

Title	Describe and explain the role and treatment of microorganisms in wastewater		
Level	5	Credits	3

Purpose	<p>This unit standard is for people who may or intend to analyse water samples for quality using microbiological techniques in a laboratory.</p> <p>People credited with this unit standard are able to describe and explain: the dynamics of microorganism populations in water; the processes necessary to produce potable water; and treatment processes for water.</p>
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Classification	Science > Microbiology
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Available grade	Achieved
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Guidance Information

- Water standards are specified in *Drinking-water Standards for New Zealand 2005 (Revised 2008)* Wellington: Ministry of Health.
<http://www.health.govt.nz/publication/drinking-water-standards-new-zealand-2005-revised-2008>.
- Glossary
Potable water is water of sufficiently high quality that it can be consumed or used without risk of immediate or long-term harm.

Outcomes and performance criteria

Outcome 1

Describe and explain the dynamics of microorganism populations in water.

Performance criteria

- 1.1 The nutritional requirements of microorganisms found in water are described.

Range	chemolithotrophs, chemoorganotrophs, photolithotrophs, photoorganotrophs, filamentous bacteria.
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1.2 The influences of environmental factors are explained in terms of microorganism populations in water.

Range temperature, density of water, pH, pressure, salinity, light, redox potential.

Outcome 2

Describe and explain the processes necessary to produce potable water.

Performance criteria

2.1 Suitable water sources are described in terms water standard requirements.

2.2 The effects of treatment processes in the preparation of potable water are explained in terms of microorganism populations.

Range sedimentation, coagulation, filtration, disinfection, storage, reticulation.

Outcome 3

Describe and explain treatment processes for water.

Performance criteria

3.1 Primary, secondary, and tertiary water treatment processes are described.

3.2 Water treatment processes are explained in terms of microorganism populations.

Range anaerobic digestors, activated sludge, trickling filters, oxidation ponds, wetlands, constructed wetlands, infiltration, irrigation, disinfection, cesspools, septic tanks.

Replacement information	This unit standard and unit standard 26112 replaced unit standard 8039.
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Planned review date	31 December 2023
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Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	21 May 2010	N/A
Rollover	2	27 January 2015	N/A
Review	3	27 September 2018	N/A

Consent and Moderation Requirements (CMR) reference

0113

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

Comments on this unit standard

Please contact NZQA National Qualifications Services nqs@nzqa.govt.nz if you wish to suggest changes to the content of this unit standard.