

Title	Carry out visualisation and measurement of microorganisms		
Level	4	Credits	4

Purpose	People credited with this unit standard are able to: describe the applications of microscope systems; mount and apply differential stains to a microbiological sample; and measure microorganisms using a light microscope.
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Classification	Science > Microbiology
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Available grade	Achieved
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Guidance Information

- 1 All work must be carried out in accordance with the quality management system, documented protocol system or Standard Operating Procedures (SOP) acceptable in a commercial or research laboratory.
- 2 Health and Safety practices must conform to Australian/New Zealand Standard AS/NZS 2243 – *Safety in Laboratories* Parts 1, 2, 3, 7 and 10 available at <http://www.standards.co.nz>.
- 3 Legislation applicable to this unit standard includes:
Health and Safety at Work Act 2015;
Hazardous Substances and New Organisms Act 1996.
- 4 Glossary
Laboratory procedures refer to documented systems or processes of operation which may be found in a SOP manual, quality management system, or in protocol system documentation. These procedures are external and/or internal laboratory requirements governing laboratory work.
- 5 Recommended for entry: Unit 26117, *Work safely in a science laboratory*.

Outcomes and performance criteria

Outcome 1

Describe the applications of microscope systems.

Performance criteria

1.1 Microscope systems are described in terms of their practical capabilities.

Range microscope systems include – bright field, confocal microscope, dark field, fluorescence microscopy, phase contrast, scanning electron microscope, transmission electron microscope.

1.2 Two microscope systems are compared in terms of their applications.

Outcome 2

Mount and apply differential stains to a microbiological sample.

Performance criteria

2.1 Microbiological sample is mounted in accordance with laboratory procedures.

2.2 Differential staining techniques are used to visualise structures in accordance with laboratory procedures.

Range structures include – cell wall, flagella, spore, capsule.

2.3 A hanging drop or a wet mount is used to visualise microbial motility in accordance with laboratory procedures.

Outcome 3

Measure microorganisms using a light microscope.

Performance criteria

3.1 Eye-piece micrometer is calibrated in accordance with laboratory procedures.

3.2 The dimensions of microorganisms are measured using a light microscope and recorded in accordance with laboratory procedures.

This unit standard is expiring. Assessment against the standard must take place by the last date for assessment set out below.

Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	24 September 1996	31 December 2014
Review	2	24 February 1998	31 December 2014
Review	3	23 November 1999	31 December 2014
Review	4	21 May 2010	31 December 2025
Rollover	5	27 January 2015	31 December 2025
Review	6	27 September 2018	31 December 2025
Review	7	30 November 2023	31 December 2025

Consent and Moderation Requirements (CMR) reference

0113

This CMR can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.