



Australian Government

MSL974021 Perform biological procedures

Release: 1

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Modification History

Release	Comments
Release 1	This version was released in <i>MSL Laboratory Operations Training Package Release 2.0</i>. Supersedes and equivalent to MSL974006 Perform biological procedures. Changes to elements and performance criteria. Range of conditions removed. Assessment requirements amended.

Application

This unit of competency describes the skills and knowledge to interpret work requirements, prepare samples, and perform routine biological procedures. These procedures may involve several steps and are used to classify organisms and biologically active compounds by analysing their biological and/or chemical characteristics. This unit includes interpretation of results and troubleshooting obvious departures from standard procedures.

This unit of competency applies to technical assistants working in the biomedical, environmental, biotechnology and education industry sectors.

No licensing or certification requirements exist at the time of publication. However, regulations and/or external accreditation requirements for laboratory operations exist, so local requirements should be checked. Relevant legislation, industry standards and codes of practice within Australia must also be applied.

Pre-requisite Unit

Nil

Competency Field

Testing

Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

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|---|---|-----|---|
| 1 | Interpret and schedule work requirements | 1.1 | Review work request to identify samples, required procedures and materials/equipment/instruments involved |
|---|---|-----|---|

Elements describe the essential outcomes.		Performance criteria describe the performance needed to demonstrate achievement of the element.	
		1.2	Identify hazards and workplace control measures associated with the sample, preparation methods, reagents and/or equipment
		1.3	Plan parallel work sequences to optimise throughput of multiple sets of samples
2	Receive and prepare biological samples	2.1	Log samples using standard operating procedures (SOPs)
		2.2	Record sample description, compare with specification and note and report discrepancies
		2.3	Prepare samples in accordance with testing requirements
3	Perform techniques that assist in the classification of organisms	3.1	Identify characteristics used to classify organisms
		3.2	Use dichotomous keys to identify organisms
4	Perform biological procedures	4.1	Set up and use equipment and reagents in accordance with the method
		4.2	Perform techniques in accordance with the standard operating procedures
5	Maintain a safe work environment	5.1	Use established safe work practices and personal protective equipment (PPE) to ensure personal safety and that of other laboratory personnel
		5.2	Minimise the generation of waste
		5.3	Safely dispose of biohazardous wastes
		5.4	Clean, care for and store equipment and reagents as required

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

6 Maintain laboratory records

- 6.1 Record entries on report forms or into a laboratory information management system, accurately calculating, recording or transcribing data as required
- 6.2 Ensure traceability of sample from receipt to reporting of results

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance.

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Unit Mapping Information

Equivalent to MSL974006 Perform biological procedures, Release 1.

Links

MSL Laboratory Operations Companion Volume Implementation Guide is available from VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=5c63a03b-4a6b-4ae5-9560-1e3c5f462baa>

Assessment Requirements for MSL974021 Perform biological procedures

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Performance Evidence

There must be evidence the candidate has completed the tasks outlined in the elements and performance criteria of this unit, and:

- classify 2 organisms from 2 different kingdoms to species level using a dichotomous approach
- safely and accurately performed 3 multistep biological procedures, using a minimum of 2 different techniques from the following list:
 - multistep staining:
 - haematological
 - histological
 - microbiological
 - preparation and examination of samples to demonstrate mitosis microscopically
 - preparation and enumeration of microscopic samples
 - colorimetry
 - spectrophotometry
 - chromatography
 - electrophoresis
 - electrochemistry
 - multistep molecular technique
 - multistep immunological technique.

Knowledge Evidence

There must be evidence the candidate has knowledge of:

- biological principles and concepts underpinning tests and procedures associated with job role:

- basic classification and taxonomy of organisms including prokaryotes and eukaryotes, bacteria, viruses, fungi, plants, animals, parasites and prions
- interrelationships of biological systems including the carbon cycle and energy cycle
- basic structure and function of a plant and animal cell and the respective organelles (plant and animal)
- cell membrane activity, including diffusion (passive, facilitated and active), osmosis, tonicity and plasmolysis
- plant and animal tissue types
- phases of the cell cycle including phases of mitosis
- mendelian genetics including inheritance, meiosis, karyotypes, dominant and recessive traits, genotypes, phenotypes, and pedigrees
- basic structure and function of chromosomes, nucleic acids and proteins
- chemical and physical characteristics of organic molecules
- basic structure and function of including carbohydrates, fats and amino acids
- basic role of biological significance of ions, including calcium, iron, magnesium, sodium, potassium, chloride and phosphate
- purpose of procedures implemented (why they are used and what they demonstrate)
- calculation steps to give results in appropriate units and precision
- importance and appropriate use of controls and certified reference materials
- awareness of environmental sustainability issues as they relate to the work task
- legal, ethical and work health and safety (WHS) requirements specific to the work task including traceability, confidentiality and security requirements of all clinical information, and laboratory data and records.

Assessment Conditions

Skills must have been demonstrated in the workplace or in a simulated environment that reflects workplace conditions and contingencies. The following conditions must be met for this unit:

- use of suitable facilities, equipment and resources, including:
 - a standard laboratory equipped with appropriate test equipment and instruments, safety equipment, reagents and materials
 - standard operating procedures (SOPs) and testing methods
 - records, including:
 - test calibration results
 - equipment use, maintenance and servicing history
 - faulty or unsafe equipment
 - batch number, catalogue number and use-by-date for analytical kits.

Assessors must satisfy the NVR/AQTF mandatory competency requirements for assessors.

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