

Achievement Standard

Subject Reference	Biology 2.4		
Title	Demonstrate understanding of life processes at the cellular level		
Level	2	Credits	4
		Assessment	External
Subfield	Science		
Domain	Biology		
Status	Registered	Status date	17 November 2011
Planned review date	31 December 2018	Date version published	20 November 2014

This achievement standard involves demonstrating understanding of life processes at the cellular level.

Achievement Criteria

Achievement	Achievement with Merit	Achievement with Excellence
<ul style="list-style-type: none"> Demonstrate understanding of life processes at the cellular level. 	<ul style="list-style-type: none"> Demonstrate in-depth understanding of life processes at the cellular level. 	<ul style="list-style-type: none"> Demonstrate comprehensive understanding of life processes at the cellular level.

Explanatory Notes

- 1 This achievement standard is derived from *The New Zealand Curriculum*, Learning Media, Ministry of Education, 2007, Level 7. It is aligned with the following achievement objective in the Living World strand:

Life Processes

- Explore the diverse ways in which animals and plants carry out the life processes and is related to the material in the *Teaching and Learning Guide for Biology*, Ministry of Education, 2010 at <http://seniorsecondary.tki.org.nz>.

This standard is also derived from Te Marautanga o Aotearoa. For details of Te Marautanga o Aotearoa achievement objectives to which this standard relates, see the [Papa Whakaako](#) for the relevant learning area.

- 2 *Demonstrate understanding* involves defining, using annotated diagrams or models to describe, and describing characteristics of, or providing an account of, life processes at the cellular level.

Demonstrate in-depth understanding involves using biological ideas to give reasons how or why life processes occur at the cellular level.

Demonstrate comprehensive understanding involves linking biological ideas about life processes at the cellular level. The discussion of ideas may involve justifying, relating, evaluating, comparing and contrasting, analysing.

- 3 *Life processes at the cellular level* include:
 - photosynthesis
 - respiration
 - cell division (DNA replication and mitosis as part of the cell cycle).
 - 4 Biological ideas, as they relate to each of the life processes at the cellular level, are selected from:
 - movement of materials (including diffusion, osmosis, active transport)
 - enzyme activity (specific names of enzymes are not required)
 - factors affecting the process
 - details of the processes only as they relate to the overall functioning of the cell (specific names of stages are not required)
 - reasons for similarities and differences between cells such as cell size and shape, and type and number of organelles present.
 - 5 Cells include plant cells and animal cells.
 - 6 Assessment Specifications for this achievement standard can be accessed through the Biology Resources page found at <http://www.nzqa.govt.nz/qualifications-standards/qualifications/ncea/subjects/>.
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Quality Assurance

- 1 Providers and Industry Training Organisations must have been granted consent to assess by NZQA before they can register credits from assessment against achievement standards.
- 2 Organisations with consent to assess and Industry Training Organisations assessing against achievement standards must engage with the moderation system that applies to those achievement standards.

Consent and Moderation Requirements (CMR) reference

0233