

**Field**      **Multi-field**

## **New *Pūtaiao* achievement standards and Revision and Rollover of *Sciences* achievement standards**

### **New achievement standards**

<b>Domain</b>	<b>ID</b>	<b>Subject reference</b>
Pūtaiao	91818-91821	Pūtaiao 3.1-3.4

### **Revised achievement standards**

<b>Domain</b>	<b>ID</b>	<b>Subject reference</b>
Biology	<b>91601-91607</b>	Biology 3.1-3.7
Chemistry	<b>91387-91393</b>	Chemistry 3.1-3.7
Earth and Space Science	<b>91410-91415</b>	Earth and Space Science 3.1-3.6
Environmental Sustainability*	90810, 90811, 90813, 90814, 90828, 90831, 90832, 91733-91736	EFS 2.1-2.6, 3.1-3.5
Physics	<b>91521-91527</b>	Physics 3.1-3.7

\* Environmental Sustainability standards also meet whāinga paetae of the Hangarau learning area.

The Ministry of Education has developed the new Māori-medium achievement listed above and revised the English medium-ones. Standards above that have also been rolled over (planned review date changed) are listed in **bold**.

**Date new versions published**

**November 2016**

**Planned review date**

**December 2018**

### **Summary of review and consultation process**

In 2010, the Ministry of Education, in association with the New Zealand Qualifications Authority and subject working groups, began to develop achievement standards derived from outcomes in *Te Marautanga o Aotearoa* (TMOA). This development also addressed duplication of outcomes, credit parity, fairness, consistency and coherence. The development was guided by the direction of *Te Marautanga o Aotearoa* and the Standards Review Guidelines. A copy of TMOA is available at: <http://tmoa.tki.org.nz/Nga-Marautanga-o-Aotearoa/Te-Marautanga-o-Aotearoa>.

Draft achievement standards were developed with the involvement of teacher subject working groups. The draft achievement standards were the focus of wide consultation, especially with kaiako (teachers) in wharekura (secondary programmes in Māori-medium schools). Resources were also developed to support these standards.

The English-language Science learning area achievement standards listed above were revised to show that they also align with outcomes in *Te Marautanga o Aotearoa*.

### **Main changes resulting from <name of process>**

- All TMOA Level 8 (NZQF Level 3) Pūtaiao outcomes are now assessed using achievement standards.

- Grading criteria for achievement standards were reviewed in accordance with the Standards Review Guidelines.
- Four new standards were created for Pūtaiao that align to TMoA outcomes.
- NZC-derived English-language achievement standards relating to the Science learning area that were identified as meeting the outcomes in TMoA were amended to show that they also derive from TMoA Whāinga Paetae, and their review date was changed to December 2018.

For a detailed description of the development of the **Pūtaiao** standards see the **Appendix** at the end of this report.

### Impact on Consent and Moderation Requirements (CMR)

All new and review category B achievement standards have been registered on CMR 0233.

### New Achievement standards

Māori > Te Marautanga o Aotearoa > Pūtaiao

ID	Ministry reference	Title	Level	Credit
91818	Pūtaiao 3.1	Te arotake ki tā te Māori titiro i ngā huatau matua o te ariā kukuwhatanga hei puna ira tangata	3	4
91819	Pūtaiao 3.2	Te arotake ki tā te Māori titiro i te raweke ira	3	4
91820	Pūtaiao 3.3	Te tātari i ngā taukumekume mō te whakamahi i ngā rawa o Papatūānuku	3	4
91821	Pūtaiao 3.4	Te tātari i ngā matatika e pā ana ki te mahi a te tangata i te ātea	3	4

## **Development of Pūtaiao Level 3 Achievement Standards**

### **Process of aligning standards with Te Marautanga o Aotearoa (TMoA)**

The process of aligning achievement standards with Te Marautanga o Aotearoa (TMoA) was informed by a series of audits across all learning areas conducted by Māori-medium subject specialists. After determining the extent to which the existing achievement standards met the whāinga paetae (achievement objectives) within the Pūtaiao learning area of TMoA, new achievement standards were developed for this area by a group of subject specialists working in wharekura.

The new Level 3 Pūtaiao achievement standards were developed to align with the whāinga paetae within the Level 8 Te Ao Tūroa (The Natural World) and Ngā Tautake Pūtaiao me ngā Kōrero o Mua (Philosophy and History of Science) strands of the Pūtaiao learning area of TMoA. The Ō Ahupūngao (The Physical World) and Ō Kawekawe (The Material World) strands are covered by existing Science achievement standards.

As with the Level 1 and 2 standards, the four new Level 3 Pūtaiao achievement standards are robust and challenging, bring together knowledge from science, and acknowledge direct experience of the natural world and relevant Māori traditions.

[Conditions of Assessment](#) have been developed to assist in the interpretation of achievement standards and the development of teaching and learning programmes.

### **Addressing duplication**

The new Pūtaiao standards have been developed to be complementary to the existing NZC Science achievement standards. The Pūtaiao standards were compared in detail with the Science standards to ensure that there was no duplication. New standards were not developed within the Ō Ahupūngao (The Physical World) and Ō Kawekawe (The Material World) strands, as they would have been too similar to existing Science achievement standards.

In addition, the Science achievement standards were compared against the whāinga paetae in TMoA. Where the Science achievement standards were found to align with the TMoA whāinga paetae, they were revised to include a note to this effect.

Wharekura will have opportunities to build their own assessment programmes from a selection of achievement standards available in both Pūtaiao and Science.

### **Addressing credit parity**

The credits allocated to the standards reflect the time required for the teaching and learning involved. All standards at Level 3 have a credit value of 4 credits.

### **External and internal assessment**

The mode of assessment for each standard best reflects the teaching and learning involved for each standard.

Internal assessment was considered the most appropriate mode for all the Pūtaiao standards.

## What has changed (summary)?

There are four new Pūtaiao achievement standards at Level 3 (AS91818–AS91821) that build on the skills and understandings developed at Level 2. They assess students' understanding of Te Ao Tūroa, utilising the Māori organisation of that strand, and drawing on content from Ō Kawekawe and Ō Ahupūngao as required.

Pūtaiao 3.1 *Te arotake ki tā te Māori titiro i ngā huatau matua o te ariā kukuwhatanga hei puna ira tangata* (AS91818) requires ākonga to provide evidence of their evaluation from a Māori standpoint of the main concepts of the theory of evolution as an explanation for the development of human life.

Pūtaiao 3.2 *Te arotake ki tā te Māori titiro i te raweke ira* (AS91819) requires ākonga to provide evidence of their evaluation from a Māori standpoint of genetic engineering.

Pūtaiao 3.3 *Te tātari i ngā taukumekume mō te whakamahi i ngā rawa o Papatūānuku* (AS91820) requires ākonga to provide evidence of their analysis of debates around the exploitation of natural resources.

Pūtaiao 3.4 *Te tātari i ngā matatika e pā ana ki te mahi a te tangata i te ātea* (AS91821) requires ākonga to provide evidence of their analysis of the ethics of human activity in space.

## Revision of English-language Science achievement standards

The TMoA Pūtaiao learning area focuses on central science concepts and on the exploration of socio-scientific issues that are of particular relevance for iwi Māori.

The Māori-medium sector supports academic success for its graduates in Biology, Chemistry, Physics, and Earth and Space Science and will use the revised English-medium standards in its teaching and learning programmes.

The Agricultural and Horticultural Science standards, which are embedded within the contexts of the agriculture and horticulture industries, do not align with the TMoA Pūtaiao learning area and are therefore not included in this revision.