Achievement Standard

Subject Reference	Chemistry and Biology 1.1				
Title	Demonstrate understanding of the relationship between a microorganism and the environment				
Level	1	**Credits**	5	**Assessment**	Internal
Subfield	Science				
Domain	Science - Core				
Status	Approved	**Status date**	December 2023		
Planned review date	December 2028	**Date version published**	December 2023		

Purpose Statement

Students are able to demonstrate understanding of the relationship between a microorganism and the environment.

Achievement Criteria

Achievement	Achievement with Merit	Achievement with Excellence
• Demonstrate understanding of the relationship between a microorganism and the environment	• Explain the relationship between a microorganism and the environment	• Analyse the relationship between a microorganism and the environment

Explanatory Notes

1 *Demonstrate understanding of the relationship between a microorganism and the environment* involves:
- describing a life process of a microorganism
- describing an abiotic or biotic factor within an interconnected environment, that affects the life process of the microorganism, using observations.

Explain the relationship between a microorganism and the environment involves:
- linking a change to an abiotic or biotic factor of the interconnected environment to the effect on the life process of the microorganism, using observations.

Analyse the relationship between a microorganism and the environment involves:
- examining how the life process of the microorganism affects an abiotic or biotic factor of the interconnected environment, using observations.

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2 For the purposes of this standard, a *life process* refers to any of the basic physiological functions of a microorganism. The microorganism does not need to meet the full definition of 'living' but must undertake some of the processes which are characteristic of living organisms.

Examples of a life process include:
- gaining nutrients through hyphae in fungi
- excretion of waste in bacteria
- replication of a virus.

3 For the purposes of this standard, an *interconnected environment* supports a community where the microorganism interacts as part of a system.

Examples of an interconnected environment include:
- the human body
- a food production process
- an ecosystem.

4 For the purposes of this standard, *observations* can be primary or secondary data.

5 Refer to the NCEA glossary for Māori, Pacific, and further subject-specific terms and concepts.

6 This achievement standard is derived from the Science Learning Area at Level 6 of *The New Zealand Curriculum:* Learning Media, Ministry of Education, 2007.

Replacement Information

This achievement standard and AS92021-AS92023 replaced AS90925-AS90934.

Quality Assurance

1 Schools and institutions must have been granted consent to assess by NZQA before they can register credits from assessment against achievement standards.

2 Schools and institutions with consent to assess must engage with the moderation system that applies to those achievement standards.

Consent and Moderation Requirements (CMR) reference 0233

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