</li><li>How does food help me grow?</li><li>Why are cells important?</li></ul></div></div>
Acquisition	
<div><div>Knowledge - Students will:</div><ul style="list-style-type: none"><li>Recognize that specialized cells look different from one another and that structure is related to function. 7.4.1.1.1</li><li>Recognize that nerve cells receive and transmit signals. 7.4.1.1.1</li><li>Recognize that muscle cells contract and relax. 7.4.1.1.1</li><li>Recognize that skin cells provide protection. 7.4.1.1.1</li><li>Recognize that bone cells provide support. 7.4.1.1.1</li><li>Recognize that blood cells carry gases. 7.4.1.1.1</li><li>Recognize that specialized cells in multicellular organisms are organized into tissues and tissues into organs into organ systems that perform special jobs. (Tissues are limited to muscle, nerve and bone; systems are limited to respiratory, circulatory, digestion, nervous, skeletal, skin and urinary. Human ex. Only) 7.4.1.1.1</li><li>Recognize that cells divide to make more for growth and repair. 7.4.1.2.2</li><li>Identify plant and animal cells using the cell walls and chloroplasts that differentiate them from each other. 7.4.1.2.3</li></ul></div>	<div><div>Reasoning - Students will:</div><ul style="list-style-type: none"><li>Compare and contrast plant and animal cells using the cell wall and chloroplasts. 7.4.1.2.3</li></ul><div><div>Skills - Students will:</div><ul style="list-style-type: none"><li>Observe and distinguish between plant and animal cells under the microscope 7.4.1.2.3</li></ul></div></div>

<div><div>Common Misunderstandings</div><ul style="list-style-type: none"><li>To get bigger students believe that cells grow in size and not in numbers.</li><li>Students feel that plants don't have to do the process of respiration.</li><li>Carbon dioxide, water, and minerals are food.</li><li>Students think in terms of two kinds of cells - plant and animal.</li></ul></div>	<div><div>Essential new vocabulary</div><ul style="list-style-type: none"><li>Cell</li><li>Cellular Respiration</li><li>Photosynthesis</li><li>Chloroplasts</li><li>Specialized Cells</li><li>Mitochondria</li><li>Cell Division</li><li>Cell Wall</li><li>Multicellular</li><li>Unicellular</li><li>Tissues</li><li>Organs</li><li>Organ Systems</li><li>Mitosis</li><li>Central Vacuole</li><li>Cell Theory</li></ul></div>
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