

Achievement Standard

Subject Reference Science 1.10

Title Investigate life processes and environmental factors that affect them

Level 1 **Credits** 4 **Assessment** Internal

Subfield Science

Domain Science - Core

Status Registered **Status date** 30 November 2010

Planned review date 31 December 2014 **Date version published** 30 November 2010

This achievement standard involves investigating life processes of plants and/or animals and investigating environmental factors that affect these processes.

Achievement Criteria

Achievement	Achievement with Merit	Achievement with Excellence
<ul style="list-style-type: none"> • Investigate life processes and environmental factors that affect them. 	<ul style="list-style-type: none"> • Investigate, in depth, life processes and environmental factors that affect them. 	<ul style="list-style-type: none"> • Investigate, comprehensively, life processes and environmental factors that affect them.

Explanatory Notes

- 1 This achievement standard is derived from *The New Zealand Curriculum*, Learning Media, Ministry of Education, 2007, Level 6. It is aligned with the Life Processes achievement objective in the Living World strand and the Investigating in Science achievement objectives in the Nature of Science strand, and is related to the material in the *Teaching and Learning Guide for Science*, Ministry of Education, 2010 at <http://seniorsecondary.tki.org.nz>.
- 2 This investigation involves collecting information about life processes and environmental factors that affect them. The information may come from a variety of sources such as direct observations, collection of experimental data, resource sheets, photos, videos, websites, and reference texts.

The procedures outlined in *Safety and Science: A Guidance Manual for New Zealand Schools*, Learning Media, Ministry of Education, 2000, must be followed during any practical component investigation.

- 3 *Investigate* involves describing observations or findings about the structure, function and environmental factors related to life processes of the organism.
- 4 *Investigate in depth* involves using observations or findings, and biological ideas, to give reasons how or why the structure, function and environmental factors are related to life processes of the organism.
- 5 *Investigate comprehensively* involves using observations or findings, and biological ideas to make significant links between the structure, function and environmental factors related to life processes of the organism, including the implications for the organism. It may involve explaining, elaborating, applying, justifying, relating, evaluating, comparing and contrasting, or analysing.
- 6 *Life processes* may be selected from: support and movement, reproduction, sensitivity, growth, excretion, nutrition, and gas exchange. At least two of these processes must be selected.
- 7 *Environmental factors* that affect life processes may be internal or external factors and may include: temperature, pH, light intensity, photoperiod, moisture levels, concentration of gases, hormone levels, and nutrient supply.
- 8 Biological ideas relating to a life process include the following:
- structural features of the organism such as its organ system or tissues as appropriate to the organism
 - functioning of the components of any organ system or tissues
 - identifying the biological processes carried out by the organ system or tissues
 - environmental factors that affect the life process.
- 9 Conditions of Assessment related to this achievement standard can be found at www.tki.org.nz/e/community/ncea/conditions-assessment.php.
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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

0233