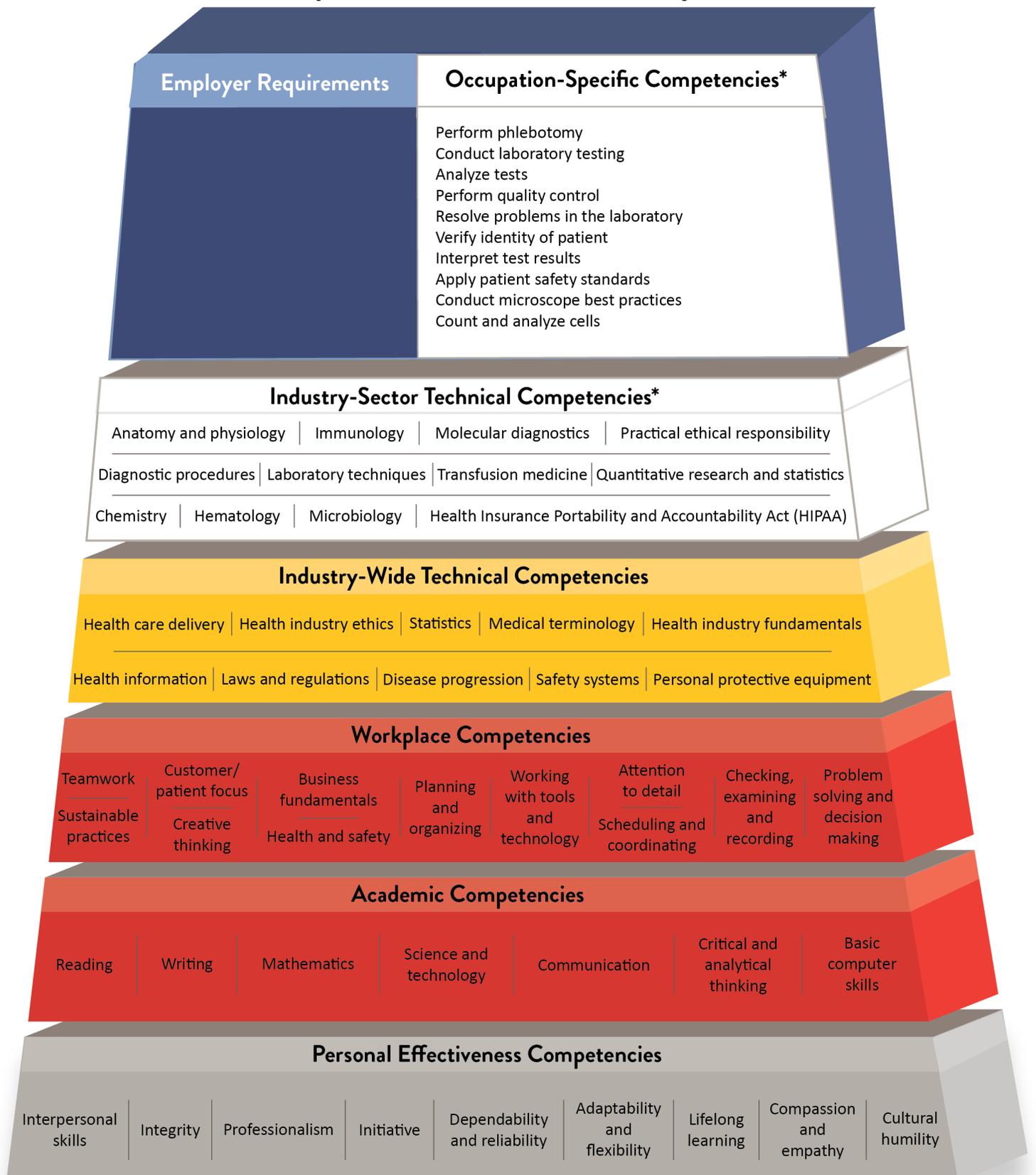


# Minnesota Dual-Training Pipeline Competency Model for Health Care Services Occupation: Medical Laboratory Scientist



Based on: Fundamentals of Health Care Competency Model, Employment and Training Administration, United States Department of Labor, February 2025. For more detailed information about competency model creation and sources, visit [dli.mn.gov/business/workforce/health-care-services](https://dli.mn.gov/business/workforce/health-care-services).

## Competency Model for Medical Laboratory Scientist

**Medical Laboratory Scientist** – A medical laboratory scientist, also commonly known as a medical technologist or clinical laboratory scientist, works to analyze a variety of biological specimens. They are responsible for performing scientific testing on patient samples and reporting results to physicians.

\*Pipeline recommends the Industry-Sector Technical Competencies as formal training opportunities (provided through related instruction) and the Occupation-Specific Competencies as on-the-job (OJT) training opportunities.

### Industry-Sector Technical Competencies

**Related Instruction** for dual training means the organized and systematic form of education resulting in the enhancement of skills and competencies related to the dual trainee's current or intended occupation.

- **Anatomy and physiology** – Know the foundation in normal physiology, pathophysiology, histology, integumentary, skeletal, muscular, nervous, and sensory systems.
- **Immunology** – Understand the study of the human body's built-in defense system, which protects from infection.
- **Molecular diagnostics** – Knowledge of techniques used to analyze biological markers in the genome and proteome showing the individual's genetic code and how their cells express their genes as proteins, by applying molecular biology to medical testing.
- **Practical ethical responsibility** – Know that medical ethics allow for people, regardless of race, gender, or religion to be guaranteed quality and principles of care.
- **Diagnostic procedures** – Understand the evidence-based critical analysis and interpretation of assessments to provide the basis for the health care plan.
- **Laboratory techniques** – Demonstrate acts performed on patient specimens to detect biomarkers and diagnose diseases.
- **Transfusion medicine** – Understand a multidisciplinary science concerned with the proper use of blood or blood products in the treatment or prevention of disease.

- **Quantitative research and statistics** – Understand the principles and goals of quantitative research as well as how to interpret and analyze data through statistics to reach conclusions that will serve the medical team and ultimately the patient well.
- **Chemistry** – Understand the science that addresses composition, structure, and properties of substances and the changes that those substances can take place.
- **Hematology** – Understand the science or study of blood, blood-forming organs and blood diseases.
- **Microbiology** – Understanding of the science that deals with microscopic forms of life.
- **Health Insurance Portability and Accountability Act (HIPAA)** – Understand the law that provides data privacy and security provisions for safeguarding patient medical information.

## Occupation-Specific Competencies

**On-the-Job Training** is hands-on instruction completed at work to learn the core competencies necessary to succeed in an occupation. Common types of OJT include job shadowing, mentorship, cohort-based training, assignment-based project evaluation and discussion-based training.

- **Perform phlebotomy** – Demonstrate a procedure in which a needle is used to take blood from a vein, usually for laboratory testing.
- **Conduct laboratory testing** – Understand established protocols, perform waived, moderate or highly complex testing and report results.
- **Analyze tests** – Knowledge of hematology, coagulation, microbiology, serology, immunology, immunohematology, chemistry, urinalysis, phlebotomy, and electrocardiogram (EKG).
- **Perform quality control** – Understand accuracy of results and knowing specimen quality and acceptability when performing and providing test analysis.
- **Resolve problems in the laboratory** – Know how to recognize problems and take appropriate action to resolve those problems. Understand how to troubleshoot and take corrective action for lab procedures and unexpected events in lab operations.
- **Verify identity of patient** – Understands the requirement of two identifiers – such as the patient’s full name, date of birth and/or medical identification number at every patient encounter.
- **Interpret test results** – Be responsible for complex diagnostic and therapeutic testing and be able to act as a resource for result interpretation based on clinical knowledge and technical expertise.

- **Apply patient safety standards** – Understand the system of care delivery that prevents errors, learns from the errors that do occur and is built on a culture of safety.
- **Conduct microscope best practices** – Know how to properly use multiple types of microscopes and how to clean and maintain them for continued use and efficiency.
- **Count and analyze cells** – Know how to analyze cell counts to be able to look for abnormal cells to help determine if diseases such as anemia or leukemia are present for example.

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