

Achievement Standard

Subject Reference	Biology 3.3		
Title	Demonstrate understanding of the responses of plants and animals to their external environment		
Level	3	Credits	5
		Assessment	External
Subfield	Science		
Domain	Biology		
Status	Registered	Status date	4 December 2012
Planned review date	31 December 2016	Date version published	4 December 2012

This achievement standard involves demonstrating understanding of the responses of plants and animals to their external environment.

Achievement Criteria

Achievement	Achievement with Merit	Achievement with Excellence
<ul style="list-style-type: none"> Demonstrate understanding of the responses of plants and animals to their external environment. 	<ul style="list-style-type: none"> Demonstrate in-depth understanding of the responses of plants and animals to their external environment. 	<ul style="list-style-type: none"> Demonstrate comprehensive understanding of the responses of plants and animals to their external environment.

Explanatory Notes

- This achievement standard is derived from *The New Zealand Curriculum*, Learning Media, Ministry of Education, 2007, Level 8 within the Science learning area. It is aligned with the following achievement objective from the Living World strand:
 - Life processes, ecology and evolution, 'Understand the relationship between organisms and their environment'.

It is also related to the material in the *Teaching and Learning Guide for Biology*, Ministry of Education, 2010 at <http://seniorsecondary.tki.org.nz>.

- Demonstrate understanding* involves describing plant and animal responses to their external environment. The description includes:
 - the process(es) within each response and/or the adaptive advantage provided for the organism in relation to its ecological niche.

Demonstrate in-depth understanding involves using biological ideas to explain:

- how the responses occur
- why the responses provide an adaptive advantage for the organism in relation to its ecological niche.

Demonstrate comprehensive understanding involves:

- linking biological ideas to explain why the responses provide an adaptive advantage for the organism in relation to its ecological niche. The linking of ideas may involve justifying, relating, evaluating, comparing and contrasting, and analysing.

3 *Responses* are selected from those relating to:

- orientation in space (tropisms, nastic responses, taxes, kineses, homing, migration)
- orientation in time (annual, daily, lunar, tidal rhythms)
- interspecific relationships (competition for resources, mutualism, exploitation including herbivory, predation, and parasitism)
- intraspecific relationships (competition for resources, territoriality, hierarchical behaviour, cooperative interactions, reproductive behaviours).

4 *External environment* will include both biotic and abiotic factors.

5 Assessment Specifications for this achievement standard can be accessed through the Biology Resources page found at www.nzqa.govt.nz/ncea/resources.

Replacement Information

This achievement standard replaced AS90716.

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