

<b>Science Strand 3: Characteristic and Interactions of Living Organisms</b>	
<b>CLE: 3.1 There is a fundamental unity underlying the diversity of all living organisms</b>	
<b>Health Profession:</b>	<b>Medical Technician</b>
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<b>Reference(s):</b>	
Bureau of Labor Statistics. (2007). <i>Clinical Laboratory Technologists and Technicians</i> . Retrieved January 27, 2008, from <a href="http://www.bls.gov/oco/ocos096.htm">http://www.bls.gov/oco/ocos096.htm</a> .	
Nemours Foundation. (2007, January). <i>Mononucleosis</i> . Retrieved January 27, 2008, from <a href="http://kidshealth.org/teen/infections/common/mononucleosis.html">http://kidshealth.org/teen/infections/common/mononucleosis.html</a> .	
<i>The Facts About Mono</i> . Retrieved January 27, 2008, from <a href="http://www.teengrowth.com">http://www.teengrowth.com</a> .	
<b>Objectives:</b>	
At the completion of this presentation the high school student will be able to:	
<ol style="list-style-type: none"> <li>1. State the definition of a medical technician.</li> <li>2. Show how to properly differentiate between different cell types.</li> <li>3. Identify the importance of this information to a medical technician.</li> </ol>	
<b>Background Summary of Information as Related to Medical Technicians and CLE:</b>	
<p>A Medical Technician is the person who examines body fluids and cells. One of the main tools they use is a microscope. This CLE speaks of living organisms or cells. Medical Technicians examine these cells in order to assist with detection, diagnosis, and treatment of diseases (Bureau of Labor Statistics, 2007). An example of examining cells would be as follows, being able to tell if a cell has one nucleus or if a cell has an irregular multiplication.</p>	
<b>Scenario:</b>	
<p>Cindy and her mom are waiting in Dr. Tim's office. Once Dr. Tim enters the room he can see Cindy's exhaustion in her face and body language. He asks Cindy how she has been feeling. Cindy proceeds to tell him she can't seem to get enough sleep because she is always tired. She has a sore throat and feels hot. Dr. Tim gets the vital signs taken by the nurse and is disturbed with Cindy's temperature of 102. He therefore decides to take a blood sample from Cindy. The blood sample is taken and sent to the lab where Johnny, the medical technician, begins to analyze the blood sample. He makes a slide or smear of the blood to put under the microscope. Once he gets the sample in focus he sees a large amount of irregular shaped white blood cells with only one nucleus. Johnny documents his findings to send back to Dr. Tim. With the results from Johnny, Dr. Tim is able to diagnose Cindy with Mononucleosis and assist her with ways to treat it.</p>	
<b>Activities:</b>	
<p>1: Get a different type of material such as candy and split the students into groups or individually. On separate pieces of paper write either a bacterial cell, plant cell, or human cell then throw the pieces in a hat. Have each group or individual pick a piece of paper out of the hat and create that cell with candy. Once the cell is complete have</p>	

the students present it to the class describing what makes their cell different from the others. Also have them pick one aspect of the cell such as nucleus or ribosome ect. and define that aspect. At the end the students could keep the candy.

**2:** Get different slides of cells and allow the students to use the microscope to look at these slides and identify the cell parts and types of cells on the separate slides.

Before the students are able to look at their own individual slides, show some examples on the projector so the whole class can discuss together. Another aspect would be to allow the children to swab their cheeks and make a slide of it. Therefore, the students can see what some of their cells look like.

**Supplies: Activity 1**

pieces of candy, thick paper such as poster board or cardstock, tape or glue

**Supplies: Activity 2**

q-tips, slides, hematoxylin (or other solutions that can stain nuclei), already made microscope slides of different types of cells, and pictures of cells through the eyes of a microscope as overheads

**Restatement:**

The CLE involves the fundamental unity of all living organisms which regards cells. A Medical Technician is a person who studies cells and the difference between those cells in order to assist the doctor in diagnosis of medical conditions. This scenario is an example of how a medical technician uses their skills in cell identification to assist with the diagnosis of mononucleosis. The activities deal with identifying cells and looking through the microscope which is exactly a skill the medical technician uses daily.

**School Options:**

Three Rivers Community College, St. Louis Community College, Barton County Community College, and Wichita Area Technical College for more schools go to the National Accrediting Agency for Clinical Laboratory Sciences

**Standard MLT Requirements**

1. Applicant shall be of good moral character and at least 18 years of age.

2. Applicant shall be a graduate of an accredited high school or acceptable equivalent.

3. Applicant shall meet one of the following requirements:

**A. COLLEGE OR UNIVERSITY PROGRAM**

1. Applicant shall be the holder of an associate degree in medical technology (or equivalent) from an accredited two-year college, or

2. Applicant shall have completed at least two years (60 semester hours) of courses

in any accredited college, including at least 25 semester hours in those disciplines that comprise medical technology and may include any chemical or biological science courses, as well as mathematics and/or courses in computer science, not to exceed 6 semester hours, plus six months of laboratory experience.

#### **B. PROFESSIONAL SCHOOL**

1. Applicant shall be a graduate of a medical laboratory school or program accredited by an organization approved by the US Department of Education, and must show evidence of having obtained an appropriate degree or certificate of completion; or

2. Applicant shall be a graduate of a medical laboratory school or program in an institution accredited by a Regional Accrediting Commission or by a national accrediting organization approved by the US Department of Education, and must show evidence of having obtained an appropriate degree.

#### **C. MILITARY TRAINING**

1. Applicant has completed a 50-week US military laboratory procedures training program provided that the training credits were earned in, or have been accepted for transfer by, an accredited college or university leading to the award of an appropriate degree.

2. The AMT Board of Directors has further determined that applicants holding other certifications obtained through examination in the medical laboratory technician category, determined by the AMT Board of Directors to have met the AMT training and experience requirements, may be considered for MLT (AMT) certification *without* further examination.

3. Applicant has taken and passed a medical laboratory technician level examination for state licensure, reviewed by the Education, Qualifications and Standards Committee and approved by the AMT Board of Directors.

4. All applicants applying under 3 A, B, C, *must* take and pass the AMT certification examination for Medical Laboratory Technician (MLT).

Schools: Three Rivers Community College, St. Louis Community College, Barton County Community College, and Wichita Area Technical College for more schools go to the National Accrediting Agency for Clinical Laboratory Sciences or American Medical Technologists ([www.amt1.com](http://www.amt1.com))