



# Te Reo Pāngarau 2024

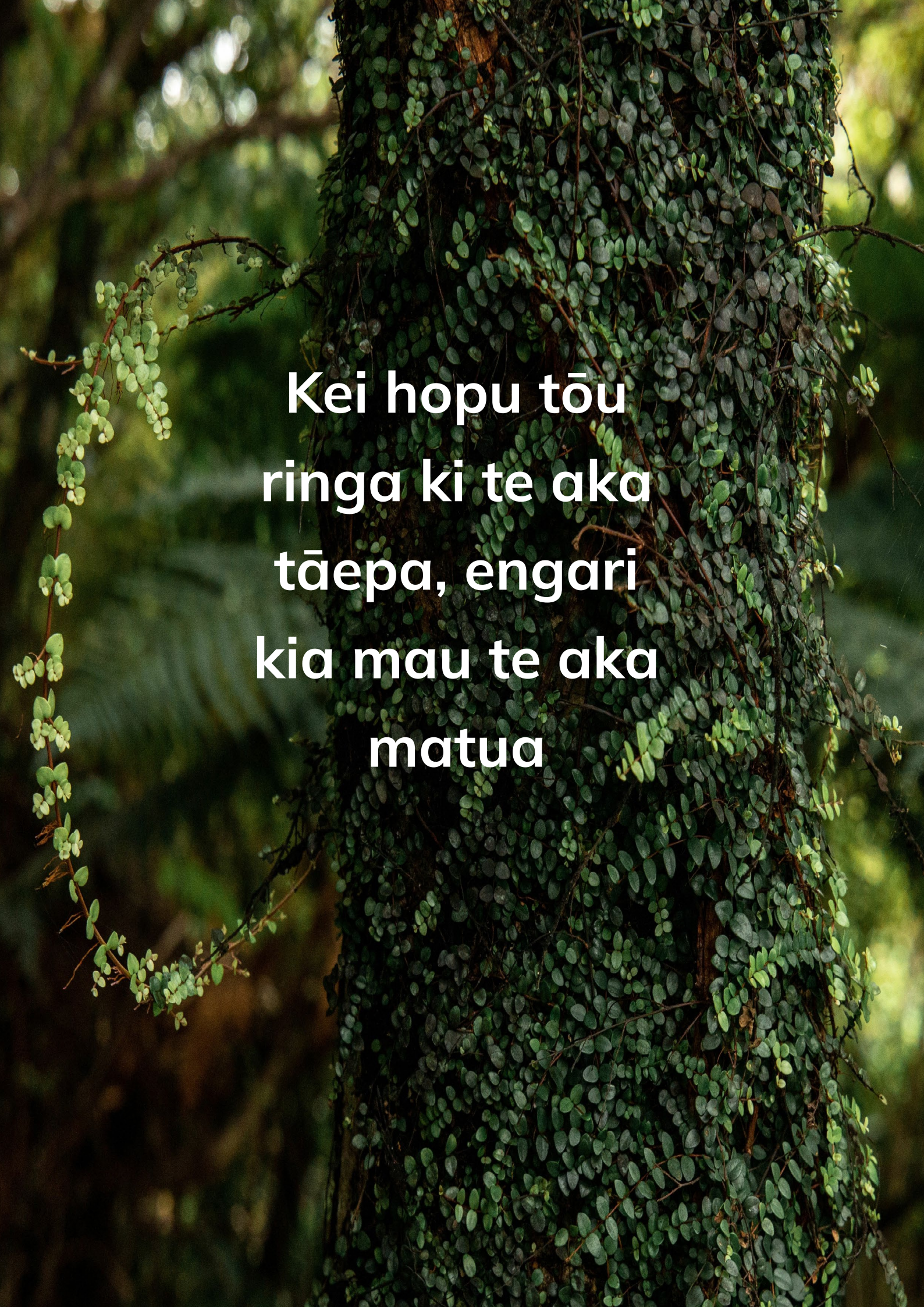
32412 | Te whakamahi pāngarau hei whakaoti rapanga o te ao o te ākonga

Kaupae 1 | Whiwhinga: 10

Taumata 4-5 o Te Marautanga o Aotearoa



Mana Tohu Mātauranga o Aotearoa  
New Zealand Qualifications Authority

A photograph of a tree trunk completely covered in a dense, green, small-leaved vine. The vine has many small, round, green leaves and some small white flowers. The background is a soft-focus green forest.

**Kei hopu tōu  
ringa ki te aka  
tāepa, engari  
kia mau te aka  
matua**



# TE REO PĀNGARAU

**32412 | Te whakamahi pāngarau hei whakaoti rapanga  
o te ao o te ākonga**

Ngā Whiwhinga 10

(Taumata 4-5 o Te Marautanga o Aotearoa)

NZQA paerewea

32412 putanga 2  
Whārangī 1 of 3

<b>Ingoa</b>	<b>Te whakamahi pāngarau hei whakaoti rapanga o te ao o te ākongā</b>		
<b>Kaupae</b>	<b>1</b>	<b>Whiwhinga</b>	<b>10</b>

<b>Whāinga</b>	Ko ngā ākongā kua whakawhiwhia ki te paerewa paetae nei, e āhei ana ki te whakamahi pāngarau hei whakaoti rapanga o te ao o te ākongā.
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<b>Whakaraupapa</b>	Core Generic > Work and Study Skills
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<b>Ngā tohu</b>	Paetae
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### Kōrero whakamārama

- 1 Ko tēnei paerewa, nō te huinga paerewa Reo Matatini me te Pāngarau me mātua kawē mō te New Zealand Certificate of Achievement (NCEA). Ka aromātai tahi tēnei paerewa, te paerewa 32414, *Ka whakamahi i te reo kia tutuki ai tētahi pūtakenga whakawhiti kōrero, tuhituhi hoki* me te paerewa 32413 *Ka mārama, ka tautohu i ngā whakaaro matua o tētahi reo ā-waha, o tētahi reo ā-tā hoki* i ngā pūkenga tūāpapa o te reo matatini me te pāngarau e whai wāhi tonu ai te ākongā ki te ako, ki te mahi, me ērā atu āhuatanga o tōna oranga.
- 2 Mō tēnei paerewa, ko te pāngarau te āheinga o te ākongā ki te whai, ki te whakamahi, ki te whakamāori, te whakawhiwhiti whakaaro pāngarau, me te reo matatini o te pāngarau hoki e taea ai e ngā ākongā te uru atu ki ētahi atu akoranga, whakawhanake i ngā pūkenga nui o te ao whānui, me te uru atu ki ngā mahi me o rātou hāpori. Kei roto hoki i tēnei ko te mārama hoki ki ngā āhuatanga o te ahurea-pāpori.
- 3 E hono ana tēnei paerewa ki ngā tukanga me ngā akoranga tāpua o te Tukutuku Ako – Pāngarau, kei te whārangī ipurangi [ncea.education.govt.nz](http://ncea.education.govt.nz).  
E hono ana hoki ki ngā anga e toru e whai ake nei:
  - Ki te mutunga o taumata 4 me te timatatanga o taumata 5 o te Marautanga Pāngarau.
  - Ki te kaupae 5 o ngā Learning Progressions for Adult Numeracy (LPAN)
  - Ki ngā whāinga o te Tīrewa Ako Pāngarau.
- 4 Me whakaatu māramatanga ngā ākongā ki ngā ngohe aromatawai e whai wāhi mai ana i te putanga ako me ngā whenū: Te Tau me Te Taurangi, Te Ine me Te Āhuahanga, me Te Tauanga.

NZQA paerewea

32412 putanga 2  
Whārangī 2 of 3

- 5 Mā Te Mana Tohu Mātauranga o Aotearoa (NZQA) te aromatawai o tēnei paerewa e whakarite me te māka. Ko ngā huarahi whakaatu taunakitanga, e whai ake nei:
- He kohinga taunakitanga ka puta i ngā marautanga katoa i te roanga o te tau (he Kete Manarua).
  - He Aromatawai Arowhānui, he mea whakarite e NZQA:
    - He aromatawai wā-here
    - He kaupapa whānui.
- 6 Ka taea te whakamahi tātaitai mai i te rārangi tātaitai kua whakamanahia e NZQA.
- 7 Ko *te ao o te ākongā* e hāngai atu ana ki te akoranga, ki te ahurea, ki te pāpori, ki te mahi, ki te kāinga o te ākongā.
- 8 Ko te *tikanga pāngarau*, ko ngā rautaki kua whakamahia e te ākongā te whakaoti rapanga.
- 9 He kupu taka

aronga	meaning, focus
ahurea pāpori	socio economic
akoranga tapua	significant features
pāheko	operations
pūāhua	situation
urupare	reply, response
tukanga	process
tukutuku ako	learning matrix
taurangi	variable
whaitake	reasonable
whakamahi	apply
whakakaupapa	contextualise
whakaoti rapanga	solve problem
whānuitanga	range
whakairo whānui	big ideas

- 10 Ngā rauemi

Paekupu – <https://paekupu.co.nz/>.

Te Taura Whiri i te Reo Māori (n.d.) *Te Taura Whiri i te Reo Māori Guidelines for Māori Language Orthography*.

<https://www.tetaurawhiri.govt.nz/assets/Uploads/Corporate-docs/Orthographic-conventions/58e52e80e9/Guidelines-for-Maori-Language-Orthography.pdf>.

Te Tāhuhu o te Mātauranga. (2013). *Te Marautanga o Aotearoa*. Te Poutaki Kōrero. (wh. 24-36).

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## Putanga ako me ngā paearu mahi

### Putanga ako 1

Te whakamahi pāngarau hei whakaoti rapanga o te ao o te ākongā.

NZQA paerewea

32412 putanga 2  
Whārangi 3 of 3**Paearu mahi**

- 1.1 Te whakakaupapa i ngā pūāhua ki ngā tikanga pāngarau.  
Whānuitanga Ko te whiriwhiri i te pāheko, i te whakaahuahanga, i te taurangi, i te tikanga rānei hei whakaoti rapanga.
- 1.2 Te whakamahi i ngā tikanga pāngarau e tika ana ki ngā pūāhua.  
Whānuitanga Ko te whakamahi i ngā tikanga pāngarau e hāngai pū ana ki ngā whakaaro whānui, ki ngā pūāhua hei whakaoti rapanga
- 1.3 Te whakamāori i te whaitake o ngā urupare pāngarau ki ngā pūāhua.  
Whānuitanga Ko te whakamāori i ngā whakaotinga, i ngā putanga, i ngā aronga ki te pūāhua.

<b>Rā arotake</b>	31 Tīhema 2026
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**Kōrero arotake me te rā whakamutunga mō te aromatawai o ngā putanga i tautuku**

Hātepe	Putanga	Rā whakaputa	Rā whakamutunga mō te aromatawai
Rēhītatanga	1	18 Hune 2021	31 Tīhema 2024
Arotakenga	2	30 Nōema 2023	N/A

<b>Ko te tohutoro ki ngā Whakaritenga i te Whakamanatanga me te Whakaōritenga (CMR)</b>	0233
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Ka taea te tiki atu te CMR nei mai i te ipurangi  
<http://www.nzqa.govt.nz/framework/search/index.do>.

**He kōrero mo tēnei paerewa**

Mehemea he whakaaro, he āwangawanga ōu mō te paerewa nei, tēnā koa whakapā mai ki te Tāhuhu o te Mātauranga (Ministry of Education) ([enquiries.national@education.govt.nz](mailto:enquiries.national@education.govt.nz)).

## 32412 | Te whakamahi pāngarau hei whakaoti rapanga o te ao o te ākongā.

### REO PĀNGARAU | PAEREWA 32412

#### He Whakamārama

Mō tēnei paerewa, ko te pāngarau te āheinga o te ākongā ki te whai, ki te whakamahi, ki te whakamāori, te whakawhitiwhiti whakaaro pāngarau, me te reo matatini o te pāngarau hoki e taea ai e ngā ākongā te uru atu ki ētahi atu akoranga, whakawhanake i ngā pūkenga nui o te ao whānui, me te uru atu ki ngā mahi me o rātou hāpori. Kei roto hoki i tēnei ko te mārama ki ngā āhuatanga o te ahurea-pāpori.

Ko te ao o te ākongā e hāngi atu ana ki te ākoranga, ki te ahurea, ki te pāpori, ki te mahi, ki te kainga o te ākongā.

#### Te hononga ki Te Tīrewa Ako Pāngarau (He mea tango i 'Te Tukutuku ako mō te Pāngarau')

1. Ko te tere me te tāwariwari ki te whakaotioti rapanga e kawea ai he paheko tau, te mārama ki te rahi tauriterite o aua tau, me te whakamārama i te otinga i runga anō i te horopaki.  
(Te Whakaaro Tāpiri; Whāinga 10, Whakaaro Whakarea Whāinga 9 & 10)
2. Ko te mōhio ki ngā rau pānga o te pāngarau, me te whakamahi i aua pānga.  
(Te Tauira me te panga Whāinga 6 & 7)
3. Ko te mārama ki ngā āhuatanga o te mokowā me te whakaahuahanga o ngā taonga, me te whakamahi i aua āhuatanga.  
(Te Āhuahanga; Whāinga 8 & 9)
4. Ko te mārama me te whakamahi i ngā pūnaha hei whakarite i ngā tūwāhi me te tātai ara haere.  
(Te Āhuahanga; Whāinga 8 & 9)
5. Ko te whakamahi i ngā tau me ngā waeine hei ine, hei whakaahua i ngā taonga me ngā pāpono hei rahinga, me te whakaawhiwhitanga tika mō te horopaki.  
(Te Ine; Whāinga 6 & 7)
6. Ko te mārama ki ngā tikanga tauanga, raraunga.  
(Te Tauanga; Whāinga 8)
7. Ko te whakamahi i te tūponotanga hei whakamāori i ngā pūāhua e mau mai ana he āhuatanga tūpono.  
(Te Tūponotanga; Whāinga 5)

Kei te **whārangi 11** te mahere e whakamārama ana i ngā pukenga, i ngā mahi ka taea e ngā ākongā.

## Te Aromatawai

E hono ana tēnei paerewa ki ngā tukanga me ngā akoranga tāpua o te Tukutuku Ako – Pāngarau, kei te whārangi ipurangi [ncea.education.govt.nz](http://ncea.education.govt.nz).

E hono ana hoki ki ngā anga e toru e whai ake nei:

- Ki te mutunga o taumata 4 me te timatatanga o taumata 5 o [Te Marautanga Pāngarau](#).
- Ki te kaupae 5 o ngā [Learning Progressions for Adult Numeracy \(LPAN\)](#).
- Ki ngā whāinga o te Tīrewa Ako Pāngarau.

Me whakaatu māramatanga ngā ākonga ki ngā ngohe aromatawai e whai wāhi mai ana i te putanga ako o te Paerewa me ngā Whenu Pāngarau:

### Te Ine me Te Āhuahanga

- Te Ine
- Te Hanga
- Te Wāhi me te Ahunga
- Te Panoni

### Te Tau me Te Taurangi

- Te Mātauranga Tau
- Ngā Rautaki Tau
- Te Taurangi me te Pānga

### Te Tauanga.

- Te Tūhuratanga Tauanga
- Te Tūponotanga



# He Mahere hei arahi i te Kaiako

Paerewa 31412 | Te whakamahi pāngarau hei whakaoti rapanga o te ao o te ākonga.

Kaupae 1 | Whiwhinga 10

Kura/Whareako Paetoru Nama MOE: \_\_\_\_\_

Ākonga NSN: \_\_\_\_\_

Ngā Paearu Mahi		Tūmahi (Te ingoa o te ngohe/tūmahi i puta ai te taunakitanga)	Ngā Taunakitanga	Kua tutuki
1.1	Te whakakaupapa i ngā pūāhua ki ngā tikanga pāngarau.		<input type="checkbox"/> paheko <input type="checkbox"/> taurangi  <input type="checkbox"/> whakaahuahanga <input type="checkbox"/> tikanga hei whakaoti rapanga. <b>Whiriwhiri kia kōtahi, nui ake rānei.</b>	<input type="checkbox"/> Āe <input type="checkbox"/> Kāo
1.2	Te whakamahi i ngā tikanga pāngarau e tika ana ki ngā pūāhua.		Whakamahi i ngā tikanga Pāngarau e hāngi pū ana ki: <input type="checkbox"/> ngā whakaaro nui <input type="checkbox"/> ngā pūāhua hei whakaoti rapanga. <b>Te katoa.</b>	<input type="checkbox"/> Āe <input type="checkbox"/> Kāo
1.3	Te whakamāori i te whaitake o ngā urupare pāngarau ki ngā pūāhua.		Whakamāori i ngā: <input type="checkbox"/> whakaotinga <input type="checkbox"/> putanga <input type="checkbox"/> aronga ki ngā pūāhua. <b>Te katoa.</b>	<input type="checkbox"/> Āe <input type="checkbox"/> Kāo

Tūmahi (Te ingoa o te ngohe/tūmahi i puta ai i te taunakitanga)		Tuhia he Āe / ✓ ki ngā whenu Pāngarau kua tutukihia (te katoa)						
		Te Ine	Te hanga & Te Pānoni	Te Wāhi & Te Āhunga	Tau	Taurangi	Tauanga	Tūponotanga
Tauira	Te hararei ki hea	✓		✓	✓			✓
1								
2								
3								

Tāpirihia he kape anō ina hiahia. Me eke te Ākonga ki ngā Paearu mahi katoa kia whiwhi ai tēnei Paerewa.

- Whakamaua ngā ngohe/tūmahi i whakamahia hei whakaputa taunakitanga.
- Tuhia ngā whakaaro pāngarau kua tutukihia i ia ngohe/tūmahi.
- Whakamaua ngā taunakitanga kua oti i te ākonga.

**Te whakatūturutanga a te kaiako:**

Tēnei au te whakatūturu nei i te tika o ngā pārongo e mau mai ana ki te pukauhi nei; nā te ākonga ake ngā taunakitanga, kāore i nui te āwhina atu a tētahi i a ia.

Te rā: \_\_\_\_\_

Te kaiako: \_\_\_\_\_

## Whakaatu ai ngā ākongā kei te paearu i ngā tukanga pāngarau, tukanga tauanga ki ngā mahi e whai ake nei:

	<p align="center"><b>Hei whakamāramatanga i te paearu (hei āwhina i ngā kaiwhakarite ngohe): Ka taea e te ākongā te:</b></p>	<p align="center"><b>Nō waho atu o te paearu ēnei e whai atu nei:</b></p>
<p><b>1. Ka wānanga, ka whakawhitiwhiti whakaaro ā-pāngarau nei.</b></p>	<ul style="list-style-type: none"> <li>whakamahi i te reo pāngarau motuhake (i ngā kupu/kīanga, i te wetereo, i ngā tikanga kupu) e hāngai ana ki te pūāhua</li> <li>whakawhitiwhiti whakaaro pāngarau ki ngā kupu motuhake, ki te wetereo, ki ngā tikanga kupu. Ka whakawhitiwhitia hoki ki ngā hanga kē atu me ngā whakaahuahanga rerekē hei whakapuaki tika i ngā ariā pāngarau</li> <li>whakamahi i ngā whakaahuahanga – ā-waha nei, ā-tuhituhi nei, ā-ataata nei – hei whakamārama, hei kauhau i te ariā pāngarau.</li> </ul>	
<p><b>2. Ka whakahoropaki i te pūāhua.</b></p>	<ul style="list-style-type: none"> <li>whakawhāitihia te pūāhua kia tutuki ai ngā matenga o te whānau, o te hapori, o te hapū, o te iwi</li> <li>tautohu i ngā whakaaro ahurea-pāpori e noho tūāpapa mai ana ki ngā tini horopaki, ki ngā tini pūāhua</li> <li>tautohu i ngā uara me ngā waiaro e pā ana ki ngā whakataunga pāngarau</li> <li>tautohu i ngā tikanga me ngā mātauranga e hāngai ana.</li> </ul>	
<p><b>3. Ka tere, ka tāwariwari te whakaotioti rapanga e kawea ai he paheko tau, ka mārama ki te rahi tauriterite o aua tau, ka mārama hoki ki te otinga, me te tika o taua otinga e hāngai ana ki te horopaki.</b></p>	<ul style="list-style-type: none"> <li>whiriwhiri i te aronga tātai tika, ahakoa ko te tuhituhi, ko te mahi ā-hinengaro, ā-matihiko rānei</li> <li>whakamahi i ngā tau oti (tae noa ki ngā piriona), ki ngā hautau, ki ngā tau-ā-ira (tae noa ki te mati-ā-ira tuatoru), ki ngā ōrau, ki ngā tau tōpū</li> <li>whakaoti i ngā rapanga e mau mai ana ngā pāpātanga, ngā taupāpātanga, ngā taupū e kaha ana te puta ake</li> <li>whakamahi i te huamoni tūpā</li> <li>tātai toharite (ko te tau tānui, ko te tau waenga anō hoki).</li> </ul>	<ul style="list-style-type: none"> <li>ko te whakarea me te wehewehe i ngā hautau</li> <li>ko ngā taupū tōraro me ngā taupū hautau</li> <li>ko ngā āhuatanga taupū, ko ngā pāpātanga whakawhiti</li> <li>ko ngā rapanga ōrautanga hoki whakamuri</li> <li>ko te huamoni whakaputu.</li> </ul>
<p><b>4. Ko te mōhio me te whakamahi i ngā rau pānga (rārangi nei, taupū ngāwari nei, pānga poutama nei).</b></p>	<ul style="list-style-type: none"> <li>whakaahuahia hei kauwhata, hei ture ā-kupu rānei, ā, ko te tātai i ngā uara o te pānga e huna ana</li> <li>whakamahi i ngā taupū ngāwari hei tohu i ngā pūāhua e pāpā noa nei ki te tangata i āna kawenga o ia rā, hei taurira, ko te urutā, ko te tupuranga o te taupori, ko te whakamātaotao matū.</li> </ul>	<ul style="list-style-type: none"> <li>ko ngā pānga rārangi kore, me ngā pānga taupūtanga</li> <li>ko ngā pānga poutama e whakamahia nuitia ana, hei taurira, ko ngā pāpātanga utu mō ngā tūnga motukā.</li> </ul>
<p><b>5. Ko te mārama me te whakamahi i ngā hanga mokowā me ngā whakaahuahanga taonga.</b></p>	<ul style="list-style-type: none"> <li>mōhio ki te hangarite me te panoni</li> <li>panoni e.g. te whakarahi, te whakaata, te huri, me te neke hei hoahoa ki te whakatutuki i tētahi kaupapa</li> <li>tūhonohono i ngā whakaahuahanga taonga ngāwari, ahu-2 nei, ahu-3 nei.</li> </ul>	<ul style="list-style-type: none"> <li>ko te whakamahi i ngā motuhanga.</li> </ul>
<p><b>6. Ko te mārama me te whakamahi i ngā pūnaha hei whakatere hei whakatau wāhi, hei whakatau ahunga.</b></p>	<ul style="list-style-type: none"> <li>tātai i te ara haere i waenga i ngā tūwāhi, hei whakaatu i te tūwāhi me te ahunga</li> <li>tāwariwari i te pūnaha e tūhura ai rātou i ēnei mahi i roto i tētahi pūāhua</li> </ul>	<ul style="list-style-type: none"> <li>kāore e whakamahia ana ngā ahunga pērā i te UTT (te uru mā tonga ki te tonga)</li> <li>ngā ahunga.</li> </ul>
<p><b>7. Ko te whakamahi i ngā tau me ngā waeine hei ine, hei whakaahua i ngā taonga hei rahinga, me te whakaawhiwhitanga e tika ana mō te horopaki.</b></p>	<ul style="list-style-type: none"> <li>whakamahi me te whakamāori i ngā putanga o te ine, tae atu ki ngā wātaka me ngā kauwhata wā.</li> <li>āta whiriwhiri i ngā waeine tika me te whakawhitiwhiti i waenga i ngā waeine ngahuru mō te mea e inea ana.</li> <li>whakaotioti i ngā rapanga ine i ngā horopaki whaitake             <ul style="list-style-type: none"> <li>ko te paenga</li> <li>ko te rōrahi (poro-tapawhā hāngai anake)</li> <li>ko te horahanga (tapawhā hāngai, tapawhā whakarara, tapatoru)</li> <li>ko te papatipu</li> <li>ko te paemahana.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>ko ngā inenga porohita.</li> </ul>
<p><b>8. Ko te mārama me te wānanga i te tauanga me ngā raraunga.</b></p>	<ul style="list-style-type: none"> <li>mōhio me te whakamahi i ngā whakaari raraunga hei tūhura pātai, ngā tāpae mō ngā pūāhua whakarāpopoto, ngā pūāhua whakariterite hoki me ngā pūāhua houanga</li> <li>whakamāori i ngā whakaari raraunga mā te whakamahi i te hora, i te rāpoipoi, i te auautanga, i te wēanga, i ngā mōwaho</li> <li>arotake i ngā tāpaetanga kōrero me ngā whakaahuahanga a tangata kē i runga i te āhua o ngā raraunga i kitea.</li> </ul>	<ul style="list-style-type: none"> <li>ko te tipakopako</li> <li>ko te hīkaro mai i te tipako ki te taupori</li> <li>ko te tātai toharite</li> <li>ko te kohikohi me te whakariterite raraunga (ina tūpono ara ake tētahi atu mea pēnei, me tāpiri ki te rārangi nei).</li> </ul>
<p><b>9. Ko te whakamahi i te tūponotanga hei whakamāori i ngā pūāhua e whai wāhi mai ana.</b></p>	<ul style="list-style-type: none"> <li>mōhio ki ngā āhuatanga tūpono o ia rā, pērā i ngā tūraru me ngā tūwehe</li> <li>whakamahi i te reo o te tūponotanga hei whakaahua i ngā putanga.</li> </ul>	<ul style="list-style-type: none"> <li>ko te mahi i ngā whakamātau me te whakatairite ki ngā taurira ā-ariā.</li> </ul>

## Learners at the benchmark demonstrate the mathematical/statistical processes through:

This means that learners can:		The following fall outside the benchmark:
1. Reason and communicate mathematically.	<ul style="list-style-type: none"> <li>use the specialised pāngarau language (e.g., the terms, syntax, and semantics) appropriate to the situation.</li> <li>communicate in a variety of ways using many different representations (e.g., symbols, maps, graphs, pictures, charts, equations, physical models etc)</li> <li>can use oral, written, and digital ways of communicating.</li> </ul>	
2. Contextualise the situation.	<ul style="list-style-type: none"> <li>localise the situation to meet the needs of the whānau, community hapū and iwi.</li> <li>identify socio-cultural assumptions underpinning the various contexts/situations.</li> <li>identify the values and attitudes that influence pāngarau decisions.</li> <li>identify relevant tikanga and mātauranga elements.</li> </ul>	
3. Fluently and flexibly solving problems that require operations on numbers, understanding the relative size of those numbers, making sense of the answer, and recognising the degree of precision required for the context.	<ul style="list-style-type: none"> <li>choose an appropriate approach to calculation (written, mental or digital)</li> <li>work with whole numbers to billions, fractions, decimals to three places, percentages, and integers.</li> <li>solve problems include commonly encountered rates, ratios, and powers.</li> <li>work with simple interest</li> <li>calculate averages (including the mode and median).</li> </ul>	<ul style="list-style-type: none"> <li>multiplying and dividing fractions</li> <li>negative and fractional exponents</li> <li>properties of exponents</li> <li>reverse percentage problems</li> <li>compound interest.</li> </ul>
4. Recognise and work with mathematical relationships.	<ul style="list-style-type: none"> <li>work with linear relationships that are represented as graphs or word rules</li> <li>recognise unknown values for a given relationship.</li> </ul>	<ul style="list-style-type: none"> <li>non-linear and exponential functions</li> <li>step functions (e.g. parking rates).</li> </ul>
5. Understand and use spatial features and representation of objects.	<ul style="list-style-type: none"> <li>recognise symmetry and transformation</li> <li>transform objects to design for purpose (e.g., enlarge, reflect, rotate, and translate)</li> <li>make connections between representation of objects in simple 2D and 3D.</li> </ul>	<ul style="list-style-type: none"> <li>working with cross-sections.</li> </ul>
6. Understanding and using systems to navigate, position and orientate themselves.	<ul style="list-style-type: none"> <li>have a way to navigate between points</li> <li>describe position and orientation in situations that are flexible in the system being used</li> <li>use 4-point and 8-point compass directions</li> </ul>	<ul style="list-style-type: none"> <li>using 16-point compass directions (e.g. SSW)</li> <li>bearings.</li> </ul>
7. Use numbers and units to measure and express attributes of objects as quantities, to a degree of precision appropriate to the context.	<ul style="list-style-type: none"> <li>use and interpret results of the measurement (including timetables and time charts)</li> <li>select appropriate units and convert between metric measures for the same attribute.</li> <li>solve measurement problems in practical contexts                             <ul style="list-style-type: none"> <li>perimeter</li> <li>volume (cuboids only)</li> <li>area (rectangles, parallelograms, triangles)</li> <li>mass</li> <li>temperature.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>measurements associated with circles.</li> </ul>
8. Understand and reason with statistics and data.	<ul style="list-style-type: none"> <li>recognise, and use appropriate data displays to investigate questions or claims for summary, comparison, and simple time series situations</li> <li>interpret data displays using features such as spread, clustering or frequency, centrality, and unusual pieces of data</li> <li>evaluate statements and representations based on data that is provided to them.</li> </ul>	<ul style="list-style-type: none"> <li>sampling</li> <li>sample to population inference</li> <li>reasoning with mean as a statistical measure of central tendency.</li> <li>gathering and organising data.</li> </ul>
9. Use probability to interpret situations that involve elements of chance.	<ul style="list-style-type: none"> <li>recognise and interpret everyday probabilities such as chance, simple risk, and odds</li> <li>use the language of probability to describe outcomes.</li> </ul>	<ul style="list-style-type: none"> <li>doing experiments and comparing with theoretical models.</li> </ul>

E whakaatu ana te hoahoa nei i te raranga tahi o ngā aho *Reo Matatini o te Pāngarau*, ngā aho *Tukanga*, ngā aho *Whakaaro Pāngarau* me ngā aho *Ahurea Pāpori*.

### Ngā Whakaaro Whānui: Te Reo Matatini o te Pāngarau

Te whakaaro whaitake me te whakawhitiwhiti kōrero, ā pāngarau nei, ki te reo Māori.

### Ngā Whakaaro Whānui: Ngā Horopaki Ahurea Pāpori

Te tauhou me te whakamāori i ngā hanga ahurea-pāpori i ngā pūāhua/horopaki pāngarau, tae atu ki te tūhonohono i te pāngarau, te ahurea, me te hapori.



### Ngā Whakaaro Whānui: Pāngarau

- Ngā Paheko Tau.
- Te Ine me te Āhuahanga.
- Ngā Tauira me ngā Pānga.
- Te Tauanga me te Tūponotanga.

### Ngā Whakaaro Whānui: Ngā Tukanga

- Te whakakaupapa i ngā pūāhua ki ngā tikanga pāngarau.
- Te whakamahi i ngā tikanga pāngarau ki ngā tini pūāhua whaitake.
- Te whakamāori me te arotake i te whaitake o ngā pūāhua pāngarau.

# Ko ngā whakaaro raranga o te Pāngaru me te āhurea (He kōrero whakamārama nō Te Tukutuku Ako mō te Pāngarau).

NGĀ WHENU		Ngā Whanaketanga 5a	Ngā Ariā Pāngarau
		Whaingā Paetae	Ngā Whinga
Te Ine me Te Ahuahanga	Te Ine Te Hanga	Ko te waihanga i te āhua rānei, i te hoahoa rānei mō tētahi āhua, hei wāhanga mō te mokowā taiao. Tērā pea ka waihangatia, ka whakamaheretia rānei he tauira ā-hinengaro, ka meahia rānei hei waitohu.	Tautuhia ai, whakarōpūhia ai ngā hanga, tae atu ki ngā āhua me ngā tauira, i runga anō i ngā āhuatanga o tēnā, o tēnā, arā, i runga i ngā pānga o roto i ngā āhua me ngā tauira, pērā me te hangarite me ngā panoni. Ko te mārama me te whakamahi āhua mokowā me ngā whakaaturanga o ngā taonga.
	Te Wāhi me te Ahuahanga	Ko te torotoro i te taiao o te tangata me te whakariterite i ngā ariā me ngā tohu o taua taiao ki ngā tauira, ki ngā hoahoa, ki ngā whakaahua, ki ngā kupu, ki te aha, ki te aha.	Ko te mārama me te whakamahi i ngā pūnaha hei tautohu i te pūwahi me te tātai ara haere.
	Te Panoni	Ko te whakatātai āhua kia pai ai te whakatairiterite, te whakamahi i te tinana, i ngā taura/aho hei taputapu ine ki ngā waeine, ki ngā kupu ine.	Ko te whakamahi i ngā tau me ngā waeine hei ine, hei whakaahua i ngā taonga me ngā pāpono hei rahinga, me te whakaawhiwhitanga tika mō te horopaki.
Te Tau me te Taurangi	Te Mātauranga Tau Ngā Rautaki Tau	Te whakamahi tikanga ahurea hei whakatairiterite, hei whakaraupapa. Ko te whakamāori anō i te reo motuhake o te pāngarau, ōna pūnaha tatau, ōna ingoa, ōna tikanga tatau, me te whakamahi i ngā āhuatanga wetereo o te Māori me te whai wāhi mai o te reo ā-iwi.	Hanga ai ngā pūnaha tau hei whakatau i te maha o ngā rōpū rānei, o ngā taonga rānei, o ngā wāhanga o ngā taonga rānei. Ko te tere me te tāwariwari ki te whakaotioti rapanga e kawea ai he paheko tau, te mārama ki te rahi tauriterite o aua tau, me te whakamārama i te otinga i runga anō i te horopaki.
	Te Tauira me te Pānga	Ahako te whenua, he nui ngā momo tauira e haere ana. He hui hoki ngā pānga kei waenganui i tēnā, i tēnā āhuatanga o te taiao.	Ko te hononga kei waenga i ētahi taurangi e rua. Mā te kupu, mā te tūtohi, mā te whārite, mā te takirua raupapa, mā te kauwhata rānei e whakaatu te pānga o tētahi taurangi ki tētahi. Ka whakaaturia te pānga kei waenganui i ngā tau, ngā inenga me ngā kīanga ki ngā tohu/kīanga rite, ki ngā tohu/kīanga rite kore.
Te Tauanga	Te tuhurutanga Tauanga	Ko te rapu i ngā huarahi hei whakaatu i te āhuatanga o ngā putaputa āhua, ahako he whakapono, he wairua, he pūtaiao rānei.	Ko te kohikohi, te whakaatu me te tātari raraunga e pā ana ki tētahi kaupapa kia puta he māramatanga mō taua kaupapa. Ko te arotake kia mōhiotia ai ngā āhuatanga whaihua me ngā āhuatanga kāore e tino whaihua ana.
	Te Tūpoutanga		Ko te tūponotanga, he matapae, he ine rānei mehemea ka hua ake tētahi āhuatanga, kāore rānei. Ka taea te kimi tūponotanga mā te tūponotanga tātai, mā te whakamātautau rānei.

# Ngā Whakaaro Tukanga (He kōrero whakamārama nō 'Te Tukutuku Ako mō te Pāngarau')

Paearu Mahi 1.1	Paearu Mahi 1.2	Paearu Mahi 1.3
<p><b>Whakaaro Tukanga 1:</b> Te whakakaupapa i ngā pūāhua ki ngā tikanga pāngarau.</p>	<p><b>Wakaaro Tukanga 2:</b> Te whakamahi i ngā tikanga pāngarau ki ngā tini pūāhua whaitake.</p>	<p><b>Whakaaro Tukanga 3:</b> Te whakamāori me te arotake i te whaitake o ngā pūāhua pāngarau.</p>
<p>Ngā Akoranga Tāpua:</p> <ul style="list-style-type: none"> <li>ko te tautuhi i ngā tikanga pāngarau e tika ana hei whakatutuki i ngā wero o ngā tini pūāhua;</li> <li>ko te whakakaupapa me te whai i te mahere hei whakamahi i ngā tikanga pāngarau;</li> <li>ko te whiriwhiri i ngā whakaahuhanga pāngarau e tika ana, arā, ngā kauwhata, ngā tūtohi, ngā hoahoa, ngā whārite, ngā kīanga.</li> </ul>	<p>Ngā Akoranga Tāpua:</p> <ul style="list-style-type: none"> <li>ko te whiriwhiri me te whakahāngai i ngā ariā pāngarau me ngā ariā tauanga;</li> <li>ko te whiriwhiri me te whakamahi i te aronga tātai/aronga tauanga e tika ana (tae atu ki ngā tātairanga matihiko);</li> <li>ko te whai i te taumata o te tika e hāngai ana ki te pūāhua (tae atu ki te whakawhiwhitanga).</li> </ul>	<p>Ngā Akoranga Tāpua:</p> <ul style="list-style-type: none"> <li>ko te arohaehae i te whaitakenga o ngā whakaotinga, o ngā putanga, o ngā aronga, me te whakaaroaro ki ngā tikanga i kōwhiria hei whakatutuki i te mahi;</li> <li>ko te tāpae i ngā whakataunga whai taunakinga;</li> <li>ko te whakamahi arohaehae whakawā e pā ana ki ngā kōrero i runga i ngā whakaaro pāngarau/tauanga.</li> </ul>

Te Reo Matatini o te Pāngarau	Ngā Horopaki Ahurea-pāpori
<p>Te whakaaro whaitake me te whakawhiwhiti kōrero, ā-pāngarau nei, ki te reo Māori.</p>	<p>Te tautohu me te whakamāori i ngā hanga ahurea-pāpori i ngā pūāhua/horopaki pāngarau, tae atu ki te tūhonohono i te pāngarau, te ahurea, me te hāpori (hei tauira, mā roto mai i tētahi anga hangarite ahurea).</p>
<p>Ngā Akoranga Tāpua:</p> <ul style="list-style-type: none"> <li>ko te tautuhi whakawhiwhiti kōrero o ngā tikanga pāngarau ki ngā kupu motuhake, ki te wetereo, ki te tikanga kupu e hāngi ana ki te pūāhua;</li> <li>ko te whakawhiwhiti kōrero o ngā tikanga pāngarau ki ngā rautaki maha hei kōrerorero whakaaro pāngarau (ā-tuhituhi, ā-waha, ā-ataata);</li> <li>ko te whakamahi i ngā whakaahuhanga pāngarau motuhake a Māori ake, hei whakaatu auaha nei, toitika nei, i ngā ariā pāngarau.</li> </ul>	<p>Ngā Akoranga Tāpua:</p> <ul style="list-style-type: none"> <li>ko te whakatau atu me te tūhono i te pāngarau ki ngā horopaki ahurea-pāpori;</li> <li>ko te tautohu i ngā whakaaro ahurea-pāpori e noho tūāpapa mai ana ki ngā tini horopaki/pūāhua. Hei tauira: <ul style="list-style-type: none"> <li>ko ngā waiaro, ngā whakaaro me ngā uara taketake o ngā tāngata kei roto i aua pūāhua.</li> <li>ko ngā painga me ngā wero ka pā ki ngā tāngata me ngā whānau kei roto i tētahi pūāhua pāngarau.</li> <li>ko te pānga ki a Papatūānuku o te whakahāngaitanga atu o te pāngarau ki te pūāhua.</li> </ul> </li> <li>ko te mārama ki te tikanga o te mātauranga Māori me te ahurea-pāpori kei roto i te pūāhua pāngarau;</li> <li>ko te whakahoropaki i te pūāhua - hei tauira, ki ngā kawenga o ia rā, ki ngā mahi a te kirirarau i te hapori, ki te mahi - e puta ai he whakataunga i runga i te mārama, e pai ake ai rānei te orange o ngā tāngata.</li> </ul>

# NGĀ ARA TOHU HEI ĀWHINA I TE KAIKO

He āwhina ēnei whārangi i te kaiako, ā, he tūhono i ngā mahere me ngā rauemi whakaako i

**Ngā Whanaketanga (Taumata 5) ki**

**Ngā Whenu Pāngarau:**

- i. Te Ine me te Āhuahanga
- ii. Te Tau me te Taurangi
- iii. Te Tauanga



*He mea tango i ngā pukapuka a te Tāhūhū.*

## NGĀ WHENU

## Ngā Whainga Paetae

**Te Ine**

- Ka whakaoti rapanga whaitake:
  - ka kōwhiri, ka whakamahi i ngā waeine, ngā taputapu me ngā āwhata e hāngai ana mō te roa, te horahanga, te rōrahi (kitanga), te papatipu (taumaha), te paemahana, te koki me te wā,
  - ka whakawhitiwhiti waeine.
- Ka whakaputa, ka whakamahi hoki i ngā ture hei tātai i te paenga me te horahanga o tētahi taparau.
- Ka whakaputa, ka whakamahi hoki i ngā ture hei tātai i te rōrahi o tētahi poro.
- Ka mārama ki te whaitakenga o tētahi inenga.

**Te Hanga**

- Ka whakaputa, ka whakamahi i ngā tikanga koki o te rārangi pūtahi, te rārangi whakarara me te taparau.
- Ka whakamahi taputapu ki te waihanga taparau māmā.
- Ka tuhi raumata tōtika hei hanga matarau māmā.
- Ka tuhi i ngā momo hoahoa hei whakaatu āhua ahu-3.
- Ka whakamahi ōwehenga pākoki me te ture a Pythagoras ki te whakaoti rapanga e whai wāhi mai ana te tapatoru hāngai.

**Te Wāhi me te Ahunga**

- Ka whakaatu, ka whakamārama, ka whakamahi i te wāhi noho (taunga) o tētahi mea, me te ahunga:
  - ngā tōpito,
  - ngā koki o te kāpehu,
  - ngā āhuatanga o te taiao,
  - te tukutuku (takirua raupapa),
  - te mahere.

**Te Panoni**

- Ka tautuhi, ka whakamārama, ka whakamahi i te hangarite o tētahi āhua ahu-2, āhua ahu-3.
- Ka tautuhi, ka whakamārama, ka whakamahi i ngā āhuatanga pūmau o ngā panoni.

**Te MātaurangaTau**

- Ka mōhio ki ngā tikanga o te taupū me te tānga ngahuru.

**Ngā Rautaki Tau**

- Ka kōwhiri, ka whakamārama i te rautaki e tino whaihua ana hei whakaoti rapanga e whai wāhi mai ana te tau tōpū, te hautau, te tau ā-ira, te ōrau, te ōwehenga, te pāpātanga, me te taupū:
  - rautaki tatau,
  - rautaki tāpiripiri,
  - rautaki whakarea,
  - rautaki pānga riterite.
- Ka mārama ki te whaitakenga o te otinga.
- Ka whiriwhiri tauwehe pātahi, taurea pātahi hoki.

**Te Taura me te Pānga**

- Ka tuhi whārite rārangi ki te whakatauirā pūāhua whaitake, ka whakaoti hoki i te whārite.
- Ka whakawhānui i ngā tikanga o roto i ngā rautaki tau hei tūāpapa mō ngā tikanga taurangi.
- Ka whakaatu i te ōritenga o ngā ture e hāngai ana ki tētahi pānga rārangi Kotahi.
- Ka rāwekeweke kīanga i runga i ngā tikanga taurangi.
- Ka whakaatu pānga rārangi, pānga pūrua, pānga taupū ki te kauwhata hei whakatauirā i tētahi pūāhua whaitake.

**Te Tūhuratanga Tauanga**

- Ka whai i ngā tikanga mō te tūhuratanga tauanga ki te whakamahere, ki te whakatutuki tirohanga tauanga, whakamātau tauanga hoki:
  - ka whakatakoto pātai, tāpaetanga kōrero rānei,
  - ka whakatau i ngā taurangi hei ine me ngā waeine e hāngai ana,
  - ka whakatau i te tukanga kohikohi raraunga,
  - ka kohikohi raraunga,
  - ka wehewehe raraunga,
  - ka āta whakaaro ki ngā take e taurangi ai ngā raraunga,
  - ka kōwhiri i ngā whakaari raraunga e whaitake ana, me te wehewehe anō i ngā raraunga e kitea ai ngā tauira, ngā ia, ngā pānga me ngā taurangitanga o ngā raraunga whakarōpū Matatini,
  - ka whakatairite i ngā tīpako me te hono anō o ngā tīpako ki ngā taupori, mā te whakamahi i ngā inenga wēanga me te hora o ngā raraunga,
  - ka whakaputa pūrongo mō te pātai i tūhuratia.

- Ka arotake i ngā tukanga tauanga o tētahi tūhuratanga:
  - te tukanga whai tīpako,
  - te whiriwhiri i ngā inenga wēanga me te hora o ngā raraunga,
  - te tika o ngā kōrero ka puta i te tūhuratanga.

**Te Tūponotanga**

- Ka tūhura pūāhua tūponotanga papa-tahi, papa-maha hoki:
  - ka whakamahi hautau, ōwehenga hoki ki te matapae, ki te whakamārama i ngā tuari raraunga ka puta i tētahi whakamātau tūponotanga,
  - ka whakatau i te whaitake o te taurangitanga e kitea mai ana i ngā raraunga o tētahi whakamātau tūponotanga.

### NGĀ WHANAKETANGA 5a

#### Ngā Whainga

Ka whakaoti rapanga te ākonga, ka whakamārama otinga, e whai wāhi mai ana:

He tauira ēnei o ngā āhutanga me mātua mōhio te ākonga e tutuki ai tana whakaoti rapanga:

- ngā ture hei tātai tapa, paenga, horahanga, koki, horahanga mata, rōrahi hoki o ngā āhua whānui,
- ngā tikanga koki o te rārangi pūtahi, te rārangi whakarara, me ngā taparau.
- te whakamahi i te ture a Pythagoras,
- te tikanga o te koki tauroto, te koki tauaro, te koki taurite me te koki tuawhiti.

Ka whakaoti rapanga te ākonga, ka whakamārama otinga, e whai wāhi mai ana:

He tauira ēnei o ngā āhutanga me mātua mōhio te ākonga e tutuki ai tana whakaoti rapanga:

- te hangarite o ngā koki o ngā rārangi pūtahi, ngā rārangi whakarara, ngā taparau, me ngā matarau,
- te whakaatu me te whakamārama panoni ki te papa kauwhata.
- te whakamahi pere hei whakaatu nekehanga,
- te whakamahi mahere me ōna āhuatanga katoa (pērā i te tukutuku me te āwhata) hei whakaahua huarahi.

Ka whakaoti rapanga te ākonga, ka whakamārama otinga, e whai wāhi mai ana:

He tauira ēnei o ngā āhutanga me mātua mōhio te ākonga e tutuki ai tana whakaoti rapanga:

- ngā tau tōpū me ngā tau hautanga,
- te kōwhiri i te rautaki paheko tau e tino hāngai ana ki te horopaki.
- ngā tikanga me te whakamahinga o te tānga ngahuru hei tohu i ngā tau tino nui, tino iti hoki,
- ngā momo hātepe whakaoti paheko hautau.

Ka whakaoti rapanga te ākonga, ka whakamārama otinga, e whai wāhi mai ana:

He tauira ēnei o ngā āhutanga me mātua mōhio te ākonga e tutuki ai tana whakaoti rapanga:

- te whārite me te kauwhata rārangi hei whakaatu panga.

He tauira ēnei o ngā āhutanga me mātua mōhio te ākonga e tutuki ai tana whakaoti rapanga:

Ka whakaoti rapanga te ākonga, ka whakamārama otinga, e whai wāhi mai ana:

He tauira ēnei o ngā āhutanga me mātua mōhio te ākonga e tutuki ai tana whakaoti rapanga:

- te whakatakoto pātai, tāpaetanga kōrero rānei, te whakahaere tūhuratanga tauanga, me te whakaputa pūrongo,
- te arotake i ngā kōrero ka puta i tētahi tūhuratanga tauanga,
- te whakaputa kōrero mō te pānga o tētahi taurangi ki tētehi.
- te whakaatu raraunga ki te kauwhata kauamo me te kauwhata marara,
- te whaitake me te whaihua o ngā momo whakaari raraunga,
- ngā tikanga matatika e hāngai ana pērā i te tikanga kia kaua e haukumea te āhua o ngā pātai.

Ka whakaoti rapanga te ākonga, ka whakamārama otinga, e whai wāhi mai ana:

He tauira ēnei o ngā āhutanga me mātua mōhio te ākonga e tutuki ai tana whakaoti rapanga:

- tētahi pūāhua tūponotanga papa-maha.
- te tātai tūponotanga o tētahi pāpono raupapa.

#### Tauira Mahi

Mai i te pukapuka *[He Aratohu mā te Pouako](#)*:

- Te Ine me te Hanga 5a Rapanga 7 (Whārangi 31).
- Te Ine me te Hanga 5a Rapanga 8.

Mai i te pukapuka *[He Aratohu mā te Pouako](#)*:

Mai i te pukapuka *[He Aratohu mā te Pouako](#)*:

- Te Wāhi, te Ahunga me te Panoni 5a Rapanga 9 (Whārangi 32).
- Te Wāhi, te Ahunga me te Panoni 5a Rapanga 10 (Whārangi 33).

Mai i te pukapuka *He Aratohu mā te Pouako*:

- Te Tau 5a Rapanga 1.
- Te Tau 5a Rapanga 2.
- Te Tau 5a Rapanga 3.
- Te Tau 5a Rapanga 4.
- Te Tau 5a Rapanga 5.

Mai i te pukapuka *[He Aratohu mā te Pouako](#)*:

- Te Taura me te Pānga 5a Rapanga 6 (Whārangi 30).

Mai i te pukapuka *[He Aratohu mā te Pouako](#)*:

- Te Tauanga 5a Rapanga 11 (Whārangi 35).

Mai i te pukapuka *[He Aratohu mā te Pouako](#)*:

Mai i te pukapuka *[He Aratohu mā te Pouako](#)*:

- Te Tūponotanga 5a Rapanga 12 (Whārangi 22).





# WHENU: Te Ine me te Āhuahanga NGĀ WHANAKETANGA (Taumata 5) - Te Ine me te Hanga

Whāinga Paetae	Whanaketanga 5a Ngā Whainga		Taurira Mahi
<p><b>Te Ine</b></p> <ol style="list-style-type: none"><li>1. Ka whakaoti rapanga whaitake:<ul style="list-style-type: none"><li>• ka kōwhiri, ka whakamahi i ngā waeine, ngā taputapu me ngā āwhata e hāngai ana mō te roa, te horahanga, te rōrahi (kītanga), te papatipu (taumaha), te paemahana, te koki me te wā</li><li>• ka whakawhitiwhiti waeine</li></ul></li><li>2. Ka whakaputa, ka whakamahi hoki i ngā ture hei tātai i te paenga me te horahanga o tētahi taparau</li><li>3. Ka whakaputa, ka whakamahi hoki i ngā ture hei tātai i te rōrahi o tētahi poro</li><li>4. Ka mārama ki te whaitakenga o tētahi inenga</li></ol> <p><b>Te Hanga</b></p> <ol style="list-style-type: none"><li>1. Ka whakaputa, ka whakamahi i ngā tikanga koki o te rārangi pūtahi, te rārangi whakarara me te taparau</li><li>2. Ka whakamahi taputapu ki te waihanga taparau māmā</li><li>3. Ka tuhi raumata tōtika hei hanga matarau māmā</li><li>4. Ka tuhi i ngā momo hoahoa hei whakaatu āhua ahu-3</li><li>5. Ka whakamahi ōwehenga pākoki me te ture a Pythagoras ki te whakaoti rapanga e whai wāhi mai ana te tapatoru hāngai.</li></ol>	<p>Ka whakaoti rapanga te ākonga, ka whakamārama otinga, e whai wāhi mai ana:</p> <ul style="list-style-type: none"><li>• ngā ture hei tātai tapa, paenga, horahanga, koki, horahanga mata, rōrahi hoki o ngā āhua whānui.</li><li>• ngā tikanga koki o te rārangi pūtahi, te rārangi whakarara, me ngā taparau.</li></ul>	<p>He taurira ēnei o ngā āhutanga me mātua mōhio te ākonga e tutuki ai tana whakaoti rapanga:</p> <ul style="list-style-type: none"><li>• te whakamahi i te ture a Pythagoras.</li><li>• te tikanga o te koki tauroto, te koki tauaro, te koki taurite me te koki tauwhiti.</li></ul>	<p>Mai i te pukapuka <a href="#">He Aratohu mā te Pouako</a>:</p> <ul style="list-style-type: none"><li>• Te Ine me te Hanga 5a Rapanga 7 (Whārangi 31).</li><li>• Te Ine me te Hanga 5a Rapanga 8.</li></ul>

## WHANAKETANGA 5a

### Te Ine

Ngā Whāinga		
Ka whakaoti rapanga te ākonga, ka whakamārama otinga, e whai wāhi mai ana:	He tauira ēnei o ngā āhuatanga me mātua mōhio te ākonga e tutuki ai tana whakaoti rapanga:	<sup>2</sup> formulae
<ul style="list-style-type: none"> <li>ngā ture<sup>7</sup> hei tātai tapa, paenga, horahanga, koki, horahanga mata, rōrahi hoki o ngā āhua whānui</li> </ul>	<ul style="list-style-type: none"> <li>te whakamahi i te ture a Pythagoras</li> </ul>	

### Te Reo Matatini o te Pāngarau

Hei tauira kupu		
<ul style="list-style-type: none"> <li>ture tātai</li> <li>mati ā-ira</li> </ul>	<ul style="list-style-type: none"> <li>pūtakerua</li> <li>tātaitai</li> </ul>	<ul style="list-style-type: none"> <li>tāroa</li> <li>pūrua</li> </ul>

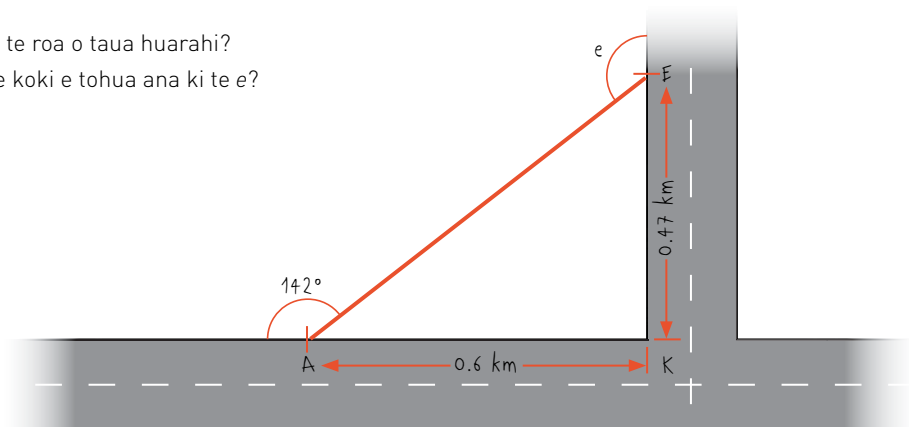
### He Tauira Rapanga

Te Ine me te Hanga 5a

#### Rapanga 7

He mahere tēnei o tētahi kokonga huarahi. E whakaarohia ana kia hangaia he huarahi torotika mai i te A ki te E (te rārangi whero).

- E hia manomita te roa o taua huarahi?
- E hia te rahi o te koki e tohua ana ki te e?



- Kia tika te whakamahi i te ture a Pythagoras hei tātai i te tāroa o te tapatoru, me te whakamārama i ngā mahi:

Ko tā te ture a Pythagoras e mea ana, ko te tapeke o ngā pūrua o ngā tapa poto, he rite ki te pūrua o te tapa roa o tētahi tapatoru hāngai. Arā:

$$a^2 + e^2 = i^2$$

$$0.6^2 + 0.47^2 = AE^2$$

$$0.76 = AE \text{ (mā te tātaitai, kia 2 ngā mati ā-ira)}$$

- Kia tika hoki te whiriwhiri i te koki e, me tētahi whakamārama pēnei:

E 38° te koki KAE nā te mea ko te 180 te tapeke o ngā koki o tētahi rārangi torotika (142 + 38 = 180).

Nō reira, e 52° te koki KEA nā te mea 180 te tapeke o ngā koki o tētahi tapatoru (38 + 90 + 52 = 180).

Nō reira 128° te koki e, nā te mea 180 te tapeke o ngā koki i te rārangi torotika (52 + 128 = 180).



**WHENU: Te Ine me te Āhuahanga  
NGĀ WHANAKETANGA (Taumata 5) - Te Wāhi, te Ahunga, me te Pānoni**

<b>Whāinga Paetae</b>	<b>Whanaketanga 5a Ngā Whainga</b>		<b>Tauira Mahi</b>
<p><b>Te Wāhi me te Ahunga</b></p> <p>1. Ka whakaatu, ka whakamārama, ka whakamahi i te wāhi noho (taunga) o tētahi mea, me te ahunga:</p> <ul style="list-style-type: none"><li>• ngā tōpito</li><li>• ngā koki o te kāpehu</li><li>• ngā āhuatanga o te taiao</li><li>• te tukutuku (takirua raupapa)</li><li>• te mahere</li></ul> <p><b>Te Panoni</b></p> <p>1. Ka tautuhi, ka whakamārama, ka whakamahi i te hangarite o tētahi āhua ahu-2, āhua ahu-3.</p> <p>2. Ka tautuhi, ka whakamārama, ka whakamahi i ngā āhuatanga pūmau o ngā panoni.</p>	<p>Ka whakaoti rapanga te ākonga, ka whakamārama otinga, e whai wāhi mai ana:</p>	<p>He tauira ēnei o ngā āhutanga me mātua mōhio te ākonga e tutuki ai tana whakaoti rapanga:</p>	<p>Mai i te pukapuka <a href="#">He Aratohu mā te Pouako</a>:</p> <ul style="list-style-type: none"><li>• Te Wāhi, te Ahunga me te Panoni 5a Rapanga 9 (Whārangī 32)</li><li>• Te Wāhi, te Ahunga me te Panoni 5a Rapanga 10 (Whārangī 33)</li></ul>
	<ul style="list-style-type: none"><li>• te hangarite o ngā koki o ngā rārangī pūtahi, ngā rārangī whakarara, ngā taparau, me ngā matarau.</li><li>• te whakaatu me te whakamārama panoni ki te papa kauwhata.</li></ul>	<ul style="list-style-type: none"><li>• te whakamahi pere hei whakaatu nekehanga.</li><li>• te whakamahi mahere me ōna āhuatanga katoa (pērā i te tukutuku me te āwhata) hei whakaahua huarahi.</li></ul>	

## WHANAKETANGA 5a

### Te Wāhi, te Ahunga, me te Panoni

Ngā Whāinga		
Ka whakaoti rapanga te ākonga, ka whakamārama otinga, e whai wāhi mai ana:	He tauira ēnei o ngā āhuatanga me mātua mōhio te ākonga e tutuki ai tana whakaoti rapanga:	<sup>13</sup> symmetry <sup>14</sup> intersecting lines <sup>15</sup> parallel lines <sup>16</sup> vector <sup>17</sup> grid <sup>18</sup> scale
<ul style="list-style-type: none"> <li>te hangarite<sup>13</sup> o ngā koki o ngā rārangi pūtahi<sup>14</sup>, ngā rārangi whakarara<sup>15</sup>, ngā taparau, me ngā matarau</li> <li>te whakaatu me te whakamārama panoni ki te papa kauwhata.</li> </ul>	<ul style="list-style-type: none"> <li>te whakamahi pere<sup>16</sup> hei whakaatu nekehanga</li> <li>te whakamahi mahere me ōna āhuatanga katoa (pērā i te tukutuku<sup>17</sup> me te āwhata<sup>18</sup>) hei whakaahua huarahi.</li> </ul>	

### Te Reo Matatini o te Pāngarau

Hei tauira kupu		
<ul style="list-style-type: none"> <li>pere</li> <li>mātātuhi</li> <li>ahopou</li> </ul>	<ul style="list-style-type: none"> <li>rārangi whakarara</li> <li>mātāoroko</li> <li>āwhata</li> </ul>	<ul style="list-style-type: none"> <li>rārangi pūtahi</li> <li>ahopae</li> </ul>
Hei tauira whakaahuahanga		
<ul style="list-style-type: none"> <li>he mahere āwhata</li> </ul>	<ul style="list-style-type: none"> <li>te pere</li> </ul>	<ul style="list-style-type: none"> <li>te papa kauwhata</li> </ul>

### He Tauira Rapanga

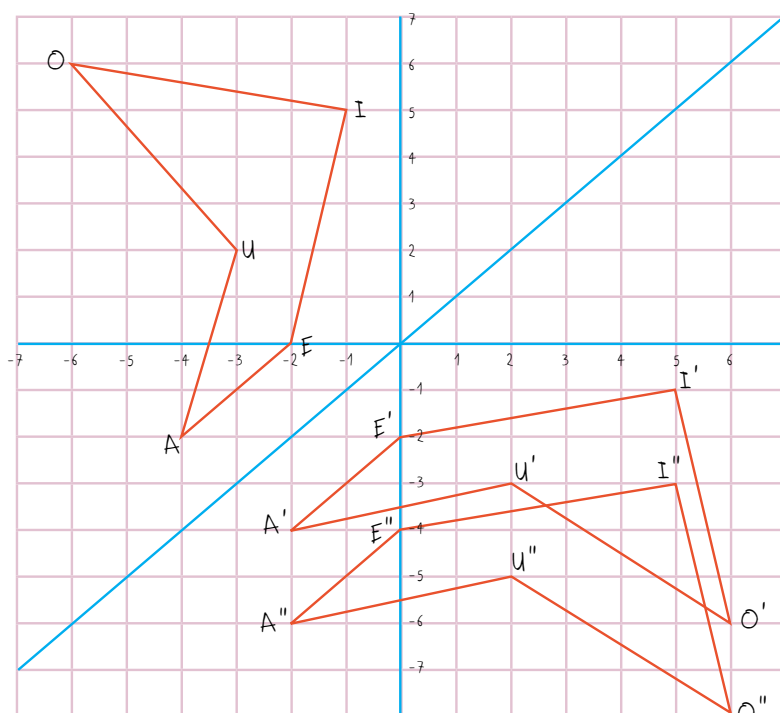
Te Wāhi, te Ahunga, me te Panoni 5a

#### Rapanga 9

**Rauemi:** He pepa tukutuku.

Ka mahi takirua ngā ākonga. Mā ia ākonga e tuhi tētahi āhua tapa torotika ki te papa kauwhata, me ngā panoni e rua o taua āhua. Kātahi ka whakamōhio atu ki te hoa i ngā pūwāhi o ngā akitu o te āhua me tōna mātātuhi i muri i ngā panoni e rua. Ko tā te hoa, he āta whiriwhiri i ngā panoni e rua. Hei tauira:

Koia nei te āhua, tōna mātātuhi me ngā panoni e rua (ka whakaatanga i te rārangi  $y = x$ , kātahi ka nekea whakararo kia rua):



Kia tika te whakaatu pūwāhi (takirua raupapa). Kia tika hoki te whiriwhiri me te whakamārama i ngā panoni.

## WHANAKETANGA 5a

Te Wāhi, te Ahunga, me te Panoni 5a

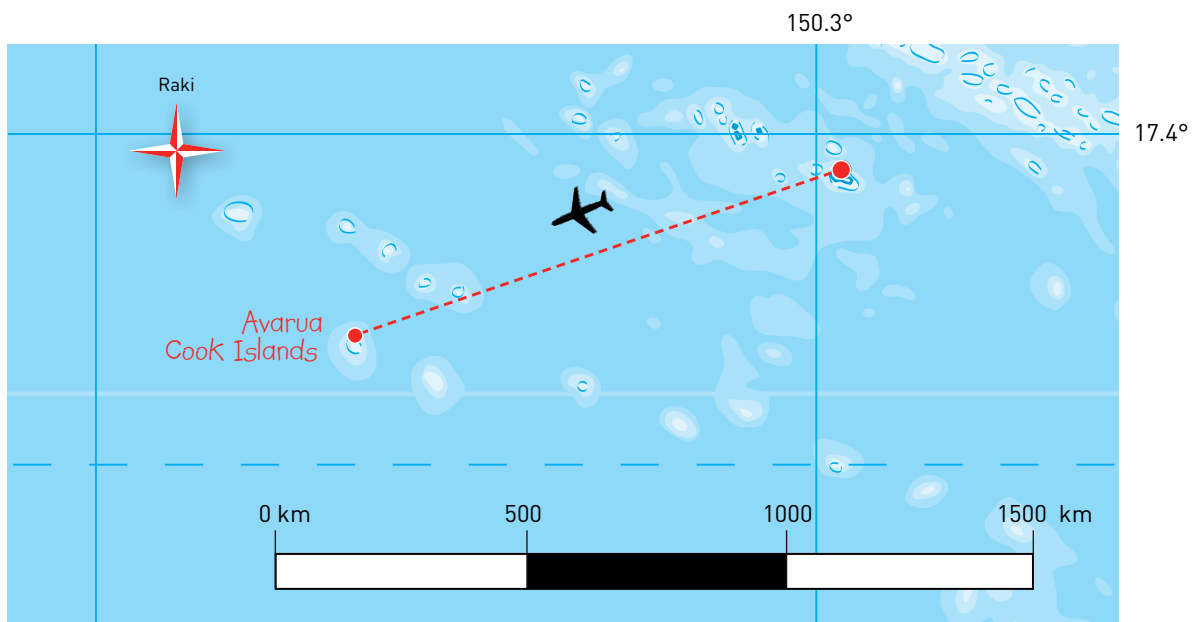
### Rapanga 10

**Rauemi:** He pukapuka mahere, he rūri, he ine-koki.

Ka mahi takirua ngā ākonga. Mā ia ākonga e whiriwhiri ētahi tāone e rua i tētahi mahere. Kātahi ka whakamōhio atu ki te hoa i te wāhi noho o tētahi o ngā tāone (mā te whakamahi i tōna ahopae me tōna ahopou) me te ahunga, te tawhiti hoki o te tāone tuarua. Ko tā te hoa, he kimi i te tāone tuatahi, me te whiriwhiri anō i te tāone tuarua.

Kia tika te whakamahi i te ahopae me te ahopou, te āwhata o te mahere, ngā ahunga o te kāpehu me te ine-koki hei whakamārama, hei whiriwhiri i ngā tāone. Hei taurira:

- I rere atu au i te tāone e pātata ana ki te haukotinga o te ahopae  $17.4^\circ$  ki te tonga me te ahopou  $150.3^\circ$  ki te uru. E  $252^\circ$  te ahunga o taku wakarererangi,  $1,000\text{km}$  te tawhiti. Ka tau atu ki hea?





# WHENU: Te Tau me te Taurangi NGĀ WHANAKETANGA (Taumata 5) - Te Tau

Whāinga Paetae	Whanaketanga 5a Ngā Whainga		Taurira Mahi
<p><b>Te Mātauranga Tau</b></p> <p>1. Ka mōhio ki ngā tikanga o te taupū me te tānga ngahuru.</p> <p><b>Ngā Rautaki Tau</b></p> <p>1. Ka kōwhiri, ka whakamārama i te rautaki e tino whaihua ana hei whakaoti rapanga e whai wāhi mai ana te tau tōpū, te hautau, te tau ā-ira, te ōrau, te ōwehenga, te pāpātanga, me te taupū:</p> <ul style="list-style-type: none"><li>• rautaki tatau,</li><li>• rautaki tāpiripiri,</li><li>• rautaki whakarea,</li><li>• rautaki pānga riterite.</li></ul> <p>2. Ka mārama ki te whaitakenga o te otinga.</p> <p>3. Ka whiriwhiri tauwehe pātahi, taurea pātahi hoki.</p>	<p>Ka whakaoti rapanga te ākonga, ka whakamārama otinga, e whai wāhi mai ana:</p>	<p>He taurira ēnei o ngā āhutanga me mātua mōhio te ākonga e tutuki ai tana whakaoti rapanga:</p>	<p>Mai i te pukapuka <i>He Aratohu mā te Pouako</i>:</p> <ul style="list-style-type: none"><li>• Te Tau 5a Rapanga 1</li><li>• Te Tau 5a Rapanga 2</li><li>• Te Tau 5a Rapanga 3</li><li>• Te Tau 5a Rapanga 4</li><li>• Te Tau 5a Rapanga 5</li></ul>
	<ul style="list-style-type: none"><li>• ngā tau tōpū me ngā tau hautanga.</li><li>• te kōwhiri i te rautaki paheko tau e tino hāngai ana ki te horopaki.</li></ul>	<ul style="list-style-type: none"><li>• ngā tikanga me te whakamahinga o te tānga ngahuru hei tohu i ngā tau tino nui, tino iti hoki.</li><li>• ngā momo hātepe whakaoti paheko hautau.</li></ul>	



## WHENU: Te Tau me te Taurangi NGĀ WHANAKETANGA (Taumata 5) - Te Taurira me te Pānga

Whāinga Paetae	Whanaketanga 5a Ngā Whainga		Taurira Mahi
<ol style="list-style-type: none"><li>1. Ka tuhi whārite rārangi ki te whakatauirā pūāhua whaitake, ka whakaoti hoki i te whārite.</li><li>2. Ka whakawhānui i ngā tikanga o roto i ngā rautaki tau hei tūāpapa mō ngā tikanga taurangi.</li><li>3. Ka whakaatu i te ōritenga o ngā ture e hāngai ana ki tētahi pānga rārangi kotahi.</li><li>4. Ka rāwekeweke kīanga i runga i ngā tikanga taurangi.</li><li>5. Ka whakaatu pānga rārangi, pānga pūrua, pānga taupū ki te kauwhata hei whakatauirā i tētahi pūāhua whaitake.</li></ol>	Ka whakaoti rapanga te ākonga, ka whakamārama otinga, e whai wāhi mai ana:	He taurira ēnei o ngā āhutanga me mātua mōhio te ākonga e tutuki ai tana whakaoti rapanga:	<p>Mai i te pukapuka <a href="#">He Aratohu mā te Pouako</a>:</p> <ul style="list-style-type: none"><li>• Te Taurira me te Pānga 5a Rapanga 6 (Whārangi 30).</li></ul>
	<ul style="list-style-type: none"><li>• te whārite me te kauwhata rārangi hei whakaatu pānga.</li></ul>	<ul style="list-style-type: none"><li>• te tikanga o ngā haukotinga tuaka me te rōnaki o tētahi kauwhata rārangi, me te puta o ēnei i rō whārite.</li></ul>	

## WHANAKETANGA 5a

### Te Taura me te Pānga

Ngā Whāinga		
Ka whakaoti rapanga te ākonga, ka whakamārama otinga, e whai wāhi mai ana:	He taura ēnei o ngā āhuatanga me mātua mōhio te ākonga e tutuki ai tana whakaoti rapanga:	<sup>5</sup> axis intercept <sup>6</sup> slope
<ul style="list-style-type: none"> <li>te whārite me te kauwhata rārangi hei whakaatu pānga.</li> </ul>	<ul style="list-style-type: none"> <li>te tikanga o ngā haukotinga tuaka<sup>5</sup> me te rōnaki<sup>6</sup> o tētahi kauwhata rārangi, me te puta o ēnei i rō whārite.</li> </ul>	

### Te Reo Matatini o te Pāngarau

Hei taura kupu		
<ul style="list-style-type: none"> <li>rōnaki</li> <li>tuaka pae</li> <li>whārite</li> </ul>	<ul style="list-style-type: none"> <li>haukotinga-y</li> <li>tuaka pou</li> <li>taurangi</li> </ul>	<ul style="list-style-type: none"> <li>haukotinga-x</li> <li>ture</li> <li>kauwhata rārangi</li> </ul>

### He Taura Rapanga

#### Te Taura me te Pānga 5a

#### Rapanga 6

E rua ngā kamupene tēkehi (waka tonu). Koia nei ngā utu:

- Tēkehi A: \$5.00 mō te tonu me te \$3.00 mō ia manomita.
- Tēkehi E: \$3.00 mō te tonu me te \$4.00 mō ia manomita.

- Tuhia he ture ā-kupu hei tātai i ngā utu mō ngā tēkehi e rua nei.
- Tuhia he whārite hei tātai i ngā utu mō ngā tēkehi nei.
- Whakaaturia ngā whārite e rua ki tētahi kauwhata rārangi.
- He aha te rōnaki o ia kauwhata?
- Ko tēhea te tēkehi he māmā ake te utu? Whakamāramatia mai.

Kia tika te tuhi i ngā ture e rua nei:

Tēkehi A: Whakareatia te maha o ngā manomita ki te 3, ka tāpiri i te 5 hei tātai i te utu.

Tēkehi E: Whakareatia te maha o ngā manomita ki te 4, ka tāpiri i te 3 hei tātai i te utu.

Kia tika te tuhi i ngā whārite e rua nei:

Tēkehi A:  $u = 3k + 5$

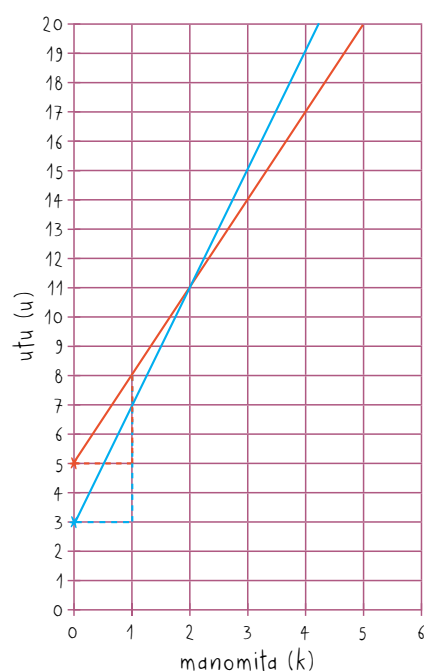
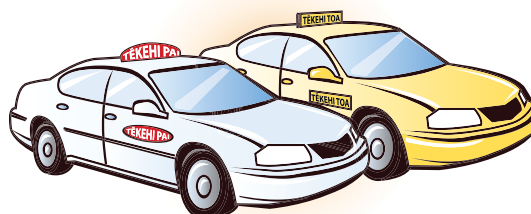
Tēkehi E:  $u = 4k + 3$

Kia tika te whakaatu i ngā whārite ki te kauwhata, mā te tautohu i te haukotinga-y me te whiriwhiri i te rōnaki o ia whārite:

Tēkehi A: Haukotinga-y = 5, Rōnaki = 3

Tēkehi E: Haukotinga-y = 3, Rōnaki = 4

He ōrite te utu o ngā tēkehi e rua nei mēnā e 2 km te tawhiti o te haere. Ki raro i te 2 km, ko te Tēkehi E te mea he māmā te utu. Ki runga ake i te 2 km, ko te Tēkehi A te mea he māmā te utu.



Tēkehi A

Tēkehi E





# WHENU: Te Tauanga NGĀ WHANAKETANGA (Taumata 5) - Te Tauanga

Whāinga Paetae	Whanaketanga 5a Ngā Whainga		Taurira Mahi
<p><b>Te Tūhuratanga Tauanga</b></p> <p>1. Ka whai i ngā tikanga mō te tūhuratanga tauanga ki te whakamahere, ki te whakatutuki tirohanga tauanga, whakamātau tauanga hoki:</p> <ul style="list-style-type: none"><li>• ka whakatakoto pātai, tāpaetanga kōrero rānei.</li><li>• ka whakatau i ngā taurangi hei ine me ngā waeine e hāngai ana</li><li>• ka whakatau i te tukanga kohikohi raraunga</li><li>• ka kohikohi raraunga</li><li>• ka wehewehe raraunga</li><li>• ka āta whakaaro ki ngā take e taurangi ai ngā raraunga</li><li>• ka kōwhiri i ngā whakaari raraunga e whaitake ana, me te wehewehe anō i ngā raraunga e kitea ai ngā taurira, ngā ia, ngā pānga me ngā taurangitanga o ngā raraunga whakarōpū matatini</li><li>• ka whakatairite i ngā tīpako me te hono anō o ngā tīpako ki ngā taupori, mā te whakamahi i ngā inenga wēanga me te hora o ngā raraunga</li><li>• ka whakaputa pūrongo mō te pātai i tūhuratia</li></ul> <p>2. Ka arotake i ngā tukanga tauanga o tētahi tūhuratanga:</p> <ul style="list-style-type: none"><li>• te tukanga whai tīpako o te whiriwhiri i ngā inenga wēanga me te hora o ngā raraunga.</li><li>• te tika o ngā kōrero ka puta i te tūhuratanga.</li></ul>	<p>Ka whakaoti rapanga te ākongā, ka whakamārama otinga, e whai wāhi mai ana:</p>	<p>He taurira ēnei o ngā āhutanga me mātua mōhio te ākongā e tutuki ai tana whakaoti rapanga:</p>	<p>Mai i te pukapuka <a href="#">He Aratohu mā te Pouako</a>:</p> <ul style="list-style-type: none"><li>• Te Tauanga 5a Rapanga 11 (Whārangī 35).</li></ul>

## WHANAKETANGA 5a

### Te Tauanga

Ngā Whāinga		
Ka whakaoti rapanga te ākonga, ka whakamārama otinga, e whai wāhi mai ana:	He tauira ēnei o ngā āhuratanga me mātua mōhio te ākonga e tutuki ai tana whakaoti rapanga:	<sup>19</sup> assertion <sup>20</sup> box and whisker graph <sup>21</sup> scatter plot <sup>22</sup> data display <sup>23</sup> evaluate <sup>24</sup> ethical conventions <sup>25</sup> be biased <sup>26</sup> variable
<ul style="list-style-type: none"> <li>te whakatakoto pātai, tāpaetanga kōrero<sup>19</sup> rānei, te whakahaere tūhuratanga tauanga, me te whakaputa pūrongo</li> <li>te arotake<sup>23</sup> i ngā kōrero ka puta i tētahi tūhuratanga tauanga</li> <li>te whakaputa kōrero mō te pānga o tētahi taurangi<sup>26</sup> ki tētahi.</li> </ul>	<ul style="list-style-type: none"> <li>te whakaatu raraunga ki te kauwhata kauamo<sup>20</sup> me te kauwhata marara<sup>21</sup></li> <li>te whaitake me te whaihua o ngā momo whakaari raraunga<sup>22</sup></li> <li>ngā tikanga matatika<sup>24</sup> e hāngai ana (pērā i te tikanga kia kua e haukumea<sup>25</sup> te āhua o ngā pātai).</li> </ul>	

### Te Reo Matatini o te Pāngarau

Hei tauira kupu		
<ul style="list-style-type: none"> <li>tāpaetanga kōrero</li> <li>haukume</li> <li>pānga</li> </ul>	<ul style="list-style-type: none"> <li>kauwhata kauamo</li> <li>taurangi</li> </ul>	<ul style="list-style-type: none"> <li>kauwhata marara</li> <li>pātengi raraunga</li> </ul>
Hei tauira whakaahuhanga		
<ul style="list-style-type: none"> <li>he kauwhata kauamo</li> </ul>	<ul style="list-style-type: none"> <li>he kauwhata marara</li> </ul>	

### He Tauira Rapanga

#### Te Tauanga 5a

#### Rapanga 11

**Rauemi:** He rorohiko me te whai wāhi atu ki te Ipurangi.

Tikina atu he raraunga i te pae ipurangi [www.censusatschool.org.nz](http://www.censusatschool.org.nz), ka tūhura ai i te āhua o te pānga kei waenganui i te pakeke o te tamaiti me tōna mārō (te tawhiti mai i tētahi pito ki tētahi ina whātoro atu ngā ringaringa ki ngā taha). Whakatairitea te hunga kōtiro me te hunga tamatāne, ka whakaputa kōrero ai.

Tonoa mā te ākonga e whakatakoto tētahi pātai, tētahi tāpaetanga kōrero rānei hei tūhura māna i ngā raraunga o "Tatauranga ki te Kura" [www.censusatschool.org.nz](http://www.censusatschool.org.nz):

- ka tūhuratia te pānga o tētahi taurangi ki tētahi
- ka whakaputaina he pūrongo me ngā momo whakaari raraunga e whaitake ana.

**Kia mōhio te ākonga ki:**

- te whakatakoto pātai, tāpaetanga kōrero e hāngai ana ki te huinga raraunga
- te tūhura i ngā raraunga
- te whakaatu raraunga ki ngā momo whakaari e hāngai ana
- te whakaputa kōrero mō ngā whakakitenga matua me te pānga o tētahi taurangi ki tētahi.



**WHENU: Te Tauanga  
NGĀ WHANAKETANGA (Taumata 5) - Te Tūponotanga**

<b>Whāinga Paetae</b>	<b>Whanaketanga 5a Ngā Whainga</b>		<b>Tauira Mahi</b>
<p>5. Ka tūhura pūāhua tūponotanga papatahi, papa-maha hoki:</p> <ul style="list-style-type: none"><li>• ka whakamahi hautau, ōwehenga hoki ki te matapae, ki te whakamārama i ngā tuari raraunga ka puta i tētahi whakamātau tūponotanga.</li><li>• ka whakatau i te whaitake o te taurangitanga e kitea mai ana i ngā raraunga o tētahi whakamātau tūponotanga.</li></ul>	<p>Ka whakaoti rapanga te ākongā, ka whakamārama otinga, e whai wāhi mai ana:</p>	<p>He tauira ēnei o ngā āhutanga me mātua mōhio te ākongā e tutuki ai tana whakaoti rapanga:</p>	<p>Mai i te pukapuka <a href="#">He Aratohu mā te Pouako</a>:</p> <ul style="list-style-type: none"><li>• Te Tūponotanga 5a Rapanga 12 (Whārangi 22)</li></ul>
	<ul style="list-style-type: none"><li>• tētahi pūāhua tūponotanga papa-maha.</li></ul>	<ul style="list-style-type: none"><li>• te tātahi tūponotanga o tētahi pāpono raupapa.</li></ul>	

## WHANAKETANGA 5a

### Te Tūponotanga

Ngā Whāinga		
Ka whakaoti rapanga te ākonga, ka whakamārama otinga, e whai wāhi mai ana:	He tauira ēnei o ngā āhuetanga me mātua mōhio te ākonga e tutuki ai tana whakaoti rapanga:	<sup>27</sup> multi-level <sup>28</sup> combined event
<ul style="list-style-type: none"> <li>tētahi pūāhua tūponotanga papa-maha<sup>27</sup>.</li> </ul>	<ul style="list-style-type: none"> <li>te tātai tūponotanga o tētahi pāpono raupapa<sup>28</sup>.</li> </ul>	

### Te Reo Matatini o te Pāngarau

Hei tauira kupu
<ul style="list-style-type: none"> <li>pāpono raupapa</li> <li>hoahoa rākau</li> <li>matapōkere</li> </ul>
Hei tauira whakaahuhanga
<ul style="list-style-type: none"> <li>he hoahoa rākau</li> </ul>

### He Tauira Rapanga

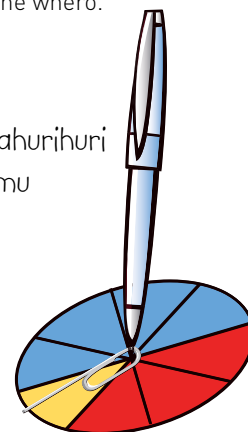
#### Te Tūponotanga 5a

#### Rapanga 12

Nā Wiremu i hanga tētahi pūrere takahurihuri, nā Māia hoki tētahi i hanga. E tohe ana a Wiremu he nui ake te tūponotanga ka tau tana pūrere ki te rohe whero i te tūponotanga ka tau te pūrere a Māia ki te rohe whero.

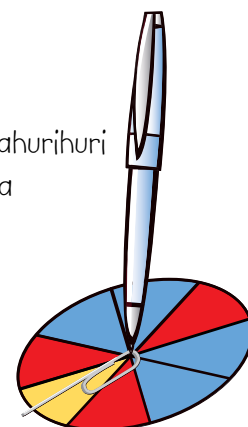
- He pēhea nei ō whakaaro ki te tohenga nei a Wiremu? Whakamāramatia mai he aha i pērā ai ō whakaaro.
- Whakamātauria tēnei tohenga a Wiremu. Tuhia he pūrongo mō tō whakamātau.

te pūrere takahurihuri  
a Wiremu



- Kia whaitake te matapae me te whakamārama. Hei tauira:
  - He ōrite te tūponotanga ka tau ki te rohe whero i ia pūrere takahurihuri, nā te mea he  $\frac{3}{8}$  te hautanga whero o ia porowhita.
  - He nui ake pea te tūponotanga ka tau ki te rohe whero i te pūrere a Māia, nā te noho wehe o ngā hauwaru whero e toru.
  - He nui ake pea te tūponotanga ka tau ki te rohe whero i te pūrere a Wiremu, nā te piri tahi o ngā hauwaru whero e toru.

te pūrere takahurihuri  
a Māia



- Kia tika te whakarite me te whakatutuki i te whakamātau tūponotanga. Arā pea:
  - Kia maha ngā takahurihanga o ia pūrere (ki te takiwā pea o te 50 te itinga iho), me te whakamārama mēnā he iti noa iho ngā takahurihanga, he nui kē atu te tūponotanga ka tītaha ngā putanga.
  - Ka whakaaturia ngā putanga ki tētahi tūtohi, tētahi kauwhata rānei.
  - Ka puta he whakataunga i te tohenga a Wiremu i runga i ngā putanga o te whakamātau.