

Achievement Standard

Subject Reference	Biology 1.8				
Title	Describe biological ideas relating to how humans use and are affected by micro-organisms				
Level	1	Credits	2	Assessment	External
Subfield	Science				
Domain	Biology				
Status	Registered		Status date	5 November 2007	
Planned review date	28 February 2009		Date version published	5 November 2007	

This achievement standard involves the description of biological ideas relating to how humans use and are affected by micro-organisms.

Note: Students cannot use credit for both this achievement standard and AS90188, Science 1.3, towards a national qualification including a National Certificate of Educational Achievement.

Achievement Criteria

Achievement	Achievement with Merit	Achievement with Excellence
<ul style="list-style-type: none">Describe biological ideas relating to how humans use and are affected by micro-organisms.	<ul style="list-style-type: none">Explain biological ideas relating to how humans use and are affected by micro-organisms.	<ul style="list-style-type: none">Discuss biological ideas relating to how humans use and are affected by micro-organisms.

Explanatory Notes

- 1 This achievement standard is derived from *Science in the New Zealand Curriculum*, Learning Media, Ministry of Education, 1993, p. 64; *Biology in the New Zealand Curriculum*, Learning Media, Ministry of Education, 1994, p. 14; and *Pūtaiao i roto i te Marautanga o Aotearoa*, Learning Media, Ministry of Education, 1996, p. 28.
- 2 *Micro-organisms* will be selected from bacteria, fungi and viruses.
- 3 *How humans use and are affected by micro-organisms* could include: nutrient cycling, food production, sewage treatment, food poisoning, disease in living things, microbial attack on everyday materials (helpful and harmful), antibiotics, and resistance to antibiotics.

4 *Biological ideas* relating to how humans use and are affected by micro-organisms will be selected from:

- structure of micro-organisms
- culturing micro-organisms
- life processes of micro-organisms
- factors that affect the life processes of micro-organisms.

5 *Life processes* of micro-organisms will be selected from: nutrition, growth, respiration, reproduction and excretion by bacteria and fungi, and the reproduction of viruses.

6 The student will be expected to be familiar with the following terms: inoculate, extracellular digestion, enzyme, parasite, pathogen, saprophyte, decomposer, aerobic, anaerobic, hyphae, binary fission, spores, sporangium, and toxin.

7 Terms:

- *Describe* requires the student to define, use annotated diagrams, give characteristics of, or an account of.
- *Explain* requires the student to provide a reason as to how or why something occurs.
- *Discuss* requires the student to show understanding by linking biological ideas. It may involve students in elaborating, applying, justifying, relating, evaluating, comparing and contrasting, and analysing.

Quality Assurance

- 1 Providers and Industry Training Organisations must be accredited by NZQA before they can register credits from assessment against achievement standards.
- 2 Accredited providers and Industry Training Organisations assessing against achievement standards must engage with the moderation system that applies to those achievement standards.

Accreditation and Moderation Action Plan (AMAP) reference

0226