

## Achievement Standard

**Subject Reference** Earth and Space Science 2.4

**Title** Investigate how organisms survive in an extreme environment

**Level** 2      **Credits** 4      **Assessment** Internal

**Subfield** Science

**Domain** Earth and Space Science

**Status** Registered      **Status date** 17 November 2011

**Planned review date** 31 December 2018      **Date version published** 20 November 2014

This achievement standard involves investigating how organisms survive in an extreme environment.

### Achievement Criteria

Achievement	Achievement with Merit	Achievement with Excellence
<ul style="list-style-type: none"> <li>Investigate how organisms survive in an extreme environment.</li> </ul>	<ul style="list-style-type: none"> <li>Investigate in depth how organisms survive in an extreme environment.</li> </ul>	<ul style="list-style-type: none"> <li>Investigate comprehensively how organisms survive in an extreme environment.</li> </ul>

### Explanatory Notes

- 1 This achievement standard is derived from *The New Zealand Curriculum*, Learning Media, Ministry of Education, 2007, Level 7 Living World achievement objective: Life Processes; and is related to the material in the *Teaching and Learning Guide for Science*, 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 *Investigate* involves:
- selecting and processing information
  - using the processed information:
    - describing why the conditions of the extreme environment require special biological adaptations or technological modifications for survival
    - describing how the biological adaptations or technological modifications allow the organism(s) to survive in the extreme environment
  - recording sources of information used in a traceable format.

*Investigate in depth* is further developed by:

- selecting and processing information that provides links between conditions of the extreme environment and biological adaptations or technological modifications
- explaining, using the processed information, how the biological adaptations or technological modifications allow the organism(s) to survive the conditions of the extreme environment.

*Investigate comprehensively* is further developed by:

- selecting and processing information that provides integrated links between conditions of the extreme environment and biological adaptations or technological modifications
- justifying, using the processed information, how the biological adaptations or technological modifications allow the organism(s) to survive the conditions of the extreme environment.

3 *Organisms* can be the same or different species including humans.

4 *An extreme environment* can be selected from, but is not restricted to: outer space, deep oceans, deep sea trenches, extremes of temperature or salinity, anaerobic conditions, excess exposure to radiation or toxic chemicals, geothermal vents.

5 Conditions of Assessment related to this achievement standard can be found at <http://ncea.tki.org.nz/Resources-for-Internally-Assessed-Achievement-Standards>.

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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