



KETE MANARUA

Pāngarau 2024

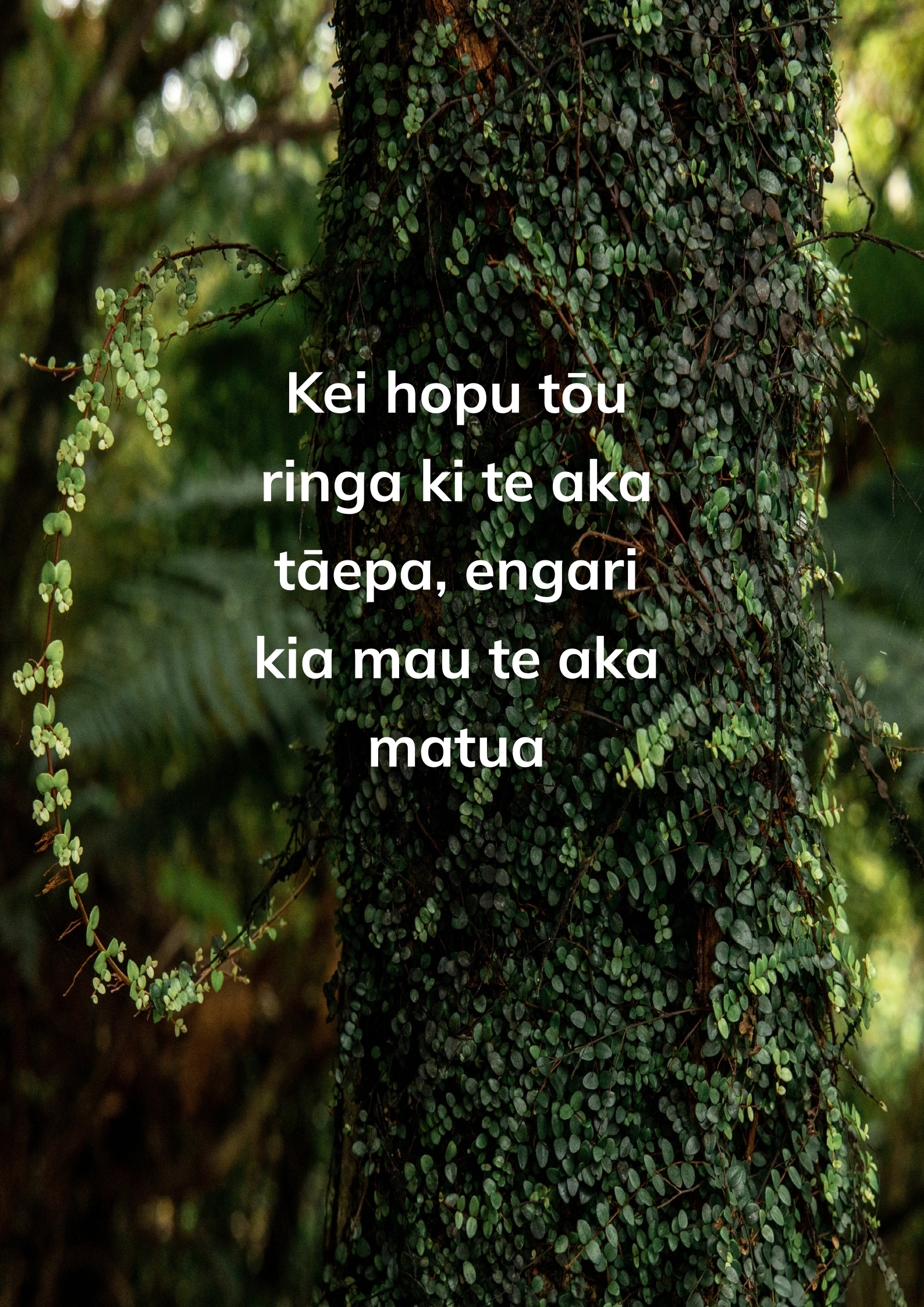
92067 Te whakamahi tikanga taurangi hei whakaoti rapanga

WHIWHINGA: 5

92068 Te whakamahi whakaaro āhuahanga, whakaaro ine hei whakaoti rapanga

WHIWHINGA: 5

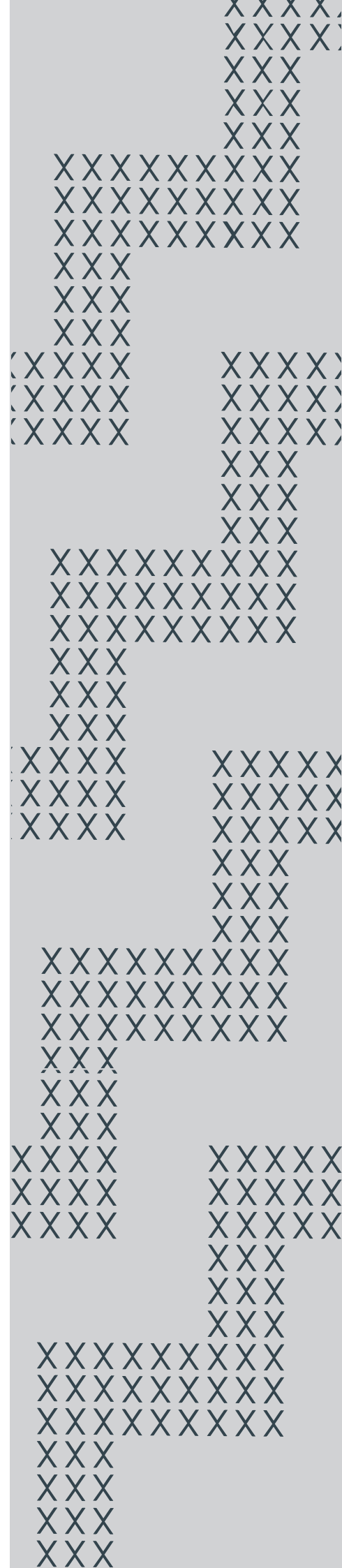
Ka tūwhera a 'MyNZQA' ki te tuku i te Kete Manarua hei te 1 o Oketopa.
Ka kati a 'MyNZQA' hei te 30 o Oketopa, 2024.



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

Ngā Ihirangi

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Kete Manarua

Ka maka te pakapaka, ka ohu te karoro

Kete - ko te kete i pū mai i te pā harakeke me tōna whakapapa.

Manarua – e rua ōna mana. Tuatahi, ko te mana o ngā taonga ka kohikohia me ngā mahi huhua ka whakatutukihia e te ākongā. Tuarua, ko te mana o te ākongā, ko tōna whānau, hapū, me tōna iwi hoki, ko tōna ake mana motuhake tonu.

Te Motuhēhē o ngā mahi

E taea e ngā Ākongā te ako ngātahi, te mahi ngātahi rānei i ētahi atu tāngata hei kohikohi kōrero i ngā puna tautoko huhua. Heoi, me mātua mōhio nei te pouako, nā ngā Ākongā anō ngā mahi i whakarite, i whakatakoto.

Hei akiaki tonu i te hāponotanga o ā rātou mahi katoa me whakamahi anō ngā Ākongā i ā rātou ake kupu, ka mutu, ka kaha hāpai i ngā tikanga tohutoro e whakamana anō ai te puna o te mātauranga.

Mā te mihi e whakaatu, e whakanui hoki i ngā tāngata me ngā puna awhina i puta ai ā rātou nā mahi. Hei tauira:

- He rerenga kupu poto e tohu ana i te pūtakenga mai o tētahi kōrero;
- He rārangi tohutoro i te whārangi whakamutunga o ngā mahi;
- He mihi ki te tangata | puna awhina;
- Ngā momo puna awhina, puna kōrero rānei:
 - » Kōrero ā-waha: he uiui kaumātua, pakeke, rangatira, mātanga rānei;
 - » Ngā pukapuka i whakaputa;
 - » Ngā pukapuka kāore i whakaputa;
 - » Wāhitau ipurangi.

Te Tāpae i te Kete Manarua

Ko ngā tāpaenga Kete Manarua me mahi mā te pūnaha hou (kei te pae ipurangi matua o MyNZQA): [Tāpaetanga pūnaha hou NZQA](#).

E pai ana te tāpae mai i ngā taunakitanga hei kōnae matihiko, ahakoa kōnae oro, kōnae ataata rānei, hei PDF kē rānei, hei kōtuinga rānei o ngā mea e rua. Me he taunakitanga ā-pepa, me matawai, ka tuku ai hei PDF. Me whakakī anō hoki e te kaiako te Pukauhi Kete Manarua mō ia kōpaki Kete Manarua ka tukua kia aromatawaia.

Mā ngā Ākonga anō ā rātou mahi e tukuatu i te tuatahi. Tēnā, matakihia te ataata, tikiake rānei i ngā tohutohu e whakaatu ana me pēhea te tuku atu i ngā tāpaenga Kete Manarua mā te pūnaha hou [How-to Resource](#).

Mēnā kei te hiahia āwhina ngā Ākonga ki te tuku atu i ngā tāpaenga Kete Manarua, tēnā, kōrero ki a rātou, ā, māu anō rātou e awahi, e tautoko.





PĀNGARAU

92067 Te whakamahi tikanga taurangi hei whakaoti rapanga

(Kaupae 1, Whiwhinga 5)

Kairangi	Kaiaka	Paetae
<p>Hei tohu i te kairangi:</p> <ul style="list-style-type: none">• Ka whakamahi tikanga taurangi me ngā whakaaro waitara hei whakaoti rapanga.	<p>Hei tohu i te kaiaka:</p> <ul style="list-style-type: none">• Ka whakamahi tikanga taurangi me ngā whakaaro tūhonohono hei whakaoti rapanga.	<p>Hei tohu i te paetae:</p> <ul style="list-style-type: none">• Ka whakamahi tikanga taurangi hei whakaoti rapanga.

Tau AS92067

Putanga 3

Whārangi 1 o te 4

Paerewa Paetae**Aronga** Pāngarau 1.3**Ingoa** Te whakamahi tikanga taurangi hei whakaoti rapanga**Kaupae** 1 **Whiwhinga** 5 **Aromatawai** Ā-waho**Marau akoranga** Te Marautanga o Aotearoa**Kokonga akoranga** Pāngarau**Mana rēhita** Kua rēhitatia **Te rā i mana ai** Hakihea 2023**Te rā e arotakengia ai** Hakihea 2028 **Te rā i puta ai** Hakihea 2023**Te Whāinga**

Ko tā tēnei paerewa he whakamahi tikanga taurangi hei whakaoti rapanga. Ko te pūtake o te taurangi, he tūāpapa mō ngā tohu mātauranga nui, ka whaitake ki ngā rāngai huhua.

Paearu Paetae

Paetae	Hei tohu i te paetae: <ul style="list-style-type: none"> • Ka whakamahi tikanga taurangi hei whakaoti rapanga.
Kaiaka	Hei tohu i te kaiaka: <ul style="list-style-type: none"> • Ka whakamahi tikanga taurangi me ngā whakaaro tūhonohono hei whakaoti rapanga.
Kairangi	Hei tohu i te kairangi: <ul style="list-style-type: none"> • Ka whakamahi tikanga taurangi me ngā whakaaro waitara hei whakaoti rapanga.

Kōrero Āpiti

- 1 I ahu mai tēnei paerewa paetae i te Taumata 6 o Te Marautanga o Aotearoa (Te Tāhuhu o te Mātauranga, 2017). E hono ana ki te Papa Whakaako mō Pāngarau kei: <https://ncea.education.govt.nz>.

<i>Whāinga Paetae</i>
<p><u>Te Tau me te Taurangi, Te Whārite me te Kīanga</u></p> <p>6. Ka tuhi, ka whakaoti whārite rārangi, tōrite rārangi, whārite pūrua, whārite taupū māmā, whārite tukutahi, kia rua ngā taurangi.</p> <p><u>Te Tau me te Taurangi, Te Pānga me te Tauira</u></p> <p>7. Ka whakawhānui i ngā tikanga paheko tau, me ngā tikanga taupū.</p>

2 E whai ake nei ngā whakamārama mō ngā paearu paetae:

<p><i>Ka whakamahi tikanga taurangi hei whakaoti rapanga.</i></p>	<ul style="list-style-type: none"> • Ka whiriwhiri, ka whakamahi i ētahi tikanga taurangi whānui e hāngai ana hei whakaoti rapanga. • Ka whakaatu i ngā hononga o te tūtohi, te whārite me te kauwhata. • Ka whakaatu mōhiotanga ki ngā huatau me ngā kupu e hāngai ana. • Ka whakamārama i ngā otinga mēnā kotahi, e rua rānei ngā mahi o roto i te tikanga i whakamahia. • Ka whakamahi i te reo matatini o te pāngarau hei whakawhitiwhiti whakaaro.
<p><i>Ka whakamahi tikanga taurangi me ngā whakaaro tūhonohono hei whakaoti rapanga.</i></p>	<p>Ko te whakaaro tūhonohono te mea nui. Arā, kia kotahi, nui ake rānei o ēnei:</p> <ul style="list-style-type: none"> • Ka whiriwhiri, ka whakatutuki raupapatanga mahi arorau hei whakaoti rapanga. • Ka tūhonoa ētahi huatau rerekē, ētahi whakaahuahanga rerekē rānei. • Ka whakaatu māramatanga ki ngā huatau e hāngai ana. • Ka hanga, ka whakamahi tauira. • Ka whakahāngai i te kaupapa ki tētahi pūāhua Māori me te tautohu i ngā tikanga Māori e whaitake ana. • Ka tūhono i ngā otinga ki te horopaki o te rapanga, ka whakamahi rānei i ngā kīanga pāngarau hei whakawhitiwhiti whakaaro ki te reo Māori.

<i>Ka whakamahi tikanga taurangi me ngā whakaaro waitara hei whakaoti rapanga.</i>	<p>Ko te whakaaro waitara te mea nui. Arā, kia kotahi, nui ake rānei o ēnei:</p> <ul style="list-style-type: none"> • Ka waihanga rautaki hei tūhura, hei whakaoti rānei i tētahi rapanga. • Ka tautohua ngā huatau e hāngai ana ki te horopaki. • Ka whakaputaina tētahi raupapatanga whakaaro arorau, tētahi hāponotanga rānei. • Ka whakahoropaki i te kaupapa ki tētahi pūāhua Māori me te tautohu i ngā tikanga Māori e whaitake ana. • Ka whakamahi kīanga pāngarau tika, ka whakawhitiwhiti rānei i te aroā pāngarau ki te reo Māori.
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- 3 E whai ake nei ngā whakamārama mō ngā kupu me ngā kīanga whaitake matua o te paerewa nei:

<i>rapanga</i>	Ko ngā āhuatanga o ia rā, ngā āhuatanga pāngarau rānei, ka whai wāhi mai te whakamahinga o te mātauranga pāngarau, o ngā huatau pāngarau, o ngā tikanga pāngarau rānei.
<i>hononga</i>	Ko ngā āhuatanga e hono ana i te tūtohi, te whārite me te kauwhata e whakaatu ana i ētahi taurangi, me te whakaatu anō i ngā taurangi hei takirua raupapa.
<i>ētahi tikanga taurangi whānui</i>	Kia toru, nui ake rānei ngā tikanga.

- 4 Kia taunga te ākonga ki ngā tikanga e whai wāhi mai ana:

- te whakatauwehe kīanga taurangi
- te whakawhānui kīanga taurangi
- te whakarūnā i ngā kīanga taurangi e whai wāhi mai ana te taupū, pērā i te $(2x^4)^3$ me te $12a^5/8a^7$
- te whakauru uara ki te ture tātai
- te rāwekeweke me te whakarūnā i ngā kīanga pērā i te $3x/4 - x+2/3$ me te $(3x^2 - 12)/x - 2$
- te huri i ngā ture tātai pērā i te $E = 1/2mv^2$ me te $1/u + 1/v = 1/f$
- te whakaoti whārite rārangi, tōrite rārangi hoki, pērā i te $5x + 12 = 3 - 2x$ me te $3(x - 2) < 7$
- te whakaoti whārite pūrua pērā i te $(8x + 3)(x - 6) = 0$, te $x^2 + 5x - 6 = 0$ me te $3x^2 = 10x - 8$ (kāore e whai wāhi mai te whakaoti pūruatanga, te ture pūrua rānei)
- te whakaoti whārite māmā e whai wāhi mai ana te taupū, pērā i te $x^3 = 8$ me te $5x = 125$
- te whakaoti whārite rārangi tukutahi, e rua ngā taurangi

- te whakamahi ture tātai
 - te hanga, te tuhi kauwhata, me te rāwekeweke i ngā whārite rārangi, pērā i te $E = 8 + 0.75t$, hei whakaoti rapanga
 - te tūhono i te pāpātanga o te whiti ki te rōnaki o te kauwhata
 - te whakamahi whārite tukutahi, tōrite, kauwhata rānei hei whakaoti rapanga e whai wāhi mai ana te pānga rārangi
 - Kāore e whakaaetia te hangarau tāhiko i roto i ngā aromatawai mō tēnei paerewa paetae.
- 5 Me honohono te ākongā i ngā whakaaro whānui ki ngā pūāhua ahurea, ki ngā pūāhua pāpori (He Uri Whakaheke):
- ki te tautohu i ngā uara, i ngā kawa me ngā tikanga
 - ki te tautohu i ngā kōrero tuku iho, i te mātauranga Māori
 - ki te tūhono i te pāngarau ki ngā take o te takiwā, o te hapū, o te iwi, me ngā kaupapa o te ao whānui.
- 6 Me whakamahi te ākongā i te reo matatini o te pāngarau me ngā rautaki reo maha (He Puna Kōrero) ki te kōrerorero i ngā whakaaro pāngarau nei ki te reo Māori – ā-tuhi, ā-waha, ā-ataata.
- 7 Arā ngā Tikanga Aromatawai mō tēnei paerewa paetae, kei: <https://ncea.education.govt.nz>.

Kōrero Whakakapinga

I whakakapinga ngā paerewa 91655-91656 e ngā paerewa 92065-92068.

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 whakaōrite e tika ana mō aua paerewa paetae.

Ko te tohutoro ki te Mahere Whakamana, Whakaōritenga hoki

0233

Tautuhinga Aromatawai Ā-Waho 2024

Te Paerewa Paetae

92067

Te Ingoa

Te whakamahi tikanga taurangi hei whakaoti rapanga

Te Marautanga

Te Marautanga o Aotearoa

Te Wāhanga Ako

Pāngarau

Ngā Whiwhinga

E 5

Te Tukanga Aromatawai

He Kete Manarua

Te Wā Tuku Aromatawai

Te 1 o Oketopa 2024 ki te 30 o Oketopa 2024

Kete Manarua

Ko te KETE i pū mai i te pā harakeke, he whakapapa tōna.

He MANA tōna, e rua ōna āhuatanga; Kātahi: Ko ngā taonga tuku iho ka kohikohia e te ākonga. Ka rua: He whakapiki i te mana motuhake o te ākonga, ōna hapū, ōna iwi hoki.

He tāpaetanga ā-matihiko te āhua o te KETE MANARUA ka tukuna mai e te kura, ā, he kōpaki, he kiriata, he kōrero ā-waha, he rauata, he tuhinga, he pūrongo, he whakaaturanga, he rātaka, he mahi rangahau aha atu aha atu.

Te Whakatakotoranga Aromatawai

Ka whakaritea e te ākonga tētahi Kete Manarua mō āna mahi kua kohikohia e ia, kua whakaraupapahia hoki, tae noa atu ki te rā aukati.

Mā Te Tohu Mātauranga o Aotearoa (NZQA) ngā aromatawai e whakarite mō te Kete Manarua hei tauira mā te ākonga.

Ka whakamahi te ākonga i te whakaaro taurangi i ngā āhuatanga o ia rā, o ia rā, tae atu ki ngā kaupapa me ngā horopaki huhua o te ao Māori, hei whakaoti rapanga. Ka tāpaea e te ākonga ēnei mahi hei taunakitanga kua puta māori mai i ngā kawenga e pā ana ki ngā āhuatanga maha o ia rā.

Kia taunga te ākongā ki ngā tikanga e whai wāhi mai ana:

- ki te whakawhānui kīanga taurangi
- ki te whakarūnā i ngā kīanga taurangi e whai wāhi mai ana te taupū, pērā i te $(2x^4)^3$ me te $\frac{12a^5}{8a^7}$ [whārite]
- ki te whakaurū uara ki te ture tātai
- ki te rāwekeweke me te whakarūnā i ngā kīanga pērā i te $\frac{3x}{4} - \frac{x+2}{3}$ me te $\frac{3x^2-12}{x-2}$
- ki te huri i ngā ture tātai pērā i te $E = \frac{1}{2}mv^2$ me te $\frac{1}{u} + \frac{1}{v} = \frac{1}{f}$
- ki te whakaoti whārite rārangi, tōrite rārangi hoki, pērā i te $5x + 12 = 3 - 2x$ me te $3(x - 2) < 7$
- ki te whakaoti whārite pūrua pērā i te $(8x + 3)(x - 6) = 0$, te $x^2 + 5x - 6 = 0$ me te $3x^2 = 10x - 8$ (kāore e whai wāhi mai te whakaoti pūruatanga, te ture pūrua rānei)
- ki te whakaoti whārite māmā e whai wāhi mai ana te taupū, pērā i te $x^3 = 8$ me te $5^x = 125$
- ki te whakaoti whārite rārangi tukutahi, e rua ngā taurangi
- ki te whakamahi ture tātai
- ki te hanga, te tuhi kauwhata, me te rāwekeweke i ngā whārite rārangi, pērā i te $E = 8 + 0.75t$, hei whakaoti rapanga
- ki te tūhono i te pāpātanga o te whiti ki te rōnaki o te kauwhata
- ki te whakamahi whārite tukutahi, tōrite, kauwhata rānei hei whakaoti rapanga e whai wāhi mai ana te pānga rārangi.
- Kāore e whakaaetia te hangarau tāhiko i roto i ngā aromatawai mō tēnei paerewa paetae.

E whakaatu ana te Kete Manarua i ngā taunakitanga nei:

- te tuhi, te whakaoti whārite rārangi, te tōrite rārangi, te whārite pūrua, te whārite taupū māmā, te whārite tukutahi
- te whakawhānui i ngā tikanga paheko tau me ngā tikanga taupū.

Anei ētahi tauira mō te Kete Manarua:

- he whakaaturanga me ētahi kōrero whakamārama (Kia iti iho i ngā whārangi e 6)
- he kohinga whakaahua me ētahi kōrero whakamārama
- he kiriata (e 2-3 meneti)
- t/ētahi atu tūmahi aromatawai

Ngā Herenga Aromatawai

He mahi takitahi tēnei mahi nā te ākonga; me te whakatakoto taunakitanga mō te aromatawai ā-waho. He Kete Manarua ā-matihiko anake.

Kia tutuki pai te Kete Manarua ā-matihiko nei:

- me whakaputa hei PDF;
- me noho te rahinga tuari ki raro i te 5GB e pai ai te tārewatanga o ngā mahi ki te Online Digital Submission Portal;
- me tika te whakaraupapatanga o ngā mahi;
- me tika te whakatakotoranga o ngā mahi (kia kua e noho tītaha, huripoki rānei);
- me tāmāua te kiriata ki te tītohunga ataata, ā, kua rāhuitia te tukuhanga noa i te honongaitua me tana kōtahi.

Te Motuhēhē o ngā mahi o ngā ākonga

Me pēhea e mōhiohia ai te motuhēhē o ngā mahi o ngā ākonga? He tukanga, he taunakitanga e mōhiohia ai nā te ākonga ake āna mahi aromatawai. Kia mataara ngā ākonga, ngā kaiako me te whānau o te kura hoki ki te motuhēhē o ngā mahi a ngā ākonga.

He māmā noa iho te tiki mahi a tangata kē, heoi, mā te mihi e whakaatu, e whakanui hoki i ngā tāngata me ngā puna awhina i puta ai ngā mahi a ngā ākonga.

Hei taurira:

- He rerenga kupu poto e tohu ana i te pūtakenga mai o tētahi kōrero;
- He rārangi tohutoro i te whārangi whakamutunga o ngā mahi;
- He mihi ki te tangata | puna awhina;
- Ngā momo puna awhina, puna kōrero rānei:
 - » Kōrero ā-waha: he uiui kaumātua, pakeke, rangatira, mātanga rānei;
 - » Ngā pukapuka i whakaputa;
 - » Ngā pukapuka kāore i whakaputa;
 - » Wāhitau ipurangi.

He kōrero anō i ngā wāhitau ipurangi o te paetukutuku NZQA:

- [Authenticity: NZQA](#)
- [Myth 3 Managing authenticity: NZQA](#)
- [Authenticity of externally assessed standards: NZQA](#)
- [Guidance on the acceptable use of Artificial Intelligence: NZQA](#)

Te Tāpaetanga me te Hāponotanga

Ko ngā tāpaenga Kete Manarua me mahi mā te pūnaha hou (kei te pae ipurangi matua o MyNZQA): [Tāpaetanga pūnaha hou NZQA](#).

Kāore te Kete Manarua matihiko e whakahokia ki te ākongā. Mēnā he kōrero anō mō te tāpaetanga me te hāponotanga o te mahi, mā te tari o NZQA e pānui atu ki ngā kura.

Mēnā kei te hiahia āwhina ki te tuku atu i ngā tāpaenga Kete Manarua:

- Īmēra mai ki assessment.service.centre@nzqa.govt.nz,
- waea rānei i te NZQA Contact Centre mā te nama 0800 687 296.

Tūmahi Aromatawai

Te Whakaora i te Taiao

Ka tāmirotia tēnei aromatawai ki ngā paerewa o te Hangarau 92052, te Pāngarau 92065/92068, Te Reo Rangatira 92073, te Pūtaiao 92070 anō hoki

He Kupu Whakataki

I te taenga mai o ō tātou tūpuna ki tēnei whenua, i ora katoa te taiao o tēnei whenua, otirā ko ngā awa, ngā roto, ngā repo, te moana, ngā takutai hoki. Haere ana te wā, ka kite i te pānga o ngā mahi a te tangata ki tō tātou taiao.

He tino taonga te koiora, ngā momo taketake pērā i te tuna, te kahawai, te kokopū, te piharau, te pāua, te pipi. He kaitiaki, he rangatira hoki ngā momo taketake nei, ā, he maha ngā marae kua whakarākai i te whare tūpuna ki ngā whakairo, ngā tukutuku, ngā kōwhaiwhai, ā, ki ēnei momo. He puna kai hoki ēnei mō ō tātou tūpuna, ā, e pērā tonu ana i ēnei rā.

E taea ana e te ākonga te whiriwhiri i tētahi atu momo taketake e hāngai ana ki tōna ake iwi hei tūhuratanga mō tēnei aromatawai

Te Aromatawai

Ko te rangahau i ētehi āhuratanga o tētehi momo taketake i whakamahia hei kai ngā aronga o tēnei aromatawai.

Ka whakarite pātai tūhuratanga taurangi, ā, ka whakamahi i ngā tikanga o te taurangi hei whakaoti i ō pātai.

Hei tauira: Ko te momo taketake: Te Tuna



Tūmahi Tuatahi:

Whakatakotoria e te ākonga ētahi pātai tūhuratanga taurangi, e hāngai ana ki te oranga o te tuna, ki tōna taiao;

Hei tauira:

Ngā kōrero tuku iho, ngā korero ā-iwi, me ngā tikanga mō te tuna;

- te rahinga o te wai e ora ana te tuna;
- te roa o te hekenga o te tuna;
- te pāpātanga tipu o te tuna;
- ngā inenga hanga hīnaki hei hopu i te tuna:
- te hanga, te tuitui i te hīnaki.

Tūmahi Tuarua:

Ka whakamahi koe i ngā pātai hei whakarite i tō huarahi whakautu.

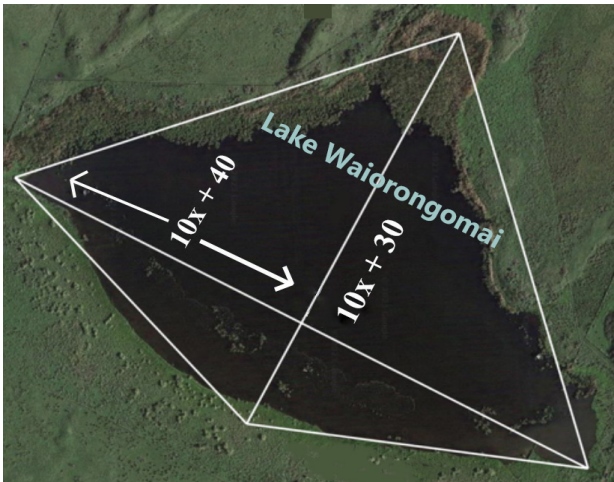
Tūmahi Tuatoru

Ka whakamahi i ngā tikanga taurangi hei whakautu i ō pātai tūhuratanga.

He taunaki hei hāpai i te kaiako:

- ngā manga/awa/moana:
- te roanga/horahanga/rōrahi o te roto e tūhura ana.

He tauira hei taunaki i ngā whakaaro nei mō te paenga o te roto e noho ai ngā tuna.



Tauira mō te horahanga - E $28,800\text{m}^2$ te horahanga o te roto o Wairongomai. He aha te wāriu o x ?



Tauira mō te paenga - koinei ngā roanga o ngā tahataha o te roto o Wairongomai, 112m te paenga. He aha te wāriu o te x ?

Te Tātai Hīnaki

E hia te roa o te waea me te kupenga hei hanga i ngā hīnaki?

- ngā inenga mō te hanga i te hīnaki
- te rōrahi o te hinaki
- te nui o ngā tuna ka kuhu ki roto i te hīnaki
- te maha o ngā tuna ka kuhu ki roto i te hīnaki
- ngā utu kia hoki

E \$6/m te utu mō te waea, ā, e \$7/m te utu mō te kupenga ki toa A, e \$74 te utu mō ngā rawa katoa.

E \$7/m te utu mō te waea, ā, e \$3/m te utu mō te kupenga ki te toa E, e \$76 te utu mō ngā rawa katoa

E hia te roa o te waea me te kupenga hei hanga i ngā hīnaki?

$$1. \quad 6w + 7k = 74$$

$$2. \quad 7w + 3w = 7$$

Whakaōrite i
ngā k
(1) x3
(2) x7

$$1. \quad 18w + 21k = 222$$

$$2. \quad 49w + 21k = 532$$

$$-31 = -310$$

$$w = \frac{-310}{-31}$$

$$w = 10$$

$$6(10) + 7k = 74$$

$$60 + 7k = 74$$

$$7k = 74 - 60$$

$$k = \frac{14}{7}$$

$$k = 2$$

Tangohia te
whārite 2 i te 1
Whakaotia te
whārite

Whakaurua
te $w=10$ ki te
whārite 1 kia whai
te k

Te Tuna

- Te tipu o te tuna - Te rahi, te nui, te roa, te mātotoru...
- Te pāpātanga tipu o te tuna

Kia tae mai te tuna ki Aotearoa ka 5cm tōna roangā, i ia te tau ka tipu 2.5mm. Tuhia mai he whārite e whakaahua ana i tēnei

$y = 2.5x + 5$ ko te y te pakeke o te tuna, ko te x tōna roa.

E hia te roanga o tētahi tuna kua ora mō te 70 tau?

$$100 = 2.5x + 5$$

$$100 - 5 = 2.5x$$

$$\frac{95}{2.5} = x$$

$$x = 38cm$$

Mahere Aromatawai

Pāngarau 92067: Te whakamahi tikanga taurangi hei whakaoti rapanga.

Kairangi	Kaiaka	Paetae
Ka whakamahi tikanga taurangi me ngā whakaaro waitara hei whakaoti rapanga.	Ka whakamahi tikanga taurangi me ngā whakaaro tūhonohono hei whakaoti rapanga.	Ka whakamahi tikanga taurangi hei whakaoti rapanga

Te Taunaki i te Aromatawai

Kairangi	Kaiaka	Paetae
<p>Ko te whakaaro waitara te mea nui. Arā, kia kotahi, nui ake rānei o ēnei:</p> <ul style="list-style-type: none"> Ka waihanga rautaki hei tūhura, hei whakaoti rānei i tētahi rapanga. Ka tautohua ngā huatau e hāngai ana ki te horopaki. Ka whakaputaina tētahi raupapatanga whakaaro arorau, tētahi hāponotanga rānei. Ka whakahoropaki i te kaupapa ki tētahi pūāhua Māori me te tautohu i ngā tikanga Māori e whaitake ana. Ka whakamahi kīanga pāngarau tika, ka whakawhitiwhiti rānei i te aroā pāngarau ki te reo Māori. 	<p>Ko te whakaaro tūhonohono te mea nui. Arā, kia kotahi, nui ake rānei o ēnei:</p> <ul style="list-style-type: none"> Ka whiriwhiri, ka whakatutuki raupapatanga mahi arorau hei whakaoti rapanga. Ka tūhonoa ētahi huatau rerekē, ētahi whakaahuahanga rerekē rānei. Ka whakaatu māramatanga ki ngā huatau e hāngai ana. Ka hanga, ka whakamahi tauira. Ka whakahāngai i te kaupapa ki tētahi pūāhua Māori me te tautohu i ngā tikanga Māori e whaitake ana. Ka tūhono i ngā otinga ki te horopaki o te rapanga, ka whakamahi rānei i ngā kīanga pāngarau hei whakawhitiwhiti whakaaro ki te reo Māori. 	<p>Ka whakamahi tikanga taurangi hei whakaoti rapanga.</p> <ul style="list-style-type: none"> Ka whiriwhiri, ka whakamahi i ētahi tikanga taurangi whānui e hāngai ana hei whakaoti rapanga. Ka whakaatu i ngā hononga o te tūtohi, te whārite me te kauwhata. Ka whakaatu mōhiotanga ki ngā huatau me ngā kupu e hāngai ana. Ka whakamārama i ngā otinga mēnā Kotahi, e rua rānei ngā mahi o roto i te tikanga i whakamahia. Ka whakamahi i te reo Matatini o te pāngarau hei whakawhitiwhiti whakaaro.

Kia tutuki te aromatawai

Kairangi	Kaiaka	Paetae
<p>Hei Taura</p> <ul style="list-style-type: none"> • Ka whakaritea he pātai tūhuratanga taurangi e hāngai ana ki te kaupapa (Te Tuna) • Ka rangahaua ngā āhuatanga o te kaupapa (Te Tuna) <ul style="list-style-type: none"> • Kōrero tuku iho • Kōrero-ā-Iwi, Hapū • ukanga • Ka whakamahi tikanga taurangi hei whakautu i te pātai tūhuratanga <ul style="list-style-type: none"> • te whakaoti whārite rārangi • te whakawhānui ki-anga • te whakawhānui whārite pūrua • te whakamahi tikanga whakauru • te tuhi, te whakaoti whārite rārangi, tōrite rārangi, whārite pūrua, whārite taupū māmā, whārite tukutahi • te whakawhānui i ngā tikanga pāheko tau me ngā tikanga taupū. 	<p>Hei Tauira</p> <ul style="list-style-type: none"> • Ka whakaritea he pātai tūhuratanga taurangi e hāngai ana ki te kaupapa (Te Tuna) • Ka rangahaua ngā āhuatanga o te kaupapa (Te Tuna) <ul style="list-style-type: none"> • Kōrero tuku iho • Kōrero-ā-Iwi, Hapū • Tukanga • Ka whakamahi tikanga taurangi hei whakautu i te pātai tūhuratanga <ul style="list-style-type: none"> • te whakaoti whārite rārangi • te whakawhānui kianga • te whakawhānui whārite pūrua • te whakamahi tikanga whakauru 	<p>Hei Tauira</p> <ul style="list-style-type: none"> • Ka whakaritea he pātai tūhuratanga taurangi e hāngai ana ki te kaupapa (Te Tuna) • Ka whakamahi tikanga taurangi hei whakautu i te pātai tūhuratanga <ul style="list-style-type: none"> • te whakaoti whārite rārangi • te whakawhānui kianga • te whakawhānui whārite pūrua • te whakamahi tikanga whakauru



PĀNGARAU

92068 Te whakamahi whakaaro āhuahanga, whakaaro ine
hei whakaoti rapanga

(Kaupae 1, Whiwhinga 5)

Kairangi	Kaiaka	Paetae
<p>Hei tohu i te kairangi:</p> <ul style="list-style-type: none">• Ka whakamahi whakaaro āhuahanga, whakaaro ine mā roto mai i ngā whakaaro waitara hei whakaoti rapanga.	<p>Hei tohu i te kaiaka:</p> <ul style="list-style-type: none">• Ka whakamahi whakaaro āhuahanga, whakaaro ine mā roto mai i ngā whakaaro tūhonohono hei whakaoti rapanga	<p>Hei tohu i te paetae:</p> <ul style="list-style-type: none">• Ka whakamahi whakaaro āhuahanga, whakaaro ine hei whakaoti rapanga.

Paerewa Paetae

Aronga	Pāngarau 1.4		
Ingoa	Te whakamahi whakaaro āhuahanga, whakaaro ine hei whakaoti rapanga		
Kaupae	1	Whiwhinga	5
		Aromatawai	Ā-waho
Marau akoranga	Te Marautanga o Aotearoa		
Kokonga akoranga	Pāngarau		
Mana rēhita	Kua rēhitatia	Te rā i mana ai	Hakihea 2023
Te rā e arotakengia ai	Hakihea 2028	Te rā i puta ai	Hakihea 2023

Te Whāinga

Ko tā tēnei paerewa he whakamahi whakaaro āhuahanga, whakaaro ine hei whakaoti rapanga. Ko te pūtake o tēnei paerewa he tautoko i ngā ākonga ki te waihanga pūkenga kia taea ai te whakaoti rapanga mō te ine me te āhuahanga.

Paearu Paetae

Paetae	Hei tohu i te paetae: <ul style="list-style-type: none"> Ka whakamahi whakaaro āhuahanga, whakaaro ine hei whakaoti rapanga.
Kaiaka	Hei tohu i te kaiaka: <ul style="list-style-type: none"> Ka whakamahi whakaaro āhuahanga, whakaaro ine mā roto mai i ngā whakaaro tūhonohono hei whakaoti rapanga.
Kairangi	Hei tohu i te kairangi: <ul style="list-style-type: none"> Ka whakamahi whakaaro āhuahanga, whakaaro ine mā roto mai i ngā whakaaro waitara hei whakaoti rapanga.

Kōrero Āpiti

- 1 I ahu mai tēnei paerewa paetae i te Taumata 6 o Te Marautanga o Aotearoa (Te Tāhuhu o te Mātauranga, 2017). E hono ana ki te Papa Whakaako mō Pāngarau kei: <https://ncea.education.govt.nz>.

Whāinga Paetae

Te Ine me te Āhuatanga, Te Hanga

4. Ka whakaputa, ka whakamahi i ngā tikanga koki o te porowhita.
 5. Ka aro ki ngā āhua ōrite, ā, ka whakamahi whakaaro pānga riterite hei tātai i tētahi tapa.
 6. Ka whakamahi ōwehenga pākoki me te ture a Pythagoras, i ngā pūāhua ahu-2, ahu-3 hoki.

2 E whai ake nei ngā whakamārama mō ngā paearu paetae:

<p><i>Ka whakamahi whakaaro āhuahanga, whakaaro ine hei whakaoti rapanga.</i></p>	<ul style="list-style-type: none"> • Ka whiriwhiri, ka whakamahi i ētahi tikanga whānui hei whakaoti rapanga. • Ka whakaatu mōhiotanga ki ngā huatau ine/āhuahanga me ngā kupu e hāngai ana. • Ka whakamārama i ngā otinga mēnā kotahi, e rua rānei ngā mahi o roto i te tikanga i whakamahia. • Ka whakamahi kupu āhuahanga/ine, whakaahuahanga rānei hei whakamārama i ngā otinga.
<p><i>Ka whakamahi whakaaro āhuahanga, whakaaro ine mā roto mai i ngā whakaaro tūhonohono hei whakaoti rapanga.</i></p>	<p>Ko te whakaaro tūhonohono te mea nui. Arā, kia kotahi, nui ake rānei o ēnei:</p> <ul style="list-style-type: none"> • Ka whiriwhiri, ka whakatutuki i te raupapatanga mahi arorau e hāngai ana. • Ka tūhono i ētahi huatau rerekē, ētahi whakaahuahanga rerekē rānei. • Ka whakaatu māramatanga ki ngā huatau e hāngai ana. • Ka hanga, ka whakamahi tauira. • Ka tūhono i ngā otinga ki tētahi horopaki, ka whakamahi rānei i ngā kīanga pāngarau hei whakawhitiwhiti whakaaro ki te reo Māori. • Ka whakahāngai i te kaupapa ki tētahi pūāhua Māori me te tautohu i ngā tikanga Māori e whaitake ana.
<p><i>Ka whakamahi whakaaro āhuahanga, whakaaro ine mā roto mai i ngā whakaaro waitara hei whakaoti rapanga.</i></p>	<p>Ko te whakaaro waitara te mea nui. Arā, kia kotahi, nui ake rānei o ēnei:</p> <ul style="list-style-type: none"> • Ka waihanga rautaki hei tūhura, hei whakaoti rānei i tētahi rapanga. • Ka tautohu i ngā huatau e hāngai ana ki te horopaki. • Ka whakaputa i tētahi raupapatanga whakaaro arorau, tētahi hāponotanga rānei. • Ka hanga whakawhānuitanga.

	<ul style="list-style-type: none"> • Ka whakamahi kīanga pāngarau tika, ka whakawhitiwhiti rānei i te aroā pāngarau ki te reo Māori. • Ka whakahoropaki i te kaupapa ki tētahi pūāhua Māori me te tautohu i ngā tikanga Māori e whaitake ana.
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- 3 E whai ake nei ngā whakamārama mō ngā kupu me ngā kīanga whaitake matua o te paerewa nei:

<i>rapanga</i>	Ko ngā āhuetanga o ia rā, ngā āhuetanga pāngarau rānei, ka whai wāhi mai te whakamahinga o te mātauranga pāngarau, o ngā huatau pāngarau, o ngā tikanga pāngarau rānei.
<i>ētahi tikanga whānui</i>	Kia toru, nui ake rānei ngā tikanga.

- 4 Kia taunga te ākongā ki ngā tikanga e whai wāhi mai ana:
- te ture a Pythagoras
 - ngā pānga pākoki o te tapatoru hāngai
 - ngā taparau he ōrite te āhua
 - ngā hononga koki o te rārangi pūtahi me te rārangi whakarara
 - ngā hononga koki o ngā momo taparau
 - ngā hononga koki o te porowhita
 - te roa, te paenga, te horahanga me te horahanga mata, te rōrahi
 - ngā waeine ngahuru
 - te kītanga, te papatipu, te paemahana me te wā
 - ngā waeine pāpātanga pērā i ērā mō te kiato, te tere, te utu ā-waeine me te whakapau kōhinu.
- 5 Me honohono te ākongā i ngā whakaaro whānui ki ngā pūāhua ahurea, ki ngā pūāhua pāpori (He Uri Whakaheke):
- ki te tautohu i ngā uara, i ngā kawa me ngā tikanga
 - ki te tautohu i ngā kōrero tuku iho, i te mātauranga Māori
 - ki te tūhono i te pāngarau ki ngā take o te takiwā, o te hapū, o te iwi, me ngā kaupapa o te ao whānui.
- 6 Me whakamahi te ākongā i te reo matatini o te pāngarau me ngā rautaki reo maha (He Puna Kōrero) ki te kōrerorero i ngā whakaaro pāngarau nei ki te reo Māori – ā-tuhi, ā-waha, ā-ataata.
- 7 Arā ngā Tikanga Aromatawai mō tēnei paerewa paetae, kei: <https://ncea.education.govt.nz>.

8 Kuputaka

whakaaro tūhonohono	<i>relational thinking</i>
whakaaro tūhonohono	<i>abstract thinking</i>

Kōrero Whakakapinga

I whakakapingia ngā paerewa 91655-91656 e ngā paerewa 92065-92068.

Tātari Kouna

- 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 whakaōrite e tika ana mō aua paerewa paetae.

Ko te tohutoro ki te Mahere Whakamana, Whakaōritenga hoki 0233

Tautuhinga Aromatawai Ā-Waho 2024

Te Paerewa Paetae

92068

Te Ingoa

Te whakamahi whakaaro āhuahanga, whakaaro ine hei whakaoti rapanga

Te Marautanga

Marautanga o Aotearoa

Te Wāhanga Ako

Pāngarau

Ngā Whiwhinga

E 5

Te Tukanga Aromatawai

Te Kete Manarua

Te Wā Tuku Aromatawai

Te 1 o Oketopa 2024 ki te 30 o Oketopa 2024

Kete Manarua

Ko te KETE i pū mai i te pā harakeke, he whakapapa tōna. He MANA tōna, e rua ōna āhuatanga; Kātahi: Ko ngā taonga tuku iho ka kohikohia e te ākonga. Ka rua: He whakapiki i te mana motuhake o te ākonga, ōna hapū, ōna iwi hoki.

Te Whakatakotoranga Aromatawai

Ka whakaritea e te ākonga tētahi Kete Manarua mō āna mahi kua kohikohia e ia, kua whakaraupapahia hoki, tae noa atu ki te rā aukati.

Mā Te Mana Tohu Mātauranga o Aotearoa (NZQA) ngā aromatawai e whakarite mō ia Kete Manarua hei tauira mā te ākonga.

Ka whakamahi te ākonga i te whakaaro āhuahanga me te ine i ngā āhuatanga o ia rā, o ia rā, i ngā kaupapa me ngā horopaki huhua o te ao Māori hei whakautu rapanga.

Kia taunga te ākonga ki ngā tikanga e whai wāhi mai ana:

- ki te ture a Pythagoras
- ki ngā pānga pākoki o te tapatoru hāngai
- ki ngā taparau e ōrite ana te āhua
- ki ngā hononga koki o te rārangi pūtahi me te rārangi whakarara
- ki ngā hononga koki o ngā momo taparau
- ki ngā hononga koki o te porowhita
- ki te roa, ki te paenga, ki te horahanga, ki te horahanga mata, me te rōrahi
- ki ngā waeine ngahuru
- ki te kītanga, ki te papatipu, ki te paemahana me te wā
- ki ngā waeine pāpātanga, pērā i ērā mō te kiato, mō te tere, mō te utu ā-waeine me te whakapau kōhinu.

E whakaatu ana te Kete Manarua i ngā taunakitanga nei:

- i ngā tikanga koki o te porowhita
- i ngā āhua ōrite, i ngā whakamahinga whakaaro pānga riterite hei tātari i tētahi tapa
- i te ōwehenga pākoki me te ture a Pythagoras, i ngā pūāhua ahu-2, ahu-3 hoki
- i te paenga, i te horahanga me te horahanga mata, i te rōrahi, me ngā waeine ngahuru.

Anei ētahi tauira mō te Kete Manarua:

- he whakaaturanga me ētahi kōrero whakamārama (kia iti iho i ngā whārangi e 6)
- he kiriata (e 2-3 meneti)
- he kohinga whakaahua me ētahi kōrero whakamārama
- t/ētahi atu tūmahi aromatawai.

Ko Te Reo Matatini o te Pāngarau te huarahi matua e mārama ai te ākongā ki ngā ariā pāngarau, e whakawhitiwhiti kōrero ai, e eke panuku ai hoki ngā mahi a te ākongā.

Ngā Herenga Aromatawai

He mahi takitahi tēnei mahi nā te ākongā; me te whakatakoto taunakitanga mō te aromatawai ā-waho. He Kete Manarua ā-matihiko anake.

Kia tutuki pai te Kete Manarua ā-matihiko nei:

- me whakaputa hei PDF;
- me noho te rahinga tuari ki raro i te 5GB e pai ai te tārewatanga o ngā mahi ki te Online Digital Submission Portal;
- me tika te whakaraupapatanga o ngā mahi;
- me tika te whakatakotoranga o ngā mahi (kia kaua e noho tītaha, huripoki rānei);
- me tāmaua te kiriata ki te tītohunga ataata, ā, kua rāhuitia te tukuhanga noa i te honongaitua me tana kōtahi.

Te Motuhēhē o ngā mahi o ngā ākonga

Me pēhea e mōhiotia ai te motuhēhē o ngā mahi o ngā ākonga? He tukanga, he taunakitanga e mōhiotia ai nā te ākonga ake āna mahi aromatawai. Kia mataara ngā ākonga, ngā kaiako me te whānau o te kura hoki ki te motuhēhē o ngā mahi a ngā ākonga.

He māmā noa iho te tiki mahi a tangata kē, heoi, mā te mihi e whakaatu, e whakanui hoki i ngā tāngata me ngā puna awhina i puta ai ngā mahi a ngā ākonga.

Hei tauria:

- He rerenga kupu poto e tohu ana i te pūtakenga mai o tētahi kōrero;
- He rārangi tohutoro i te whārangi whakamutunga o ngā mahi;
- He mihi ki te tangata | puna awhina;
- Ngā momo puna awhina, puna kōrero rānei:
 - » Kōrero ā-waha: he uiui kaumātua, pakeke, rangatira, mātanga rānei;
 - » Ngā pukapuka i whakaputa;
 - » Ngā pukapuka kāore i whakaputa;
 - » Wāhitau ipurangi.

He kōrero anō i ngā wāhitau ipurangi o te paetukutuku NZQA:

- [Authenticity: NZQA](#)
- [Myth 3 Managing authenticity: NZQA](#)
- [Authenticity of externally assessed standards: NZQA](#)
- [Guidance on the acceptable use of Artificial Intelligence: NZQA](#)

Te Tāpaetanga me te Hāponotanga

Ko ngā tāpaenga Kete Manarua me mahi mā te pūnaha hou (kei te pae ipurangi matua o MyNZQA): [Tāpaetanga pūnaha hou NZQA](#).

Kāore te Kete Manarua matihiko e whakahokia ki te ākonga. Mēnā he kōrero anō mō te tāpaetanga me te hāponotanga o te mahi, mā te tari o NZQA e pānui atu ki ngā kura.

Mēnā kei te hiahia āwhina ki te tuku atu i ngā tāpaenga Kete Manarua:

- Īmēra mai ki assessment.service.centre@nzqa.govt.nz,
- waea rānei i te NZQA Contact Centre mā te nama 0800 687 296.

Tūmahi Aromatawai

Te Whakaora i te Taiao

Ka tāmirotia tēnei aromatawai ki ngā paerewa o te Hangarau 92052, te Pāngarau 92066/92067, Te Reo Rangatira 92073, te Pūtaiao 92070 anō hoki.

He Kupu Whakataki

I te taenga mai o ō tātou tūpuna ki tēnei whenua, i ora katoa te taiao o tēnei whenua, otirā ko ngā awa, ngā roto, ngā repo, te moana, ngā takutai anō hoki. Haere ana te wā, ka kite i te pānga o ngā mahi a te tangata ki tō tātou taiao.

He tino taonga te koiora, ngā momo taketake pērā i te tuna, te kahawai, te kokopū, te piharau, te pāua, te pipi. He kaitiaki, he rangatira hoki ngā momo taketake nei, ā, he maha ngā marae kua whakarākau i te whare tūpuna ki ngā whakairo, ngā tukutuku, ngā kōwhaiwhai, ā, ki ēnei momo. He puna kai hoki ēnei mō ō tātou tūpuna, ā, e pērā tonu ana i ēnei rā.

E taea ana e te ākongā te whiriwhiri i tētahi atu momo taketake e hāngai ana ki tōna ake iwi hei tūhuratanga mō tēnei aromatawai

Aromatawai

Ka rangahau koe ētehi āhuatanga o tētehi hangarau taketake Māori whakamahia hei kōhi i ngā kai Māori. Ka whakarite pātai tūhuratanga taurangi, ā, ka whakamahia ngā tikanga o te taurangi hei whakaoti i tō pātai.

Hei tauira:

- He aha ngā inenga hei hanga i tētahi hīnaki?
- He aha ngā inenga hei hanga i tētahi kupenga hao ika?

Hei tauira: Ko te momo taketake: Tuna



Tūmahi Tuatahi:

Ka whakatakotoria e te ākongā ētahi pātai tūhuratanga āhuahanga me te ine e hāngai ana ki te oranga o te tuna ki tōna taiao, me ngā āhuatanga hopu hoki i te tuna.

Hei tauira:

- He aha ngā korero tuku iho, ngā korero ā-iwi mō te tuna i tō iwi, hapū?
- He aha te rahinga o te awa/roto/manga e ora ana te tuna i tō hapori?
- He aha te roa o te hekenga o te tuna i te awa/roto/manga i tō hapori ki Tonga?
- He aha te pāpātanga tipu o te tuna?
- He aha ngā tukanga ā-iwi, te haepapa rānei hei hanga hīnaki, hanga tao, otirā ngā taputapu taketake hei hopu i te tuna?
- He aha ngā inenga hei hanga hīnaki, tao, otirā ngā taputapu taketake hei hopu i te tuna?
- Pēhea te hanga, te tuitui i te hīnaki, te tao, otirā ngā taputapu taketake hei hopu i te tuna?

Tūmahi Tuarua:

Ka whakamahi koe i ngā pātai hei whakarite i tō huarahi whakautu.

Hei tauira:

- ngā kōrero tuku iho, ngā kōrero ā-iwi, mō te tuna ki roto i tō iwi, hapū, hapori hoki
- ngā tohutohu hei hanga i te taputapu taketake.

Tūmahi Tuatoru

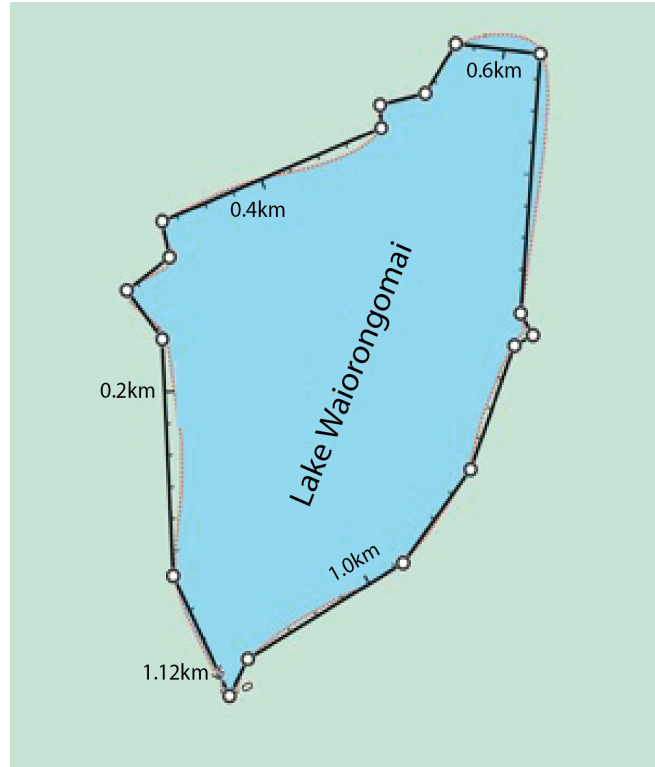
Ka whakamahi i ngā tikanga āhuahanga me te ine, hei whakautu i ō pātai tūhuratanga.

- ngā tikanga koki o te porowhita
- ngā āhua ōrite, te whakamahi whakaaro pānga riterite hei tātari i tētahi tapa
- te ōwehenga pākoki me te ture a Pythagoras, i ngā pūāhua ahu-2, ahu-3 hoki
- te paenga, te horahanga me te horahanga mata, te rōrahi, ngā waeine ngahuru.

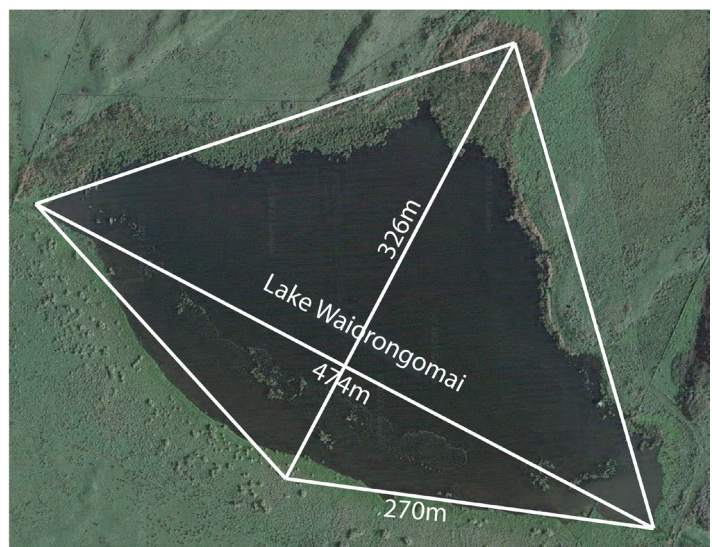
He taunaki hei hāpai i te kaiako:

Ngā manga/awa/moana: He aha ngā inenga o te awa/roto/manga e ora ai te tuna i tō hapori?

- te paenga/roanga/horahanga/rōrahi o ngā manga/awa/roto hei tūhura i ngā tuna
- Whakamahia te ōwehenga pākoki, te pythagoras rānei hei kimi i te paenga, te whānui, te roa o te awa/manga/roto.



1m te hohonu o te roto o Waikorongomai



E hia te roa o te hekenga o te tuna i tō awa/roto/manga i tō hapori ki Tonga?

- ngā waeine – te roanga i Aotearoa ki Tonga, te hekenga o te tuna, te roa (km, m, cm...)
- e anga pēhea ana a Tonga i Aotearoa (Kāpehu)
- whakamahia ngā tikanga ōwehenga pākoki hei whai i te roanga i Aotearoa ki Tonga.



Te Tipu o te Tuna - te rahi, te taumaha, te roa, te mātotoru...

He aha te pāpātanga tipu o te tuna?
([hononga 1](#))

- te taumaha o ngā tuna
- te roanga o ngā tuna
- whakamahia te roa o te tuna hei whakatau tata i tōna pakeke.

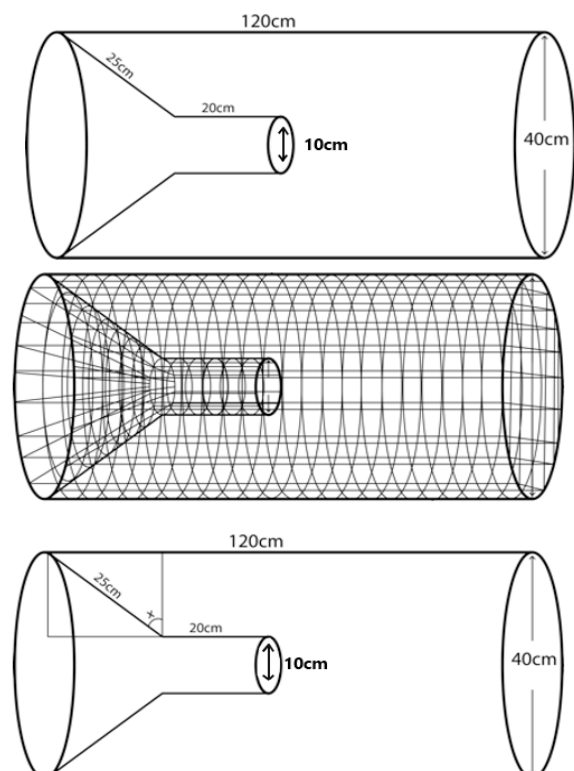
E 1.5 tau kia tae atu te tuna ki Aotearoa, e 2.5cm tōna roanga a te wā ka tae atu. I ia tau ka tipu 2.5mm.

E hia te pakeke o tētahi tuna ki waenga i te 90-95cm?

Te Hīnaki – Ka hoahoa i tētehi hīnaki ([hononga 2](#))

Te Tātai

- i ngā inenga mō te hanga i te hīnaki,...
- te āhua o te hīnaki, he porowhita, he tapawhā, he aha atu rānei tōna anga
- i ngā koki tika me te tikanga ōwehenga pākoki
- te roanga o te waea hei hanga i te hīnaki
- te rōrahi pai hei hanga i te hinaki,
- te nui o te tuna ka kuhu ki roto i tō hīnaki,
- te maha o ngā tuna ka kuhu ki roto i tō hīnaki.



Tūmahi Tuawhā

Ka hangaia te hīnaki, ā, ka whakamātauria ki roto i te manga/awa/roto rānei o tō hapori.

NGĀ RAUEMI

[Te Tuna - NIWA](#)

[Te Tuna 2 - Niwa](#)

[Te Tuna – Te Papa Atawhai](#)

[Te Tuna 2 – Te Papa Atawhai](#)

[Ngā pāpātanga tipu o te tuna](#)

[Hanga hīnaki](#)

[Momo hīnaki](#)

[Ngā wāhanga o te hīnaki - Tūhoe](#)

MĀTĀPUNA

<https://niwa.co.nz/te-k%C5%ABwaha/tuna-information-resource/biology-and-ecology/growth#:~:text=Typically%2C%20the%20growth%20rates%20of,10%20to%2015%20years%20old.>

<https://technology.tki.org.nz/Resources/Student-showcases/Designing-and-developing-materials-outcomes/Hinaki-Creating-eel-traps>

Mahere Aromatawai

Pāngarau 92068: Te whakamahi whakaaro āhuahanga whakaaro ine hei whakaoti rapanga

Kairangi	Kaiaka	Paetae
Ka whakamahi whakaaro āhuahanga, whakaaro ine mā roto mai i ngā whakaaro waitara hei whakaoti rapanga.	Ka whakamahi whakaaro āhuahanga, whakaaro ine mā roto mai i ngā whakaaro tūhonohono hei whakaoti rapanga.	Ka whakamahi whakaaro āhuahanga, whakaaro ine hei whakaoti rapanga.

Te Taunaki i te Aromatawai

Kairangi	Kaiaka	Paetae
<p>Ko te whakaaro waitara te mea nui. Arā, kia kotahi, nui ake rānei o ēnei:</p> <ul style="list-style-type: none"> • Ka waihanga rautaki hei tūhura, hei whakaoti rānei i tētahi rapanga • Ka tautohu i ngā huatau e hāngai ana ki te horopaki • Ka whakaputa i tētahi raupapatanga whakaaro arorau, tētahi hāponotanga rānei • Ka hanga whakawhānuitanga. • Ka whakamahi kīanga pāngarau tika, ka whakawhitiwhiti rānei i te aroā pāngarau ki te reo Māori. • Ka whakahoropaki i te kaupapa ki tētahi pūāhua Māori me te tautohu i ngā tikanga Māori e whaitake ana. 	<p>Ko te whakaaro tūhonohono te mea nui. Arā, kia kotahi, nui ake rānei o ēnei:</p> <ul style="list-style-type: none"> • Ka whiriwhiri, ka whakatutuki i te raupapatanga mahi arorau e hāngai ana. • Ka tūhono i ētahi huatau rerekē, i ētahi whakaahuahanga rerekē rānei. • Ka whakaatu māramatanga ki ngā huatau e hāngai ana. • Ka hanga, ka whakamahi tauira. • Ka tūhono i ngā otinga ki tētahi horopaki, ka whakamahi rānei i ngā kīanga pāngarau hei whakawhitiwhiti whakaaro ki te reo Māori. • Ka whakahāngai i te kaupapa ki tētahi pūāhua Māori me te tautohu i ngā tikanga Māori e whaitake ana. 	<p>Ko te whakamahi whakaaro āhuahanga, whakaaro ine hei whakaoti rapanga.</p> <ul style="list-style-type: none"> • Ka whiriwhiri, ka whakamahi i ētahi tikanga whānui hei whakaoti rapanga. • Ka whakaatu mōhioatanga ki ngā huatau ine/āhuahanga me ngā kupu e hāngai ana. • Ka whakamārama i ngā otinga mēnā kotahi, e rua rānei ngā mahi o roto i te tikanga i whakamahia. • Ka whakamahi kupu āhuahanga/ ine, whakaahuahanga rānei hei whakamārama i ngā otinga.

Kia tutuki te aromatawai

Kairangi	Kaiaka	Paetae
<ul style="list-style-type: none"> • Ka whakaritea he pātai tūhuratanga Ine me te Hanga e hāngai ana ki te kaupapa • Ka rangahaua ngā āhuatanga o te kaupapa (Te Tuna, Te Maramataka Māori) • Kōrero tuku iho • Kōrero-ā-lwi, Hapū • Tukanga • Ka whakamahi whakaaro ine, whakaaro āhuahanga hei whakautu i te pātai tūhuratanga <ul style="list-style-type: none"> • ngā pānga pākoki o te tapatoru hāngai • ngā taparau he ōrite te āhua • ngā hononga koki o te rārangi pūtahi me te rārangi whakarara • ngā hononga koki o ngā momo taparau • ngā hononga koki o te porowhita • te roa, te paenga, te horahanga me te horahanga mata, te rōrahi • ngā waeine ngahuru • te kītanga, te papatipu, te paemahana me te wā • ngā waeine pāpātanga pērā i ērā mō te kiato, te tere, te utu ā-waeine me te whakapau kōhinu. 	<ul style="list-style-type: none"> • Ka whakaritea he pātai tūhuratanga Ine me te Hanga e hāngai ana ki te kaupapa • Ka rangahaua ngā āhuatanga o te kaupapa (Te Tuna, Te Maramataka Māori) <ul style="list-style-type: none"> • Kōrero tuku iho • Kōrero-ā-lwi, Hapū • Tukanga • Ka whakamahi whakaaro ine, whakaaro āhuahanga hei whakautu i te pātai tūhuratanga <ul style="list-style-type: none"> • ngā pānga pākoki o te tapatoru hāngai • ngā taparau he ōrite te āhua • ngā hononga koki o ngā momo taparau • ngā hononga koki o te porowhita • te roa, te paenga, te horahanga me te horahanga mata, te rōrahi • ngā waeine ngahuru • te kītanga, te papatipu, te paemahana me te wā. 	<ul style="list-style-type: none"> • Ka whakaritea he pātai tūhuratanga Ine me te Hanga e hāngai ana ki te kaupapa • Ka whakamahi whakaaro ine, whakaaro āhuahanga hei whakautu i te pātai tūhuratanga <ul style="list-style-type: none"> • ngā taparau he ōrite te āhua • ngā pānga pākoki o te tapatoru hāngai • ngā taparau he ōrite te āhua • te roa, te paenga, te horahanga me te horahanga mata, te rōrahi • ngā waeine ngahuru • te kītanga, te papatipu, te paemahana me te wā.