

# Medical Laboratory Science: Middle School

<b>Foundational Standards</b>	<ol style="list-style-type: none"><li><b>1 Incorporate safety procedures in handling, operating, and maintaining tools and machinery; handling materials; utilizing personal protective equipment; maintaining a safe work area; and handling hazardous materials and forces.</b> F.1</li><li><b>2 Demonstrate effective workplace and employability skills, including communication, awareness of diversity, positive work ethic, problem-solving, time management, and teamwork.</b> F.2</li><li><b>3 Explore the range of careers available in the field and investigate their educational requirements and demonstrate job-seeking skills including resume-writing and interviewing.</b> F.3</li><li><b>4 Advocate and practice safe, legal, responsible, and ethical use of information and technology tools specific to the industry pathway.</b> F.4</li><li><b>5 Participate in a Career and Technical Student Organization (CTSO) to increase knowledge and skills and to enhance leadership and teamwork.</b> F.5</li><li><b>6 Demonstrate effective infection control techniques as defined by the Centers for Disease Control and Prevention (CDC) and The Joint Commission guidelines.</b> F.6</li></ol>
<b>Laboratory Terminology</b>	<ol style="list-style-type: none"><li><b>1 Identify and explain common medical terms and abbreviations used in the laboratory setting.</b> 1</li></ol>
<b>Laboratory Skills</b>	<ol style="list-style-type: none"><li><b>2 Identify commonly used laboratory equipment and explain how each item is used.</b> 2<ol style="list-style-type: none"><li>Perform basic technical skills following laboratory protocol. 2.A</li><li>Prepare solutions of defined concentrations. 2.B</li></ol></li></ol>
<b>Laboratory Math</b>	<ol style="list-style-type: none"><li><b>3 Perform basic mathematical calculations related to the composition of solutions, weights, and measurements used in the medical laboratory.</b> 3<ol style="list-style-type: none"><li>Convert standard weights, measurements, and volumes to metric measurements commonly used in a healthcare setting. 3.A</li><li>Express time using the 24-hour time format as it applies to the healthcare industry. 3.B</li></ol></li></ol>

<b>Hematology</b>	<b>4 Identify red blood cells, white blood cells, plasma, and platelets and explain the function of each in maintaining hemostasis. 4</b>
<b>Immunology</b>	<b>5 Identify components of the immune system and explain their functions. 5</b>
<b>Genetics and Cell Biology</b>	<b>6 Describe key cellular structures and explain their respective functions. 6</b> <ul style="list-style-type: none"><li>a Describe the structure and function of deoxyribonucleic acid (DNA) and explain its use in DNA fingerprinting and genetic technology. 6.A</li><li>b Explain the significance of Mendel's work to the development of modern genetics, including the laws of segregation and independent assortment. 6.B</li><li>c Compare and contrast ionic, hydrogen, covalent, and metallic bonds. 6.C</li></ul>
<b>Microbiology and Parasitology</b>	<b>7 Differentiate among common microbes, including bacteria, viruses, fungi, and protozoans. 7</b> <ul style="list-style-type: none"><li>a Explain how microbes cause the development and spread of infectious diseases. 7.A</li><li>b Explain how the immune system responds when a foreign microbe enters the body. 7.B</li></ul>