

Achievement Standard

Subject Reference	Mathematics and Statistics 1.12		
Title	Demonstrate understanding of chance and data		
Level	1	Credits	4
		Assessment	External
Subfield	Statistics and Probability		
Domain	Statistics		
Status	Registered	Status date	9 December 2010
Planned review date	31 December 2019	Date version published	20 November 2014

This achievement standard involves demonstrating understanding of chance and data.

Achievement Criteria

Achievement	Achievement with Merit	Achievement with Excellence
<ul style="list-style-type: none"> Demonstrate understanding of chance and data. 	<ul style="list-style-type: none"> Demonstrate understanding of chance and data, justifying statements and findings. 	<ul style="list-style-type: none"> Demonstrate understanding of chance and data, showing statistical insight.

Explanatory Notes

- 1 This achievement standard is derived from Level 6 of *The New Zealand Curriculum*, Learning Media, Ministry of Education, 2007, and is related to the material in the *Teaching and Learning Guide for Mathematics and Statistics*, Ministry of Education, 2010 at <http://seniorsecondary.tki.org.nz>. The achievement standard is aligned to the following achievement objectives taken from the Statistical Literacy and Probability threads of the Mathematics and Statistics learning area:
- evaluate statistical investigations or probability activities undertaken by others, including data collection methods, choice of measures, and validity of findings
 - calculate probabilities, using fractions, percentages, and ratios
 - evaluate statistical reports in the media by relating the displays, statistics, processes, and probabilities used to the claims made
 - investigate situations that involve elements of chance: calculating probabilities in discrete situations.

This standard is also derived from *Te Marautanga o Aotearoa*. For details of the *Marautanga* achievement objectives to which this standard relates, see the [Māori version](#) of the standard.

- 2 *Demonstrate understanding of chance and data* involves using appropriate concepts and terms to demonstrate statistical and probability literacy.

Justifying statements and findings involves providing supporting evidence such as summary statistics, probabilities, data values, trends or features of visual displays, and could involve reference to the context and the population.

Showing statistical insight involves integrating statistical and contextual information and knowledge to show a deeper understanding. This may involve critical reflection on the validity of the processes and conclusions given in contexts involving probability or statistics.

- 3 Students need to be familiar with:

- the statistical enquiry cycle
- reading and interpreting statistical tables, graphs and associated text
- analysing statistical investigations
- multivariate, bivariate and time series data
- probability concepts.

- 4 Assessment Specifications for this achievement standard can be accessed through the Mathematics and Statistics Resources page found at <http://www.nzqa.govt.nz/qualifications-standards/qualifications/ncea/ncea-subject-resources/>.
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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

Paerewa Paetae

Aronga	Pāngarau 1.12		
Ingoa	Te whakaatu māramatanga ki te tūponotanga me te raraunga		
Kaupae	1	Whiwhinga	4
		Aromatawai	Ā-waho
Marau akoranga	Te Marautanga o Aotearoa		
Kokonga akoranga	Pāngarau		
Mana rēhita	Kua rēhitatia	Te rā i mana ai	9 Hakihea 2010
Te rā e arotakengia ai	31 Hakihea 2016	Te rā i puta ai	12 Hakihea 2013

Te Hononga ki te Marautanga

I ahu mai tēnei paerewa paetae i te Taumata 6 o Te Marautanga o Aotearoa, i whakaputaina e Te Pou Taki Kōrero i te tau 2008.

Whāinga Paetae

Te Tauanga, Te Aroā Tauanga

2 *Ka arohaehae i ngā pārongo tauanga ka puta i ngā pāhotanga, mā te tūhono i ngā whakaari raraunga, ngā tauanga, ngā tukanga me ngā tūponotanga ki ngā pārongo.*

Te Tauanga, Te Tūponotanga

3 *Ka tūhura pūāhua tūponotanga:*

- *ka whakatairite i ngā tuari tātai me ngā tuari whakamātau, me te aro anō ki te rahi o te tīpako;*
- *ka tātai tūponotanga i ngā pūāhua e whai wāhi mai ana te raraunga motumotu.*

E hono ana ki te Papa Whakaako mō Pāngarau kei te pae ipurangi nei:

<http://tmoa.tki.org.nz/Te-Marautanga-o-Aotearoa/Taumata-Matauranga-a-Motu-Ka-Taea>.

Te Hononga ki *The New Zealand Curriculum* (NZC)

I ahu mai hoki tēnei paerewa paetae i *The New Zealand Curriculum*. Mō ngā kōrero e pā ana ki ngā whāinga paetae o te NZC e hāngai ana ki tēnei paerewa, tirohia te [putanga reo Pākehā](#) o te paerewa.

Te Hononga ki ngā Paearu Aromatawai

Kei tēnei pae ipurangi ngā Paearu Aromatawai mō tēnei paerewa paetae:

<http://tmoa.tki.org.nz/Te-Marautanga-o-Aotearoa/Taumata-Matauranga-a-Motu-Ka-Taea>.

Paerewa Paetae

<p>Paetae Te whakaatu māramatanga ki te tūponotanga me te raraunga.</p>	<p>Hei tohu i te paetae:</p> <ul style="list-style-type: none"> • ka whakamahi i ngā huatau me ngā kupu e hāngai ana hei whakaatu i te mōhio ki te reo matatini o te pāngarau.
<p>Kaiaka He kaiaka te whakaatu māramatanga ki te tūponotanga me te raraunga.</p>	<p>Hei tohu i te kaiaka:</p> <ul style="list-style-type: none"> • Ko te parahau i ngā kōrero me ngā whakakitenga te mea nui. Nō reira, ka kitea ēnei: <ul style="list-style-type: none"> – ka whakaatu i ngā momo taunakitanga, pērā i ngā tātaitanga tauanga whakarāpopoto, ngā tūponotanga, ngā uara raraunga, ngā ia me ngā āhuatanga kōhure o roto i ngā whakaari raraunga – ka kōrero mō te horopaki me te taupori.
<p>Kairangi He kairangi te whakaatu māramatanga ki te tūponotanga me te raraunga.</p>	<p>Hei tohu i te kairangi:</p> <ul style="list-style-type: none"> • Ko te whakaatu aroā tauanga hōhonu te mea nui. Nō reira, ka kitea ēnei: <ul style="list-style-type: none"> – ka kōtuitui i te mātauranga tauanga me te mārama ki te horopaki – ka arohaehae i te tōtika o ngā tukanga me ngā whakataunga kōrero.

Kōrero Āpiti

Kia taunga te ākongā ki:

- ngā tikanga mō te tūhuratanga tauanga
- te pānui me te whakamāori i ngā tūtohi, ngā kauwhata me ngā kōrero e whai pānga ana
- te tātari tūhuratanga tauanga
- te raraunga matatini, raraunga matarua, raraunga houanga hoki
- ngā huatau tūponotanga.

Kuputaka:

kōtuitui	integrate, connect
aroā tauanga hōhonu	statistical insight/understanding
parahau	justify

Tātari Kounga

- 1 Me mātua whakamana ngā Kaituku Akoranga me ngā Whakahaere Whakangungu Ahumahi e te Mana Tohu Mātauranga o Aotearoa ka rēhita ai i ngā hua ka puta mai i ngā aromatawai ki ngā paerewa paetae.
- 2 Ko ngā Kaituku Akoranga me ngā Whakahaere Whakangungu Ahumahi kua mana, ā, e aromatawai ana i ā rātou hōtaka ki ngā paerewa paetae, me uru rātou ki ngā pūnaha whakarite e tika ana mō aua paerewa paetae.

Ko te tohutoro ki te Mahere Whakamana, Whakaōritenga hoki 0233