



TE TĀHUU O TE MĀTAURANGA
Ministry of Education

Hei Tautoko i te Marautanga Pāngarau

Te Poutama Tau

Pukapuka Tuaono

Te Whakarea me te Whakawehe

- 1 2 3 4 5 6 7 8



Hei Whakamihi

Ka mihi ake ki ngā pouako, ki ngā kaitakawaenga pāngarau, huri noa i te motu, e hāpai nei i ngā kaupapa maha e ora pai ai tō tātou reo rangatira, e eke ai ā tātou tamariki i ngā taumata o te mātauranga. Tēnā koutou i runga i te āhua o ngā whakahoki kōrero i ngā tau kua hori ake nei, hei whakawhanake i tēnei kaupapa a tātou, Te Poutama Tau. Mei kore ake koutou.

Ko ngā kōrero o roto i tēnei pukapuka, i pūtakea mai i te pukapuka nei *Book 6, Teaching Multiplication and Division*, i whakaputaina e Te Pou Taki Kōrero i te tau 2008. Otirā, he mea whakahou i runga i ngā whakahoki kōrero mai a te hunga e mahi mai ana i ngā kura reo Māori puta noa i te motu.

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Kaihoa: He Kupenga Hao i te Reo
Kaitā: Print Consultants Limited 2012

Nama take 710308
ISBN 978-0-9876550-7-3

Nā Te Tāhuhu o te Mātauranga ngā huruhuru tautoko hei whakaputa mā He Kupenga Hao i te Reo i tēnei pukapuka.
Kua rāhuitia ngā motika katoa kia āta whakaaetia rā anō e te hunga kei a ia te mana tārua.



Pouaka Poutāpeta 5301, Papaioea 4441

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*Kei te pae ipurangi o www.nzmaths.co.nz ēnei rauemi tārua hei tiki atu mā te pouako ina hiahia.

Kei te hāngai hoki ētahi o ngā rauemi o roto i te pouaka *He Pūtahi Pāngarau*, i whakaputaina e Te Pou Taki Kōrero i te tau 2004 (nama take 30732).



Ngā Kōrero Whakataki

Te Whakaako Rautaki Tau

Ko tā te pukapuka nei, he whakaatu i ētahi mahi whakaako i te whakareatanga me te whakawehenga. E hāngai ana tēnei ki te whenu tau o roto i te marautanga pāngarau¹. E kōtuia ana ngā whenu katoa, engari ko te whenu tau te tūāpapa e angitu ai te ākonga i ērā atu o ngā whenu o te marautanga, arā, te Ine me te Āhuahanga, te Taurangi, me te Tauanga.

Ko te whāinga matua, kia mātau, kia manawareka te ākonga ki te whakamahi i ngā momo rautaki maha hei whakaoti rapanga i roto i ngā horopaki maha o tōna ao. Ko te mahi a te pouako te mea nui e eke ai te ākonga i ngā taumata o te pāngarau, arā:

- kia whakapono te ākonga ki te wāhi nui me te whai take o te pāngarau;
- kia māia, kia mauritau te ākonga, kia tipu te whakapono ki a ia anō me tōna mātau ki te pāngarau;
- kia puta te auahatanga o te ākonga i roto i āna mahi pāngarau;
- kia mau i te ākonga ngā rautaki huhua hei whakaoti rapanga e whai wāhi mai ana te whakarea me te whakawehe;
- kia pakari te whakaaro whaitake me te whakaaro arorau o te ākonga;
- kia pakari te reo matatini o te ākonga e tutuki ai te whakawhitiwhiti whakaaro pāngarau;
- kia angitu ngā ākonga katoa, me te hāpai anō i te ākonga ihumanea.

Ko tā ngā ngohe o tēnei pukapuka, he whakawhanake i ngā rautaki ā-hinengaro o ngā ākonga i ia kaupae o te Mahere Tau. E takea mai ana te āhua o ngā ngohe i te tauira whakaako i whakaaturia i *Te Poutama Tau Pukapuka 3: Te Whakamahere*. Arā, ko ngā wāhangā e toru nei:

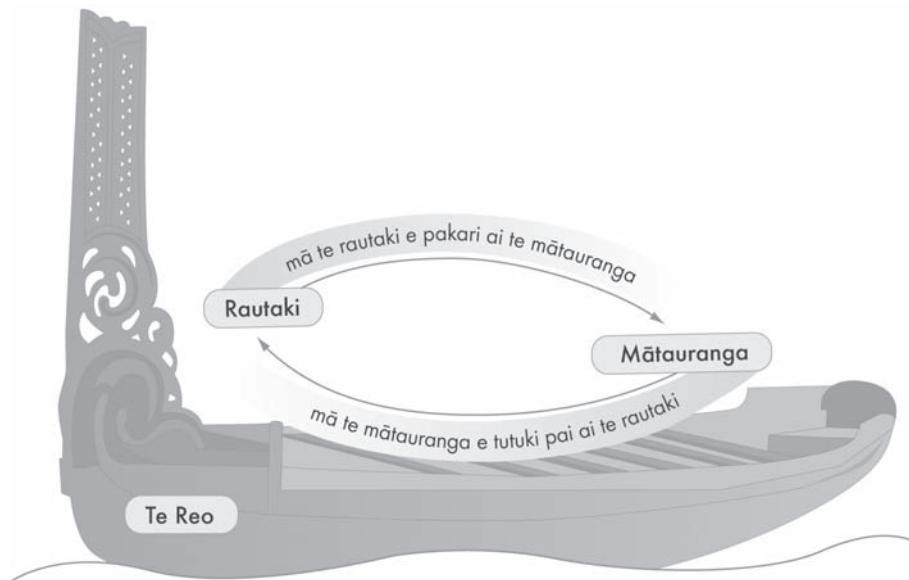
- te whakamahi rauemi;
- te whakaahua ā-hinengaro;
- te whakamahi tikanga tau.

I roto i te mahi whakaoti rapanga a te ākonga, he mea nui te whakatau tata i te otinga, kia mataara anō hoki ki te whaitakenga o te otinga ka tātaihia e ia, ahakoa he tātaitanga ā-hinengaro, ka whakamahi rauemi rānei hei āwhina, pērā i te porotiti, te rārangī tau, te pepa, me te tātaitai.

Kei te pukapuka tuatahi o Te Poutama Tau ngā whakamārama mō te Mahere Tau², arā, te taha ki te Mātauranga Tau, te taha ki ngā Rautaki Tau, me te taha ki te Reo Matatini o te Pāngarau. Ehara i te mea e noho wehe kē ana ēnei wāhangā e toru, engari e haere kōtuitui ana. Mēnā e pakari ana te mātauranga tau o te ākonga, he māmā ake tana ako, tana whakamahi rautaki tau hei whakaoti i ngā momo paheko. Mā tana whakamahi rautaki e pakari anō ai tōna mātauranga ki ngā mea pērā i ngā meka matua, te raupapa tau me ngā tau hautanga.

¹Tirohia: *Tē Marautanga o Aotearoa*, nā Te Pou Taki Kōrero i whakaputa i te tau 2008.

²*Tē Poutama Tau, Pukapuka Tuatahi: Tē Mahere Tau*. Papaioea: He Kupenga Hao i te Reo (2011)



Mō ia ngohe, e whakaaturia ana te kaupae o te Mahere Tau me te taumata o Ngā Whanaketanga³ e hāngai ana. E tutuki ai ētahi o ngā ngohe, me whakarite ngā Rauemi Tārua e hāngai ana, kei te (whārangī 123). Whakaahuangia ēnei rauemi tārua hei whakamahi mā ngā ākonga, tikina atu rānei i te pae ipurangi o www.nzmaths.co.nz.

Te Whakaaro Whakarea

Ko te whāinga matua o tēnei pukapuka, kia matatau te ākonga ki te whakaaro whakarea.

I te tuatahi, ka whakamahi te ākonga i te whakaaro tāpiri hei whakaoti rapanga whakarea. Ka taka te wā, ka mārama haere te ākonga ki te mana o te whakaaro whakarea, inā he ngāwari ake te whakaoti rapanga. Hei tauira:

Ka pau i te whānau Horomona te \$96, hei hoko hāngi. E \$8 te utu mō ia tākaikai hāngi. E hia ngā tākaikai hāngi i hokona e rātou?

	Te Whakaaro Tāpiri	Te Whakaaro Whakarea
	<p>Ka tangotango haere i te \$8 i te \$96. Ka tatauria ngā tangohanga o te \$8 kia pau rā te katoa o te \$96: $96 - 8 = 88$, $88 - 8 = 80$, $80 - 8 = 72 \dots$</p> <p>Ka tāpiripiri haere rānei i te \$8 kia tae atu ki te \$96. Ka tatauria ngā tāpiritanga o te \$8: $8 + 8 = 16$, $16 + 8 = 24$, $24 + 8 = 32 \dots$</p> <p>Auē taukuri e! Tau mai ana te hōhā!</p>	<p>Ka whiriwhiria te maha o ngā \$8 kei roto i te \$96.</p> <p>Ka wāwāhia te \$96 ki ngā tau māmā nei, te \$80 me te \$16.</p> <p>Tekau ngā \$8, kia eke ki te \$80. E rua atu anō kei roto i te \$16. Hui katoa ko te 12 tērā.</p> $ \begin{aligned} \$96 &= \$80 + \$16 \\ &= (\$8 \times 10) + (\$8 \times 2) \\ &= \$8 \times 12 \end{aligned} $ <p>Kei reira!</p>

Mā te mōhio o te ākonga ki ngā tikanga o te whakarea me te whakawehe, e mārama ai ia ki te hōhonutanga o te mahi tau, te taurangi, te ine, te āhuahanga me te tauanga.

Arā te mātauranga matua e pakari ai te whakaaro whakarea o te ākonga, pērā i te mōhio ki ngā meka whakareatanga matua me ngā tau rearua. Mā ēnei mātauranga matua e tutuki ai tā te ākonga whakamahi i ngā rautaki whakarea.

Ngā Kupu mō te Whakarea me te Whakawehe

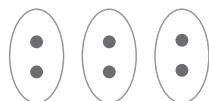
Ko te whakarea me te whakarau ngā kupu e rua e whakamahia ana mō tēnei paheko tau.

Nā te nui o te whakamahinga o te ‘rau’ hei ingoa tau (100, 200 ...), kua riro ko te ‘whakarea’ te kupu e tino whakamahia ana (kia kore ai e pōhēhē te ākonga ko tēhea o ngā ‘rau’ e kōrerohia ana).

Ko te ‘whakawehe’ te kupu e tino whakamahia ana mō te ‘division’.

Ehara i te mea he kupu hou ēnei ki tō tātou reo. Kei roto ēnei kupu i te papakupu o Wiremu, he mea whakamahi hoki i roto i ngā tuhituhinga tawhito a ngā mātua tīpuna. Ahakoa te kupu e whakamahia ana, he mea nui kia ūrite te kupu a tēnā kaiako, a tēnā kaiako i roto i te kura kotahi.

Ko tā te whakarea, he tātai i te maha o ngā mea katoa kei roto i ētahi rōpū (huinga). Kia ūrite te maha o ngā mea kei ia rōpū. Hei tauira, e 3 ngā rōpū (huinga), e 2 ngā mea kei roto i ia rōpū:



Ko te whārite e hāngai ana ki te pikitia nei, ko te 2×3 , arā, whakareatia te 2 ki te 3. Ko te huinga o te 2 te mea e whakareatia ana, ā, e 3 ngā whakareatanga o taua rōpū. Arā kē ētahi atu rerenga kōrero e hāngai ana mō tēnei whakareatanga:

- Whakareatia te 2 ki te 3, ka 6.
- E 2 whakareatia ki te 3, ka 6.
- E 3 ngā rōpū o te 2, ka 6.
- E 3 ngā 2, ka 6.

I roto i te whārite $2 \times 3 = 6$, ka kīia ko te 2 me te 3 ngā tauwehe, ko te 6 te otinga:

$$2 \times 3 = 6 \leftarrow \text{otinga}$$

↑
↑
tauwehe

Ka kīia he tauwehe te 2 me te 3 nā te mea ka taea ēnei tau te whakawehe pū ki roto i te 6.

Koinei ngā ingoa o ngā tau o roto i tētahi whārite whakawehe:

$$18 \div 6 = 3 \leftarrow \text{otinga}$$

↑
↑
tau e whakawehe ana tau whakawehe

Ngā Āhuatanga Tātai o te Whakarea me te Whakawehe

E whā ngā āhuatanga matua o te whakarea me te whakawehe hei tirotiro mā te ākonga. Kāore he take kia mōhio te ākonga ki ngā kupu mō ēnei āhuatanga, engari me mōhio ia ki ngā huatau e hāngai ana:

Te āhuatanga	Hei tauira	Hei whakamārama
Te Āhuatanga Tātai Kōaro Commutative Property	$8 \times 99 = 99 \times 8$	Kāore he take o te raupapa mai o ngā tauwehe o tētahi whakareatanga. Ko tētahi rautaki whakaoti whakareatanga, ko te huri kōaro i ngā tauwehe kia māmā ai te whakareatanga (he māmā ake pe a 99 × 8).
	$10 \div 5 \neq 5 \div 10$	E tino whai take ana te raupapa mai o ngā tau o tētahi whakawehenga. Kāore te paheko whakawehe e whai ana i te āhuatanga tātai kōaro.
Te Āhuatanga Tātai Tohatoha Distributive Property	$\begin{aligned} 4 \times 23 &= (4 \times 20) + (4 \times 3) \\ &= 80 + 12 \\ &= 92 \end{aligned}$	Ka tohaina te whakareatanga ki ngā wāhangā tāpiripiri o tētahi tau. I konei kua wāwāhia te 23 ki te 20 + 3, ā, kua whakareatia ēnei wāhangā ki te 4 hei tātai i te otinga.
	$\begin{aligned} 76 \div 4 &= (40 \div 4) + (36 \div 4) \\ &= 10 + 9 \\ &= 19 \end{aligned}$	Ka tohaina te whakawehenga ki ngā wāhangā tāpiripiri o tētahi tau. I konei kua wāwāhia te 76 ki te 40 + 36, ā, kua whakawehia ēnei wāhangā ki te 4 hei tātai i te otinga.
Te Āhuatanga Tātai Herekore Associative Property	$\begin{aligned} (3 \times 4) \times 25 &= 3 \times (4 \times 25) \\ 12 \times 25 &= 3 \times 100 \\ 300 &= 300 \end{aligned}$	Kāore he take o te whakarōpū i ngā tauwehe o tētahi raupapatanga whakareatanga.
	$\begin{aligned} (24 \div 6) \div 2 &\neq 24 \div (6 \div 2) \\ 4 \div 2 &\neq 24 \div 3 \\ 2 &\neq 8 \end{aligned}$	E tino whai take ana te whakarōpū i ngā tau o tētahi raupapatanga whakawehi. Kāore te paheko whakawehi e whai ana i te āhuatanga tātai herekore.
Paheko Kōaro Inverse Operation	$42 \div 3 = \square \rightarrow \square \times 3 = 42$	E taea ana tētahi whakawehenga te huri kōaro hei whakareatanga.
	$\square \times 25 = 150 \rightarrow 150 \div 25 = \square$	E taea ana tētahi whakareatanga te huri kōaro hei whakawehenga.

Kei te pae tukutuku o www.nzmaths.co.nz tētahi whakaakoranga mā te kaiako e pā ana ki ngā āhuatanga tātai nei o te whakarea me te whakawehe.

Ngā Horopaki mō te Whakarea me te Whakawehe

He huhua tonu ngā horopaki e whai wāhi mai ana te whakarea me te whakawehe.

He mea nui kia mārama te ākonga ki te tikanga o ngā tauwehe me te otinga i roto i ngā horopaki e whakamahia ai te paheko whakarea. Āta whakaarohia tēnei rapanga hei tauira. He rapanga e whai wāhi mai ana ētahi huinga (rōpū) ōrite:

E whā ngā pēke, e ono ngā māpere kei ia pēke. E hia katoa ngā māpere?

Ko te $6 \times 4 = 24$ te whārite e hāngai ana ki tēnei rapanga. He mea nui kia mārama te ākonga e tohu ana te 6, te 4 me te 24 i te aha. Arā, e 6 māpere ki ngā pēke e 4, e 24 katoa ngā māpere:

$$6 \text{ (māpere)} \times 4 \text{ (pēke)} = 24 \text{ (māpere katoa)}$$

Ka mātau haere te ākonga, ka taunga ia ki te tuhi whārite hei whakaahua i te horopaki o te rapanga, ki te whakaoti i te whārite, ki te whakahāngai anō hoki i te otinga ki te horopaki.

E rua ngā momo whakawehenga e whai pānga ana ki te whakareatanga kotahi:

- te whakawehenga tohatoha (partitive division)
- te whakawehenga whakarōpū (quotitive division)

Āta whakaarohia te horopaki nei o ngā māpere. E 24 katoa ngā māpere, e 4 ngā pēke. Koia nei ngā whakawehenga e rua:

- whakawehenga tohatoha

E 24 ngā māpere a Hineora. Ka tohaina ngā māpere ki ētahi pēke e 4. E hia ngā māpere ki ia pēke?

Ka whakawehea ngā māpere e 24 kia ōrite te maha ki ngā pēke e 4. Ka 6 ngā māpere ki ia pēke. Arā, $24 \div 4 = 6$.

- whakawehenga whakarōpū

E 24 ngā māpere a Hineora. Ka whakarōpūngia ngā māpere kia 6 ngā māpere ki ia rōpū. E hia ngā rōpū?

Ka whakawehea ngā māpere e 24 ki ngā rōpū o te 6. Ka 4 ngā rōpū. Arā, $24 \div 6 = 4$.

Ngā Momo Rapanga mō te Whakarea me te Whakawehe

E whai ake nei he tauira o ngā momo rapanga whakarea me ngā rapanga whakawehe e whai pānga ana (te whakawehenga tohatoha me te whakawehenga whakarōpū):

Momo rapanga	Tauira rapanga: Whakarea	Tauira rapanga: Whakawehenga Tohatoha	Tauira rapanga: Whakawehenga Whakarōpū
Ngā rōpu ōrite	E 5 ngā tēpū. Tokowhā ngā tāngata e noho ana ki ia tēpu. Tokohia katoa ngā tāngata? $4 \times 5 = 20$	E 20 ngā tāngata hei whakanoho ki ētahi tēpu e 5. Tokohia ngā tāngata ki ia tēpu? $20 \div 5 = 4$	E 20 ngā tāngata, ka noho takiwhā ki ngā tēpu. E hia ngā tēpu? $20 \div 4 = 5$
Te pāpātanga	E \$2.05 te utu ā-rita mō te kōhinu. E hia te utu mō te 10 rita? $\$2.05 \times 10 = \20.50	10 rita kōhinu ka hokona e Māka, ko te \$20.50 te utu. E hia te utu mō te rita kotahi? $\$20.50 \div 10 = \2.05	E \$2.05 te utu ā-rita mō te kōhinu. Mēnā e \$20.50 te tapeke o te utu, e hia ngā rita kōhinu i hokona? $\$20.05 \div \$2.05 = 10$

Te whakatairitenga	E 6 whakareatanga te maha ake o ngā māpere a Hēnare, i ngā māpere a Hera. Mēnā 12 ngā māpere a Hera, e hia ngā māpere a Hēnare? $12 \times 6 = 72$	E 6 whakareatanga te maha ake o ngā māpere a Hēnare, i ngā māpere a Hera. Mēnā e 72 ngā māpere a Hēnare, e hia ngā māpere a Hera? $72 \div 6 = 12$	E 72 ngā māpere a Hēnare, 12 ngā māpere a Hera. E hia whakareatanga te maha ake o ngā māpere a Hēnare, i ngā māpere a Hera? $72 \div 12 = 6$
Te hautanga me te katoa	Tokowhā ngā kōtiro, tokotoru ngā tama ki ia rōpū. E 35 katoa ngā ākonga. Tokohia katoa ngā kōtiro? $3 + 4 = 7$ (te katoa ki ia rōpū) $7 \times 5 = 35$ (te maha o ngā rōpū) $4 \times 5 = 20$ (te maha o ngā kōtiro)	Tokowhā ngā kōtiro, tokotoru ngā tama ki ia rōpū. E 20 katoa ngā kōtiro. Tokohia ngā tama? $20 \div 4 = 5$ (te maha o ngā rōpū) $3 \times 5 = 15$ (te maha o ngā tama)	E 35 katoa ngā ākonga, 15 o ēnei he tama. He aha te ūwehenga o ngā tama ki ngā kōtiro? $35 - 15 = 20$ (te tokomaha o ngā kōtiro) $15 : 20 = 3 : 4$ (tama : kōtiro)
Te otinga kōwhiriwhiri	E 4 ngā tīhate o Haimona, e 3 ūna tarau. E hia ana kōwhiringa kāahu rerekē e taea ana? $3 \times 4 = 12$	12 ngā kōwhiringa kāahu rerekē a Haimona mō te kuhu tīhate, tarau hoki. Mēnā e 4 ūna tīhate, e hia ūna tarau? $12 \div 4 = 3$ Mēnā e 3 ūna tarau, e hia ūna tīhate? $12 \div 3 = 4$	
Te horahanga tapawhā hāngai	E 8cm te roa o tētahi tapawhā hāngai, e 7cm te whānui. E hia cm ² te horahanga? $8 \times 7 = 56\text{cm}^2$	E 56cm ² te horahanga o tētahi tapawhā hāngai. E 8cm te roa. E hia mitarau (cm) te whānui? $56 \div 8 = 7\text{cm}$ Mēnā e 7cm te whānui, e hia mitarau (cm) te roa? $56 \div 7 = 8\text{cm}$	

Kei roto i te Mahere Tau* e whakaaturia ana ngā whanaketanga o te mātauranga me ngā rautaki tau, he mea puta i ngā rangahautanga. E tūhonohono ana ngā wāhangā e toru o te Mahere Tau e pā ana ki ngā rautaki tau, arā:

- Te tāpiritanga me te tangohanga;
- Te whakarea me te whakawehē;
- Te ūwehenga me te pānga riterite.

E ai ki te rangahau:

- Ko te tāpiritanga tāruarua te hīkoi tuatahi e mātau ai te ākonga ki tēnei mea te whakarea. Kāore e mōhiotia ana mēnā he āhuatanga tēnei ka hua mai i te āhua o te whakaako, he āhuatanga rānei ka hua mai i te tipu noa o te ākonga.
- Ko te tohatoha ūrite te āhua o te whakaaro tuatahi o te ākonga ki tēnei mea te whakawehenga tohatoha.
- Ko te tangohanga tāruarua te āhua o te whakaaro tuatahi o te ākonga ki tēnei mea te whakawehenga whakarōpū.

8 *Tirohia te pukapuka tuatahi o Te Poutama Tau, *Tē Mahere Tau*, i whakaputaina e He Kupenga Hao i te Reo i te tau 2011.

Ngā Whanaketanga Matua mō te Whakarea me te Whakawehē

E whai ake nei te whakarāpopototanga o ngā rangahau e pā ana ki te whanake o te ākonga i roto i te whakareatanga:

Te Kaupae o te Mahere Tau	Ngā Rautaki Matua	Te Whakarea	Te Whakawehē
1–4	Te tatau pānga-tahi	Ka hangaia he huinga taonga ūrite. Ka tatauria ngā taonga o tētahi huinga (tatau pānga-tahi). Ka tatauria mā te pā o te ringa, mā te whakaahua rānei ki rō hinengaro.	Ka tohaina ia taonga hei hanga huinga ūrite.
4–5	Ngā momo tatau	Ka tatau māwhitiwhiti. Ka tāpiri tāruaruua.	Ka tohatoha taonga mā te tāpiri tāruaruua, mā te tango tāruaruua, mā te tatau māwhitiwhiti rānei.
6	Te whakamahi meka mōhio hei whakaputa meka kāore e mōhiotia ana	Ka mōhio ki ngā meka whakarea. Ka whakamahi i ngā meka mōhio me ngā āhuatanga e toru nei o te whakarea hei whakaoti whakareatanga: <ul style="list-style-type: none"> • āhuatanga tātai kōaro (commutative property) • āhuatanga tātai tohatoha (distributive property) • āhuatanga tātai herekore (associative property) 	Ka huri kōaro i ngā meka whakareatanga.
7	Te paheko kōaro me te wāwāhi tau	Ka whakamahia ngā āhuatanga o te whakarea i roto i ngā horopaki huhua e whai wāhi mai ana te tauotī.	Ka whakamahia te rautaki ‘paheko kōaro’ hei tūhono i te whakarea ki ngā momo whakawehenga e rua (te whakawehenga tohatoha me te whakawehenga whakarōpū), i roto i ngā horopaki huhua e whai wāhi mai ana te tauotī.
8	Te whakamahi whakaaro pānga riterite	Ka whakamahia ngā āhuatanga o te whakarea i roto i ngā horopaki huhua e whai wāhi mai ana te hautau me te tau ā-ira. Ka whakamahi tikanga taurangi hei rāwekeweke i ngā pānga o roto i tētahi whakareatanga.	Ka whakamahia te paheko kōaro hei tūhono i te whakarea ki ngā momo whakawehenga e rua (te whakawehenga tohatoha me te whakawehenga whakarōpū), i roto i ngā horopaki huhua e whai wāhi mai ana te hautau me te tau ā-ira. Ka whakamahi tikanga taurangi hei rāwekeweke i ngā pānga o roto i tētahi whakawehenga.

Hei Whakarāpopoto: Ngā Huatau Matua o te Whakarea me te Whakawehe

1. He paheko tāhūra te whakarea, arā, e rua ngā tau i tētahi paheko whakarea, me te otinga hoki o te whakareatanga.
2. He rite te whakareatanga ki te tāpiri tāruarua i ētahi huinga ōrite.
3. He tikanga tō ia tau i roto i tētahi whakareatanga. Ko tētahi hei tohu i te maha o ngā mea kei roto i ia huinga ōrite. Ko tētahi hei tohu i te maha o ngā huinga, ko tētahi hei tohu i te maha o ngā mea katoa.

$$3 \times 5 = 15 \leftarrow \text{te maha katoa}$$

↑ ↑

te maha kei roto i ia huinga te maha o ngā huinga

$3 \times 5 = 15$
e 5 ngā huinga o te 3

4. E tino hono ana te whakarea me te whakawehe. Ko tētahi te kōaro o tētahi. Hei tauira, ko tā te whakarea, he honohono i ētahi huinga ōrite, ko tā te whakawehe, he wāwāhi i tētahi huinga ki ētahi huinga ōrite. Hei tauira:

$$3 \times 5 = 15 \rightarrow 15 \div 5 = 3$$

5. E rua ngā momo whakawehenga:
 - te whakawehenga tohatoha – ka tohaina ētahi mea ki ētahi huinga ōrite;
 - te whakawehenga whakarōpū – ka tautohua te maha o ngā mea kei roto i ia rōpū ōrite.
6. He toenga ka hua mai mēnā kāore e taea te tau e whakawehea ana te wāwāhi ki ētahi huinga ōrite. Nā runga i te horopaki o te whakawehenga, ka noho te toenga hei tauotī, hei hautanga rānei. Hei tauira:
 - E 60 ngā tāngata hei whakawehe ki ētahi tīma e 8. $60 \div 8 = 7$, e 4 te toenga. Nō reira, tokowhitu ngā tāngata ki ia tīma, e 4 tāngata e toe mai ana (ākene pea ka tohaina ēnei tāngata e toe ana ki ētahi o ngā tīma).
 - E 60 rita te rōrahi o te wai ārani hei whakawehe ki ētahi ipu e 8. $60 \div 8 = 7.5$. E 7.5 rita wai ārani ki ia ipu.

7. Ko te 1 te tūmau o te whakareatanga me te whakawehenga. Arā, ki te whakareatia, ki te whakawehea rānei tētahi tau ki te 1, ka noho pūmau tonu te uara o taua tau:
 - $3 \times 1 = 3$
 - $3 \div 1 = 3$

8. Mēnā he rahi ake i te 1 te tau whakarea, he rahi ake te otinga i te tau e whakareatia ana:

$$3 \times 1.5 = 4.5 \leftarrow \text{otinga}$$

↑ ↑

tau e whakareatia ana tau whakarea (he nui ake i te 1)

9. Mēnā he iti ake i te 1 te tau whakarea, he iti ake te otinga i te tau e whakareatia ana:

$$3 \times 0.5 = 1.5 \leftarrow \text{otinga}$$

↑ ↑

tau e whakareatia ana tau whakarea (he iti ake i te 1)

10. Mēnā he rahi ake i te 1 te tau whakawehe, he iti ake te otinga i te tau e whakaweha ana:

$$4 \div 2 = 2 \leftarrow \text{otinga}$$

↑ ↑
tau e whakaweha ana tau whakawehe (he nui ake i te 1)

11. Mēnā he iti ake i te 1 te tau whakawehe, he rahi ake te otinga i te tau e whakaweha ana:

$$4 \div 0.5 = 8 \leftarrow \text{otinga}$$

↑ ↑
tau e whakaweha ana tau whakawehe (he iti ake i te 1)

12. Ko te mōhio ki ngā meka whakareatanga matua (me ngā whakawehenga e whai pānga ana) tētahi āwhina nui i roto i ngā rautaki wāwāhi tau. Hei tauira, he meka whakareatanga matua te 8×5 me te 8×10 :

$$\begin{aligned} 16 \times 5 &= 2 \times 8 \times 5 \\ &= 2 \times 40 \\ &= 80 \end{aligned}$$

$$\begin{aligned} 16 \times 5 &= 8 \times 2 \times 5 \\ &= 8 \times 10 \\ &= 80 \end{aligned}$$

13. He maha ngā momo rapanga whakarea, arā, ko ērā e whai wāhi mai ana:

- ngā rōpū ōrite
- te pāpātanga
- te whakatairitenga
- te hautanga me te katoa
- te otinga kōwhiriwhiri
- te horahanga tapawhā hāngai

14. Ko tētahi wāhanga o te whakaaro whakarea, ko te whakamahi i ngā āhuatanga paheko nei i roto i ngā rautaki wāwāhi tau hei whakaoti whakareatanga, whakawehenga anō hoki:

- te āhuatanga tātai kōaro
- te āhuatanga tātai herekore
- te āhuatanga tātai tohatoha
- te paheko kōaro

15. Ko te hōhonutanga o te whakaaro whakarea, ko te wāwāhi, ko te whakaemi i ngā tau e whakareatia ana, e whakaweha ana rānei, i runga anō i te whakaaro pānga riterite. Hei tauira:

$$\begin{aligned} 12 \times 33 &= 2 \times 2 \times 3 \times 33 \\ &= 4 \times 99 \\ &= 396 \end{aligned}$$

$$\begin{aligned} 396 \div 12 &= 396 \div 2 \div 2 \div 3 \\ &= 198 \div 2 \div 3 \\ &= 99 \div 3 \\ &= 33 \end{aligned}$$



Te Tatau ā-Hinengaro mai i te Kotahi → Te Puanga o te Tatau Kaupae 3 → Kaupae 4



Mahere Tau	0	1	2	3	4	5	6	7	8
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Whanaketanga	1a	1e	2a	2e	3a	3e	4a	4e	5a
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Mātauranga Matua kua Mau kē

Koia nei te mātauranga me mātua mōhio te ākonga e tutuki ai ngā mahi o tēnei wāhanga:

- Ka āta kitea ā-hinengaro ngā mea e whakareatia ana (e whakawheha ana rānei), ā, ka tatauria te katoa. Hei tauira, mō te whakareatanga 2×4 , ka tatauria 1, 2, 3, 4, 5, 6, 7, 8.
- Ka whakawhirinaki tonu ki ngā rauemi (taonga ūkiko) hei whakaoti rapanga e whai wāhi mai ana ngā tau nui.

Hei tauira mahi

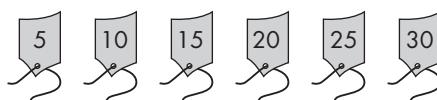
- Whakaritea he aho pirepire hei whakaatu i te tatauranga māwhitiwhiti (mawhiti-2, mawhiti-5, mawhiti-3, mawhiti-10). Arā, kia rerekē ngā tae o ia rōpū pirepire. Hei tauira:

I te tīmatanga, ka tatauria ia pirepire: 1, 2, 3, 4, 5 ...



Kātahi ka tatau māwhitiwhiti me te tohu haere i te pirepire whakamutunga i ia rōpū: 5, 10, 15, 20, 25 ...

- Tuhia te tatauranga māwhitiwhiti ki te papa tuhituhi hei āwhina i ngā ākonga: 5, 10, 15, 20, 25 ...
Kia taunga haere ngā ākonga ki te tatau māwhitiwhiti, me whakakore ngā tau.
- Tonoa ngā ākonga kia tuhi i ngā taurea ki ētahi tohu pēke hokomaha ka whakamau ai ki te aho pirepire.



Mātauranga Matua hei Ako

Koia nei te mātauranga matua hei ako, i te wā e whanake ana te mōhio o te ākonga ki te whakarea me te whakawhehi tēnei kaupae:

- Ngā meka rearua ki te 20 (tirohia te ngohe ‘Rearua’, *Tē Poutama Tau, Pukapuka Tuawhā: Te Whakaako Mātauranga Tau*, whārangī 102);
- Te tatau mawhiti-2, mawhiti-5, mawhiti-10.

Te Huatau Matua

Ko tā te tatau māwhitiwhiti, he honohono rōpū ūrite.

He Ngaku Tau

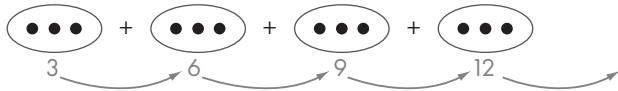
Mahere Tau | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |

Whanaketanga | 1a | 1e | 2a | 2e | 3a | 3e | 4a | 4e | 5a |

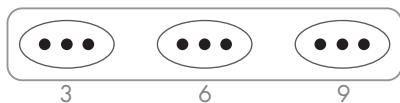
E ako ana ahau ki te whakaoti rapanga whakarea mā te tatau māwhitiwhiti.

He Whakaaro Matua

- E tūhono ana te tatau māwhitiwhiti ki te tāpiri haere i ngā rōpū ūrite. Hei tauira:



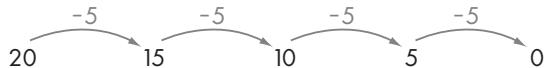
- Ko tā tētahi tau i te raupapatanga tatau māwhitiwhiti, he tohu i te maha o ngā mea kua oti kē te tatau. Hei tauira: E 9 katoa ngā porotiti nei:



- Ko te tatau māwhitiwhiti whakamua he rite ki te tāpiri tāruarua i tētahi tau.



- Ko te tatau māwhitiwhiti whakamuri he rite ki te tango tāruarua i tētahi tau. Hei tauira:



Te Mātauranga Matua

Whakamātauria mēnā e mōhio ana te ākonga ki te tatau mawhiti-2, mawhiti-5 whakamua, whakamuri hoki.

He Aromatawai Poto

Whakarārangihia ētahi porotiti tae rerekē hei whakaatu rōpū ūrite. Hei tauira, kia whā ngā rōpū o te 3:

Hei tauira pātai:



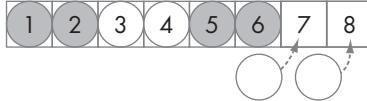
- E hia katoa ngā porotiti?
- I tatau koe i ia porotiti?
- Whakamāramatia mai tō tatau i ngā porotiti.
- Tatauria ngā rōpū. Mēnā kotahi atu anō te rōpū o te toru, ka hia katoa ngā porotiti?
- Mēnā ka tatauria mawhiti-rua ngā porotiti, e hia katoa ngā porotiti?

Mēnā ka tatau mawhiti-toru te ākonga hei whakautu i te pātai tuatahi, ā, kāore ia i hoki ki te tatau anō i ngā porotiti hei whakautu i te pātai whakamutunga, he mātau taua ākonga, ā, e tika ana kia kumea ia ki taumata kē atu.

Rauemi

- Ngaku Tau (1 – 100) (Rauemi Tārua 6-1)
- He porotiti pūataata

Te Whakamahi Rauemi

Ngā tohutohu	He tauira kōrero mā te pouako
<p>Whakatakotoria kia 6 ngā huinga o ngā porotiti e 2 ki mua i te ākonga. Kia rerekē te tae o ia huinga.</p> <p>Hei tauira, kia 2 ngā whero, kia 2 ngā kōwhai, kia 2 ngā kahurangi ...</p> <p>Tonoa ngā ākonga kia matapae i te tau whakamutunga kia uhia mēnā ka whakatakotoria ngā huinga porotiti katoa ki te ngaku tau.</p> <p>Tohua ia huinga porotiti i te ngaku tau, ka tuhi ai i te whakareatanga. Tuhi ia whakareatanga ki te papa tuhituhi.</p>	<p>Anei ētahi rōpū porotiti. E hia kei roto i ia rōpū? E 2.</p> <p>E hia ngā rōpū? E 6.</p> <p>Mēnā ka whakatakotoria ngā rōpū porotiti katoa ki te ngaku tau nei, he aha te tau whakamutunga?</p>  <p>Kotahi te rōpū o te 2. He aha te tau whakamutunga? Ko te 2.</p> <p>Me pēnei te tuhi: $2 \times 1 = 2$ Kia pēnei te kōrero: ‘Whakareatia te 2 ki te 1, ka 2.’</p> <p>E 2 ngā rōpū o te 2. He aha te tau whakamutunga? Ko te 4.</p> <p>Me pēnei te tuhi: $2 \times 2 = 4$ Kia pēnei te kōrero: ‘Whakareatia te 2 ki te 2, ka 4.’</p> <p>E 3 ngā rōpū o te 2. He aha te tau whakamutunga? Ko te 6.</p> <p>Me pēnei te tuhi: $2 \times 3 = 6$ Kia pēnei te kōrero: ‘Whakareatia te 2 ki te 3, ka 6.’</p> <p>E 4 ngā rōpū o te 2. He aha te tau whakamutunga? Ko te 8.</p> <p>Me pēnei te tuhi: $2 \times 4 = 8$ Kia pēnei te kōrero: ‘Whakareatia te 2 ki te 4, ka 8.’</p> <p>E 5 ngā rōpū o te 2. He aha te tau whakamutunga? Ko te 10.</p> <p>Me pēnei te tuhi: $2 \times 5 = 10$ Kia pēnei te kōrero: ‘Whakareatia te 2 ki te 5, ka 10.’</p> <p>E 6 ngā rōpū o te 2. He aha te tau whakamutunga? Ko te 12.</p> <p>Me pēnei te tuhi: $2 \times 6 = 12$ Kia pēnei te kōrero: ‘Whakareatia te 2 ki te 6, ka 12.’</p>

Tonoa ngā ākonga kia tatau māwhitiwhiti i ia huinga o te 2.	Tatauria ia rōpū o te 2. 2, 4, 6, 8, 10, 12.
Huripokina te ngaku tau kia kore ai e kitea ngā tau. Whakatakotoria ngā porotiti, ka tatau mawhiti-2 ai.	Ka huripokina te ngaku tau. Ināianei, kāore e kitea ana ngā tau. Tatauria ia rōpū o te 2. 2, 4, 6, 8, 10, 12. Mēnā ka whakatakotoria tētahi anō rōpū o te 2, e hia katoa ngā porotiti? 14. Tuhia te whārite hei whakaata i ngā rōpū e 7 o te 2. $2 \times 7 = 14$ Mēnā ka tangohia tētahi rōpū o te 2, e hia katoa ngā porotiti? 10. Tuhia te whārite. $2 \times 5 = 10$
Kia pērā anō te whakamahi i ngā porotiti me te ngaku tau hei tirotiro i ētahi atu whakareatanga pēnei i ēnei: <ul style="list-style-type: none">• $3 \times 1, 3 \times 2, 3 \times 3, 3 \times 4, 3 \times 5$• $4 \times 1, 4 \times 2, 4 \times 3, 4 \times 4$	

Te Whakaahua ā-Hinengaro

Ngā tohutohu	He tauira kōrero mā te pouako
<p>Huripokina te ngaku tau kia kore ai e kitea ngā tau. Tonoa ētahi ākonga tokowhā kia tiki atu i ētahi porotiti e 5. Ka whakatakotoria ngā porotiti ki te tēpu, engari ka hunaia ki raro i ō rātou ringaringa.</p> <p>Aratakina ngā ākonga kia whiriwhiri i te maha o ngā porotiti katoa, mā te whakamahi tau rearua.</p> 	<p>Tokowhā ngā ākonga. E 5 ngā porotiti a ia ākonga. E hia katoa ngā porotiti?</p> <p>Anei te whārite: 5×4. E 4 ngā rōpū o te 5.</p> <p>E 5 ngā porotiti a Hiria, e 5 ā Hinewai. E hia katoa ēnā?</p> <p>10 ā Hiria rāua ko Hinewai. 10 ā Tama rāua ko Mātene. E hia katoa ēnā?</p> <p>E 20.</p> <p>Whakaotia te whārite.</p> <p>$5 \times 4 = 20$</p>

Aratakina ngā ākonga kia whiriwhiri i te maha o ngā porotiti katoa, mā te tatau māwhitiwhiti.

E hia ngā porotiti a Hiria?
E 5.

Āta whakaaro i roto i ō koutou hinengaro, mēnā ka whakatakotoria ki runga i te ngaku tau, he aha te tau whakamutunga?

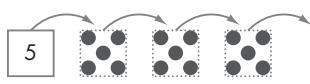
Ko te 5.

Kātahi ka whakatakotoria ngā porotiti a Hinewai ki te ngaku tau. He aha te tau whakamutunga?

Ko te 10.

Kātahi ka whakatakotoria ngā porotiti a Tama, ka hia?
Ka 15.

Kātahi ko ngā porotiti a Mātene. E hia ināianeī?
E 20.



Tatauria ia rōpū o te 5.
5, 10, 15, 20.

Anei anō te whārite: $5 \times 4 = 20$

He aha te whārite tāpiritanga?
 $5 + 5 + 5 + 5 = 20$

Kia pērā anō te mahi mō ētahi atu whakareatanga pēnei i ēnei:

- $2 \times 9 = 18$. Kātahi ko te $2 \times 8 = 16$ me te $2 \times 10 = 20$
- $3 \times 3 = 9$. Kātahi ko te $3 \times 4 = 12$ me te $3 \times 5 = 15$

Te Whakamahi Tikanga Tau

Ngā tohutohu	He tauira kōrero mā te pouako
Whakawhitihitī kōrero mō te tuhi me te pānui whakareatanga.	He aha te tikanga o te whārite nei? $2 \times 6 = \square$ Pēhea nei te rahi o ngā rōpū? E 2 ngā mea kei ia rōpū.
Aratakina ngā ākonga kia tatau māwhitiwhiti hei whakaoti whakareatanga.	E hia ngā rōpū? E 6 ngā rōpū. E 6 ngā rōpū o te 2. Whakareatia te 2 ki te 6. Tatauria ngā rōpū e 6 o te 2. 2, 4, 6, 8, 10, 12.

Kia pērā anō te mahi hei whakaoti i ēnei whakareatanga:

$$5 \times 7 = \square \quad 2 \times 8 = \square \quad 5 \times 10 = \square \quad 3 \times 6 = \square \quad 5 \times 6 = \square \quad \dots$$

Hei Mahi Atu Anō

He kēmu tēnei mō ngā kaitākaro tokotoru ki te tokorima.

Rauemi

- Ngaku Tau (1 – 100) (Rauemi Tārua 6-1)
- He mataono tau
- He porotiti pūataata

Ngā tohutohu

Hoatu he ngaku tau, he mataono tau me ētahi porotiti ki ia rōpū.

Tuhia tētahi tau ki te papa tuhituhi (pēnei i te 10, te 12, te 15, te 16, te 18, te 20, te 24 rānei, nā te mea he nui ngā tauwehe).

Ka whai tētahi ākonga i tētahi ki te pīrori i te mataono tau. Mēnā ka tatau māwhitiwhiti i te tau ka puta i te mataono tau, ā, ka tae atu ki te tau kua tuhia ki te papa tuhituhi, kotahi te māka mā tēnā ākonga.

Hei tauira:

- Ko te 12 te tau ka tuhia ki te papa tuhituhi.
- Ka pīrorihiia te 3.
- Ka tatau mawhiti-3 (3, 6, 9, 12), ā, ka eke ki te 12 (te tau i tuhia ki te papa tuhituhi).
- Kei reira! Kua riro te māka kotahi.

Kia 5 ngā pīroritanga mā ia ākonga. Ka toa te ākonga he nui ana māka.



Te Puanga o te Tatau → Te Pihinga o te Wāwāhi Tau Tāpiripiri

Kaupae 4 → Kaupae 5



Mahere Tau	0	1	2	3	4	5	6	7	8
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Whanaketanga	1a	1e	2a	2e	3a	3e	4a	4e	5a
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Mātauranga Matua kua Mau kē

Koia nei te mātauranga me mātua mōhio te ākonga e tutuki ai ngā mahi o tēnei wāhangā:

- te tatau mawhiti-2, mawhiti-5, mawhiti-10 whakamua, whakamuri hoki.

Hei tauira mahi

- Whakamahia te tātaitai ki te tāpiri tāruarua i te 5. Mā te pēhi i ngā pātuhi + 5 = = haere ake nei, haere ake nei, e puta ai ngā taurea o te 5, arā, ko te 5, 10, 15, 20, 25 ...
- Tohua ngā taurea o te 5 ka puta i te tātaitai ki te paparau.
- Tonoa mā ngā ākonga e matapae e hia ngā pēhitanga o te pātuhi ‘=’ kia tae atu ki te 35, (arā, e hia ngā 5 kei roto i te 35), ki ētahi atu taurea o te 5 hoki.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Mātauranga Matua hei Ako

Koia nei te mātauranga matua hei ako, i te wā e whanake ana te mōhio o te ākonga ki te whakarea me te whakawehe i tēnei kaupae:

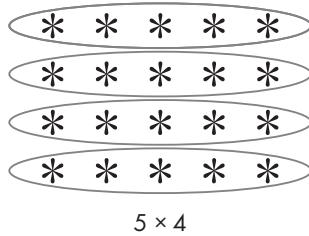
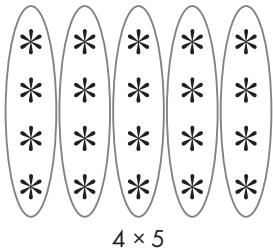
- te tatau mawhiti-3;
- ngā meka whakarea matua mō te 2, te 5 me te 10.

Ngā Huatau Matua

I te Kaupae 4, e ako ana ngā ākonga ki te whakamahi rautaki tāpiripiri hei whakaoti rapanga whakarea, rapanga whakawehe hoki. Hei tauira, mēnā e 4 ngā rōpū o te 5 (5×4), ka tapiri i ētahi rōpū e rua, ka 10, kātahi ka tāpiri i tētahi 10 anō, ka 20.

He mea nui kia mārama ngā ākonga ki te hononga o te whakarea me te tāpiri tāruarua. Arā, he ūrite te whakareatanga 4×5 ki te tāpiritanga $4 + 4 + 4 + 4 + 4$ (e 5 ngā rōpū o te 4).

Kia mārama hoki ki te āhuatanga tātai kōaro o te whakarea. Arā, he ūrite te otinga o te 5×4 me te otinga o te 4×5 . He pai te whakatauira i tēnei tikanga ki tētahi tūtohi tukutuku:



Mēnā ka tatauria ngā pou, e 5 ngā rōpū o te 4 (4×5), e 20 katoa ngā whetū.

Mēnā ka tatauria ngā kapa, e 4 ngā rōpū o te 5 (5×4), e 20 tonu te katoa o ngā whetū.

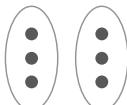
Mēnā e mārama ana te ākonga ki tēnei tikanga, he ngāwari te whiriwhiri i ngā whakareatanga o ngā tau nui pēnei i te 3×99 , te 99×3 rānei.

Koia nei te tikanga o ngā tau i roto i tētahi whakareatanga:

$$2 \times 3 \leftarrow \text{te maha ngā rōpū}$$

↑
te maha o ngā mea kei roto i ia rōpū

E pēnei ana te whakatauira i te whakareatanga ki ngā rauemi:



E rua ngā whakahuatanga matua mō tētahi whārite whakareatanga:

- Whakareatia te 3 ki te 2;
- E 2 ngā 3 (E 2 ngā rōpū o te 3).

Me mōhio te ākonga ki te tikanga tohatoha ūrite hei whakaoti i ngā rapanga whakawehenga. Hei tauira, ka tohaina ngā āporo 15 ki ētahi tāngata tokorima, ki ētahi pēke e rima rānei.

Me tūhono anō ngā whakareatanga me ngā whakawehenga ki ngā horopaki o ia rā e taunga ana ngā ākonga.

Whakareatia ki te Toru

Mahere Tau | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |

Whanaketanga | 1a | 1e | 2a | 2e | 3a | 3e | 4a | 4e | 5a |

E ako ana ahau ki te whakarea ki te toru.

He Whakaaro Matua

- E rua ngā tau i tētahi whakareatanga. Ko tētahi hei tohu i te maha o ngā mea kei roto i ngā rōpū ōrite (te tau e whakareatia ana). Ko tētahi hei tohu i te maha o ngā rōpū (te tau whakarea).



- Ki tā te ākonga tirotiro i te tīmatanga, he tāpiritanga tāruarua te whakarea, ā, ka whakamahia āna rautaki tāpiripiri hei whakaotī rapanga whakarea. Hei tauira, $2 \times 3 = 2 + 2 + 2$.
- Ko te ako i ngā meka whakareatanga matua tētahi mea nui, e mārama ai te ākonga ki te āhua o te whakaaro whakarea ā tōna wā. Mā konei e whiriwhiria ai ngā whakareatanga kāore e mōhiotia ana.

Te Mātauranga Matua

Whakamātauria mēnā e mōhio ana te ākonga:

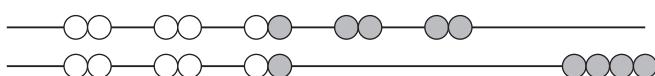
- ki te tatau whakamua, mawhiti-2, mawhiti-5 mawhiti-10;
- ko tā te tatau māwhitiwhiti, he whiriwhiri i te maha o ngā mea takitahi kei roto i te hononga o ētahi rōpū ōrite. Hei tauira, 15 ngā mea katoa kei roto i ngā rōpū ōrite e 5 o te 3.

He Aromatawai Poto

Tonoa te ākonga kia tatau:

- mawhiti-2 whakamua ki te 20
- mawhiti-5 whakamua ki te 50
- mawhiti-10 whakamua ki te 100.

Whakaaturia ētahi huinga taonga e rārangī mai ana i ngā rōpū ōrite o te 2, o te 5, o te 10 rānei. Tonoa te ākonga kia tatau i ngā taonga. Āta tirohia mēnā ka tatau māwhitiwhiti te ākonga, ka tatau takitaki rānei. Hei tauira, ko ngā pirepire takirua i te anga pirepire:



Rauemi

- He kāri e whakaatu ana i ngā tau o roto i ngā raupapatanga tatau mawhiti-2, mawhiti-3, mawhiti-5, mawhiti-10
- He aho pirepire (ki te 100), he anga pirepire rānei
- He paparau
- He tātaitai

Te Whakamahi Rauemi

Ngā tohutohu	He tauira kōrero mā te pouako
<p>Whakatakotoria matapōkerehia ngā kāri tau mō te tatau mawhiti-2.</p> <p>Tonoa ngā ākonga kia whakaraupapa i ngā tau.</p>	<p>He aha ēnei tau? Ko ngā tau mō te tatau mawhiti-rua.</p> <p>Raupapahia ngā tau. (2, 4, 6 ...)</p>
<p>I a koe e nuku ana i ngā pirepire o tētahi anga pirepire, o tētahi aho pirepire rānei, tonoa ngā ākonga kia tatau.</p>	<p>Kia tatau ā-tahi tātou, i a au e neke ana i ngā pirepire. Timata i te tahī, kia kaha te kōrero i ngā tatau mawhiti-rua, kia mārire te kōrero i ērā atu o ngā tau. (1, 2, 3, 4, 5, 6, 7, 8 ...)</p> <p>I tēnei wā, māku e neke ngā pirepire, mā koutou e tatau mawhiti-rua. (_, 2, _, 4, _, 6, _, 8 ...)</p> <p>Ka neke takirua au i ngā pirepire, mā koutou e tatau mawhiti-rua. (2, 4, 6, 8 ...)</p>
<p>Whakatakotoria tētahi aho pirepire ki te papa e whakaatu ana i te tatau mawhiti-2. Tonoa ngā ākonga kia whakatakoto i tētahi kāri tau ki te wāhi e tika ana i te aho pirepire.</p>	<p>Anei te aho pirepire, he takirua te noho mai o ngā pirepire. E Mere, tatauria kia 12 ngā pirepire, ka whakatakoto ai i te kāri mō te 12 ki taua wāhi.</p> <p>Ki hea te wāhi tika mō te 8?</p> <p>Anei te kāri 16. Me whakatakoto ki hea?</p>
<p>Kia pērā anō te mahi mō te tatau mawhiti-5 me te tatau mawhiti-10. Ka whai hoki i tēnei mahi mō te tatau mawhiti-3.</p>	
<p>Nekea takitorutia ngā pirepire i te anga pirepire. Nekea kia kotahi, kia rua atu anō rānei. Tonoa ngā ākonga kia tatau i ngā pirepire.</p>	<p>Māku e neke ngā pirepire, mā koutou e tatau. (Hei tauira, kia 4 ngā rōpū o te 3 me te kotahi: 3, 6, 9, 12, 13)</p> <pre> graph LR L1(()) --- C1(()) L1 --- C2(()) L1 --- C3(()) L2(()) --- C4(()) L2 --- C5(()) L3(()) --- C6(()) L3 --- C7(()) L3 --- C8(()) L4(()) --- C9(()) L4 --- C10(()) L4 --- C11(()) L5(()) --- C12(()) </pre> <p style="text-align: center;">3 6 9 12 13</p>

Te Whakaahua ā-Hinengaro

Ngā tohutohu	He tauira kōrero mā te pouako
Tonoa ngā ākonga kia tatau mawhiti-3 i ngā rōpū pirepire o te toru ka nekea e koe i te anga pirepire.	Ka mahi huna au i te anga pirepire. Ka nekea ngā rōpū pirepire o te toru. Ka rongo koutou i ia rōpū o te toru e nekea ana, ko tā koutou mahi he tatau mawhiti-3 i ngā pirepire i roto i ū koutou hinengaro. Āta whakarongo. E hia katoa ngā pirepire ka nekea?
Tūhonotia te maha o ngā pirepire katoa me te maha o ngā rōpū o te toru. Whakamāramatia te whakareatanga e hāngai ana.	Whakarongo anō ki ngā rōpū pirepire o te toru e nekea ana ki te taha. E hia ngā rōpū o te toru ka nekea? E 4 (tauira whakautu). E hia katoa ngā pirepire i nekea ki te taha? 12. Nō reira e hia katoa ngā pirepire kei roto i ngā rōpū e 4 o te 3? 12. Āe rā, whakareatia te 3 ki te 4, ka 12. ($3 \times 4 = 12$)
Tonoa ngā ākonga kia whakaahua ā-hinengaro i te maha o ngā rōpū o te 3 kei roto i te katoa o ngā pirepire ka nekea ki te taha.	Kei te neke au i ētahi pirepire ki te taha. E toru ngā pirepire kei roto i ia rōpū e nekea ana. 15 katoa ngā pirepire. E hia ngā rōpū o te 3? E 5. Āe, ka tika. E 5 ngā 3 kei roto i te 15.

Te Whakamahi Tikanga Tau

Ngā tohutohu	He tauira kōrero mā te pouako																																																																																																				
Whakawhitihī kōrero mō ngā tauira o te tatau māwhitihī ka puta i te paparau. Hei tauira, ko te tauira hauroki nei ka puta i te tatau mawhiti-3. Tohua tētahi o ngā tau (i raro i te 30), ka pātai ai e hia ngā rōpū o te 3 kei roto i taua tau.	Titiro ki te paparau nei. He aha ngā tau kua kaurukutia? Kua kaurukutia ngā tatauranga mawhiti-3. <table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td></tr> <tr><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td><td>16</td><td>17</td><td>18</td><td>19</td><td>20</td></tr> <tr><td>21</td><td>22</td><td>23</td><td>24</td><td>25</td><td>26</td><td>27</td><td>28</td><td>29</td><td>30</td></tr> <tr><td>31</td><td>32</td><td>33</td><td>34</td><td>35</td><td>36</td><td>37</td><td>38</td><td>39</td><td>40</td></tr> <tr><td>41</td><td>42</td><td>43</td><td>44</td><td>45</td><td>46</td><td>47</td><td>48</td><td>49</td><td>50</td></tr> <tr><td>51</td><td>52</td><td>53</td><td>54</td><td>55</td><td>56</td><td>57</td><td>58</td><td>59</td><td>60</td></tr> <tr><td>61</td><td>62</td><td>63</td><td>64</td><td>65</td><td>66</td><td>67</td><td>68</td><td>69</td><td>70</td></tr> <tr><td>71</td><td>72</td><td>73</td><td>74</td><td>75</td><td>76</td><td>77</td><td>78</td><td>79</td><td>80</td></tr> <tr><td>81</td><td>82</td><td>83</td><td>84</td><td>85</td><td>86</td><td>87</td><td>88</td><td>89</td><td>90</td></tr> <tr><td>91</td><td>92</td><td>93</td><td>94</td><td>95</td><td>96</td><td>97</td><td>98</td><td>99</td><td>100</td></tr> </table>	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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91	92	93	94	95	96	97	98	99	100																																																																																												

	<p>Whakahuatia mai ngā tau kei roto i te tatauranga mawhiti-3. 3, 6, 9, 12 ...</p> <p>Ki tō titiro, ka uru te 41 ki te tatauranga mawhiti-3? Kāore, nā te mea e haere tītaha ana ngā tau i tēnei tauira – 6, 15, 24, 33, 42, 51.</p> <p>E hia ngā rōpū o te 3 kei roto i tēnei tau (te 21)? E 7.</p> <p>He aha te whakareatanga e hāngai ana? Whakareatia te 3 ki te 7, ka 21 ($3 \times 7 = 21$).</p>
Whakamahia te tātaitai hei whakapakari i ngā meka whakareatanga e hāngai ana ki te tatau māwhitiwhiti.	<p>Pēhia te pūtohu ‘+’ me te 3, kātahi ko te tohu ūrite ‘=’. He aha te tau ka puta? Ko te 3.</p> <p>Kia 3 ngā pēhitanga i te tohu ūrite, he aha te tau ka puta? Ko te 9.</p> <p>Whakaurua te ‘+’ me te 3 ki te tātaitai. Kaua e tirotiro i te tātaitai, engari pēpēhia te tohu ūrite kia tae rā anō ki te 18. Kia hia ngā pēhitanga i te tohu ūrite? Kia 6.</p> <p>He aha te whakareatanga e hāngai ana? Whakareatia te 3 ki te 6, ka 18 ($3 \times 6 = 18$).</p> <p>Whakaurua te ‘$15 - 3$’ ki te tātaitai. Kia hia ngā pēhitanga o te tohu ūrite kia tae atu ki te kore? Kia 5.</p> <p>He aha te whakawehenga e hāngai ana? Whakawehea te 15 ki te 3, ka 5.</p>
<p>Kia mataara:</p> <p>Ākene pea ka whakamahi te ākonga i tana mōhio ki ngā meka whakareatanga o te 2 i ēnei momo rapanga. Hei tauira:</p> <p>He ūrite ngā rōpū e 6 o te 3 ki ngā rōpū e 6 o te 2 me te 6 atu anō. Arā, $3 \times 6 = 2 \times 6 + 6$.</p> <p>He tohu tēnei kua tīmata te mārama haere o te ākonga ki te āhuatanga tātai tohatoha o te whakareatanga.</p>	

Tūtohi Tukutuku Kararehe

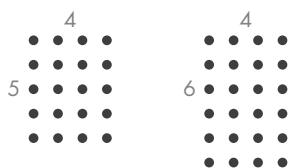
Mahere Tau | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |

Whanaketanga | 1a | 1e | 2a | 2e | 3a | 3e | 4a | 4e | 5a |

E ako ana ahau ki te whakamahi tūtohi tukutuku hei whakaoti whakareatanga.

He Whakaaro Matua

- E tino hono ana te tāpiritanga tāruarua me te whakareatanga. Hei tauira: $4 + 4 + 4 + 4 + 4 = 4 \times 5$
- Ko te tūtohi tukutuku tētahi tauira hei whakaatu whakareatanga.
- Ina whakaaturia tētahi whakareatanga ki te tūtohi tukutuku, pēnei i te 4×5 , ka taea ētahi whakareatanga kē atu e hāngai ana te whakaputa. Hei tauira, $4 \times 5 \rightarrow 4 \times 6$ (mā te tāpiri i tētahi anō kapa ki te tūtohi tukutuku).



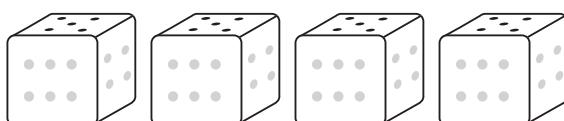
- He mea nui kia taunga haere te ākonga ki te reo e hāngai ana ki te whakareatanga. Hei tauira: ‘ngā rōpū o te ..,’ ‘ngā huina o te ..,’ ‘ngā rōpū ūrite ..,’ ‘ngā tauwehe,’ ‘ka whakareatia te ... ki te ...’

Te Mātauranga Matua

Whakamātauria mēnā e mōhio ana te ākonga ki te tatau mawhiti-2, mawhiti-5 mawhiti-10, whakamua, whakamuri hoki.

He Aromatawai Poto

Whakatakotoria kia 4 ngā mataono tau ki mua i te ākonga, ko te 5 te tau e whakaaturia ana ki ia mataono tau.



He tauira pātai:

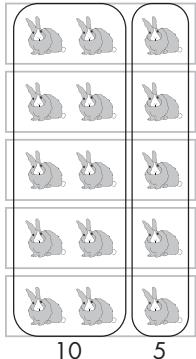
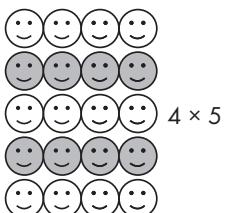
- E hia katoa ngā ira e whakaaturia ana?
- Tuhia te rautaki i whakamahia e koe.
- Mēnā ka tāpiria tētahi 5 atu anō, ka hia katoa ngā ira?
- Mēnā ka tangohia tētahi o ngā 5, ka hia katoa ngā ira?

Mēnā ko te whakarea ($5 \times 4 = 20$) te rautaki i whakamahia e te ākonga, ā, he mōhio hoki ia ki te tāpiri, ki te tango rānei i tētahi anō rōpū o te 5 (kaua mā te tatau), he mātau pea taua ākonga ki te āhuatanga tātai tohatoha o te whakarea, nō reira e tika ana kia kumea ia ki taumata kē atu.

Rauemi

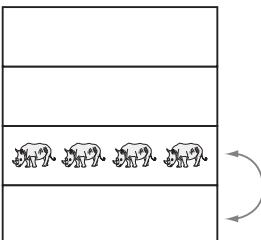
- Ngaku Kararehe (Rauemi Tārua 5-2)
- Kāri Meka Whakareatanga Matua (Rauemi Tārua 6-2)
- Papa Mata Rau (Rauemi Tārua 6-5)

Te Whakamahi Rauemi

Ngā tohutohu	He tauira kōrero mā te pouako
<p>Whakatakotoria kia 5 ngā ngaku kararehe-3 (Rauemi Tārua 5-2) hei tūtohi tukutuku (e 5 ngā kapa o ngā karerehe e 3).</p> <p>Whakawhitihiti kōrero mō ngā rautaki e whiriwhiria ai te maha o ngā kararehe.</p> <p>Tohua ngā rōpū e hāngai ana ki ia rautaki. Hei tauira: $10 + 5$</p> 	<p>Anei ētahi pikitia kararehe. E 5 ngā kapa, e 3 ngā pou.</p> <p>He aha ētahi rautaki hei whiriwhiri i te maha o ngā kararehe katoa?</p> <p>He tauira whakautu:</p> <ul style="list-style-type: none"> • $3 + 3 + 3 + 3 + 3$ (e 5 ngā tāpiritanga o te 3) • $5 + 5 + 5$ (e 3 ngā tāpiritanga o te 5) • $10 + 5$ (tāpiria te rōpū o te 10 me te rōpū o te 5) • $6 + 3 + 3 + 3$ (tāpiria te rōpū o te 6 me ngā rōpū e 3 o te 3) • 5×3 (e 3 ngā rōpū o te 5) • 3×5 (e 5 ngā rōpū o te 3) • $12 + 3$ (kotahi te rōpū o te 12, ka tāpiri ai i te rōpū o te 3) • $6 + 6 + 3$ (tāpiria ngā rōpū e 2 o te 6 me tētahi rōpū o te 3)
<p>Whakawhitihiti kōrero mō te tāpiri i ētahi atu ngaku kararehe me te whiriwhiri i te tapeke.</p>	<p>Me pēhea te whakaatu i te 3×7 ki te ngaku kararehe? Kia 7 ngā kapa kararehe. Kia 3 ngā kararehe ki ia kapa.</p> <p>He aha ētahi rautaki hei whiriwhiri i te maha o ngā kararehe katoa?</p> <p>He tauira whakautu:</p> <ul style="list-style-type: none"> • 3×7 • 7×3 • $3 + 3 + 3 + 3 + 3 + 3 + 3$ • $7 + 7 + 7$ • $6 + 6 + 6 + 3$ • ...
<p>Whakaaturia ētahi atu tūtohi tukutuku, ka tuhi ai i ngā whakareatanga e hāngai ana. Hei tauira (Rauemi Tārua 6-5):</p> 	<p>Titiro ki ēnei kanohi koa. E hia ngā kapa kanohi? E 5.</p> <p>E hia ngā kanohi o ia kapa? E 4.</p> <p>He aha te whakareatanga hei whiriwhiri i te maha o ngā kanohi?</p> <p>E 4 ngā rōpū o te 5 (5×4). E 5 rānei ngā rōpū o te 4 (4×5).</p>

<p>Whakaaturia tētahi kāri whakareatanga, ka tono ai i ngā ākonga kia whakaatu i te whakareatanga ki tētahi tūtohi tukutuku.</p>	<p>Anei tētahi whakareatanga: 6×5.</p> <p>E hia ngā kapa kararehe? E 5.</p> <p>E hia ngā kararehe o ia kapa? E 6.</p> <p>Whakaaturia te whakareatanga ki ngā ngaku kararehe.</p> <p>He aha ētahi rautaki hei whiriwhiri i te maha o ngā kararehe katoa?</p>
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Te Whakaahua ā-Hinengaro

Ngā tohutohu	He tauira kōrero mā te pouako
<p>Whakaaturia tētahi whakareatanga ki te ngaku kararehe, engari me huripoki ngā ngaku.</p> <p>Whakaaturia ngā kararehe o tētahi o ngā ngaku mō te wā poto, ka huripoki anō ai.</p>  <p>Tuhia te whakareatanga ki te papa tuhituhi, ka whakawhiti kōrero ai mō ngā rautaki hei whakaoti i te whakareatanga.</p>	<p>Anei anō ētahi ngaku kararehe, engari kua huripokina kia kore ai e kitea ngā kararehe. He aha ki tōu whakaaro te whakareatanga? Ka huri au i tētahi o ngā ngaku mō tētahi wā poto.</p> <p>E 4 ngā rōpū o te 4.</p> <p>Anei te whārite: 4×4</p> <p>Me pēhea te whiriwhiri i te maha o ngā kararehe? Tāpiria te 4 me te 4, ka 8. Tāpiria te 8 me te 8, ka 16.</p>
<p>Whakatakotoria tētahi anō ngaku kararehe-4, ka whakawhiti kōrero ai mō te whakareatanga hou.</p> <p>Tuhia ngā whakareatanga ki te papa tuhituhi.</p>	<p>Mēnā ka whakatakoto au i tētahi anō ngaku kararehe, he aha te whakareatanga hou?</p> <p>E 5 ngā rōpū o te 4. (4×5)</p> <p>E 4 ngā rōpū o te 4, ka 16. Nō reira e hia kei roto i ngā rōpū e 5 o te 4?</p> <p>Tāpiria tētahi anō 4, ka 20.</p> <p>$4 \times 4 = 16$, nō reira, $4 \times 5 = 20$</p>

Kia pērā anō te whakaatu whakareatanga ki te ngaku kararehe. Hei tauira:

$$6 \times 3 = \square, \text{ nō reira, } 6 \times 4 = \square$$

$$5 \times 4 = \square, \text{ nō reira, } 5 \times 6 = \square$$

$$2 \times 7 = \square, \text{ nō reira, } 2 \times 6 = \square$$

$$3 \times 6 = \square, \text{ nō reira, } 3 \times 5 = \square$$

Te Whakamahi Tikanga Tau

Hoatu ētahi whakareatanga takirua hei whakaoti mā ngā ākonga. Whakawhitihiti kōrero mō te tikanga o ngā whakareatanga. Hei tauira:

$$3 \times 10 (10 \text{ ngā rōpū o te } 3)$$

$$3 \times 9 (\text{E } 9 \text{ ngā rōpū o te } 3)$$

Ko tā ngā ākonga he whakamahi meka mōhio, he whakamahi rānei i tētahi rautaki wāwāhi tau hei whakaoti i ngā whakareatanga. Hei tauira, $3 \times 10 = 30$, nō reira $3 \times 9 = 27$ nā te mea kotahi te rōpū o te 3 te itinga ake.

$$8 \times 2 = \square, \text{ nō reira, } 8 \times 3 = \square$$

$$7 \times 2 = \square, \text{ nō reira, } 7 \times 3 = \square$$

$$4 \times 5 = \square, \text{ nō reira, } 4 \times 6 = \square$$

$$6 \times 5 = \square, \text{ nō reira, } 6 \times 6 = \square$$

$$4 \times 10 = \square, \text{ nō reira, } 4 \times 9 = \square$$

$$7 \times 10 = \square, \text{ nō reira, } 7 \times 9 = \square$$

He Mahi Atu Anō

He kēmu tēnei mā ētahi kaitākaro tokorua ki te tokowhā.

Rauemi

- Ngaku Kararehe (Rauemi Tārua 5-2)
- Kāri Whakareatanga Matua (Rauemi Tārua 6-2)

Ngā tohutohu

- Whakarōpūngia ngā ngaku kararehe (Rauemi Tārua 5-2), ka waiho ai ki te tēpu.
- Riwihiriwhia ngā kāri whakareatanga (Rauemi Tārua 6-2), ka whakaputu ai ki te tēpu, ko ngā mata ki raro.
- Ka whai tētahi ākonga i tētahi ki te tango i tētahi kāri whakareatanga (hei tauira, ko te 5×4).
- Ka whakamahia he ngaku kararehe hei hanga i tētahi tūtohi tukutuku e hāngai ana ki te whakareatanga (hei tauira, e 5 ngā kapa o te whā, e 4 rānei ngā kapa o te 5).
- Kātahi ka whiriwhiria te maha katoa o ngā kararehe (arā, ka whakaotia te whakareatanga).
- Ka mutu, ka waiho te kāri whakareatanga ki rahaki.
- Ki te kore e taea e tētahi kaitākaro tētahi tūtohi tukutuku te hanga, ka mutu tana whai wāhi mai ki te kēmu.
- Ka toa te kaitākaro e tākaro tonu ana i tōna kotahi.

Tohaina kia Ōrite

Mahere Tau | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |

Whanaketanga | 1a | 1e | 2a | 2e | 3a | 3e | 4a | 4e | 5a |

E ako ana ahau ki te whakaoti rapanga e whai wāhi mai ana te tohatoha ki ētahi huinga ōrite.

He Whakaaro Matua

- Kia mātau te ākonga ki ngā horopaki e rua nei mō te whakawehe:
 - Te tohatoha.* Hei tauira, ko te tohatoha i te \$20 kia ōrite te whiwhinga a ētahi tāngata tokowhā (tirohia tēnei ngohe, arā, ‘Tohaina kia Ōrite’).
 - Te whakarōpū.* Hei tauira, ko te wehewehe i ētahi māpere 15 ki ngā rōpū o te 3 (tirohia te ngohe e whai mai ana, arā, ‘Poraka Honohono,’ whārangī 32).
- I ngā rapanga tohatoha, e mōhiotia ana te maha o ngā mea katoa hei tohatoha (hei tauira, ko te \$20), me te maha o ngā rōpū hei tohatoha i aua mea (pērā i ngā tāngata tokowhā). Kāore e mōhiotia ana te maha o ngā mea kei ia rōpū (arā, te whiwhinga a ia tangata).

$$20 \div 4 = \square \leftarrow \text{te maha ki ia rōpū}$$

↑ ↑
te maha o ngā mea hei tohatoha te maha o ngā rōpū

- I te tuatahi, ka tohaina takitahitia e te ākonga ngā tāra ki ia tangata. E tika ana kia ōrite te whiwhinga a ia tangata, engari kāore pea ētahi ākonga e tino mārama ki tēnei tikanga.
- Ka taunga haere te ākonga ki te matapae i te whiwhinga a ia tangata, me te whakamātau i te otinga mā te tatau māwhitiwhiti me te tāpiri.
- He mea nui kia hāngai, kia mārama hoki te reo o te kaiako me te ākonga hei whakaatu i te mahi. Me tūhono anō hoki ki ngā whārite e hāngai ana. Hei tauira:
 - “Tekau tāra hei tohatoha ki ngā tāngata tokorua, nō reira, kia \$5 mā ia tangata.”
 - $10 \div 2 = 5$
 - $5 \times 2 = 10$

Te Mātauranga Matua

Whakamātauria mēnā e mōhio ana te ākonga ki te tatau mawhiti-2, mawhiti-5, mawhiti-10 whakamua, whakamuri hoki.

He Aromatawai Poto

Hei tauira pātai:

E rua tekau tāra (\$20) hei tohatoha ki ngā tāngata tokorima, kia ōrite te whiwhinga a ia tangata. E hia te whiwhinga a tēnā me tēnā?

Mēnā ko te whakarea te rautaki ka whakamahia e te ākonga hei whakaoti i tēnei rapanga ($\square \times 5 = 20$), ko te tatau mawhiti-5 (5, 10, 15, 20), ko te tāpiritanga tāruarua rānei ($5 + 5 + 5 + 5$), he mātau taua ākonga ki te tikanga whakarōpū mō te whakaoti rapanga whakawehe, nō reira e tika ana kia kumea ia ki taumata kē atu.

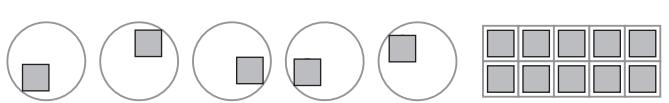
Rauemi

- He kapu \$1
- He pouaka, he pēke rānei
- He anga tekau wātea (Rauemi Tārua 4-6)

Te Whakamahi Rauemi

Ngā tohutohu	He tauira kōrero mā te pouako
<p>Tuhia te rapanga nei ki te papa tuhituhi, ka pānui tahi ai me ngā ākonga:</p> <p>\$10 hei tohatoha ki ētahi tamariki tokorua, kia ūrite te whiwhinga a tēnā me tēnā. E hia tāra mā ia tamaiti?</p>	<p>Koia nei te whārite hei whakaata i tēnei rapanga: $10 \div 2 = \square$. Me pēnei te pānui, '10 whakaweha ki te 2.'</p> <p>E whakaatu ana te tau tuatahi i te aha? Koirā te maha o ngā tāra.</p> <p>E tohu ana te 2 i te aha? Koirā te maha o ngā rōpū hei tohatoha i te \$10.</p> <p>Koirā. \$10, whakaweha ki ētahi rōpū ūrite e rua.</p> <p>E hia tāra ki ia tamaiti? E 5, nā te mea e 5 tāpiria te 5, ka 10.</p> <p>Tuhia te otinga o te whārite. $10 \div 2 = 5$</p>
<p>Tohaina ngā tāra ki ētahi ākonga tokorua.</p>	<p>Anei te \$10. E Hine, māu e tohatoha ki a Rāwiri rāua ko Mākere, kia ūrite te whiwhinga a tēnā me tēnā.</p> <p>E hia tāra te whiwhinga? E \$5 mā ia tangata.</p>
<p>Kia pērā anō te arataki i ngā ākonga mō ētahi atu whakawehenga. Hei tauira:</p> <ul style="list-style-type: none"> Whakaweha te \$9 ki ētahi tamariki tokotoru. Whakaweha te \$12 ki ētahi tamariki tokowhā. 	

Te Whakaahua ā-Hinengaro

Ngā tohutohu	He tauira kōrero mā te pouako
<p>Tuhia te rapanga nei ki te papa tuhituhi, ka pānui tahi ai me ngā ākonga:</p> <p>\$15 hei tohatoha ki ētahi tamariki tokorima, kia ūrite te whiwhinga a tēnā me tēnā. E hia tāra mā ia tamaiti?</p> <p>Whakaritea ētahi pouaka, pēke rānei hei tohu i ngā pūkoro o ngā tamariki.</p> <p>Whakatakotoria ngā tāra e tohaina ana ki ētahi anga tekau wātea.</p>	<p>He aha te whārite hei whakaata i tēnei rapanga? Whakaweha te 15 ki te 5. $15 \div 5$.</p> <p>Koia nei ētahi pouaka e rima hei tohatoha i ngā tāra. E takoto ana ngā tāra ki ētahi anga tekau.</p> <p>Tohaina kia kotahi tāra ki ia pouaka. E hia tāra kua tohaina atu? E 5.</p> 

Aratakina ngā ākonga kia tohatoha
ōrite i ngā tāra.

E hia tāra atu anō hei tohatoha?
\$10 e toe ana hei tohatoha atu.

Mēnā ka tohaina kia kotahi tāra anō ki ia pouaka, e hia
ka toe mai?

E 5.

Mēnā ka tohaina ngā tāra katoa, e hia te whiwhinga a
ia tamaiti?

E \$3.

Whakaotia te whārite.

$15 \div 5 = 3$

Āe rā, whakawehea te 15 ki te 5, ka 3.

Kia pērā anō te arataki i ngā ākonga kia whakaahua ā-hinengaro i te tohatoha ūrite hei whakaoti rapanga whakawehe. Hei tauira:

- Tohaina te \$18 ki ētahi tamariki tokorua. ($18 \div 2 = \square$)
- Tohaina te \$20 ki ētahi tamariki tokorima. ($20 \div 5 = \square$)
- Tohaina te \$16 ki ētahi tamariki tokowhā. ($16 \div 4 = \square$)
- Tohaina te \$15 ki ētahi tamariki tokotoru. ($15 \div 3 = \square$)
- ...

Te Whakamahi Tikanga Tau

Hoatu he rapanga whakawehe hei whiriwhiri mā ngā ākonga, mā te whakamahi mōhiotanga ki te tatau māwhitiwhiti (mawhiti-2, mawhiti-3, mawhiti-4, mawhiti-5, mawhiti-10). Hei tauira:

- Tohaina te \$14 ki ētahi tamariki tokorua. ($14 \div 2 = \square$)
- Tohaina te \$50 ki ētahi tamariki tekau. ($50 \div 10 = \square$)
- Tohaina te \$25 ki ētahi tamariki tokorima. ($25 \div 5 = \square$)
- Tohaina te \$12 ki ētahi tamariki tokotoru. ($12 \div 3 = \square$)
- ...

Poraka Honohono

Mahere Tau | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |

Whanaketanga | 1a | 1e | 2a | 2e | 3a | 3e | 4a | 4e | 5a |

E ako ana ahau ki te whakaoti rapanga e whai wāhi mai ana te whakarōpū.

He Whakaaro Matua

- Kia mātau te ākonga ki ngā horopaki e rua nei mō te whakawehē:
 - *Te tohatoha.* Hei tauira, ko te tohatoha i te \$20 kia ōrite te whiwhinga a ētahi tāngata tokowhā (tirohia te ngohe i mua ake nei, arā, ‘Tohaina kia Ōrite’).
 - *Te whakarōpū.* Hei tauira, ko te wehewehe i ētahi māpere 15 ki ngā rōpū o te 3 (tirohia tēnei ngohe e whai mai ana, arā, ‘Poraka Honohono’).
- I ngā rapanga whakarōpū, e mōhiotia ana te maha o ngā mea kei roto i ia rōpū me te maha o ngā mea katoa. Kāore e mōhiotia ana te maha o ngā rōpū.

$$15 \div 3 = \square \leftarrow \text{te maha o ngā rōpū}$$

↑ ↑
te maha o ngā mea katoa te maha o ngā mea kei ia rōpū

- Ka tāpiri tāruarua te ākonga i te maha o ngā mea kei ia rōpū, kia eke ki te maha o ngā mea katoa.
- He āwhina nui mēnā e mōhio ana te ākonga ki ngā tau rearua. Hei tauira: $4 + 4 = 8$, nō reira, e 2 ngā rōpū o te 4, ka 8.
- Ko te tatau māwhitiwhiti, te tāpiri me te tango tāruarua ngā rautaki ka whakamahia i konei. I te ākonga e tatau māwhitiwhiti ana, ka whakamahi ia i ūna matimati ki te taki i te maha o ngā tauranga, arā, te maha o ngā rōpū.
- He mea nui kia hāngai, kia mārama hoki te reo o te kaiako me te ākonga hei whakaatu i te mahi. Me tūhono anō hoki ki ngā whārite e hāngai ana. Hei tauira:
 - Mēnā ka whakawehēa ngā pihikete 20 ki ngā pākete e 5, ka 4 ngā pihikete ki ia pākete.
 - $20 \div 5 = 4$
 - $5 \times 4 = 20$

Te Mātauranga Matua

Whakamātauria mēnā e mōhio ana te ākonga ki te tatau mawhiti-2, mawhiti-5 mawhiti-10, whakamua, whakamuri hoki.

He Aromatawai Poto

He tauira pātai:

E 20 ngā pene rākau ka whakawehēa kia 5 ngā pene rākau ki ia pouaka. Ka hia ngā pouaka?

Mēnā ko te whakarea te rautaki ka whakamahia e te ākonga hei whakaoti i tēnei rapanga ($5 \times \square = 20$), ko te tatau mawhiti-5 (5, 10, 15, 20), ko te tāpiritanga tāruarua rānei ($5 + 5 + 5 + 5$), he mātau taua ākonga ki te tikanga whakarōpū mō te whakaoti rapanga whakawehē. Nō reira, e tika ana kia kumea ia ki taumata kē atu, arā, kia whakaputa meka whakareatanga mai i ngā meka e mōhiotia ana. Hei tauira: $5 \times 2 = 10$, nō reira, $5 \times 4 = 20$.

Rauemi

- He poraka honohono
- He ipu aihirikirimi
- He pepa whakapiri

Te Whakamahi Rauemi

Ngā tohutohu	He tauira kōrero mā te pouako
<p>Whakamahia he poraka honohono hei arataki i ngā ākonga ki te whakaoti i te rapanga whakawehe.</p> <p>Aratakina ngā ākonga kia whakamahi i ngā meka tāpiritanga, i ngā meka whakareatanga rānei hei whakaoti i te rapanga.</p>	<p>Honoa kia 20 ngā poraka honohono. Whakaaturia ngā rōpū o te 5 kia māmā ai te tatau. E hia ngā rōpū o te 5?</p> <p>E 4.</p>  <p>Ko tā koutou mahi ināianei, he whakawehe i ngā poraka honohono nei ki ngā rōpū o te 4. E hia ngā rōpū o te 4 ka taea te hanga?</p> <p>Hei tauira whakamārama:</p> <ul style="list-style-type: none"> • E 4 ngā rōpū o te 5. Tangohia tētahi poraka mai i ia rōpū, ka 4 ngā rōpū o te 4, me ngā poraka e 4 anō i tangohia ai. Nō reira, e 5 ngā rōpū o te 4. • E 2 ngā rōpū o te 4, ka 8, nō reira e 4 ngā rōpū o te 4, ka 16. Kotahi anō te rōpū o te 4 kia eke ki te 20: $4 + 4 = 8, 8 + 8 = 16, 16 + 4 = 20$ • E 5 ngā rōpū o te 4 kei roto i te 20, arā, $4 \times 5 = 20$. <p>Whakaaturia mai ngā rōpū.</p> <p>Tuhia te whārite whakawehe.</p> <p>$20 \div 4 = 5$.</p> <p>He aha te tikanga o te tohu ‘÷’?</p> <p>Whakawehea ki ngā rōpū ūrite.</p> <p>Me pēnei te pānui i te whārite: Whakawehea te 20 ki ngā rōpū ūrite o te 4, ka 5 ngā rōpū.</p>
<p>Kia pērā anō te mahi hei whakaoti i ētahi atu whakawehenga pēnei i ēnei:</p> <ul style="list-style-type: none"> • 12 ngā poraka honohono, ka whakawehea ki ngā rōpū ūrite o te 3 ($12 \div 3 = \square$). • 14 ngā poraka honohono, ka whakawehea ki ngā rōpū ūrite o te 2 ($14 \div 2 = \square$). • E 30 ngā poraka honohono, ka whakawehea ki ngā rōpū ūrite o te 5 ($30 \div 5 = \square$). • E 24 ngā poraka honohono, ka whakawehea ki ngā rōpū ūrite o te 6 ($24 \div 6 = \square$). 	

Te Whakaahua ā-Hinengaro

Ngā tohutohu	He tauira kōrero mā te pouako
<p>Honoa kia 18 ngā poraka honohono, ka huna ai ki raro i tētahi ipu aihikirīmi.</p>	<p>18 ngā poraka honohono kei raro i te ipu aihikirīmi. E hia ngā rōpū ūrite o te 3 ka taea te hanga mai i ēnei poraka 18?</p>

<p>Aratakina ngā ākonga kia whakaahua ā-hinengaro i te whakawehenga o te 18 ki ngā rōpū o te 3.</p> <p>Whakaaturia te whārite ki runga o te ipu aihikirīmi.</p>	<p>He aha tā tātou mahi? He whakawehe i te 18 ki ngā rōpū ūrite o te 3.</p> <p>He aha te whārite e hāngai ana? $18 \div 3 = \square$</p> <p>Mēnā e 2 ngā rōpū o te 3, e hia katoa tēnā? E 6 ($3 \times 2 = 6$).</p> <p>Tāpiria tētahi anō rōpū o te 3, e hia katoa ināianei? E 9 ($3 \times 3 = 9$).</p> <p>E hia ngā 9 kei roto i te 18? E 2 ($9 + 9 = 18$).</p> <p>Nō reira, e hia katoa ngā rōpū o te 3 kei roto i te 18? E 6.</p> <p>Anei te whārite hei whakaatu i tā tātou mahi: $9 + 9 = 18$ $(3 \times 3) + (3 \times 3) = 18$ $3 \times 6 = 18$</p> <p>Tangohia te ipu aihikirīmi. Hangaia ngā rōpū o te 3. Tatauria ngā poraka. 3, 6, 9, 12 15, 18.</p> <p>Whakaotia te whārite whakawehe. $18 \div 3 = 6$</p> <p>He aha te whakareatanga e hāngai ana ki te whārite whakawehe nei? $3 \times 6 = 18$. E 6 ngā rōpū o te 3, ka 18.</p>
<p>Kia pērā anō te arataki i ngā ākonga kia whakaahua ā-hinengaro i ngā whakawehenga nei:</p> <p>$10 \div 2 = \square$ $15 \div 3 = \square$ $16 \div 4 = \square$ $20 \div 5 = \square$ $60 \div 10 = \square$</p>	

Te Whakamahi Tikanga Tau

<p>Hoatu ētahi atu rapanga whakawehe hei whakaotī mā ngā ākonga. Tonoa rātou kia whakamārama i ā rātou rautaki me te arotake anō i te whaihua o tēnā rautaki, o tēnā.</p> <p>$16 \div 2 = \square$ $24 \div 3 = \square$ $12 \div 4 = \square$ $30 \div 5 = \square$ $90 \div 10 = \square$</p>
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Mā te Rua, mā te Rima, mā te Tekau

Mahere Tau | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |

Whanaketanga | 1a | 1e | 2a | 2e | 3a | 3e | 4a | 4e | 5a |

E ako ana ahau ki te whiriwhiri meka whakareatanga mā te whakamahi i taku mōhio ki ngā tikanga o te 2, te 5 me te 10.

He Whakaaro Matua

- Ka whakamahi te ākonga i tana mōhio ki ngā tau rearua hei whakaputa i ngā meka whakarea mō te 2.
- Ka tūhono te ākonga i ngā kupu mō ngā tau ngahuru (10, 20, 30 ...) ki ngā meka whakarea mō te 10.
- Ka taunga haere te ākonga ki te whakamahi i ngā meka whakarea mō te 10 hei whakaputa i ngā meka mō te 5 (arā, mā te rearua me te haurua).

I te mutunga o tēnei akoranga, mēnā kua taunga te ākonga ki te whakaputa i ngā meka whakarea mō te 2, te 5 me te 10, me hoatu he rapanga anō hei whakapakari i a ia, kia noho tangata whenua ai ngā meka nei ki tōna pūmahara.

Te Mātauranga Matua

Whakamātauria mēnā e mōhio ana te ākonga ki:

- ngā tau rearua, pērā i te $7 + 7 = 14$;
- te maha o ngā 10 kei roto i ngā tau ngahuru (hei tauira, e 8 ngā 10 kei roto i te 80);
- te tatau mawhiti-5 me te tatau mawhiti-10.

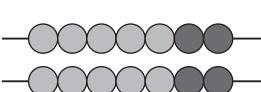
He Aromatawai Poto

Whakamātauria mēnā e mōhio ana te ākonga ki ngā meka whakareatanga mō te 2, te 5 me te 10. Mēnā kua mau kē i a ia ēnei meka whakareatanga, ā, ka whakamahia ngā meka nei hei whakaoti rapanga e whai wāhi mai ana he rōpū ōrite, e tika ana kia kumea ia ki taumata kē atu. (Hei tauira, e hia katoa kei roto i ngā rōpū e 6 o te 5).

Rauemi

- He anga pirepire

Te Whakamahi Rauemi

Ngā tohutohu	He tauira kōrero mā te pouako
<p>Whakamahia te anga pirepire, ka arataki ai i ngā ākonga kia whiriwhiri meka whakareatanga e whai pānga ana ki te 2, te 5 me te 10.</p> <p>Nukua kia 2 ngā rōpū o te 7.</p> 	<p>E hia katoa ngā pirepire kua nukua ki te taha?</p> <p>E 2 ngā rōpū o te 7. 14 katoa ngā pirepire. Ko te 14 te rearua o te 7.</p> <p>Koinei ngā whārite e hāngai ana:</p> $7 + 7 = 14$ $7 \times 2 = 14$ <p>He aha te tikanga o te whārite whakareatanga?</p> <p>E 2 ngā rōpū o te 7. E whakareatia ana te 7 ki te 2.</p>

Kia pērā anō te mahi mō ētahi atu whakareatanga ki te 2, me te tuhi anō i te whārite tāpiritanga, whārite whakareatanga hoki e hāngai ana:

$$5 + 5 = 10$$

$5 \times 2 = 10$, nō reira, he aha te otinga o te 6×2 ?

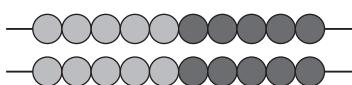
$$7 + 7 = 14$$

$7 \times 2 = 14$, nō reira, he aha te otinga o te 8×2 ?

$$8 + 8 = 16$$

$8 \times 2 = 16$, nō reira, he aha te otinga o te 9×2 ?

Whakaaturia kia 2 ngā rōpū o te 10 ki te anga pirepire. Whakawhitihitit kōrero mō te tikanga o te ingoa ‘rua tekau’.



Tuhia te whārite e hāngai ana.

E hia katoa ngā pirepire kua nukua ki te taha?

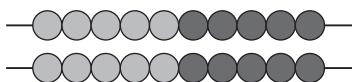
E 2 ngā rōpū o te 10. Ko te 20 tēnā.

Āta whakarongo ki te kupu ‘rua tekau’. Kei roto i te kupu tōna tikanga, arā, e rua ngā tekau.

Anei te whārite whakareatanga: $10 \times 2 = 20$

Kia pērā anō te mahi mō ētahi atu tau ngahuru, arā, $10 \times 3 = 30$, $10 \times 4 = 40$, $10 \times 5 = 50$...

Whakaaturia te 20 ki te anga pirepire,
ka whakatairite ai i ngā whārite 10×2
me te 2×10 .



Anei anō te 20 e whakaaturia ana ki te anga pirepire. E hia ngā pirepire kei ia kapa?

10.

E hia ngā kapa?

E 2.

He aha te whārite whakareatanga e hāngai ana?

$$10 \times 2 = 20.$$

Mēnā ka hurihia te anga pirepire, ka pēnei te āhua o ngā pirepire 20.

E hia ngā pireppire kei ia kapa ināianei?

E 2.

E hia ngā kapa o te 2?

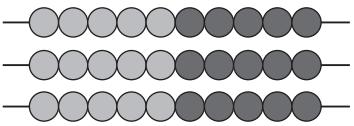
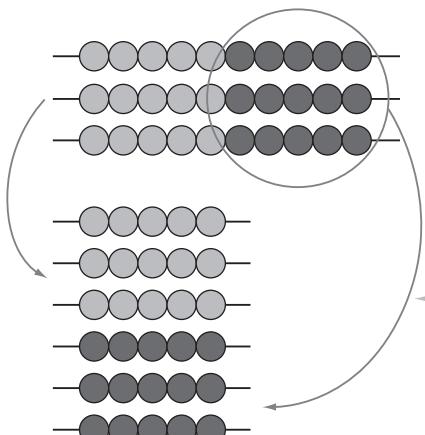
10.

E hia katoa ngā pireppire?

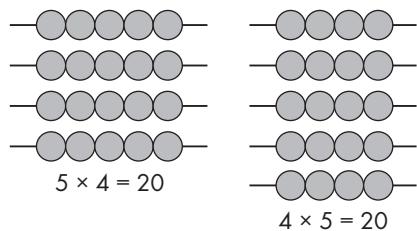
E 20.

He aha te whārite e hāngai ana ki tēnei whakareatanga?

$$2 \times 10 = 20.$$

	<p>He ūrite te otinga o ngā whakareatanga e rua nei:</p> $10 \times 2 = 20$ $2 \times 10 = 20$
	<p>Kia pērā anō te tūhura i te āhuatanga tātai kōaro o te whakareatanga. Arā:</p> $10 \times 3 = 3 \times 10$ $10 \times 4 = 4 \times 10$ $10 \times 5 = 5 \times 10 \dots$
<p>Whakaaturia ngā 10 e 3 ki te anga pirepire.</p>  <p>Aratakina ngā ākonga kia āta tirotiro i te hononga o ngā whakareatanga ki te 10 me ngā whakareatanga ki te 5.</p> 	<p>He aha te whakareatanga e whakaaturia ana ki te anga pirepire?</p> <p>Ko te whakareatanga o te 10 ki te 3. E 3 ngā 10.</p> <p>Tuhia te whakareatanga.</p> $10 \times 3 = 30$ <p>E hia ngā rōpū o te 5 e kitea mai ana?</p> <p>E 6.</p> <p>He aha te whakareatanga e hāngai ana ki ngā rōpū o te 5?</p> $5 \times 6 = 30$ <p>Anei ngā whakareatanga e rua e whakaaturia ana ki te anga pirepire:</p> $10 \times 3 = 30$ $5 \times 6 = 30$ <p>He aha tētahi tauira e kitea mai ana?</p> <p>Ko te 5 te haurua o te 10. Ko te 6 te rearua o te 3.</p>
<p>Kia pērā anō te mahi mō ētahi atu whakareatanga e āhua ūrite ana. Hei tauira:</p> $10 \times 2 = 20, \text{ nō reira, } 5 \times 4 = 20$ $10 \times 4 = 40, \text{ nō reira, } 5 \times 8 = 40$ <p>Tuhia te raupapatanga mai o ngā whakareatanga ki te 10, ka tono ai i ngā ākonga kia whakaputa i ngā whakareatanga ki te rima:</p> $10 \times 1 = 10 \rightarrow 5 \times 2 = 10$ $5 \times 3 = \square$ $10 \times 2 = 20 \rightarrow 5 \times 4 = 20$ $5 \times 5 = \square$ $10 \times 3 = 30 \rightarrow 5 \times 6 = 30$ $5 \times 7 = \square \dots$	

Aratakina ngā ākonga kia tirotiro i te āhuatanga tātai kōaro o ngā whakareatanga ki te 5. Hei tauira:



Tuhia ngā paheko kōaro ki te papa tuhituhi:

$$5 \times 1 = 5$$

$$1 \times 5 = 5$$

$$5 \times 2 = 10$$

$$2 \times 5 = 10$$

$$5 \times 3 = 15$$

$$3 \times 5 = 15$$

$$5 \times 4 = 20$$

$$4 \times 5 = 20 \dots$$

Te Whakaahua ā-Hinengaro

Ngā tohutohu	He tauira kōrero mā te pouako
<p>Tukuna tētahi ākonga ki muri ārai me tētahi anga pirepire, ka tono ai māna e whakaatu tētahi whakareatanga ki te anga pirepire.</p> <p>Tonoa ērā atu o ngā ākonga kia whakamārama i ngā mahi a te ākonga i runga i te anga pirepire, me te whiriwhiri anō i te otinga o te whakareatanga ki rō hinengaro.</p>	<p>Tipene, e noho koe ki muri i te ārai kia kore ai koe e kitea e mātou. Haria te anga pirepire.</p> <p>Nukua kia 2 ngā rārangī o te 8 i te anga pirepire. He aha te whakareatanga?</p> <p>Whakareatia te 8 ki te 2. E 2 ngā 8</p> <p>Tuhia te whārite whakareatanga. 8×2</p> <p>He aha tētahi rautaki hei whakaoti i te whakareatanga? Tāpiria ngā 8 e rua, ka 16. Ko te 16 te rearua o te 8.</p> <p>Kei te tika tēnā Tipene?</p>
<p>Kia pērā anō te whakaahua ā-hinengaro i ēnei whakareatanga:</p> <p>Whakaaturia ētahi 9 e rua ki te anga pirepire. Whakareatia te 9 ki te 2, ka hia? Ka 18.</p> <p>Whakaaturia kia 9 ngā 2 ki te anga pirepire. Whakareatia te 2 ki te 9, ka hia? Ka 18.</p>	

Whakaaturia te whakareatanga 10×5 ki te anga pirepire. E hia ngā 10?
E 5.

Whakaaturia kia $10 \text{ ngā } 5$ ki te anga pirepire. $10 \text{ ngā } 5$, ka hia?
Ka 50.

Whakaaturia ētahi 10×4 ki te anga pirepire. E hia ngā 5? Tuhia ngā whakareatanga e rua.
 $10 \times 4 = 40$, $5 \times 8 = 40$

Te Whakamahi Tikanga Tau

Hoatu ētahi whakareatanga he nui ngā tau o roto. Ko tā te ākonga, he whakamahi i ngā meka whakareatanga e mōhio ana ia (arā pea ngā ‘tau rearua’ me ngā ‘ $\times 10$ ’) hei whakaoti i ēnei whakareatanga. Tonoa rātou kia whakamārama i ā rātou rautaki. Hei tauira:

11×2	50×2	20×2	100×2	300×2	25×2
10×11	10×12	10×20	10×100	10×15	10×25
5×20	40×5	5×12	30×5	5×18	5×13

Ko tā te ākonga, he whakamahi i ngā rautaki kua ākona i runga nei, pērā i te haurua/rearua.
Hei tauira:

$$\begin{aligned}5 \times 18 &= 10 \times 9 \\5 \times 12 &= 10 \times 6 \\5 \times 24 &= 10 \times 12\end{aligned}$$



Te Pihinga o te Wāwāhi Tau Tāpiripiri → Te Puanga o te Wāwāhi Tau Tāpiripiri

Kaupae 5 → Kaupae 6



Mahere Tau	0	1	2	3	4	5	6	7	8
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Whanaketanga	1a	1e	2a	2e	3a	3e	4a	4e	5a
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Mātauranga Matua kua Mau kē

Koia nei te mātauranga me mātua mōhio te ākonga e tutuki ai ngā mahi o tēnei wāhanga:

- Ngā meka whakarea matua mō te 2, te 5 me te 10, me ngā meka whakawehē e whai pāngā ana.

Hei tauira mahi

Tākarohia te kēmu ‘Whakareatia’ (**Rauemi Tārua 6-3**), hei ako, hei whakawaiwai i ēnei meka matua. Āta whiriwhiria te huinga kāri e hāngai ana ki te kaupae o ia rōpū ākonga. Arā:

- Ko te huinga kāri A hei ako i ngā meka whakareatanga ×2 me ngā meka whakareatanga ×5;
- Ko te huinga kāri E hei ako i ngā meka whakareatanga ×10, ngā meka whakareatanga ×3 me ngā meka whakareatanga ×4;
- Ko te huinga kāri H hei ako i ngā meka whakareatanga ×3, ×4, ×6, ×7, ×8 me ngā whakareatanga ×9.

He whakataetae tēnei kēmu mā ngā kaitākaro tokowaru ki te 10:

Ngā tohutohu

- Ka tohua tētahi o te rōpū hei kaituku i ngā kāri, hei kaiwhakawā hoki.
- Kia ūrite te maha o ngā kāri ka tukuna ki tēnā, ki tēnā o ngā kaitākaro.
- Ka whakatakotoria ngā kāri ki mua i ia kaitākaro, ko ngā mata ki runga.
- Ko te kaitākaro tuatahi te mea kei a ia te kāri tīmatanga. Māna e pānui te whakareatanga kei taua kāri, ka huripoki ai.
- E rua, nui ake rānei ngā kāri e whakaatu ana i te otinga o te whakareatanga ki te kokonga runga-matau. Ko te kaitākaro tuatahi ki te karanga i te otinga, māna e pānui te whakareatanga kei tana kāri, ka huripoki ai.
- Kei te kaiwhakawā te whiriwhiringa mēnā e tino tata ana ngā karanga a ētahi kaitākaro tokorua.
- Ka pēnei te haere o te kēmu kia huripokina katoatia ngā kāri a tētahi.

Mātauranga Matua hei Ako

Koia nei te mātauranga matua hei ako, i te wā e whanake ana te mōhio o te ākonga ki ngā rautaki whakarea, whakawehi hoki i tēnei kaupae:

- Ngā meka whakareatanga matua tae atu ki te 10×10 , me ētahi o ngā meka whakawehi e whai pānga ana;
- Ngā meka whakareatanga e whai wāhi mai ana ngā tau ngahuru me ngā taupū o te 10. Hei tauira:
 - $30 \times 4 = 10 \times 3 \times 4$
= 10×12
= 120
 - $60 \times 7 = 10 \times 6 \times 7$
= 10×42
= 420

Ngā Huatau Matua

I te Kaupae Tuarima (Te Pihinga o te Wāwāhi Tau Tāpiripiri), e ako ana te ākonga ki te whiriwhiri i ngā meka whakarea matua. Arā, ka whakamahia he rautaki tāpiri, he rautaki tango rānei hei whiriwhiri i ngā meka whakarea kāore e mōhiotia ana.

E tutuki ai tēnei mahi, me mōhio rātou ki ngā hononga kei waenganui i ngā meka whakarea. Arā:

- Ko te āhuatanga tātai kōaro o te whakarea. Hei tauira, $4 \times 5 = 5 \times 4$;
- Ko te tikanga tātai tohatoha o te whakarea. Hei tauira, $6 \times 6 = (6 \times 5) + (6 \times 1)$ (he meka mōhio te 6×5 me te 6×1). Hei tauira anō, $6 \times 4 = (6 \times 5) - (6 \times 1)$;
- Ko te tikanga pānga riterite, pērā i te rearua me te haurua. Hei tauira, $10 \times 4 = 40$, nō reira, $5 \times 8 = 40$;
- Ko te huri kōaro i te whakawehenga hei whakareatanga. Hei tauira $12 \div 4 \rightarrow 4 \times \square = 12$.

Kia mōhiotia ai, ko te mahi whiriwhiri i ngā meka whakareatanga matua, he āwhina noa iho kia mau ngā meka matua nei ki te pūmahara o te ākonga, kia wawe tana whakaputa i te otinga. Mā tēnei mahi e āta kitea ai ngā hononga kei waenganui i ngā meka whakareatanga.

Kia mataara:

Ākene pea ko ētahi ākonga ka whakamahi hē i tētahi rautaki tāpiri hei whiriwhiri whakareatanga.

Hei tauira: $9 + 6 = 10 + 5$, engari $9 \times 6 \neq 10 \times 5$!

Moni Whakawhitiwhiti

Mahere Tau | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |

Whanaketanga | 1a | 1e | 2a | 2e | 3a | 3e | 4a | 4e | 5a |

E ako ana ahau ki te whiriwhiri i te katoa o ngā tahi, o ngā tekau, o ngā rau, o ngā mano rānei kei roto i tētahi tau.

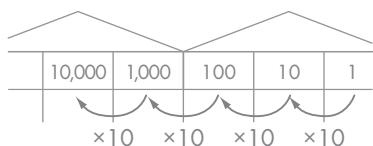
He Whakaaro Matua

- E mārama ai te ākonga ki te uara tū, me mōhio anō ia ki te whakaaro whakarea. Arā, me mōhio te ākonga ki te uara o te mati me te uara o te wāhi e tū nei taua mati. Hei tauira, i te tau 5,678, ko te 6 te uara mata o te mati tuarua, ko te 100 te uara o tōna wāhi tū, nō reira, ko te 600 tōna uara tapeke ($100 \times 6 = 600$).
- E noho whakaputu ana ngā uara tū. Hei tauira, e 234 ngā tekau kei roto i te tau 2,340 nā te mea 100 ngā tekau e noho whakaputu ana ki roto i ia 1,000. Tekau ngā 10 e noho whakaputu ana ki roto i ia 100.

Te Mātauranga Matua

Whakamātauria mēnā e mōhio ana te ākonga:

- ki te maha o ngā 10 kei roto i ngā tau ngahuru (hei tauira, e 8 ngā 10 kei roto i te 80);
- 10 te whakareatanga ake o ia nekehanga whakatemauī o te uara tū. Hei tauira, $100 = 10 \times 10$, $1,000 = 100 \times 10$, $10,000 = 1,000 \times 10$.



- He tikanga tō te ‘0’ hei pupuri i te uara tū e noho nei ia. Hei tauira, i roto i te tau 700, e pupuri ana ngā kore i ngā uara tū o te tekau me te tahi, kia mōhiotia ai ko te 7 e tohu ana i te whitu rau.

He Aromatawai Poto

Hei tauira pātai:

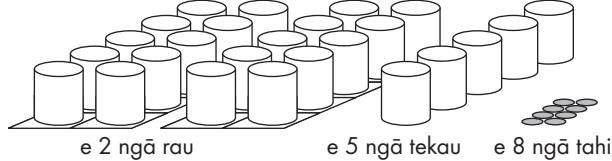
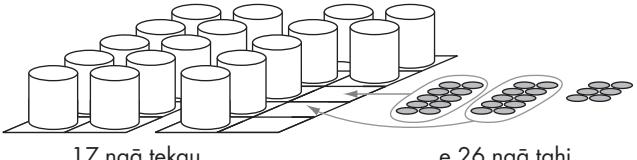
- E \$80 te tapeke o tō moni. E hia katoa ngā \$10?
- E hia ngā tekau kei roto i te kotahi rau? E hia ngā rau kei roto i te mano?
- \$1,000 te moni a Teri. \$100 te moni a Hera. E hia whakareatanga ake te moni a Teri, i te moni a Hera?
- Pānuihia ēnei tau: 405, 450, 4,050 ...

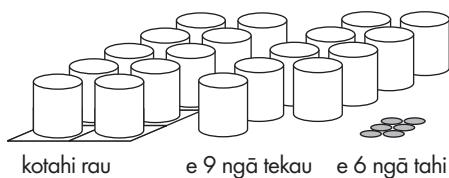
Mēnā e mōhio kē ana te ākonga e 47 ngā rau, e 476 ngā tekau kei roto i te 4,763, he mātau ia ki te noho whakaputu o ngā uara tū. E tika ana kia kumea ia ki taumata kē atu.

Rauemi

- He anga tekau wātea (Rauemi Tārua 4-6)
- He ipu kiriata
- He pīni
- Moni Tākarō (Rauemi Tārua 4-9)

Te Whakamahi Rauemi

Ngā tohutohu	He tauira kōrero mā te pouako
Tonoa ngā ākonga kia hanga i tētahi tau mati-3 ki ngā rauemi uara tū. He pai ake ngā rauemi pēnei i te pīni me te anga tekau i te tuatahi, nā te mea e tino kitea ana te uara tū. Mō muri whakamahia ai ngā rauemi kāore e kitea ana te uara tū, pērā i te moni.	<p>Titiro ki te tau kua hangaia nei ki ngā rauemi uara tū:</p>  <p>He aha te tau e tohua ana ki tētahi ipu kotahi? Koia ko te 10. Tekau ngā pīni kei roto i ia ipu.</p> <p>He aha te tau e tohua ana ki tētahi anga tekau kotahi? Ko te 100. Tekau ngā ipu, tekau ngā pīni kei ia ipu, nō reira ko te 100 te uara o ia anga tekau.</p> <p>He aha katoa o te tau e tohua mai ana ki ngā rauemi nei? Ko te 258.</p> <p>E hia katoa ngā rau kei tēnei tau? E rua ngā rau.</p> <p>E hia katoa ngā tekau kei roto i tēnei tau? E 25. Tekau ngā 10 kei ia rau, me te 5 atu anō.</p> <p>E hia katoa ngā tahi kei roto i te 258? E 258. E 200 ngā tahi kei roto i ngā rau e rua. E 50 ngā tahi kei roto i ngā tekau e 5. E 8 atu anō ngā tahi.</p> <p>Kia pēnei te tuhi i ā tātou mahi: $258 = e 2 \text{ ngā rau}, e 5 \text{ ngā tekau}, e 8 \text{ ngā tahi}$ $258 = e 25 \text{ ngā tekau}, e 8 \text{ ngā tahi}$ $258 = e 258 \text{ ngā tahi}$</p>
	<p>Kia pērā anō te mahi mō ētahi atu tau, pēnei i te 364 me te 473.</p>
Tonoa mā ngā ākonga e whakamahi ngā rauemi uara tū hei hanga i tētahi tau.	<p>Whakamahia ngā rauemi uara tū hei hanga i tēnei tau: 17 ngā tekau me ngā tahi e 26.</p>  <p>E hia ngā rau kei roto i tēnei tau? Kotahi.</p>



I tua atu i taua rau, e hia anō ngā tekau?

E 7 ngā tekau e tohua ana ki ngā ipu, me ngā tekau e 2 o ngā pīni takitahi. E 9 katoa ngā tekau i tua atu i te kotahi rau.

He aha tēnei tau?

Ko te 196.

Kia pērā anō te mahi mō ētahi atu tau, pēnei i ēnei:

- ngā tekau e 29 me ngā tahi 13 (303)
- ngā tekau e 38 me ngā tahi e 38 (418)

Whakawhānuihia atu te mahi kia whai wāhi mai te kotahi mano (1,000) me te tekau mano (10,000). Whakamahia he rauemi uara tū me te moni tākaro hei hanga i ngā tau. Hei tauira pātai:

Hangaiā te tau 5,671.

E hia katoa ngā rau kei roto i tēnei tau?

E 56.

Kei hea ēnei rau e noho ana?

E 50 ngā rau e noho ana ki ngā mano e 5. E 6 atu anō ngā rau.

E hia katoa ngā tekau kei roto i tēnei tau?

E 567.

Kei hea ēnei tekau e noho ana?

E 500 ngā tekau e noho ana ki ngā mano e 5. E 60 ngā tekau e noho ana ki ngā rau e 6. E 7 atu anō ngā tekau.

Te Whakaahua ā-Hinengaro

Ngā tohutohu	He tauira kōrero mā te pouako				
<p>Tuhia te rapanga nei ki te papa tuhituhi, ka pānui tahi ai me ngā ākonga:</p> <p>E hia katoa ngā \$10 kei roto i te \$4,567?</p>	<p>Tuhia he pikitia hei whiriwhiri i te maha o ngā \$10 kei roto i te \$4,567.</p> <table style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center;"> e 4 mano e 40 ngā rau e 400 ngā tekau </td> <td style="text-align: center;"> e 5 rau e 50 ngā tekau </td> <td style="text-align: center;"> e 6 tekau </td> <td style="text-align: center;"> e 7 ngā tahi </td> </tr> </table> <p style="text-align: center;">4,567 = e 456 ngā tekau me ngā tahi e 7</p>	 e 4 mano e 40 ngā rau e 400 ngā tekau	 e 5 rau e 50 ngā tekau	 e 6 tekau	 e 7 ngā tahi
 e 4 mano e 40 ngā rau e 400 ngā tekau	 e 5 rau e 50 ngā tekau	 e 6 tekau	 e 7 ngā tahi		

Whakamāramatia te pikitia.

Kua wāwāhia te \$4,567 ki ūna wāhangā uara tū. Ko ngā tapawhā hāngai e 4 hei tohu i ngā mano. Ko ngā porowhita e 5 hei tohu i ngā rau. Ko ngā tapawhā rite e 6 hei tohu i ngā tekau, me ngā tāra takitahi e 7.

E hia katoa ngā tekau tāra kei roto i te \$4,567?

Titiro ki ngā mano e 4. Tekau ngā rau kei ia mano, nō reira, e 40 ngā rau kei roto i te 4 mano. Tekau ngā 10 kei roto i ia rau, nō reira, e 400 ngā tekau kei roto i te katoa o te 4 mano. Titiro ki ngā rau e 5. Tekau ngā 10 kei ia rau, nō reira, e 50 ngā 10 kei roto i te katoa o te 5 rau. Hui katoa ngā tekau, ka 456. E 7 atu anō ngā tāra takitahi.

Kia pērā anō te mahi mō ētahi atu rapanga. Hei tauira:

- Koia nei ngā moni a Rōpata: E 7 ngā \$100, e 67 ngā \$10, e 25 ngā \$1. E hia katoa ana moni?
- E hia katoa ngā \$100 kei roto i te \$34,862?

Te Whakamahi Tikanga Tau

I konei he poto noa iho te tuhituhi a te ākonga, hei āwhina noa i a ia ki te pupuri i ngā tau ki tōna hinengaro. Ko tāna, he tere kite i te noho whakaputu o ngā uara tū. Hei tauira:

1. E hia katoa ngā \$10 kei roto i te 9,056?

$$\begin{array}{cccc} \text{e 9 ngā mano} & \text{kore ngā rau} & \text{e 5 ngā tekau} & \text{e 6 ngā tahi} \\ \downarrow & \downarrow & \downarrow & \downarrow \\ \text{e 900 ngā tekau} & \text{0 ngā tekau} & \text{e 5 ngā tekau} & \text{e 6 ngā tahi} \end{array}$$

9,056 = E 905 katoa ngā tekau, me te 6 atu anō.

2. E hia katoa te 56 rau, te 63 tekau me ngā tahi 17?

$$\begin{array}{ccccccc} & \text{e 56 ngā rau} & & \text{e 63 ngā tekau} & & 17 \text{ ngā tahi} & \\ \text{e 5 ngā mano} & \swarrow & \text{e 6 rau me te 6 rau} & \swarrow & \text{e 3 tekau me te tekau} & \swarrow & \text{e 7 ngā tahi} \\ \downarrow & & \downarrow & & \downarrow & & \downarrow \\ \text{e 5 ngā mano} & & 12 \text{ ngā rau} & & \text{e 4 ngā tekau} & & \text{e 7 ngā tahi} \\ \downarrow & & \downarrow & & \downarrow & & \downarrow \\ \text{e 5 mano me te mano} & & \text{e 2 ngā rau} & & \text{e 4 ngā tekau} & & \text{e 7 ngā tahi} \\ \downarrow & & \downarrow & & \downarrow & & \downarrow \\ \text{e 6 mano} & & \text{e 2 ngā rau} & & \text{e 4 ngā tekau} & & \text{e 7 ngā tahi} \end{array}$$

Nō reira, e 56 ngā rau, e 63 ngā tekau me ngā tahi 17, ka eke ki te 6,247.

Whakareatia ki te Rima

Mahere Tau | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8

Whanaketanga | 1a | 1e | 2a | 2e | 3a | 3e | 4a | 4e | 5a

E ako ana ahau ki te whiriwhiri i ngā meka whakareatanga o te 6, te 7 me te 8, mā te whakamahi i ngā whakareatanga o te 5.

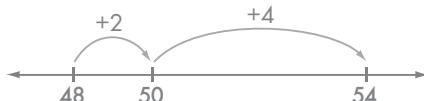
He Whakaaro Matua

- Ka ako i ngā meka whakarea mō te 6, te 7 me te 8, mā te whakamahi mōhiotanga ki ngā meka whakarea mō te 5. Mā te whakawaiwai tonu e ū ai ngā meka whakarea nei ki te pūmahara.
- Ko te āhuatanga tātai tohatoha o te whakarea te tikanga matua ka whakamahia hei wāwāhi i ngā tau e whakareatia ana. Hei tauira, ka wāwāhia te 7×8 ki ngā whakareatanga māmā e rua nei, te 5×8 me te 2×8 . Arā: $7 \times 8 = (5 \times 8) + (2 \times 8)$.

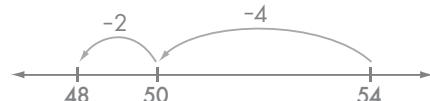
Te Mātauranga Matua

- Kia noho tangata whenua tonu ngā meka whakarea mō te 2, te 3 me te 5 ki te hinengaro o te ākonga.
- Kia mōhio pū ki te whakamahi i tētahi tau ngahuru hei tau māmā i roto i ngā rautaki tāpiri me ngā rautaki tango. Hei tauira:

$$48 + 6 = 48 + 2 + 4 = 54$$



$$54 - 6 = 54 - 4 - 2 = 48$$



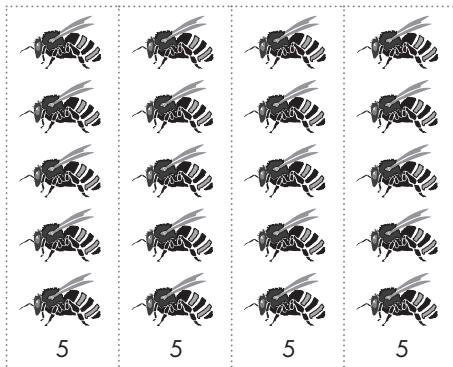
He Aromatawai Poto

Whakamātauria mēnā e mōhio kē ana te ākonga ki ngā meka whakarea mō te 6, te 7 me te 8. Mēnā kua mau kē ēnei meka whakareatanga, ā, ka whakamahia hei whakaoti rapanga e whai wāhi mai ana he rōpū ōrite, me haere tika taua ākonga ki te wāhanga ‘Te Whakamahi Tikanga Tau’ o tēnei ngohe. I konei ka āta whakamahi i te āhuatanga tātai tohatoha o te whakarea.

Rauemi

- Ngaku Pī Huripoki (Rauemi Tārua 4-5)

Te Whakamahi Rauemi

Ngā tohutohu	He tauira kōrero mā te pouako
Whakatakotoria kia whā ngā kāri o te rauemi Ngaku Pī Huripoki (Rauemi Tārua 4-5) e whakaatu ana i te 5 ki mua i te aroaro o te ākonga.	E 4 ngā kāri. E 5 ngā pī e whakaaturia ana ki ia kāri. 
Whakawhitiwhiti kōrero mō te whakareatanga 5×4 .	

	<p>E hia ngā rōpū o te 5? E 4.</p> <p>He aha te whakareatanga? 5×4. Whakareatia te 5 ki te 4.</p> <p>He aha ētahi rautaki hei whiriwhiri i te maha o ngā pī katoa? Hei tauira whakautu:</p> <ol style="list-style-type: none"> 1. E 4 ngā rōpū o te 5, ko te 20 tēnā. 2. Tatau mawhiti-5 i ngā pī – 5, 10, 15, 20. 3. E 2 ngā rōpū o te 10, ko te 20.
	<p>Kia pērā anō te mahi mō ētahi atu whakareatanga o te 5, pērā i te 5×6, 5×8, 5×7 ...</p>
	<p>Aratakina ngā ākonga kia whakamahi i te rauemi Ngaku Pī Huripoki (Rauemi Tārua 4-5) hei whiriwhiri i te 6×4.</p> <p>E 4 ngā kāri, e 6 katoa ngā pī o ia kāri engari e 5 noa iho e whakaaturia ana. Kotahi anō te pī ki muri o ia kāri. Nō reira, e 6 katoa ngā pī o ia kāri.</p> <p>He aha te whakareatanga? Whakareatia te 6 ki te 4. E 4 ngā rōpū o te 6. Arā, ko te 6×4.</p> <p>E hia katoa ngā pī e whakaaturia ana? E 20.</p> <p>E hia ngā pī kei muri o ngā kāri? Kotahi kei muri o ia kāri, nō reira, e 4 katoa.</p> <p>Nō reira, e hia katoa ngā pī? He aha te otinga o te 6×4? Ko te 24.</p> <p>Me pēnei te tuhi: Te whakareatanga: 6×4 Ngā pī o mua: $5 \times 4 = 20$ Ngā pī o muri: $1 \times 4 = 4$ Ngā pī katoa: $20 + 4 = 24$</p> <p>I tīmata ki te whakareatanga 6×4. Ka wāwāhia te 6 ki ngā rōpū o te 5 me te 1. Ka whakareatia ēnei rōpū e rua ki te 4:</p> $\begin{aligned} 6 \times 4 &= (5 \times 4) + (1 \times 4) \\ &= 20 + 4 \\ &= 24 \end{aligned}$

Kia pērā anō te arataki i te ākonga kia whakamahi i te rauemi Ngaku Pī Huripoki (**Rauemi Tārua 4-5**) hei whakaoti i ētahi atu whakareatanga pērā i te:

$$6 \times 6$$

$$6 \times 7$$

$$6 \times 8$$

$$6 \times 10$$

$$6 \times 9$$

Whakamahia ngā kāri o te rauemi Ngaku Pī Huripoki (**Rauemi Tārua 4-5**) e whakaatu ana i te 7 hei whakaoti i ēnei:

$$7 \times 6$$

$$7 \times 4$$

$$7 \times 8$$

$$7 \times 7$$

$$7 \times 9$$

Whakamahia ngā kāri o te rauemi Ngaku Pī Huripoki (**Rauemi Tārua 4-5**) e whakaatu ana i te 8 hei whakaoti i ēnei:

$$8 \times 4$$

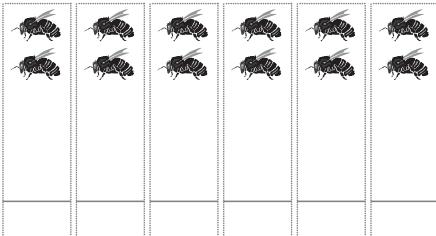
$$8 \times 6$$

$$8 \times 9$$

$$8 \times 7$$

$$8 \times 8$$

Te Whakaahua ā-Hinengaro

Ngā tohutohu	He tauira kōrero mā te pouako
<p>Whakatakotoria ngā kāri o te Ngaku Pī Huripoki (Rauemi Tārua 4-5), ko ngā mata ki raro, kia kitea ko ngā mata muri o ngā kāri.</p> <p>Aratakina ngā ākonga kia whakaahua ā-hinengaro i te whakareatanga.</p> 	<p>E 6 ngā kāri, e kitea ana ngā mata muri, e 2 ngā pī o ia kāri. E hia ngā pī kei tērā o ngā mata o ia kāri? E 5.</p> <p>Nō reira, e hia katoa ngā pī o ia kāri? E 7.</p> <p>He aha te whakareatanga? Whakareatia te 7 ki te 6, e 6 ngā rōpū o te 7. Arā 7×6.</p> <p>Kua wāwāhia te 7 ki ētahi rōpū e 2. He aha ngā rōpū? Ko te 5 me te 2. E 5 ngā pī ki te mata kāore e kitea ana, e 2 ngā pī ki tēnei mata.</p> <p>Nō reira, ka wāwāhia te whakareatanga: $7 \times 6 = (5 \times 6) + (2 \times 6)$</p> <p>E hia katoa ngā pī kāore e kitea ana? E 30. Ko te 5×6 tērā.</p> <p>E hia ngā pī e kitea mai ana? 12. Ko te 2×6 tērā.</p> <p>Hui katoa, e hia ngā pi? E 42, e 30 ki muri o ngā kāri, 12 ki mua.</p> <p>Me pēnei te tuhi: $7 \times 6 = (5 \times 6) + (2 \times 6)$ $= 30 + 12$ $= 42$</p>

Kia pērā anō te arataki i ngā ākonga kia whakaahua ā-hinengaro i ngā whakareatanga nei:

$$7 \times 8$$

$$7 \times 4$$

$$6 \times 4$$

$$6 \times 6$$

$$9 \times 4 \dots$$

Te Whakamahi Tikanga Tau

Hoatu he rapanga whakarea e whai wāhi mai ana ngā tau mati-2 pēnei i ēnei:

$$12 \times 6 = (10 \times 6) + (2 \times 6)$$

$$6 \times 20 = (5 \times 20) + (1 \times 20)$$

$$14 \times 6 = (10 \times 6) + (4 \times 6)$$

$$7 \times 12 = (5 \times 12) + (2 \times 12)$$

$$7 \times 20 = (5 \times 20) + (2 \times 20)$$

$$8 \times 11 = (8 \times 10) + (8 \times 1)$$

Hei Mahi Atu Anō

Tākarohia te kēmu ‘Otinga Whakareatanga’ (**Rauemi Tārua 6-4**). Mā konei e tino ū ai te whakamahi i ngā rōpū o te 5 hei rautaki whakaoti whakareatanga.

Rauemi

- Kia 9 ngā kape o ia kāri o te rauemi Ngaku Pī Huripoki (**Rauemi Tārua 4-5**)
- Kia 15 ngā porotiti mā ia kaitākaro
- Otinga Whakareatanga – he papa tākaro mā ia kaitākaro (**Rauemi Tārua 6-4**)
- Kia rua ngā mataono rite, ko ngā tau 6, 7, 8, 6, 7, 8 ki ngā mata
- Kia kotahi te mataono rite, ko ngā tau 5, 6, 7, 8, 9, 10 ki ngā mata

Ngā tohutohu

Ka whai tētahi kaitākaro i tētahi:

- Ka pīroria ngā mataono tau e toru.
- Ka whiriwhiria ētahi tau e rua (o ngā tau e 3 ka puta), hei hanga i tētahi whakareatanga (hei tauira, ko te 7×6 , ko te 6×7 rānei).
- Ka whakatauiratia taua whakareatanga ki ngā kāri o te rauemi Ngaku Pī Huripoki (**Rauemi Tārua 4-5**) (hei tauira, kia 6 ngā kāri o te 7 hei whakaatu i te whakareatanga 7×6).
- Ka whiriwhiria te whakautu me te uhi anō i taua tau ki tana papa tākaro.
- Ka tirohia mēnā i tika te whakautu mā te whakaoti i te whakareatanga ki te 5 e whakaaturia ana ki te mata mua o ngā kāri, me te tāpiri anō i te whakareatanga e whakaaturia ana ki te mata muri.

Ko te kaitākaro tuatahi kia uhi i ētahi whitianga e 3 o te pororapa (mai i tētahi taha ki tētahi), ko ia te toa.

Ka taea hoki tēnei kēmu hei kēmu mahi tahi, kaua hei whakataetae. Arā, ka mahi tahi ngā ākonga ki te uhi i ngā tau o te papa tākaro.

Whakareatia ki te Tekau

Mahere Tau | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |

Whanaketanga | 1a | 1e | 2a | 2e | 3a | 3e | 4a | 4e | 5a |

E ako ana ahau ki te whakarea i tētahi tau ki te 10, ki te 100, ki te 1,000, ki tētahi tau ngahuru hoki.

Hei Whakaaro Matua

E whaihua ana te whakamahi i ngā meka matua hei whiriwhiri i ngā rapanga e whai wāhi mai ana te whakarea ki tētahi tau ngahuru, ki te 100, me te 1,000.

Te Mātauranga Matua

Kia noho tangata whenua ngā meka whakarea mō te 2, te 3, te 5 me te 10 ki te hinengaro o te ākonga, tae atu ki ngā meka whakawehenga e whai pānga ana. Hei tauira, $3 \times 6 = 18$, nō reira, $18 \div 6 = 3$, $18 \div 3 = 6$.

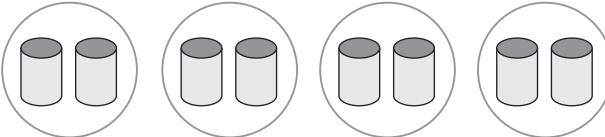
He Aromatawai Poto

Mēnā e mōhio kē ana te ākonga ki te otinga o ngā rapanga pēnei i te 300×6 , me haere tika ia ki te wāhanga ‘Te Whakamahi Tikanga Tau’ o tēnei ngohe.

Rauemi

- He rauemi uara tū (pīni, rākau aihikirīmi, poraka uara tū, moni tākaro)
- He ipu aihikirīmi
- He tātaitai

Te Whakamahi Rauemi

Ngā tohutohu	He tauira kōrero mā te pouako
<p>Whakaaturia ētahi ipu pīni e 8, kia 10 ngā pīni ki ia ipu.</p> <p>Whakarōpūngia ngā ipu, kia rua ngā ipu ki ia rōpū.</p> <p>Whakawhitiwhiti kōrero mō te whakareatanga 20×4, me te hāngai o tēnei ki te whakareatanga 2×4.</p>	<p>E 8 ngā ipu, 10 ngā pīni kei roto i ia ipu.</p> <p>Māku e whakarōpū ngā ipu, kia 2 ngā ipu ki ia rōpū. E hia katoa ngā pīni kei roto i tētahi o ngā rōpū? E hia ngā pīni kei roto i ngā ipu e rua?</p> <p>E 20.</p>  <p>E hia ngā rōpū o ngā ipu e 2?</p> <p>E 4.</p> <p>He aha te whakareatanga e hāngai ana?</p> <p>Ko te 20 whakareatia ki te 4. Arā, 20×4.</p> <p>Me pēhea te whakaoti i te whakareatanga hei whiriwhiri i te maha o ngā pīni katoa?</p>

Hei tauira whakautu:

- Tatauria ngā 10: 10, 20, 30, 40, 50, 60, 70, 80.
- Tatauria ngā 20: 20, 40, 60, 80
- Rearuatio te 20, ka 40. Rearuatio te 40, ka 80.
- Whakareatia te 10 ki te 8, ka 80.
- Whakareatia te 20 ki te 4, ka 80

He aha te whakareatanga hei whiriwhiri i te maha o ngā ipu?

$$2 \times 4 = 8$$

Anei ngā whakareatanga e rua:

$$\text{Hei whiriwhiri i te maha o ngā pīni: } 20 \times 4 = 80$$

$$\text{Hei whiriwhiri i te maha o ngā ipu: } 2 \times 4 = 8$$

E tino hono ana ngā whakareatanga e rua nei.
Whakamāramatia mai te hononga.

E whai ana i te meka matua nei, te $2 \times 4 = 8$. Engari he tau ngahuru te 20, nō reira me tau ngahuru anō te otinga, arā, te 80.

Kia pērā anō te mahi hei whiriwhiri i ētahi atu whakareatanga tau ngahuru me te whakahāngai anō ki tētahi meka matua:

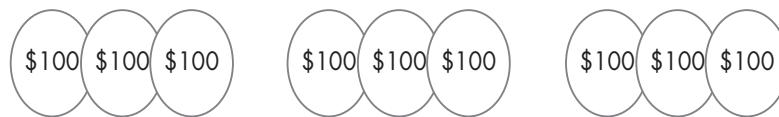
$$30 \times 3 = 90, \text{ nā te mea } 3 \times 3 = 9$$

$$40 \times 2 = 80, \text{ nā te mea } 4 \times 2 = 8$$

$$50 \times 6 = 300, \text{ nā te mea } 5 \times 6 = 30$$

$$30 \times 5 = 150, \text{ nā te mea } 3 \times 5 = 15$$

Whakawhānuitia tēnei mahi, ka tirotiro ai i ngā whakareatanga o ngā rau. Hei tauira, ko te 300×3 :



Kia pērā anō te whakatauira i ngā whakareatanga ki ngā rauemi, me te whakahāngai ki tētahi meka matua:

$$200 \times 4 = 800, \text{ nā te mea } 2 \times 4 = 8$$

$$300 \times 2 = 600, \text{ nā te mea } 3 \times 2 = 6$$

Tonoa mā ngā ākonga e whakamārama te tauira mō te whakaotī i ēnei momo whakareatanga.

Te Whakaahua ā-Hinengaro

Ngā tohutohu	He tauira kōrero mā te pouako
<p>Uhia ngā rōpū o ngā ipu pīni ki te ipu aihikirīmi. Tohua te maha o ngā pīni kei raro i ia ipu aihikirīmi.</p> <p>Aratakina ngā ākonga kia whakaahua ā-hinengaro i te whakareatanga.</p>	<p>E 4 ngā ipu pīni kei ia rōpū. Ka hunaia ki raro i ngā ipu aihikirīmi. E hia katoa ngā pīni kei raro i ia ipu aihikirīmi? E 40.</p> <p>Māku e tuhi te 40 ki ia ipu.</p>  <p>He aha te whakareatanga?</p> <p>Whakareatia te 40 ki te 6. 40×6.</p> <p>Me pēhea te whiriwhiri i te maha o ngā pīni katoa?</p> <p>Hei tauira whakautu:</p> <ul style="list-style-type: none"> • Tatauria ngā 40: 40, 80, 120, 160, 200, 240 • Rearuatia te 40, ka 80. Rearuatia te 80, ka 160. Tāpiria te 40, ka 200, me te 40 atu anō, ka 240. • E 3 ngā 40, ka 120. Rearuatia te 120, ka 240. • Whakareatia te 4 ki te 6, ka 24. E whai pānga ana tēnā ki te whakareatanga 40×6, ka 240: $4 \times 6 = 24$ $40 \times 6 = 240$
<p>Kia pērā anō te mahi hei whakaahua ā-hinengaro i ngā whakareatanga nei:</p> <p>70×2 50×8 30×4 500×7 400×5 500×6 ...</p>	

Te Whakamahi Tikanga Tau

Whakamahia he tātaitai hei tūhura i ngā tauira o ngā whakareatanga e whai hononga ana. Hei tauira:

5×7	50×7	500×7	50×70	500×70	500×700
6×2	60×2	200×6	20×60	600×200	$2,000 \times 60$

Whakawhitiwhiti kōrero mō te tikanga e kitea mai ana i ngā whakareatanga nei. Tonoa mā ngā ākonga e whakamārama. Hei tauira:

$$30 \times 40 = 1,200$$

E mōhiotia ana te meka matua $3 \times 4 = 12$. E 2 atu anō ngā kore, nō reira ko te 1,200 te otinga.

Parematatia

Mahere Tau	0	1	2	3	4	5	6	7	8
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Whanaketanga	1a	1e	2a	2e	3a	3e	4a	4e	5a
--------------	----	----	----	----	----	----	----	----	----

E ako ana ahau ki te whakaoti whakareatanga mā te whakamahi i taku mōhio ki ngā meka whakareatanga o te 5 me te 10.

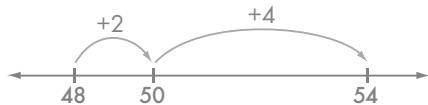
He Whakaaro Matua

E whaihua ana te whakamahi meka whakareatanga e mōhiotia ana hei whakaputa i ngā meka kāore e mōhiotia ana. Hei tauira, ka whakamahia te $20 \times 5 = 100$ hei whakaoti i te 19×5 .

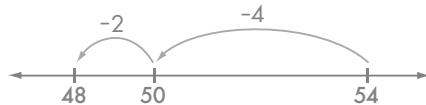
Te Mātauranga Matua

- Kia noho tangata whenua tonu ngā meka whakareatanga mō te 2, te 3, te 5 me te 10 ki te hinengaro o te ākonga, tae atu ki ngā meka whakawehenga e whai pānga ana. Hei tauira, $8 \times 5 = 40$, nō reira $5 \times 8 = 40$, $40 \div 8 = 5$, $40 \div 5 = 8$.
- Kia mōhio pū ki te whakamahi i tētahi tau ngahuru hei tau māmā i roto i ngā rautaki tāpiri me ngā rautaki tango. Hei tauira:

$$48 + 6 = 48 + 2 + 4 = 54$$



$$54 - 6 = 54 - 4 - 2 = 48$$



- Kia mōhio te ākonga ki te tango tau matirua. He āwhina tēnei i roto i ngā rautaki whakarea. Hei tauira:

$$\begin{aligned} 8 \times 7 &= (10 \times 7) - (2 \times 7) \\ &= 70 - 14 \\ &= 56 \end{aligned}$$

He Aromatawai Poto

Hei tauira pātai: 19×4

Mēnā ka whakamahi te ākonga i tana mōhio ki te 20×4 , e tika ana kia kumea ia ki taumata kē atu. Mēnā ka wāwāhia te tau ki ōna uara tū ($19 \times 4 = 10 \times 4 + 9 \times 4$), me pātai atu mēnā e mōhio ana ia ki tētahi atu rautaki. Ki te kore, me whai tonu ngā mahi o tēnei ngohe.

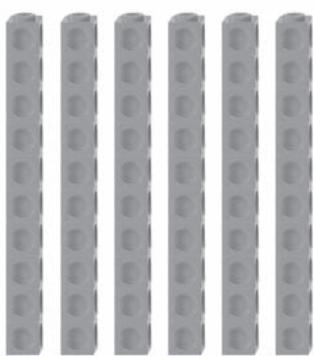
Rauemi

- He poraka honohono
- He kāri A4

Te Whakamahi Rauemi

Ngā tohutohu	He tauira kōrero mā te pouako
Whakaaturia kia 6 ngā huinga poraka o te 5. Tonoa ngā ākonga kia whiriwhiri i te maha o ngā poraka katoa.	Titiro ki ngā huinga poraka nei. E hia ngā poraka o ia huinga? E 5.

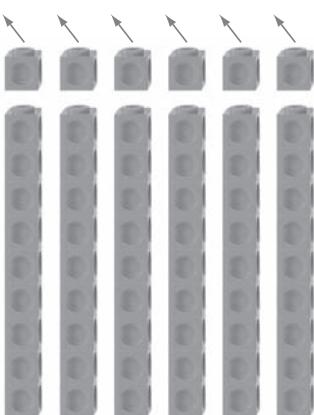
	<p>E hia ngā huinga? E 6.</p> <p>He aha te whakareatanga hei whiriwhiri i te maha o ngā poraka katoa?</p> <p>Whakareatia te 5 ki te 6. Arā, 5×6.</p> <p>He aha te otinga o te whakareatanga? Me pēhea te whiriwhiri i te maha o ngā poraka katoa?</p> <p>Hei tauira whakautu:</p> <ul style="list-style-type: none"> • E 2 ngā rōpū o te 5, ka 10. E 3 ngā rōpū o te 10, ka 30. • Tatauria mawhiti-5: 5, 10, 15, 20, 25, 30 • Whakareatia te 5 ki te 6, ka 30. • Tatauria ngā rōpū o te 10: 10, 20, 30
<p>Whakawhitiwhiti kōrero mō te whakaatu i te whakareatanga 4×6 ki ngā poraka honohono, me te rautaki paremata hei whakaoti i te whakareatanga.</p> 	<p>Mēnā ka tangohia tētahi poraka mai i ia huinga, he aha te whakareatanga hou?</p> <p>Whakareatia te 4 ki te 6. E 6 ngā rōpū o te 4. Arā, 4×6.</p> <p>He aha te otinga o te 5×6?</p> <p>Ko te 30.</p> <p>Me pēhea te whakamahi i te whakareatanga 5×6 hei whakaoti i te whakareatanga 4×6?</p> <p>Kua tangohia atu tētahi poraka mai i ia huinga. E 6 katoa kua tangohia atu. Nō reira, ka tangohia te 6 mai i te 30, ka 24.</p> <p>Anei te tuhinga:</p> $\begin{aligned} 4 \times 6 &= (5 \times 6) - (1 \times 6) \\ &= 30 - 6 \\ &= 24 \end{aligned}$
<p>Kia pērā anō te arataki i ngā ākonga kia whiriwhiri i ngā meka whakareatanga mō te 4 me te 6, mā te whakamahi i ngā meka whakareatanga mō te 5. Hei tauira:</p> <p>$5 \times 4 = 20$, nō reira, $4 \times 4 = \square$, $6 \times 4 = \square$</p> <p>$5 \times 8 = 40$, nō reira, $4 \times 8 = \square$, $6 \times 8 = \square \dots$</p>	
<p>Whakaaturia kia 6 ngā huinga poraka o te 10. Tonoa ngā ākonga kia whiriwhiri i te maha o ngā poraka katoa.</p>	<p>Titiro ki ngā huinga poraka nei. E hia ngā poraka o ia huinga?</p> <p>10.</p> <p>E hia ngā huinga? E 6.</p>



He aha te whakareatanga hei whiriwhiri i te maha o ngā poraka katoa?

Whakareatia te 10 ki te 6. Arā, 10×6 . Ko te 60.

Whakawhitihiti kōrero mō te whakaatu i te whakareatanga 9×6 ki ngā poraka honohono, me te rautaki paremata hei whakaoti i te whakareatanga.



Me pēhea te whakaatu i te whakareatanga 9×6 ki ngā poraka honohono?

Tangohia tētahi poraka mai i ia huingga.

Me pēhea te whakaoti i te whakareatanga 9×6 ?

Kua tangohia atu tētahi poraka mai i ia huingga. E 6 katoa kua tangohia atu. Nō reira, ka tangohia te 6 mai i te 60, ka 54.

Me pēnei te tuhinga:

$$\begin{aligned} 9 \times 6 &= (10 \times 6) - (1 \times 6) \\ &= 60 - 6 \\ &= 54 \end{aligned}$$

Kia pērā anō te arataki i ngā ākonga kia whiriwhiri i ngā meka whakareatanga o te 9 me te 11, mā te whakamahi i ngā meka whakareatanga o te 10. Hei tauira:

$$10 \times 4 = 40, \text{ nō reira, } 9 \times 4 = \square, 11 \times 4 = \square$$

$$10 \times 7 = 70, \text{ nō reira, } 9 \times 7 = \square, 11 \times 7 = \square$$

$$10 \times 9 = 90, \text{ nō reira, } 9 \times 9 = \square, 11 \times 9 = \square$$

$$10 \times 5 = 50, \text{ nō reira, } 9 \times 5 = \square, 11 \times 5 = \square$$

Te Whakaahua ā-Hinengaro

Ngā tohutohu	He tauira kōrero mā te pouako
Uhia ia huingga poraka honohono ki tētahi ipu aihikirīmi. Tuhia te maha o ngā poraka o ia huingga ki te ipu.	Kua uhia ngā poraka ki ētahi ipu aihikirīmi, engari e whakaaturia ana te maha o ngā poraka kei raro i ia ipu. He aha te whakareatanga e hāngai ana? Whakareatia te 10 ki te 6. E 6 ngā rōpū o te 10. Arā, 10×6 .

Aratakina ngā ākonga kia whakaahua ā-hinengaro i ngā whakareatanga.

E hia katoa ngā poraka?

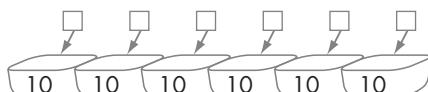
E 60.



$$6 \times 10 = 60$$

Nō reira, he aha te otinga o te 11×6 ?

Ka tāpiria tētahi poraka ki ia ipu. E 6 katoa ka tāpiria ki te 60, nō reira, ko te 66 te otinga.



Tuhia te whakareatanga me te otinga.

$$11 \times 6 = (10 \times 6) + (1 \times 6)$$

$$= 60 + 6$$

$$= 66$$

Kia pērā anō te arataki i ngā ākonga kia whakaahua ā-hinengaro i ngā whakareatanga nei:

$$10 \times 7 = 70, \text{ nō reira}, 11 \times 7 = \square, 9 \times 7 = \square$$

$$5 \times 8 = 40, \text{ nō reira}, 4 \times 8 = \square, 6 \times 8 = \square$$

$$10 \times 9 = 90, \text{ nō reira}, 9 \times 9 = \square, 11 \times 9 = \square$$

Te Whakamahi Tikanga Tau

Tonoa ngā ākonga kia whakamārama i te rautaki hei whakaoti i ēnei whakareatanga:

$$20 \times 5 = 100, \text{ nō reira}, 19 \times 5 = \square, 21 \times 5 = \square$$

$$30 \times 4 = 120, \text{ nō reira}, 29 \times 4 = \square, 31 \times 4 = \square$$

$$50 \times 6 = 300, \text{ nō reira}, 49 \times 6 = \square, 52 \times 6 = \square$$

$$200 \times 7 = 1,400, \text{ nō reira}, 198 \times 7 = \square, 203 \times 7 = \square$$

Te Huri Kōaro i te Whakareatanga

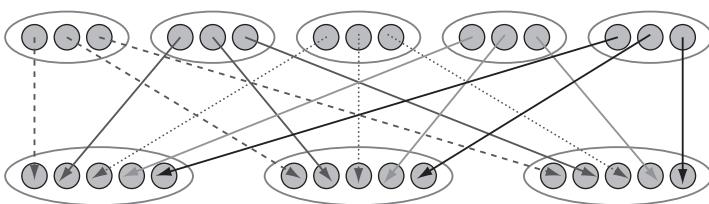
Mahere Tau | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |

Whanaketanga | 1a | 1e | 2a | 2e | 3a | 3e | 4a | 4e | 5a |

E ako ana ahau ki te huri kōaro i te whakareatanga kia māmā ai te whakaoti.

He Whakaaro Matua

- He nui te whakamahinga o te āhuatanga tātai kōaro o te whakarea i roto i ngā rautaki whakaoti rapanga. Arā, kāore he take o te raupapa mai o ngā tauwehe o tētahi whakareatanga. Hei tauira, he ūrite te otinga o te 5×4 me te 4×5 , engari he rerekē te whakaahua i te whakareatanga:
 - 5×4 : E 4 ngā rourou, e 5 ngā āporo kei ia rourou. Arā, e 4 ngā rōpū ūrite o te 5.
 - 4×5 : E 5 ngā rourou, e 4 ngā āporo kei ia rourou. Arā, e 5 ngā rōpū ūrite o te 4.
- Kia mōhio te ākonga ki te whakaahua i te kōaro o tētahi whakareatanga. Hei tauira, ko te whakarōpū anō i te 3×5 hei 5×3 :



Te Mātauranga Matua

Kia noho tangata whenua ngā meka whakarea mō te 2, te 3, te 5 me te 10 ki te hinengaro o te ākonga, tae atu ki ngā meka whakawehenga e whai pānga ana. Hei tauira, $8 \times 5 = 40$, nō reira, $5 \times 8 = 40$, $40 \div 8 = 5$, $40 \div 5 = 8$.

He Aromatawai Poto

Hei tauira pātai:

E \$3 te utu mō te ūkite kotahi. E hia te utu mō ngā ūkite 49?

Mēnā ka whakarea te ākonga i te 49 ki te 3 (49×3), e tika ana kia kumea ia ki taumata kē atu, nā te mea e mārama ana ia ki te āhuatanga tātai kōaro o te whakarea.

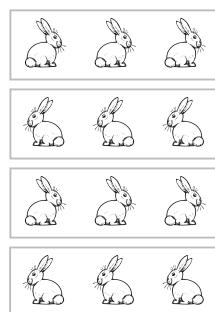
Rauemi

- Ngaku Kararehe (Rauemi Tārua 5-2)
- Papa Mata Rau (Rauemi Tārua 6-5)
- He Rārangi Whakareatanga (Rauemi Tārua 6-6)
- He poraka honohono
- He tātaitai

Te Whakamahi Rauemi

Ngā tohutohu	He tauira kōrero mā te pouako
Whakatakotoria ētahi ngaku kararehe (Rauemi Tārua 5-2) e 4, ko ia ngaku e whakaatu ana i ētahi kararehe e 3.	Anei ētahi ngaku kararehe e 4. E hia ngā kararehe o ia ngaku? E 3.

Whakawhitihiti kōrero mō te whakareatanga.

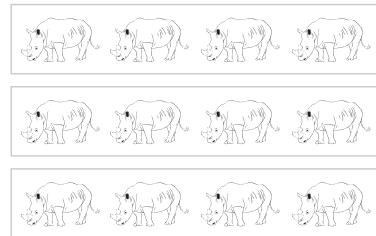


Nō reira he aha te whakareatanga hei whiriwhiri i te maha o ngā kararehe katoa?

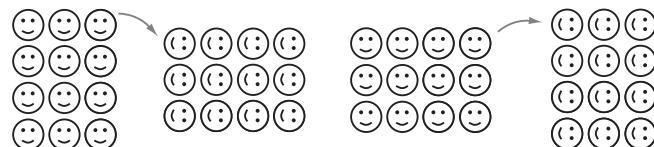
← E 4 ngā rōpū o te 3. Arā, ka whakareatia te 3 ki te 4. Anei te whārite: 3×4 .

Me pēhea te whakaatu i te whakareatanga 4×3 ?

Kia 3 ngā ngaku, kia 4 ngā kararehe ki ia ngaku.



He ūrite te otinga o ēnei whakareatanga e rua, arā, ko te 12. Kia tirohia ēnei whakareatanga i te Papa Mata Rau. Ka tapahia ētahi mata hei whakaatu i te whakareatanga 3×4 , me tētahi hei whakaatu i te 4×3 . Mā te huri noa i ngā papa ka tau te 3×4 ki runga i te 4×3 . He ūrite te maha o ngā mata.



Kia pērā anō te whakamahi rauemi hei whakaatu i te āhuatanga tātai kōaro o te whakarea. Hei tauira:

$$2 \times 6 = 6 \times 2$$

$$7 \times 3 = 3 \times 7$$

$$8 \times 4 = 4 \times 8$$

Whakamahia he poraka honohono hei whakaatu i te āhuatanga tātai kōaro o te whakarea.



E 4 ngā huinga poraka, e 3 ngā poraka kei ia huinga. He aha te whakareatanga e hāngai ana?

E 4 ngā rōpū o te 3, arā, ka whakareatia te 3 ki te 4. Ko te whārite, ko te 3×4 .

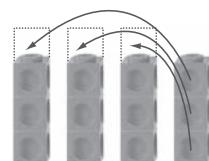
E hia katoa ngā poraka? He aha te otinga o te whakareatanga?

Ko te 12.

← Me pēnei te huri hei whakaatu i te whakareatanga o te 4 ki te 3. Ka tohaina ngā poraka katoa o tētahi huinga ki ērā atu o ngā rōpū.

Koinei te whārite: 4×3 . He aha anō te otinga?

Ko te 12.



Āe rā. Kāore i tāpiria, i tangohia rānei tētahi poraka. Ko te whakarerekē noa iho i te whakarōpūtanga o ngā poraka.

He ūrite te otinga o te 3×4 me te 4×3 .

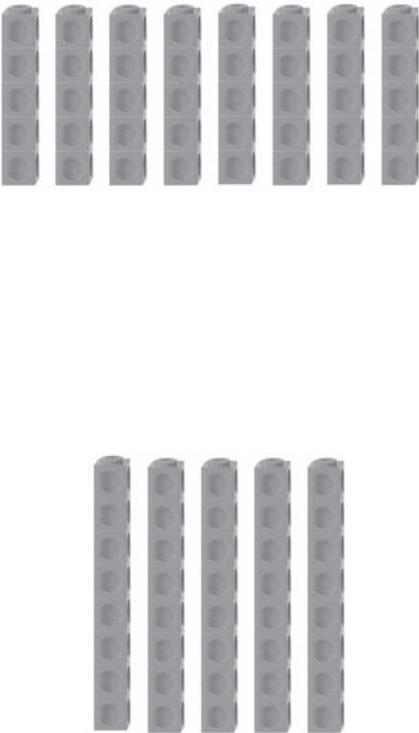
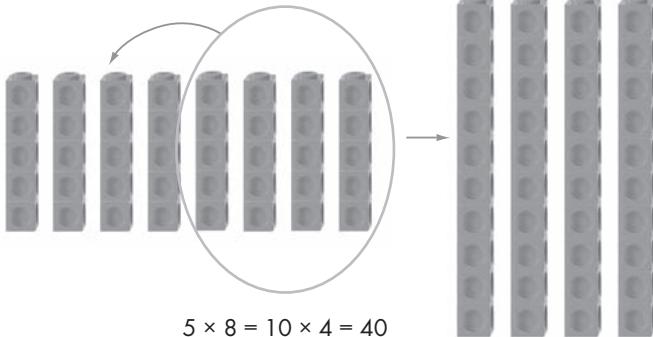
Kia pērā anō te arataki i ngā ākonga hei tirotiro i te ūritenga o ēnei whakareatanga:

$$2 \times 5 = 5 \times 2$$

$$3 \times 6 = 6 \times 3$$

$$4 \times 7 = 7 \times 4$$

Te Whakaahua ā-Hinengaro

Ngā tohutohu	He tauira kōrero mā te pouako
<p>Tuhia ngā whakareatanga e rua nei ki te papa tuhituhi. Aratakina ngā ākonga kia whakaahua ā-hinengaro i ngā rauemi hei whakaatu i ēnei whakareatanga:</p> <p>5×8 8×5</p>  <p>Anei ētahi whakareatanga e rua. He aha te tikanga o te 5×8? Whakareatia te 5 ki te 8. Arā, e 8 ngā rōpū o te 5. Me pēhea te whakaatu i tēnei whakareatanga ki ngā poraka honohono? Hangaia kia waru ngā rōpū poraka o te 5.</p> <p>Me pēhea te whakaotī i tēnei whakareatanga? Hei tauira whakautu: Hauruatia te 8, ka 4, rearuatia te 5, ka 10. E 4 ngā rōpū o te 10, ka 40.</p>  $5 \times 8 = 10 \times 4 = 40$ <p>Anei te whakareatanga tuarua: 8×5. Me pēhea te whakaatu i tēnei whakareatanga ki ngā poraka honohono? Hangaia kia 5 ngā rōpū poraka, kia 8 ngā poraka ki ia rōpū.</p> <p>Me pēhea te whakaotī i tēnei o ngā whakareatanga? Hei tauira whakautu: E 2 ngā rōpū o te 8, ka 16. E 2 ngā rōpū o te 16, ka 32. Tāpiria te 8, ka 40.</p> <p>Ko tēhea te whakareatanga he māmā noa iho te whiriwhiri, ko te 5×8, ko te 8×5 rānei? He māmā ake te 5×8, me te huri i tēnā ki te 10×4.</p>	

Kia pērā anō te arataki i ngā ākonga hei tirotiro i ngā whakareatanga punarua nei:

$$2 \times 9 \text{ me te } 9 \times 2$$

$$6 \times 3 \text{ me te } 3 \times 6$$

$$8 \times 4 \text{ me te } 4 \times 8$$

Whakawhitihiti kōrero mō te 3×100
me te 100×3 , me te huarahi māmā
hei whiriwhiri i te otinga.

Anei ētahi atu whakareatanga e rua:

$$3 \times 100 \quad 100 \times 3$$

He ūrite anō te otinga o ēnei whakareatanga e rua?

Āe. He pai noa iho te huri kōaro i ngā tau o roto i tētahi whakareatanga. Kāore he aha mēnā ko te 100×3 , ko te 3×100 rānei. He ūrite tonu te otinga.

Ko tēhea te mea he māmā te whakaoti?

Ko te 100×3 . Arā, e 3 ngā rōpū o te 100, ka 300.

Kia pērā anō te arataki i ngā ākonga hei tirotiro i ngā whakareatanga punarua nei:

$$99 \times 2 \text{ me te } 2 \times 99$$

$$102 \times 2 \text{ me te } 2 \times 102$$

$$4 \times 1,000 \text{ me te } 1,000 \times 4$$

$$29 \times 2 \text{ me te } 2 \times 29$$

$$99 \times 4 \text{ me te } 4 \times 99$$

$$6 \times 50 \text{ me te } 50 \times 6$$

Te Whakamahi Tikanga Tau

Ko tēhea te whakareatanga he māmā te whakaoti i rō hinengaro?

$$\text{ko te } 8 \times 99, \text{ te } 99 \times 8 \text{ rānei}$$

$$\text{ko te } 3 \times 53, \text{ te } 53 \times 3 \text{ rānei}$$

$$\text{ko te } 102 \times 4, \text{ te } 4 \times 102 \text{ rānei}$$

$$\text{ko te } 12 \times 25, \text{ te } 25 \times 12 \text{ rānei}$$

$$\text{ko te } 5 \times 42, \text{ te } 42 \times 5 \text{ rānei}$$

$$\text{ko te } 2,134 \times 2, \text{ te } 2 \times 2,134 \text{ rānei}$$

Hei Mahi Atu Anō

Hei whakaū i te āhuatanga tātai kōaro o te whakareatanga, tākarohia te kēmu ‘He Rārangi Whakareatanga’ (Rauemi Tārua 6-6).

Rauemi

- He Rārangi Whakareatanga – he papa tākaro mā ia takirua (Rauemi Tārua 6-6)
- He porotiti mā ia kaitākaro (kia ūrite te tae o ngā porotiti, engari kia rerekē te tae mā ia kaitākaro)
- He kini pepa

Ngā tohutohu

- He kēmu tēnei mā ētahi kaitākaro tokorua.
- Mā te kaitākaro tuatahi e whakatakoto ētahi kini pepa e rua ki raro i ētahi tau e rua i te rārangi tau 1–9.
- Ka whakareatia e ia aua tau e rua, ā, ka kimihia te whakautu i tana papa tākaro. Ka uhia te whakautu ki tētahi o āna porotiti.
- Ka nukua e te kaitākaro tuaruā tētahi noa iho o ngā kini pepa ki tētahi tau hou. Ka whakareatia e ia ngā tau e rua e tohua ana ki ngā kini pepa, ā, ka uhia te whakautu i tana papa tākaro ki tētahi o āna porotiti.
- Ka pērā te haere o te kēmu kia otī i tētahi kaitākaro te whakatakoto kia 4 ana porotiti ki tētahi rārangi torotika (poutū, huapae, titaha rānei). Ko ia te toa.
- Mēnā kua otī kē te whakautu o tētahi whakareatanga te uhi ki te papa tākaro, ka haere tonu te kēmu ki te kaitākaro e whai mai ana.

Peke Roa

Mahere Tau	0	1	2	3	4	5	6	7	8
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Whanaketanga	1a	1e	2a	2e	3a	3e	4a	4e	5a
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E ako ana ahau ki te whakamahi tāpiritanga tāruarua me ngā meka whakarea mōhio hei whakaoti rapanga whakawehe.

He Whakaaro Matua

- Ko te tangohanga tāruarua o ētahi rōpū ōrite tētahi tikanga o te whakawehenga. Hei tauira, e whā ngā rautaki hei whakaoti i te rapanga nei:
Ka tīmata te peke whakamuri a Māwhitiwhiti i te nama 24 i te rārangī tau. E 3 te roa o ana peke. E hia ngā peke kia tae atu ia ki te 0?
 - Mā te tatau māwhitiwhiti (3, 6, 9, 12, 15, 18, 21, 24) *Kaupae 4*;
 - Mā te tāpiri tau rearua ($3 + 3 = 6$, $6 + 6 = 12$, $12 + 12 = 24$) *Kaupae 5*;
 - Mā te tango tāruarua ($24 - 3 - 3 - 3 - 3 - 3 - 3 - 3 - 3$) *Kaupae 5*;
 - Mā te meka whakarea ($3 \times \square = 24$) *Kaupae 6*.

Ko te whakamahi meka whakarea te rautaki e tino whaihua ana.

- He maha ngā momo tuhituhinga hei whakaatu i te toenga o tētahi whakawehenga. Hei tauira:
 - $20 \div 3 = 6$, t2
 - $20 \div 3 = 6\frac{2}{3}$
 - $20 \div 3 \rightarrow 20 - 3 - 3 - 3 - 3 - 3 - 3 - 2$
 - $20 \div 3 \rightarrow 3 + 3 + 3 + 3 + 3 + 3 + 2 = 20$

Mā te ākonga tonu e tūhura ēnei momo tuhituhinga i runga anō i te horopaki o te rapanga.

Te Mātauranga Matua

Kia noho tangata whenua ngā meka whakarea mō te 2, te 3, te 5 me te 10 ki te hinengaro o te ākonga, tae atu ki ngā meka whakawehenga e whai pānga ana. Hei tauira, $8 \times 5 = 40$, nō reira, $5 \times 8 = 40$, $40 \div 8 = 5$, $40 \div 5 = 8$.

He Aromatawai Poto

Hei tauira pātai:

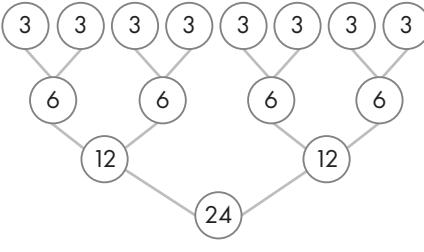
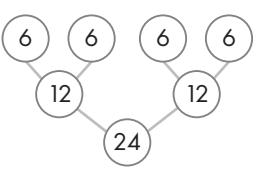
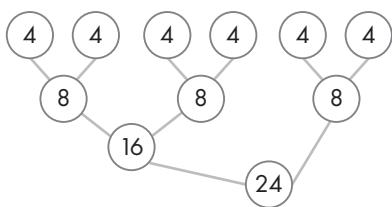
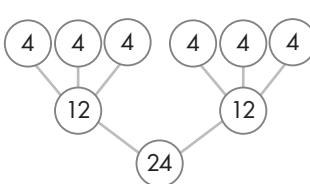
Ka tīmata te peke whakamuri a Māwhitiwhiti i te nama 21 i te rārangī tau. E 3 te roa o ana peke. E hia ngā peke kia tae atu ia ki te 0?

Mēnā ka whakamahi te ākonga i te whakareatanga, i te whakawehenga rānei hei whakaoti i tēnei rapanga ($3 \times \square = 21$, $21 \div 3 = \square$), e tika ana kia kumea ia ki taumata kē atu.

Rauemi

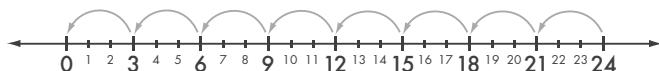
- Rārangi Tau Nui (Rauemi Tārua 4-8)
- He mātiti kākahu
- He tātaitai

Te Whakamahi Rauemi

Ngā tohutohu	He tauira kōrero mā te pouako
Whakatakotoria te rārangi tau ki mua i te aroaro o te ākonga.	Anei te rārangi tau, e whakaatu ana i ngā tau mai i te 0 ki te 100.
Whakamaua he mātiti kākāriki, he mātiti kōwhai, he mātiti karaka hoki ki te 24.	E toru ngā mātiti kua whakamaua ki te 24. Ko ia mātiti e tohu ana i tētahi kararehe. Ko te mātiti kākāriki hei māwhitiwhiti, ko te mātiti kōwhai hei wētā, ko te mātiti karaka hei poraka.
Whakawhitiwhiti kōrero mō te rautaki ‘tangohanga tāruarua’ hei whakaoti whakawehenga.	Koinei te roa o ngā peke a ia kararehe: māwhitiwhiti (kākāriki): e 3 te roa o ngā peke wētā (kōwhai): e 4 te roa o ngā peke poraka (karaka): e 6 te roa o ngā peke
	<p>Kei te peke whakamuri ngā kararehe e toru nei i te rārangi tau. Ko tēhea o ngā kararehe he maha ake āna peke kia tae atu ki te 0?</p> <p>Ko te māwhitiwhiti, nā te mea e 3 noa iho te roa o ana peke.</p> <p>E hia ngā peke kia tae atu te māwhitiwhiti ki te 0?</p> <p>Hei tauira whakautu:</p> <ul style="list-style-type: none"> • E 8, nā te mea e 8 ngā 3 kei roto i te 24. • E 8, nā te mea e 2 ngā 3, ka 6. E 2 ngā 6, ka 12, e 2 ngā 12, ka 24. Hui katoa, e 8 ngā 3.
	<p>Ko tēhea o ngā kararehe he ruarua noa iho ana peke kia tae atu ki te 0?</p> <p>Ko te poraka, nā te mea e 6 te roa o ana peke.</p> <p>E hia ngā peke kia tae atu te poraka ki te 0?</p> <p>Hei tauira whakautu:</p> <ul style="list-style-type: none"> • E 4, nā te mea e 4 ngā 6 kei roto i te 24. • E 4, nā te mea e 2 ngā 6, ka 12, e 2 ngā 12, ka 24. Hui katoa, e 4 ngā 6.
	<p>Ko te wētā e toe ana. E hia ngā peke kia tae atu ia ki te 0?</p> <p>Hei tauira whakautu:</p> <ul style="list-style-type: none"> • E 6, nā te mea e 6 ngā 4 kei roto i te 24. • E 6, nā te mea e 2 ngā 4, ka 8, e 2 ngā 8, ka 16. Tāpiria te 8 atu anō, ka 24. Hui katoa, e 6 katoa ngā 4. • E 6, nā te mea e 3 ngā 4, ka 12. E 2 ngā 12, ka 24. Hui katoa, e 6 ngā 4.
	

Tonoa ngā ākonga kia whakaatu i ngā peke a ngā kararehe nei i te rārangi tau, ka tuhi ai i ngā tatauranga whakamuri.

E Hēni, whakaaturia mai ngā peke a te māwhitiwhiti i te rārangi tau. Karangahia mai ngā tau, māku e tuhi.
Ka tīmata i te 24, 21, 18, 15 ...



Me pēhea te tuhi i ngā peke a te māwhitiwhiti hei whārite?

$$3 \times 8 = 24$$

$$24 \div 3 = 8$$

$$3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 = 24$$

$$24 - 3 - 3 - 3 - 3 - 3 - 3 - 3 = 0$$

Mēnā ko te 24 te tīmatanga, e hia ngā tangohanga tāruarua o te 3 kia tae atu ki te 0?

E 8.

Kia pērā anō te whakawhitihiti kōrero mō ngā peke a te wētā me te poraka.

Kia pērā anō te mahi mō ētahi atu rapanga whakawehe. Hei tauira:

E toru ngā mātiti kua whakamaua ki te 20. Ia mātiti e tohu ana i tētahi kararehe. Ko te mātiti kākāriki hei māwhitiwhiti, ko te mātiti kōwhai hei wētā, ko te mātiti karaka hei poraka.

Koinei te roa o ngā peke a ia kararehe:

māwhitiwhiti (kākāriki): e 3 te roa o ngā peke

wētā (kōwhai): e 4 te roa o ngā peke

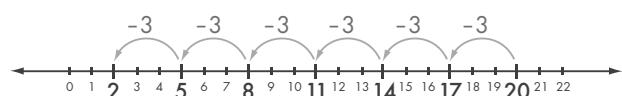
poraka (karaka): e 5 te roa o ngā peke

I roto i tēnei tauira, kāore te māwhitiwhiti e tae atu ki te 0. Arā, ka hua mai he toenga o te whakawehenga. Me pēnei te tuhi:

$$20 - 3 - 3 - 3 - 3 - 3 - 2 = 0$$

$$3 + 3 + 3 + 3 + 3 + 3 + 2 = 20$$

$$20 \div 3 = 6, t2$$

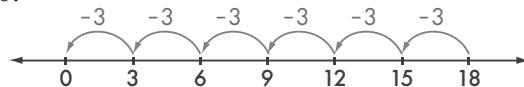


Te Whakaahua ā-Hinengaro

Ngā tohutohu	He tauira kōrero mā te pouako
Huripokina te rārangi tau kia kore ai e kitea ngā tau. Hoatu ētahi atu rapanga ‘peke roa’, ka arataki ai i ngā ākonga kia whakaahua ā-hinengaro i ngā peke whakamuri.	Kua huripokina te rārangi tau, kāore e kitea ana ngā tau. Ko te 18 te wāhi e mau ana ngā mātiti e 3. Ko te mātiti kākāriki hei tohu i te māwhitiwhiti, ko te mātiti kōwhai hei wētā, ko te mātiti karaka hei poraka.

Koinei te roa o ngā peke a ia kararehe:
 māwhitiwhiti (kākāriki): e 3 te roa o ngā peke
 wētā (kōwhai): e 6 te roa o ngā peke
 poraka (karaka): e 9 te roa o ngā peke

E hia ngā peke whakamuri kia tae atu te māwhitiwhiti ki te 0?



Hei tauira whakautu:

- E 6. Ka tatau whakamuri, 18, 15, 12, 9, 6, 3, 0. E 6 katoa ēnā peke.
- E 6, nā te mea e 5 ngā 3, ka 15, kotahi anō te 3, ka 18. E 6 katoa ēnā kei roto i te 18.

Me pēhea te tuhi hei whārite?

$$18 - 3 - 3 - 3 - 3 - 3 = 0$$

$$3 + 3 + 3 + 3 + 3 + 3 = 18$$

$$18 \div 3 = 6$$

$$3 \times 6 = 18$$

Kia pēra anō te whakaahua ā-hinengaro i ngā peke a te wētā me te poraka.

Kia pērā anō te mahi mō ētahi atu rapanga whakawehe. Hei tauira:

- E toru ngā mātiti kua whakamaua ki te 30. Ia mātiti e tohu ana i tētahi kararehe. Ko te mātiti kākāriki hei māwhitiwhiti, ko te mātiti kōwhai hei wētā, ko te mātiti karaka hei poraka.

Koinei te roa o ngā peke a ia kararehe:

māwhitiwhiti (kākāriki): e 3 te roa o ngā peke
 wētā (kōwhai): e 5 te roa o ngā peke
 poraka (karaka): e 6 te roa o ngā peke

- E whā ngā mātiti kua whakamaua ki te 36. Ia mātiti e tohu ana i tētahi kararehe. Ko te mātiti kākāriki hei māwhitiwhiti, ko te mātiti kōwhai hei wētā, ko te mātiti karaka hei poraka, ko te mātiti whero hei pūngāwerewere.

Koinei te roa o ngā peke a ia kararehe:

māwhitiwhiti (kākāriki): e 3 te roa o ngā peke
 wētā (kōwhai): e 4 te roa o ngā peke
 poraka (karaka): e 5 te roa o ngā peke
 pūngāwerewere (whero): e 6 te roa o ngā peke

Te Whakamahi Tikanga Tau

Hoatu he rapanga whakawehe hei whakaoti mā ngā ākonga. Tonoa mā rātou e tuhi he pakitau mō ia whakawehenga. Hei tauira:

$15 \div 3 = \square$

$16 \div 4 = \square$

$45 \div 5 = \square$

$70 \div 10 = \square$

$35 \div 7 = \square$

$48 \div 8 = \square$

$42 \div 6 = \square$

$28 \div 4 = \square$

$27 \div 3 = \square$

$32 \div 8 = \square$

Hurihia te Whakawehenga hei Whakareatanga

Mahere Tau | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |

Whanaketanga | 1a | 1e | 2a | 2e | 3a | 3e | 4a | 4e | 5a |

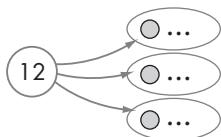
E ako ana ahau ki te whakaoti whakawehenga mā te huri hei whakareatanga.

Kia mōhiotia ai:

E whai wāhi mai ana te *whakawehenga tohatoha* me te *whakawehenga whakarōpū* ki ngā horopaki o ngā rapanga i tēnei ngohe.

He Whakaaro Matua

- E taea ana te huri kōaro te whakawehenga hei whakareatanga, kia māmā ai te whakaoti. Hei tauira:
 - $36 \div 4 \rightarrow 4 \times \square = 36$
 - $36 \div 4 \rightarrow \square \times 4 = 36$ rānei
- Ko te tohatoha ōrite me te tangohanga tāruarua hei whakatauira i te tikanga o te whakawehenga. Hei tauira, ko te $12 \div 3$:



Ka tohaina tētahi ki ia rōpū. He rite tēnei ki te tango i te 3 mai i te 12. E 4 katoa ngā tohanga (ngā tangohanga rānei) e taea ana.

- Ina whakaoti te ākonga i tētahi whakawehenga mā te huri kōaro hei whakareatanga, me āta tūhono āna whakamahinga rauemi me ngā tau o roto i te whārite.
- E rua ngā momo tuhituhinga mō te whakawehe hei whakamahi mā te ākonga:
 - $36 \div 4$
 - $4 \overline{)36}$

Te Mātauranga Matua

Kia noho tangata whenua te nuinga o ngā meka whakarea matua ki te hinengaro o te ākonga, me ngā whakareatanga kōaro e whai pānga ana. Hei tauira, $4 \times 6 = 24$, $6 \times 4 = 24$.

He Aromatawai Poto

Hei tauira pātai:

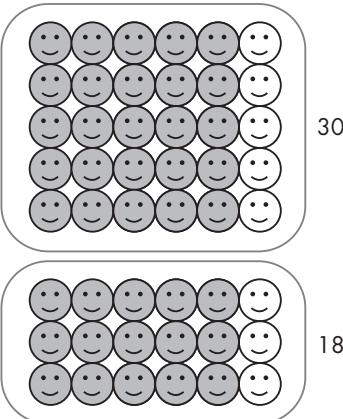
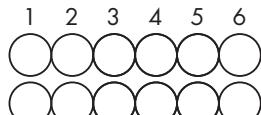
E 42 ngā kāri a Haki hei tohatoha māna ki ūna hoa tokoono. Kia hia ngā kāri mā ia tangata?

Mēnā ka whakamahi te ākonga i te meka whakareatanga $6 \times 7 = 42$, e tika ana kia kumea ia ki taumata kē atu.

Rauemi

- Papa Mata Rau (Rauemi Tārua 6-5)
- He kāri uhi
- He pīni
- He poraka honohono, he porotiti rānei

Te Whakamahi Rauemi

Ngā tohutohu	He tauira kōrero mā te pouako
<p>Tuhia te rapanga nei ki te papa tuhituhi, ka pānui tahi ai me ngā ākonga:</p> <p>E 48 ngā rōhi parāoa hei whāngai i tētahi rōpū tamariki (kia kotahi mā ia tamaiti). E 6 ngā rōhi kei ia pākete. E hia katoa ngā pākete hei hoko mā te kaiako?</p> <p>Whakamahia te Papa Mata Rau (Rauemi Tārua 6-5) hei whakatauira i te whakawehenga $48 \div 6$.</p> <p>Whakawhitihiti kōrero mō te huri i te whakawehenga hei whakareatanga, me ngā rautaki whakaoti i te whakareatanga.</p> 	<p>He aha te whārite hei whakaata i te rapanga nei?</p> <p>Ka whakawehea te 48 ki te 6, nā te mea e 6 ngā rōhi kei ia pākete. Arā, $48 \div 6 = \square$.</p> <p>E tohu ana te pouaka i te aha?</p> <p>Koirā te maha o ngā pākete hei hoko mā te kaiako.</p> <p>He aha te whakareatanga hei whakaata i te rapanga?</p> <p>Whakareatia te 6 ki te aha, kia eke ki te 48? E hia ngā 6 kei roto i te 48? Arā te whārite, $6 \times \square = 48$.</p> <p>Anei te rārangī mai o ngā mata e 6. E hia katoa ngā rārangī kia eke ki te 48?</p>  <p>Hei tauira whakautu:</p> <ul style="list-style-type: none"> E 5 ngā 6, ka 30. 18 e toe ana, e 3 ngā 6 kei roto i te 18. Hui katoa ngā 6 e 5 me ngā 6 e 3, ka 8 ngā 6. E 4 ngā 6 kei roto i te 24, nō reira, e 8 kei roto i te 48. <p>Anei ngā rārangī e 5 o te 6. E 30 ngā mata. Tētahi anō rārangī, ka 36, tētahi anō, ka 42, tētahi anō, ka 48. E 8 katoa ngā rārangī o te 6.</p>
<p>Tuhia te rapanga nei ki te papa tuhituhi, ka pānui tahi ai me ngā ākonga:</p> <p>E 48 ngā māpere hei tohatoha mā Huriana ki ōna hoa tokoono. E hia te whiwhinga a tēnā me tēnā?</p> <p>Whakamahia te Papa Mata Rau hei whakatauira i te whakawehenga $48 \div 6$.</p> <p>Whakawhitihiti kōrero mō te huri i te whakawehenga hei whakareatanga, me ngā rautaki whakaoti i te whakareatanga.</p>	<p>He rapanga anō tēnei e āhua ūrite ana. He rapanga tohatoha.</p> <p>Anei ētahi porotiti e 48. Ka tohaina tētahi ki ia tangata.</p>  <p>He āhua ūrite tēnei ki tētahi rārangī o ngā mata e 6.</p>  <p>Ka tohaina tētahi anō ki ia tangata. E hia katoa ngā porotiti kua tohaina atu ināianei?</p> <p>12.</p> 

	<p>He āhua ōrite ki ētahi rārangī mata e rua:</p> <p>E hia atu anō ngā rārangī kia 24 katoa ngā porotiti? E 4 ngā rārangī, ka 24, nā te mea e 2 ngā 12.</p> <p>Nō reira, e hia katoa ngā 6 kei roto i te 48? E 8.</p> <p>Me pēhea te tuhi i tēnei mahi tohatoha hei whārite? Whakaweheha ngā māpere 48 ki ngā tāngata tokoono. Arā, $48 \div 6 = \square$.</p> <p>He aha ngā whakareatanga e rua e whai pānga ana?</p> <ul style="list-style-type: none"> • Whakareatia te 6 ki te aha, ka 48? $6 \times \square = 48$ • Whakareatia te aha ki te 6, ka 48? $\square \times 6 = 48$
<p>Kia pērā anō te mahi hei whakaoti i ēnei whakawehenga:</p> <p>$35 \div 5 = \square$ ($5 \times \square = 35$, $\square \times 5 = 35$)</p> <p>$28 \div 4 = \square$ ($4 \times \square = 28$, $\square \times 4 = 28$)</p> <p>$27 \div 3 = \square$ ($3 \times \square = 27$, $\square \times 3 = 27$)</p> <p>$42 \div 6 = \square$ ($6 \times \square = 42$, $\square \times 6 = 42$)</p>	

Te Whakaahua ā-Hinengaro

Ngā tohutohu	He tauira kōrero mā te pouako
<p>Tuhia te rapanga nei ki te papa tuhituhi, ka pānui tahi ai me ngā ākonga: E 36 ngā kāri a Hākopa, kei te tohaina ki ūna hoa tokoiwa, kia ōrite te whiwhinga a tēnā me tēnā. E hia ngā kāri ka tohaina ki ia tangata?</p> <p>Aratakina ngā ākonga kia whakaahua ā-hinengaro i te Papa Mata Rau hei whakaatu i te rapanga.</p>	<p>He aha te whārite hei whakaatu i te rapanga nei? Whakaweheha te 36 ki te 9. E hia ngā rōpū o te 9 kei roto i te 36? Arā te whārite, ko te $36 \div 9$. Ko te $9 \times \square = 36$ te whakareatanga e hāngai ana.</p> <p>Āta whakaarohia tētahi rārangī o te Papa Mata Rau, e 9 ngā mata. E hia ngā rārangī kia eke ki te 36?</p> <p>E 2 ngā rārangī, ka 18. E 2 anō ngā 18, ka 36. Nō reira, e 4 katoa ngā 9.</p>

Kia pērā anō te arataki i ngā ākonga kia whakaahua ā-hinengaro i te Papa Mata Rau hei whakaoti i ngā whakawehenga nei:

$$45 \div 5 = \square \quad (5 \times \square = 45, \square \times 5 = 45)$$

$$36 \div 4 = \square \quad (4 \times \square = 36, \square \times 4 = 36)$$

$$24 \div 3 = \square \quad (3 \times \square = 24, \square \times 3 = 24)$$

$$49 \div 7 = \square \quad (7 \times \square = 49, \square \times 7 = 49)$$

Te Whakamahi Tikanga Tau

Titoa he pakitau, tuhia te whārite, ka whakaoti ai. Tonoa ngā ākonga kia whakamārama hoki i ā rātou rautaki:

$$60 \div 5 = \square \quad (5 \times \square = 60, \square \times 5 = 60)$$

$$44 \div 4 = \square \quad (4 \times \square = 44, \square \times 4 = 44)$$

$$42 \div 3 = \square \quad (3 \times \square = 42, \square \times 3 = 42)$$

$$54 \div 6 = \square \quad (6 \times \square = 54, \square \times 6 = 54)$$



Te Puanga o te Wāwāhi Tau Tāpiripiri → Te Wāwāhi Tau Whakarea

Kaupae 6 → Kaupae 7



Mahere Tau	0	1	2	3	4	5	6	7	8
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Whanaketanga	1a	1e	2a	2e	3a	3e	4a	4e	5a
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Mātauranga Matua kua Mau kē

Koia nei te mātauranga me mātua mōhio te ākonga e tutuki ai ngā mahi o tēnei wāhanga:

- Ngā meka whakarea matua katoa, tae atu ki te 10×10 ;
- Te tuhi whārite hei whakaata rapanga whakarea, rapanga whakawehe hoki.

Hei tauira mahi

He pai te tuhi i ngā meka kāore e mōhiotia ana ki te kāri, ko te whakawehenga e hāngai ana ki muri o te kāri. Hei tauira, ko te 7×6 ki tētahi mata o te kāri, ko te $42 \div 6$ ki tētahi. Mēnā e ākona ana te whakareatanga (7×6), mā te huri i te kāri e kitea ai te otinga (42).

Kia rerekē tonu te āhua o te tuhituhi i ngā whārite hei whakaoti mā te ākonga. Hei tauira:

$$8 \times 4 = \square$$

$$4 \times \square = 32$$

$$32 \div 8 = \square$$

$$\square \div 4 = 8$$

$$8 \overline{)32} \quad ?$$

$$8 \overline{) ?} \quad 4$$

$$\frac{32}{8} = \square$$

$$\frac{?}{8} = 4$$

He pai hoki te tirotiro i ngā whārite e whai hononga ana. Hei tauira:

$$8 \times 7 = \square, \text{ nō reira, } 7 \times 8 = \square$$

$$9 \times 2 = \square, \text{ nō reira, } 9 \times 4 = \square$$

Mātauranga Matua hei Ako

Koia nei te mātauranga hei ako i tēnei kaupae, i te wā e whanake ana te mōhio o te ākonga ki ngā momo rautaki whakarea, whakawehe hoki:

- Te whakaoti wawe i ngā meka whakareatanga matua;
- Ngā meka whakawehenga matua (tae atu ki te $100 \div 10$);
- Ngā ture whakawehenga mō te 2, te 3, te 5, te 9 me te 10;
- Ngā tauwehe o ngā tau, mai i te 1 ki te 100, me ngā tau toitū.

Ngā Huatau Matua

I te Kaupae 6 (Te Wāwāhi Tau Whakarea), e whānui haere ana ngā rautaki whakarea, rautaki whakawehe a te ākonga. Ko te mahi i tēnei kaupae, he whakawhanake i ngā rautaki o te Kaupae 5, me te whakamahi i te whānuitanga o ēnei rautaki hei whakaoti rapanga he nui ngā tau o roto. Koia nei ētahi o ngā rautaki matua:

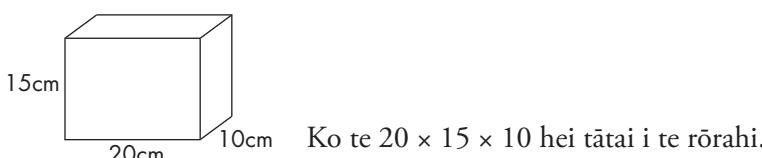
- Te tau māmā me te tikanga paremata. Hei tauira:
 - $998 \times 6 = (1,000 \times 6) - (2 \times 6) = 6,000 - 12 = 5,988$
 - $76 \div 4 = (80 \div 4) - (4 \div 4) = 20 - 1 = 19$
- Te wāwāhi uara tū. Hei tauira:
 - $7 \times 28 = (7 \times 20) + (7 \times 8) = 140 + 56 = 196$
 - $72 \div 4 = (40 \div 4) + (32 \div 4) = 10 + 8 = 18$
- Te paheko kōaro. Hei tauira: $96 \div 6 = \square \rightarrow 6 \times \square = 96$
- Te āhuatanga tātai kōaro. Hei tauira: $3 \times \square = 75 \rightarrow \square \times 3 = 75$
- Te pānga riterite. Hei tauira:
 - $18 \times 4 = 9 \times 8$ (te whakarearua me te whakahaurua)
 - $81 \div 3 = (81 \div 9) \times 3$ (te whakareatoru me te whakahautoru)
 - $216 \div 12 = 108 \div 6 = 54 \div 3 = 18$ (te whakahaurua)
- Te tuhinga ūkawa me te tātaitai mēnā he uaua ngā tau.

He maha hoki ngā horopaki hei tūhura mā ngā ākonga o tēnei kaupae, hei whakamahi i ngā rautaki whakarea me ngā rautaki whakawehe hei whakaoti rapanga. Koia nei ētahi:

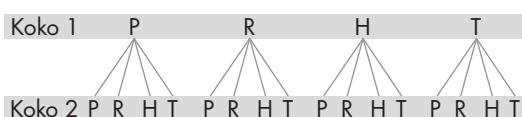
- He rapanga ine e whai wāhi mai ana te roa me ngā āwhata rārangi. Hei tauira:
E 46cm te roa o tētahi aho here hū kotahi. E hia ngā aho here hū e taea ana te tapahi mai i tētahi aho e 276cm te roa?



- Te horahanga (tūtohi tukutuku) me te rōrahi. Hei tauira:
Ko te 20cm, te 15cm me te 10cm ngā tapa o tētahi pouaka. E hia te rōrahi o te pouaka?

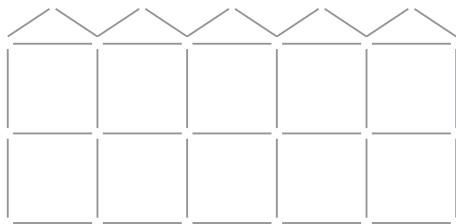


- Te hohoa rākau hei whiriwhiri i ngā putanga katoa e taea ana i tētahi pūahuā tūponotanga. Hei tauira:
E 4 ngā tāwara aihikirīmi, e 2 ngā koko ki ia aihikirīmi. E hia ngā whiriwhiringa aihikirīmi rerekē e taea ana te hanga?



$P = \text{panana}$	$R = \text{rōpere}$	$H = \text{hokepoke}$	$T = \text{tiakarete}$	$\text{Ngā whiriwhinga} = 4 \times 4$
				$= 16$

- Ngā rapanga taurangi, pērā i te whakaroa tauira tau. Hei tauira:
E hia ngā rākau hei hanga i ngā whare paparua 10 e whaiwhai ana i tēnei tauira:



$$9 + 7 + 7 + 7 + 7 + (7 + 7 + 7 + 7 + 7)$$

Arā ngā whārite poto e rua nei:

$$9 + (7 \times 9) = 72$$

$$(7 \times 10) + 2 = 72$$

- Ngā rapanga pāpātanga. Hei tauira:
E 25km te tawhiti o te haere o tētahi motukā, ka pau ngā rita kōhinu e 2. E hia te tawhiti ina pau te 8 rita?

tawhiti (km)	rōrahi kōhinu (l)
25	2
?	8

He Māmā te Pūnaha Tekau

Mahere Tau | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |

Whanaketanga | 1a | 1e | 2a | 2e | 3a | 3e | 4a | 4e | 5a |

E ako ana ahau ki te tikanga mō te whakarea me te whakawehe i tētahi tau ki te 10, ki te 100, ki te 1,000, ki tētahi atu taupū rānei o te 10.

He Whakaaro Matua

- He pānga whakarea kei waenganui i ngā uara tū o tā tātou pūnaha tau. Hei tauira:

10,000	1,000	100	10	1
$\times 10$	$\times 10$	$\times 10$	$\times 10$	

10,000	1,000	100	10	1
$\div 10$	$\div 10$	$\div 10$	$\div 10$	

1,000	100	10	1
7	3	0	

1,000	100	10	1
7	3	0	0

1,000	100	10	1
8	3	0	0

1,000	100	10	1
8	3	0	0

- Mēnā ka whakareatia tētahi tau ki te 10, ka nukua whakatemauī ūna mati kia kotahi te wāhi uara tū, ā, ka whakaurua he '0' hei pupuri i te wāhi o ngā tahi. Hei tauira, ko te 73×10 .
- Mēnā ka whakareatia tētahi tau ki te 100, ka nukua whakatemauī ūna mati kia rua ngā wāhi uara tū, ā, ka whakaurua he '0' hei pupuri i te wāhi o ngā tahi me te wāhi o ngā tekau. Hei tauira, ko te 73×100 .
- Mēnā ka whakaweheha tētahi tau ki te 10, ka nukua whakatematau ūna mati kia kotahi te wāhi uara tū. Hei tauira, ko te $8,300 \div 10$.
- Mēnā ka whakaweheha tētahi tau ki te 100, ka nukua whakatematau ūna mati kia rua ngā wāhi uara tū. Hei tauira, ko te $8,300 \div 100$.

Te Mātauranga Matua

Whakamātauria mēnā e mōhio ana te ākonga:

- Ko tā te whakarea, he whiriwhiri i te tapeke o ētahi rōpū ūrite. Hei tauira, ko te tikanga o te 6×7 , kia 7 ngā rōpū o te 6.
- Ko tā te whakawehe, he tohatoha i tētahi huinga ki ētahi rōpū iti, kia ūrite te maha ki ia rōpū. Hei tauira, ko te tikanga o te $35 \div 7$, he tohatoha i te 35 ki ētahi rōpū ūrite e 7.
- Mā te tirotiro i te wāhi uara tū o ngā mati o tētahi tau, e tika ai te pānui i taua tau. Hei tauira, ko te pānui i te 64,078:
 - E noho ana te 8 ki te wāhi uara tū o te tahi.
 - E noho ana te 7 ki te wāhi uara tū o te tekau.
 - E noho ana te 4 ki te wāhi uara tū o te mano.
 - E noho ana te 6 ki te wāhi uara tū o te tekau mano.

10,000	1,000	100	10	1
6	4	0	7	8

Nō reira, kia pēnei te pānui i tēnei tau (mai i te taha mauī ki te matau):
'ono tekau mā whā mano, whitu tekau mā waru'

- Mai i te taha matau, ka noho tōpū ia toru mati (ka kīia ēnei he whare). He āwhina nui tēnei ki te pānui i te tau. Hei tauira:

Whare Miriona			Whare Mano			Whare Mātāmua		
rau	tekau	tahi	rau	tekau	tahi	rau	tekau	tahi
3	9		4	2	0	7	8	3

Nō reira, kia pēnei te pānui i tēnei tau (mai i te taha mauī ki te matau, ka pānuihia ia whare):
 ‘toru tekau mā iwa miriona, whā rau rua tekau mano, whitu rau waru tekau mā toru’

He Aromatawai Poto

Hei tauira pātai:

- Whakaaturia te whakareatanga 8×4 ki ētahi rauemi (pērā i te poraka honohono, te tūtohi tukutuku rānei).
- Whakaaturia te whakawehenga $36 \div 9$ ki ētahi rauemi (pērā i te poraka honohono, te tūtohi tukutuku rānei).
- Pānuihia ēnei tau: 7,002 12,509 436,070 789,654,321
- He aha te otinga o te 43×30 ?
- He aha te otinga o te $4,300 \div 10$?

Mēnā e mārama ana tā te ākonga whiriwhiri i ēnei pātai, e tika ana kia kumea ia ki taumata kē atu.

Rauemi

- Tūtohi Tukutuku Iraira (Rauemi Tārua 6-10) (me whakanui kia A3 te rahi)
- He kutikuti

Te Whakamahi Rauemi

Ngā tohutohu	He tauira kōrero mā te pouako
<p>Tonoa ētahi ākonga tekau kia tapahi i te tūtohi tukutuku iraira (Rauemi Tārua 6-10) hei whakaatu i tētahi tau matirua, pērā i te 37.</p> <p>Ka whakarōpū i ngā 37 tekau, ā, ka whakawhitihitī kōrero mō te tātai i te maha o ngā ira katoa.</p> <p>Ka wāwāhia ngā 37 ki ngā rōpū o te tekau me ngā rōpū o te tahi.</p>  <p>Ka whakarōpūngia ngā rau.</p>  <p>ngā tekau e 7</p>	<p>Tapahia te tūtohi tukutuku iraira hei whakaatu i te tau 37.</p> <p>Kia hia ngā rārangī o te tekau?</p> <p>Kia 3.</p> <p>Kia hia atu anō ngā ira takitahi?</p> <p>Kia 7.</p> <p>Whakatakotoria ngā 37 ki te papa. E hia katoa ngā 37?</p> <p>Tekau.</p> <p>He aha te whakareatanga e hāngai ana hei tātai i te maha o ngā ira katoa?</p> <p>Ko te 37×10.</p> <p>Me pēhea te whakatakoto i ngā 37 kia māmā ai te tatau i te maha o ngā ira katoa?</p>

Honoa te takoto o ngā rōpū uara tū o ngā ira ki te tuhinga o te tau ki te whare uara tū.

Ko tā tātou mahi, he whakarea i te 37 ki te 10. Ka 370. Anei te 37 me te 370 i te whare uara tū:

Kua ahatia ngā mati o te 37?

Kua nukua whakatemuī. Ko te 3 tekau ki te 3 rau. Ko te 7 tahi ki te 7 tekau. Ka whakaurua he kore ki te wāhi o ngā tahi.

100	10	1
	3	7
3	7	0

Kia pērā anō te mahi mō te whakarea i ētahi atu tau mati-2 ki te 10, kia tino mārama ai te ākonga ki te tikanga mō te whakarea i tētahi tau ki te 10.

Kia mārama te ākonga ki te whakarea i tētahi tau ki te 10, kātahi ka whakamahi i te tūtohi tukutuku iraira me te tuhi i te whakareatanga ki te whare uara tū, kia āta kitea ai te tikanga mō te whakarea i tētahi tau ki te 100. Hei tauira:

1,000	100	10	1
4	2	0	0
			42×100

Kua ahatia ngā mati mēnā ka whakareatia tētahi tau ki te 100? Ka nukua whakatemuī ngā mati kia rua ngā wāhi. Ka nukua te 4 tekau ki te 4 mano. Ka nukua te 2 tahi ki te 2 rau. Ka whakaurua he kore ki te wāhi o ngā tekau me te wāhi o ngā tahi.

Tuhia te rapanga nei ki te papa tuhituhi, ka pānui tahi ai me ngā ākonga:

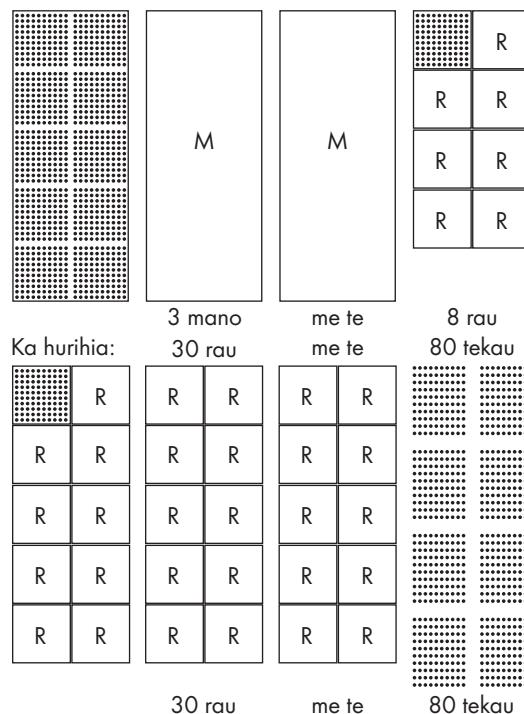
E 3,800 aku māpere. Ka tohaina ki ētahi tamariki tekau, kia ūrite te whiwhinga a tēnā me tēnā. E hia te whiwhinga a ia tamaiti?

Whakamahia te tūtohi tukutuku iraira hei whakaatu i te whakawehenga o te 3,800 ki te 10.

He aha te whārite hei whakaata i te rapanga?

$$3,800 \div 10$$

Me pēhea te whakaatu i te whakawehenga nei ki te tūtohi tukutuku iraira?



	<p>Ka hurihia: 10 ngā rōpū o te 3 rau me te 80</p>															
Honoa te takoto o ngā rōpū uara tū o ngā ira ki te tuhinga o te tau ki te whare uara tū.	<p>Ko tā tātou mahi, he whakawehe i te 3,800 ki te 10. Ka 380. Anei te 3,800 me te 380 i te whare uara tū:</p> <table border="1"> <thead> <tr> <th></th> <th>1,000</th> <th>100</th> <th>10</th> <th>1</th> </tr> </thead> <tbody> <tr> <td></td> <td>3</td> <td>8</td> <td>0</td> <td>0</td> </tr> <tr> <td></td> <td>3</td> <td>8</td> <td>0</td> <td>0</td> </tr> </tbody> </table> <p>Kua ahatia ngā mati o te 3,800?</p> <p>Kua nukua whakatematau. Ko te 3 mano ki te 3 rau. Ko te 8 rau ki te 8 tekau. Ko te kore tekau ki te kore tahi.</p>		1,000	100	10	1		3	8	0	0		3	8	0	0
	1,000	100	10	1												
	3	8	0	0												
	3	8	0	0												
Kia pērā anō te mahi mō te whakawehe i ētahi atu tau mati-4 ki te 10, kia tino mārama ai te ākonga ki te tikanga mō te whakawehe i tētahi tau ki te 10.	<p>Kia mārama te ākonga ki te whakawehe i tētahi tau ki te 10, kātahi ka whakamahi i te tūtohi tukutuku iraira me te tuhi i te whakawehenga ki te whare uara tū, kia āta kitea ai te tikanga mō te whakawehe i tētahi tau ki te 100. Hei tauira:</p> <table border="1"> <thead> <tr> <th></th> <th>1,000</th> <th>100</th> <th>10</th> <th>1</th> </tr> </thead> <tbody> <tr> <td></td> <td>4</td> <td>2</td> <td>0</td> <td>0</td> </tr> <tr> <td></td> <td>4</td> <td>2</td> <td></td> <td></td> </tr> </tbody> </table> <p>$4,200 \div 100$</p> <p>Ka ahatia ngā mati mēnā ka whakawehea tētahi tau ki te 100?</p> <p>Ka nukua whakatematau ngā mati kia rua ngā wāhi uara tū. Ka nukua te 4 mano ki te 4 tekau. Ka nukua te 2 rau ki te 2 tahi.</p>		1,000	100	10	1		4	2	0	0		4	2		
	1,000	100	10	1												
	4	2	0	0												
	4	2														

Te Whakaahua ā-Hinengaro

Ngā tohutohu	He tauira kōrero mā te pouako
<p>Tuhia te rapanga nei ki te papa tuhituhi, ka pānui tahi ai me ngā ākonga:</p> <p>Tekau ngā kaimahi a Horomona. E \$29 te utu ka tukuna ki ia kaimahi. E hia te katoa o te utu?</p> <p>Aratakina ngā ākonga kia whakaahua ā-hinengaro, kia tuhi whakaahua hoki hei whakaatu i te whakareatanga.</p>	<p>He aha te whārite hei whakaata i te rapanga nei? $\\$29 \times 10$.</p> <p>Tuhia he whakaahua hei whakaatu i te whakareatanga.</p>
	<p>Whakamāramatia mai tō whakaahua.</p> <p>Wāwāhia ia \$29 ki te \$20 me te \$9. Whakareatia te \$20 ki te 10, ka \$200. Whakareatia te \$9 ki te 10, ka \$90. Hui katoa, ka \$290.</p>

Te Whakamahi Tikanga Tau

Hoatu he rapanga pēnei i ēnei, ka tono ai i te ākonga kia whakamārama i te whakareatanga:

- 100 ngā rōpū māpere o te 376. E hia katoa ngā māpere?
 $(376 \times 100 = 37,600)$
- Whakawehea ngā māpere e 960 kia 10 ngā rōpū ūrite. E hia ngā māpere ki ia rōpū?
 $(960 \div 10 = 96)$
- E 30 ngā rōpū o te 40. E hia katoa?
 $(40 \times 30 = 1,200)$
- Whakawehea te 4,300 kia 100 ngā rōpū ūrite. E hia kei ia rōpū?
 $(4,300 \div 100 = 43)$
- E 20 ngā rōpū, e 56 kei ia rōpū. E hia katoa?
 $(56 \times 20 = 1120)$
- Whakawehea te \$5,000,000 ki te 1,000.
 $(\$5,000,000 \div 1,000 = \$5,000)$

Tapahia, ka Whakapiri ai

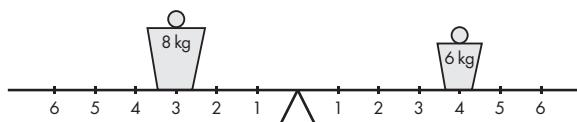
Mahere Tau | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |

Whanaketanga | 1a | 1e | 2a | 2e | 3a | 3e | 4a | 4e | 5a |

E ako ana ahau ki te whakaoti whakareatanga mā te whakarearua me te whakahaurua, mā te whakareatoru me te whakahautoru rānei.

He Whakaaro Matua

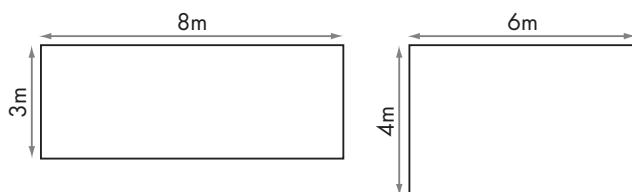
- Kia mōhio te ākonga ki te whakamahi i te āhuatanga tātai herekore o te whakarea hei pūtake mō ngā rautaki pērā i te ‘haurua me te rearua’. Hei tauira:
 - $18 \times 4 = 18 \times 2 \times 2 = 36 \times 2$ (te haurua me te rearua)
 - $24 \times 3 = 8 \times 3 \times 3 = 8 \times 9$ (te hautoru me te reatoru)
- Mēnā he pānga riterite te huri i ngā tau o roto i tētahi whakareatanga e hāngai ana ki ētahi inenga, he ūrite tonu te otinga. Hei tauira:



$$8 \times 3 = 24, 6 \times 4 = 24$$

Nō reira, $8 \times 3 = 6 \times 4$, ā, ka noho tōrite tonu te whārite ine taumaha.

Hei tauira anō:



He ūrite te horahanga o ngā tapawhā hāngai e rua nei nā te mea $8 \times 3 = 6 \times 4$.

- Ko ngā rautaki e rua nei, te ‘haurua me te rearua’ me te ‘hautoru me te reatoru’ hei tauira o te rautaki whānui, te ‘huri pānga riterite i ngā tauwehe’ hei whakaoti i tētahi whakareatanga. Hei tauira, he ūrite te otinga o te 80×0.4 me te 8×4 , nā te mea i whakareatia tētahi tauwehe (te 0.4) ki te 10, ā, i whakawehea tētahi tauwehe (te 80) ki te 10.

Te Mātauranga Matua

Kia noho tangata whenua ngā meka whakareatanga matua (tae atu ki te 10×10) ki te hinengaro o te ākonga, kia wawe tonu te whakaputa otinga.

He Aromatawai Poto

Hei tauira pātai: 18×4

Me āta whakamārama e te ākonga tana rautaki:

Mēnā ka whakamahi te ākonga i te rautaki ‘haurua me te rearua’, hoatu he rapanga ka taea te whakaoti mā te rautaki ‘hautoru me te reatoru’, pērā i te 27×3 .

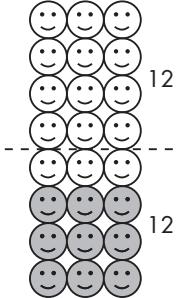
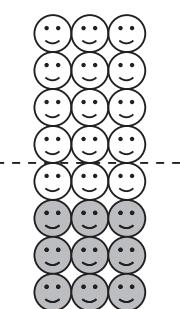
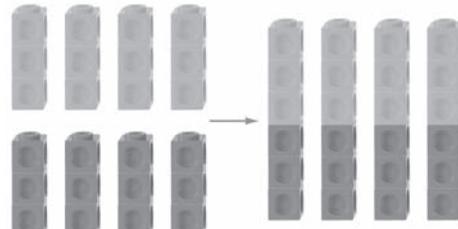
Mēnā ka whakamahi te ākonga i te rautaki ‘hautoru me te reatoru’, e tika ana kia kumea ia ki taumata kē atu.

Mēnā ka wāwāhia ngā uara tū hei rautaki whakaoti i tēnei rapanga ($18 \times 4 = 10 \times 4 + 8 \times 4$), me āta pātai atu mēnā e mōhio ana ia ki tētahi atu rautaki. Ki te kore ia e mōhio ki rautaki kē, me haere tonu ngā mahi o tēnei ngohe.

Rauemi

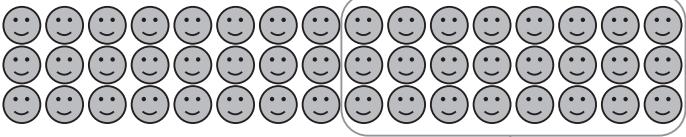
- Papa Mata Rau (Rauemi Tārua 6-5)
- He kāri uhi
- He poraka honohono
- Te kēmu ‘Tūtohi Tukutuku Whakareatanga’ (Rauemi Tārua 6-7)

Te Whakamahi Rauemi

Ngā tohutohu	He tauira kōrero mā te pouako
<p>Hoatu he Papa Mata Rau (Rauemi Tārua 6-5) me ētahi kāri uhi, he poraka honohono rānei ki ia ākonga.</p> <p>Whakawhitihiti kōrero mō ētahi o ngā rautaki wāwāhi tau hei whiriwhiri i te 3×8, me te whakaatu i aua rautaki ki ngā rauemi.</p>  	<p>Me pēhea te whakaatu i te whakareatanga 3×8 ki te Papa Mata Rau (poraka honohono rānei)?</p> <p>Kia 8 ngā kapa, kia 3 ngā mata ki ia kapa.</p>  <p>← Kia 8 ngā huinga poraka honohono, kia 3 ngā poraka ki ia huinga.</p> <p>He aha ētahi rautaki hei whiriwhiri i te maha katoa o ngā mata (poraka rānei)?</p> <p>Hei tauira whakautu:</p> <ul style="list-style-type: none"> • E 5 ngā huinga o te 3, ka 15. E 3 atu anō ngā 3, ka 9. Hui katoa, ko te 15 tāpiri i te 9, ka 24. Arā te whārite: $3 \times 8 = (3 \times 5) + (3 \times 3) = 15 + 9 = 24$ • Hauruatiā ngā huinga – e 4 ngā rōpū o te 3, ka 12. E rua ngā 12, ka 24. Arā te whārite: $3 \times 8 = (3 \times 4) + (3 \times 4) = 12 + 12 = 24$
<p>Aratakina ngā ākonga kia whakaatu i te whakareatanga 3×8, me te huri i tēnei ki te whakareatanga 6×4.</p> <p>Whakawhitihiti kōrero mō te rautaki nei, te whakarearua me te whakahaurua.</p> 	<p>Whakaaturia kia 8 ngā huinga o te 3 ki ngā poraka honohono. He aha te whakareatanga?</p> <p>Ko te 3×8. Whakareatia te 3 ki te 8.</p> <p>Me pēhea te huri i tēnei whakareatanga ki te 6×4? Nukua tētahi huinga o te 3 ki raro i tētahi, ka hono atu ai hei hanga i ngā rōpū o te 6. Arā, e 4 ngā rōpū o te 6. Koirā te whakareatanga 6×4.</p> <p>He ūrite te maha o ngā poraka i roto i te whakareatanga 3×8 me te whakareatanga 6×4. He aha hoki te otinga? Ko te 24.</p>

$\begin{array}{r} 3 \times 8 = 24 \\ \times 2 \quad \left(\quad \right) \div 2 \\ 6 \times 4 = 24 \end{array}$	<p>I ahatia te 3? I rearuatia, ka 6.</p> <p>I ahatia te 8? I hauruatia, ka 4.</p> <p>He rautaki tēnei hei whakaoti whakareatanga. Ko te 'rearua me te haurua' hei ingoa mō te rautaki.</p>								
<p>Kia pērā anō te arataki i ngā ākonga kia whakaoti i ēnei whakareatanga:</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 25%; text-align: center;">$5 \times 4 = 20$</td> <td style="width: 25%; text-align: center;">$8 \times 2 = 16$</td> <td style="width: 25%; text-align: center;">$3 \times 4 = 12$</td> <td style="width: 25%; text-align: center;">$10 \times 4 = 40$</td> </tr> <tr> <td style="text-align: center;">$10 \times 2 = 20$</td> <td style="text-align: center;">$4 \times 4 = 16$</td> <td style="text-align: center;">$6 \times 2 = 12$</td> <td style="text-align: center;">$5 \times 8 = 40$</td> </tr> </table>	$5 \times 4 = 20$	$8 \times 2 = 16$	$3 \times 4 = 12$	$10 \times 4 = 40$	$10 \times 2 = 20$	$4 \times 4 = 16$	$6 \times 2 = 12$	$5 \times 8 = 40$	
$5 \times 4 = 20$	$8 \times 2 = 16$	$3 \times 4 = 12$	$10 \times 4 = 40$						
$10 \times 2 = 20$	$4 \times 4 = 16$	$6 \times 2 = 12$	$5 \times 8 = 40$						

Te Whakaahua ā-Hinengaro

Ngā tohutohu	He tauira kōrero mā te pouako
<p>Whakaaturia ki te rauata (OHP) kia 3 ngā kapa o te Papa Mata Rau (Rauemi Tārua 6-5), kia 16 ngā mata ki ia kapa.</p> <p>Whakawhitihiti kōrero mō te whakamahi i te rautaki 'rearua me te haurua' hei whakaoti i te whakareatanga.</p> <p>Tuhia ngā whārite ki te papa tuhituhi.</p>	<p>Titiro ki ēnei kapa o te Papa Mata Rau. E hia ngā kapa? E 3.</p>  <p>E hia ngā mata ki ia kapa? 16.</p> <p>He aha te whakareatanga? Ko te 16×3. Whakareatia te 16 ki te 3. E 3 ngā rōpū o te 16.</p> <p>Āta whakaahuatia ki ō koutou hinengaro te rautaki 'rearua me te haurua' hei whakaoti i tēnei whakareatanga. Hauruatia ngā kapa. Nukua tētahi haurua ki raro i tētahi. E hia ngā mata ki ia kapa ināianei?</p> <p>E 8.</p>  <p>E hia ngā kapa? E 6.</p> <p>I ahatia te 16 me te 3? I hauruatia te 16, i rearuatia te 3.</p> <p>He aha te whakareatanga hou? Ko te 8×6.</p>

$$\begin{array}{r} 16 \times 3 = \square \\ \downarrow 2 \quad \quad \quad \downarrow 2 \\ 8 \times 6 = \square \end{array}$$

Anei ngā whārite. He aha te otinga?

He māmā te whakareatanga 8×6 , arā, ko te 48. He ūrite ki te otinga o te 16×3 .

Kia pērā anō te arataki i ngā ākonga kia whakaahua ā-hinengaro i te rautaki ‘*reatoru me te haurou*’ hei whakaoti i ngā whakareatanga nei:

$$5 \times 18 = 10 \times 9$$

$$12 \times 3 = 6 \times 6$$

$$4 \times 14 = 8 \times 7$$

$$5 \times 24 = 10 \times 12$$

Aratakina ngā ākonga kia tūhura i te rautaki nei, te ‘*reatoru me te haurou*’.

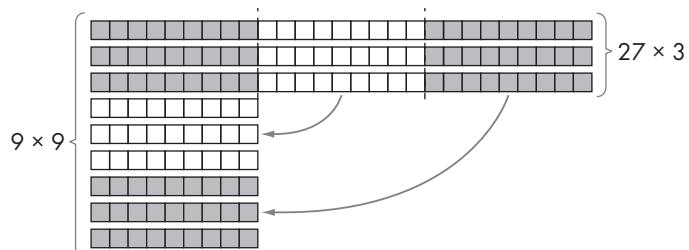
$$\begin{array}{r} 6 \times 3 = 18 \\ \downarrow 3 \quad \quad \quad \downarrow 3 \\ 2 \times 9 = 18 \end{array}$$

Ko te mahi hei whakaoti i te whakareatanga 16×3 , he whakahaurua i tētahi o ngā tau (te 16), he whakarearua i tētahi (te 3).

Pēhea te rautaki nei, te ‘*reatoru me te haurou*’? Ka tika anō te otinga mēnā ka reatorutia tētahi o ngā tau, ka hautorutia tētahi?

Anei te tauira māmā.

Whakamahia tēnei rautaki hei whakaoti i te 27×3 . Āta whakaahuangia ki ō koutou hinengaro ngā huinga poraka honohono e 3, kia 27 ngā poraka ki ia huinga. Whakawehia ngā huinga ki te 3, ka nuku ai i ngā wehenga kia noho tētahi ki raro i tētahi.



He aha te whakareatanga hou?

Ko te 9×9 .

I ahatia te 27?

I hautorutia, ka 9.

I ahatia te 3?

I reatorutia, ka 9.

He aha te otinga?

Ko te 81.

He māmā ake te whakaoti i te 9×9 , tērā i te 27×3 , engari he ūrite te otinga.

Kia pērā anō te arataki i ngā ākonga kia whakaahua ā-hinengaro i te rautaki te ‘*reatoru me te haurou*’ hei whakaoti i ngā whakareatanga nei:

$$2 \times 18 = 6 \times 6$$

$$24 \times 3 = 8 \times 9$$

$$27 \times 2 = 9 \times 6$$

Te Whakamahi Tikanga Tau

Hoatu he rapanga whakarea e whai wāhi mai ana he tau nui, e tino hāngai ana ki tēnei rautaki. Hei tauira:

$$6,482 \times 5 = 32,410$$

$$3 \times 18 = 9 \times 6 = 54$$

$$75 \times 4 = 25 \times 12 = 100 \times 3 = 300$$

$$75 \times 4 = 150 \times 2 = 300$$

$$50 \times 86 = 100 \times 43 = 4,300$$

$$12 \times 33 = 4 \times 99 = (4 \times 100) - (4 \times 1) = 396$$

Hei Mahi Atu Anō

Tākarohia te kēmu ‘Tūtohi Tukutuku Whakareatanga’ (**Rauemi Tārua 6-7**). He kēmu tēnei mā te tokorua, hei whakapakari i te rautaki pānga riterite hei whakaoti whakareatanga, pērā i te ‘*haurua me te rearua*’.

Rauemi

- Te huinga kāri e whakaatu ana i ngā tūtohi tukutuku anuhe (Rauemi Tārua 6-7)
- Tētahi papa tākaro pūrerehua (Rauemi Tārua 6-7) me ētahi porotiti 15 mā ia kaitākaro. Kia ūrite te tae o ngā porotiti 15 a tētahi kaitākaro, engari kia rerekē te tae o tēnā, o tēnā o ngā kaitakaro.

Ngā tohutohu

- Riwhiriwhia ngā kāri anuhe, ka whakaputu ai ki te tēpu, ko ngā mata ki raro.
- Ka whai tētahi kaitākaro i tētahi.
- Ka tangohia te kāri o runga.
- Mēnā e taea ana, ka honoa taua kāri ki tētahi atu e ūrite ana te tūtohi tukutuku anuhe o runga, hei hanga i tētahi o ngā whakareatanga e whakaaturia ana ki te papa tākaro. Hei tauira, ka honoa ētahi kāri e rua e whakaatu ana i te 4×2 , hei hanga i te whakareatanga 4×4 , te 8×2 rānei.
- Mēnā e taea ana e tētahi kaitākaro te hanga te tūtohi tukutuku anuhe e hāngai ana ki tētahi o ngā meka whakareatanga i tana papa tākaro, ka uhia taua whakareatanga ki te porotiti. Mēnā e taea ana tētahi whakatakotoranga rerekē o ngā tūtohi tukutuku, kia hāngai tonu ki tētahi o ngā whakareatanga i te papa tākaro o te hoa, ka uhia hoki taua whakareatanga i te papa tākaro o te hoa.
- Kia oti katoa ngā kāri te tangotango, mā ia kaitākaro e tango tētahi o ngā kāri o tana hoa e hiahia ana ia. Mā konei e haere tonu ai te kēmu.
- Mēnā kāore e taea e ngā kaitākaro tokorua tētahi anō whakareatanga te uhi, ka mutu te kēmu i konā.
- Ka toa te kaitākaro nāna i whakatakoto te maha rawa o ana porotiti ki ngā papa tākaro e rua.

Rautaki Whakarea Whānui

Mahere Tau | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |

Whanaketanga | 1a | 1e | 2a | 2e | 3a | 3e | 4a | 4e | 5a |

E ako ana ahau ki te whakaoti whakareatanga mā ngā momo rautaki ā-hinengaro maha.

He Whakaaro Matua

- E taea ana ngā whakareatanga tau mati-2 te whakaoti mā ngā rautaki nei:
 - Te wāwāhi uara tū. Hei tauira: $28 \times 7 = (20 \times 7) + (8 \times 7)$
 - Te whakaawhiwhi ki te tau māmā me te tikanga paremata. Hei tauira: $68 \times 5 = (70 \times 5) - (2 \times 5)$
 - Te huri pānga riterite i ngā tau e whakareatia ana. Hei tauira: $27 \times 3 = 9 \times 9$
 - Te wāwāhi i ngā tau e whakareatia ana. Hei tauira: $48 \times 12 = 48 \times 2 \times 2 \times 3$
- Mā te tuhi i ētahi wāhanga o tētahi tātaitanga e māmā ai te pupuri tau ki te pūmahara. Hei tauira, mō te whakareatanga 53×9 , he āwhina nui pea te tuhi i te 450 (te otinga o te 50×9), kātahi ka haere tonu te roanga atu o te tātaitanga i rō hinengaro ($3 \times 9 = 27$, $450 + 27 = 477$)
- He pai te whakatauira i ngā tuhinga hei whakaatu i te rautaki wāwāhi uara tū, kia mārama ai te ākonga ki te tuhinga ōkawa mō te whakareatanga ā tōna wā. Hei tauira:

$$68 \times 5 = (60 \times 5) + (8 \times 5) \\ = 300 + 40 \quad \longrightarrow \quad \begin{array}{r} \times \left| \begin{array}{r} 60 & + & 8 \\ 300 & + & 40 \end{array} \right. \\ \hline 340 \end{array}$$

Te Mātauranga Matua

- Kia noho tangata whenua ngā meka whakareatanga matua (tae atu ki te 10×10) ki te hinengaro o te ākonga, kia wawe tonu te whakaputa otinga.
- Kia taunga te ākonga ki te tāpiritanga me te tangohanga. Hei tauira, mō te whakareatanga 38×6 :
 - Ka tāpiria te 30×6 me te 8×6 (rautaki wāwāhi uara tū);
 - Ka tangohia te 2×6 i te 40×6 (rautaki whakaawhiwhi ki te tau māmā me te tikanga paremata).
- Kia mōhio te ākonga ki te tūhono i ngā meka whakareatanga matua ki ngā whakareatanga ki ngā taupū o te tekau. Hei tauira, $8 \times 3 = 24$, $10 \times 10 = 100$, nō reira, 8 tekau $\times 3$ tekau = 24 rau ($80 \times 30 = 2400$).

He Aromatawai Poto

Hei tauira pātai:

He aha ētahi rautaki hei whakaoti i te whakareatanga 28×5 ?

Mēnā e taunga ana te ākonga ki ngā rautaki maha, me haere tika ia ki te wāhanga ‘Te Whakamahi Tikanga Tau’ o tēnei ngohe. Me hoatu hoki ngā whakareatanga e whai wāhi mai ana ngā tau ngahuru me ngā tau rau, pēnei i ēnei: 37×60 73×40 300×84

Rauemi

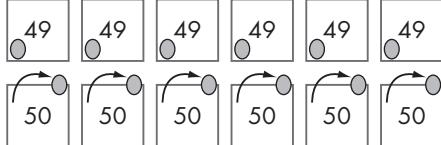
- He rauemi uara tū (pērā i te pīni, te poraka uara tū, te moni tākaro ...)
- He ipu
- He pepa whakapiri
- Hurihangā Whakarea (Rauemi Tārua 6-8)

Te Whakamahi Rauemi

Ngā tohutohu	He tauira kōrero mā te pouako
<p>Tuhia te rapanga nei ki te papa tuhituhi, ka pānui tahi ai me ngā ākonga:</p> <p>E 38 ngā pīni kei roto i ia ipu. E 7 ngā ipu. E hia katoa ngā pīni?</p> <p>Whakatauiratia ngā rautaki hei whakaoti i te whakareatanga ki ngā rauemi uara tū.</p> <p>Tuhia ngā whārite e hāngai ana ki ia rautaki.</p>	<p>Koia nei ngā huinga e 7 o te 38.</p> <p>He aha te whakareatanga e hāngai ana?</p> <p>Ko te 38×7. Kei te whakareatia te 38 ki te 7. E 7 ngā rōpū o te 38.</p> <p>Me pēhea te whakaoti i te whakareatanga nei? He aha ētahi rautaki hei whakamāmā?</p> <p>Hei tauira whakautu:</p> <ul style="list-style-type: none"> • Tāpiria te 2 ki ia huinga o te 38. Ko te 40×7 te whakareatanga ināianei. Ko te 280 te otinga o tēnā. Tangohia te 14 (arā, te 2×7), ka 266. <p>Anei te whārite e hāngai ana:</p> $\begin{aligned} 38 \times 7 &= (40 \times 7) - (2 \times 7) \\ &= 280 - 14 \\ &= 266 \end{aligned}$ <ul style="list-style-type: none"> • E 7 ngā rōpū o te 30, ko te 210 tēnā. E 7 hoki ngā rōpū o te 8, ko te 56. Hui katoa ko te 210 me te 56, ko te 266. <p>Anei te whārite e hāngai ana:</p> $\begin{aligned} 38 \times 7 &= (30 \times 7) + (8 \times 7) \\ &= 210 + 56 \\ &= 266 \end{aligned}$
<p>Kia pērā anō te whakamahi rauemi hei whakaata i ngā rautaki mō ētahi atu whakareatanga. Hei tauira:</p> <ul style="list-style-type: none"> • $26 \times 8 = (20 \times 8) + (6 \times 8) = 160 + 48 = 208$ • $26 \times 8 = (25 \times 8) + 8 = 200 + 8 = 208$ 	

- $26 \times 8 = (26 \times 2) \times 2 \times 2 = 52 \times 2 \times 2 = 104 \times 2 = 208$
- $26 \times 8 = (30 \times 8) - (4 \times 8) = 240 - 32 = 208$
- $27 \times 3 = (20 \times 3) + (7 \times 3) = 60 + 21 = 81$
- $27 \times 3 = (30 \times 3) - (3 \times 3) = 90 - 9 = 81$
- $27 \times 3 = (25 \times 3) + (2 \times 3) = 75 + 6 = 81$

Te Whakaahua ā-Hinengaro

Ngā tohutohu	He tauira kōrero mā te pouako
<p>Hunaia ngā rauemi ki raro i ētahi ipu aihikirīmi. Tuhia ngā tau ki te pepa whakapiri, ka whakaatu ai ki ia ipu.</p> <p>Aratakina ngā ākonga kia whakaahua ā-hinengaro i ngā momo rautaki hei whakaoti i ngā whakareatanga.</p>	<p>E 6 ngā rōpū o te 49 e huna ana ki raro i ngā ipu aihikirīmi nei. He aha te whakareatanga e hāngai ana?</p> <p>Ko te 49×6. Arā, kei te whakareatia te 49 ki te 6. E 6 ngā rōpū o te 49.</p>  <p>He aha tētahi rautaki hei whakaoti i te whakareatanga nei? Me āta whakaahua te whakamahinga o ngā rauemi ki roto i ō koutou hinengaro.</p> <p>Hei tauira whakautu:</p> <p>Tāpiria te kotahi ki ia rōpū. Ko te 50×6 te whakareatanga ināianei. Ko te 300 te otinga o tēnā. E 6 katoa ngā pīni i tāpiria atu, nō reira me tango ināianei, ko te 294 te otinga.</p> 
<p>Kia pērā anō te arataki i ngā ākonga kia whakaahua ā-hinengaro i ngā rautaki hei whakaoti i ētahi atu whakareatanga pēnei i ēnei:</p> <p>68×5 97×4 44×9 99×3 26×7</p>	

Te Whakamahi Tikanga Tau

Hoatu he rapanga whakarea e whai wāhi mai ana he tau nui, me te tono anō i ngā ākonga kia whakamārama i ā rātou rautaki. Hei tauira:

179×8	66×3	348×4	83×9	78×6
333×6	486×5	275×4	306×7	999×5

Hei Mahi Atu Anō

Tākarohia te kēmu ‘Hurihangā Whakarea’ (**Rauemi Tārua 6-8**). He kēmu tēnei mā ngā kaitākaro tokorua ki te tokowhā, hei whakapakari i ngā pūkenga whakatau tata a ngā ākonga.

Rauemi

- Tētahi papa tākaro (Rauemi Tārua 6-8) me tētahi porotiti pūataata
- Tētahi rārangi tau (Rauemi Tārua 6-8) me ētahi porotiti e 9 mā ia kaitākaro
- Tētahi mataono tau, ko ngā tau 5, 6, 7, 8, 9 me te kupu ‘kōwhiria’ ki ūna mata

Ngā tohutohu

- Whakatakotoria te porotiti pūataata ki te tau tīmatanga i te papa tākaro.
- Ka whai tētahi kaitākaro i tētahi.
- Ka pīroria te mataono tau. Ko te tau ka puta, koirā te maha o ngā porowhita ka neke whakatekaraka i te porotiti pūataata i te papa tākaro. Mēnā ko te kupu ‘kōwhiria’ ka puta i te mataono tau, mā te kaitākaro e kōwhiri tētahi tau ki waenganui i te 5 me te 9.
- Ka whakareatia te tau ka puta i te mataono ki te tau o te porowhita ki reira tau ai te porotiti pūataata i te papa tākaro.
- Ka uhia te porowhita i te rārangi tau o te kaitākaro e hāngai ana ki te takiwā kei reira te otinga o te whakareatanga. Hei tauira, mō te whakareatanga 6×43 , ka uhia te porowhita kei waenganui i te 250 me te 300.
- Ko te kaitākaro tuatahi ki te uhi i ngā porowhita katoa i tana rārangi tau, ko ia te toa.

Te Pānga Riterite hei Whakaoti Whakawehenga

Mahere Tau | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |

Whanaketanga | 1a | 1e | 2a | 2e | 3a | 3e | 4a | 4e | 5a |

E ako ana ahau ki te whakaoti rapanga whakawehe mā te whakamahi i te rautaki ‘pānga riterite’.

He Whakaaro Matua

- He ōrite te tātai i te maha o ngā ‘X’ kei roto i te ‘Y’ ki te whakamahi i te waeine ‘X’ hei ine i te roa o te ‘Y’.

Y			
X	X	X	X

- Ko te rahi o te waeine hei whakatau i te maha o aua waeine e rite ana ki te roa o te mea e inea ana. Hei tauira:

A			
E	E	E	E
H	H	H	

E 4 ngā waeine ‘E’ e rite ana ki te roa o te ‘A’ ($E \times 4 = A$).

Ko te waeine ‘H’, he hautoru o te roa o te ‘E’. Nō reira, e 3 te whakareatanga ake o ngā waeine ‘H’ i ngā waeine ‘E’, e rite ana ki te roa o te A ($H \times 3 = E$, nō reira, $H \times 12 = A$).

- He pērā anō te whakawehenga o tētahi tau ki tētahi:

24			
6	6	6	6
2	2	2	

$24 \div 6 = 4$ (E 4 ngā 6 kei roto i te 24)

Nō reira, e 3 te whakareatanga ake o te $24 \div 2$, tērā i te $24 \div 6$ ($24 \div 6 = 4$, nō reira, $24 \div 2 = 3 \times 4 = 12$).

- He pānga kōaro kei waenganui i te rahi o te waeine me te maha o ngā waeine e rite ana ki te roa o tētahi mea. Hei tauira:

Te roa o te mea e inea ana	Te roa o te waeine	Te maha o ngā waeine
72cm	9cm	8cm
72cm	18cm	4cm
72cm	36cm	2cm

Te Mātauranga Matua

Kia noho tangata whenua ki te hinengaro o te ākonga ngā meka whakareatanga matua (tae atu ki te 10×10) me ngā meka whakawehenga e whai pānga ana, kia wawe tonu te whakaputa otinga.

He Aromatawai Poto

Hei tauira pātai:

He aha te otinga o te $72 \div 9$? Nō reira, he aha te otinga o te $72 \div 3$ me te $72 \div 18$?

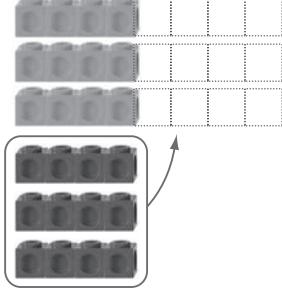
Mēnā he roa te ākonga e whiriwhiri ana, he tohu pea tērā i tana whiriwhiri wehe kē i tēnā me tēnā o ngā whakawehenga, kāore ia i te tūhono i tētahi ki tētahi.

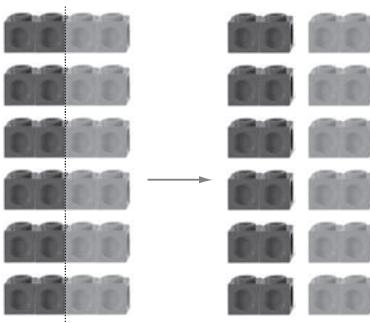
Mēnā e taunga ana te ākonga ki te whakamahi i te rautaki ‘te huri pānga riterite i ngā tau o roto i tētahi whakawehenga’, me āta kukume ia ki taumata kē atu. Hei tauira, $72 \div 18 = 4$ nā te mea $72 \div 9 = 8$, ā, ko te 18 te rearua o te 9, ko te 4 te haurua o te 8.

Rauemi

- He poraka honohono
- He ipu
- He pepa whakapiri

Te Whakamahi Rauemi

Ngā tohutohu	He tauira kōrero mā te pouako
<p>Raua atu kia 6 ngā huinga poraka honohono o te 4 ki roto i tētahi ipu aihikirīmi. Whakaaturia tētahi o ngā huinga, ka whakamōhio atu ai e 24 katoa ngā poraka kei roto i te ipu.</p> <p>Whakawhitiwhiti kōrero mō te whakawehenga $24 \div 4 = \square$ me te huri kōaro hei whakareatanga, arā, $4 \times \square = 24$.</p>	<p>E 24 ngā poraka kei roto i te ipu aihikirīmi nei. Kua honoa ki ngā huinga o te 4. Anei tētahi:</p>  <p>E hia katoa ngā huinga poraka o te 4? E 6. E 6 ngā 4 kei roto i te 24.</p> <p>He aha te whārite whakawehenga? Whakawehea te 24 ki te 4, ka 6. Arā, $24 \div 4 = 6$.</p> <p>He aha te whakareatanga e whai pānga ana? Ko te $4 \times 6 = 24$. Whakareatia te 4 ki te 6, ka 24. E 6 ngā huinga o te 4 kei roto i te 24.</p>
<p>Whakawhitiwhiti kōrero mō ērā atu whakawehenga e whai pānga ana ki te $24 \div 4 = 6$. Arā:</p> $24 \div 4 = 6$ $\times 2 \left(\begin{array}{c} \\ \end{array} \right) \div 2$ $24 \div 8 = 3$ $24 \div 4 = 6$ $\div 2 \left(\begin{array}{c} \\ \end{array} \right) \times 2$ $24 \div 2 = 12$	<p>Me pēhea te whiriwhiri i te maha o ngā huinga poraka honohono o te 8 ka taea te hanga? Hei tauira whakautu:</p> <ul style="list-style-type: none"> • E 3 ngā 8 kei roto i te 24. Whakareatia te 8 ki te 3, ka 24. Arā, $8 \times 3 = 24$. • E 6 ngā huinga o te 4. Hauruatia aua huinga e 6, ka hono atu ai i tētahi ki tētahi. E 3 ngā huinga o te 8 ka hua mai. 



Me pēhea te whiriwhiri i te maha o ngā huinga poraka honohono o te 2 ka taea te hanga?

Hei tauira whakautu:

- 12 ngā 2 kei roto i te 24. Whakareatia te 2 ki te 12, ka 24. Arā, $2 \times 12 = 24$.
- E 6 ngā huinga o te 4. Hauruatia ia huinga o te 4. 12 ngā huinga o te 2 ka hua mai.

Kia pērā anō te arataki i ngā ākonga kia whakaoti i ētahi atu rapanga whakawehi mā te rautaki pānga riterite. Hei tauira:

$$32 \div 4 = 8, \text{ nō reira, } 32 \div 2 = \square, 32 \div 8 = \square$$

$$40 \div 5 = 8, \text{ nō reira, } 40 \div 10 = \square, 40 \div 20 = \square$$

$$18 \div 3 = 6, \text{ nō reira, } 18 \div 6 = \square, 18 \div 9 = \square$$

Te Whakaahua ā-Hinengaro

Ngā tohutohu	He tauira kōrero mā te pouako
<p>Tuhia te rapanga nei ki te papa tuhituhi, ka pānui tahi ai me ngā ākonga:</p> <p>E 36 ngā kānga waru. E tākaitia ana ngā kānga waru kia 2 ki ia pākete. E hia katoa ngā pākete?</p> <p>Aratakina ngā ākonga kia whakamahi i te rautaki ‘pānga riterite’ hei whakaoti i ngā whakawehenga e whai pānga ana ki te $36 \div 2$.</p>	<p>He aha te whārite hei whakaata i te rapanga nei?</p> <p>E whakawehi ana te 36 ki te 2. Arā, te whārite $36 \div 2 = \square$.</p> <p>He aha tētahi rautaki hei whiriwhiri i te otinga?</p> <p>Whakawehi te 30 ki te 2, ka 15. Whakawehi hoki te 6 ki te 2, ka 3. Nō reira, 18 katoa ngā 2 kei roto i te 36.</p> <p style="text-align: center;"> </p> <p>Mēnā ka tākaitia kia 4 ngā kānga waru ki ia pākete, e hia katoa ngā pākete?</p> <p>Whakakotahitia kia 2 ngā pākete o te 2, ka 4 ngā kānga waru ki ia pākete. Nō reira, ka hauruatia te maha o ngā pākete, arā, ka 9 ngā pākete.</p> <p style="text-align: center;"> </p> <p>$36 \div 2 = 18$ $\times 2$ () $\div 2$ $36 \div 4 = 9$</p> <p>Anei ngā whārite e hāngai ana.</p> <p>He aha te tauira e kitea mai ana i ēnei whakawehenga e rua?</p> <p>Ina whakareatia te tau whakawehi ki te 2 ($2 \times 2 = 4$), ka hauruatia te otinga ($18 \div 2 = 9$).</p>

Mēnā ka tākaitia kia 6 ngā kānga waru ki ia pākete, e hia katoa ngā pākete?

Whakakotahitia kia 3 ngā pākete o te 2, ka 6 ngā kānga waru ki ia pākete. Nō reira, ka hautorutia te maha o ngā pākete, arā, ka 6 ngā pākete.

$$36 \div 2 = 18$$

$$\times 3 \quad \left(\quad \right) \div 3$$

$$36 \div 6 = 6$$

Anei ngā whārite e hāngai ana.

He aha te tauira e kitea mai ana i ēnei whakawehenga e rua nei?

Ina whakareatia te tau whakawehe ki te 3 ($2 \times 3 = 6$), ka hautorutia te otinga ($18 \div 3 = 6$).

Kia pērā anō te arataki i ngā ākonga kia tūhura i te pānga riterite o ēnei rapanga whakawehe:

$120 \div 10 = \square$, no reira, $120 \div 5 = \square$, $120 \div 20 = \square$

$48 \div 6 = \square$, no reira, $48 \div 12 = \square$, $48 \div 3 = \square$

$72 \div 2 = \square$, なō reira, $72 \div 4 = \square$, $72 \div 8 = \square$

Te Whakamahi Tikanga Tau

Titoa he pakitau, tuhia te whārite, ka whakaoti ai mā te rautaki pānga riterite:

$$170 \div 5 = \square \quad 170 \div 10 = 17, \text{ no remainder, } 170 \div 5 = 34$$

$$56 \div 4 = \square \quad 56 \div 8 = 7, \text{ no remainder, } 56 \div 4 = 14$$

$$96 \div 6 = \square \quad 96 \div 3 = 32, \text{ no remainder, } 96 \div 6 = 16$$

$$81 \div 3 = \square \quad 81 \div 9 = 9, \text{ no remainder, } 81 \div 3 = 27$$

$$64 \div 4 = \square \quad 64 \div 8 = 8, \text{ no remainder}, 64 \div 4 = 16 (64 \div 2 = 32, \text{ no remainder}, 64 \div 4 = 16)$$

Hākari

Mahere Tau	0	1	2	3	4	5	6	7	8
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Whanaketanga	1a	1e	2a	2e	3a	3e	4a	4e	5a
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E ako ana ahau ki te whakaoti rapanga whakawehē mā te huri hei whakawehē māmā e ūrite tonu ana te otinga.

He Whakaaro Matua

- Mā te whakawehē i ngā tau o tētahi rapanga whakawehē ki tētahi tauwehe pātahi, e māmā ai taua whakawehē. Hei tauira, $32 \div 8 = 16 \div 4$. Ko te 2 tētahi tauwehe pātahi o te 32 me te 8, nō reira, mā te whakawehē i te 32 me te 8 ki te 2, ka māmā ake te whakawehē $32 \div 8$.
- Ko te ‘huringa pānga riterite’ tētahi rautaki hei whakaoti whakawehē. Hei tauira:
 - $108 \div 9 = 36 \div 3$ (kua whakawehēa te 108 me te 9 ki te 3)
 - $216 \div 12 = 108 \div 6 = 54 \div 3$ (kua hauruatia ngā tau o te whakawehē)

I tēnei rautaki, ka hauruatia te mea e inea ana me te waeine:

A			
E	E	E	E

→

$\frac{1}{2} \text{ o te A}$			
$\frac{1}{2} \text{ o te E}$			

$A \div E = 4$

$\frac{1}{2} A \div \frac{1}{2} E = 4$

Mēnā ka hauruatia te mea e inea ana me te rahi o te waeine, ka noho pūmau tonu te maha o ngā waeine:

24			
6	6	6	6

→

12			
3	3	3	3

$24 \div 6 = 4$

$12 \div 3 = 4$

He ūrite te otinga o te $24 \div 6$ me te $12 \div 3$.

- E taea ana tētahi whakawehē te huri kōaro hei whakareatanga. Hei tauira:
 $40 \div 8 = \square \rightarrow 8 \times \square = 40$, arā, ka whiriwhiria te maha o ngā 8 kei roto i te 40.

Te Mātauranga Matua

- Kia noho tangata whenua ki te hinengaro o te ākonga ngā meka whakareatanga matua (tae atu ki te 10×10), me ngā meka whakawehē e whai pānga ana, kia wawe tonu te whakaputa otinga. Hei tauira, $8 \times 6 = 48$, nō reira, $48 \div 6 = 8$.
- Kia taunga te ākonga ki te whiriwhiri i ngā tauwehe pātahi o ētahi tau e rua. Hei tauira, ko te 1, te 2, te 3 me te 6 ngā tauwehe pātahi o te 18 me te 24.

He Aromatawai Poto

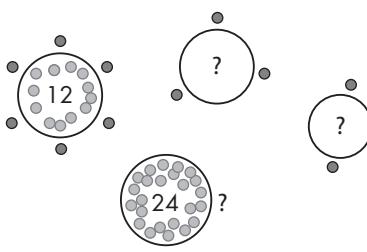
Hei tauira pātai:

12 ngā taea o ia taraka. E hia ngā taraka mēnā 108 katoa ngā taea? He aha ngā rautaki rerekē hei whakaoti i tēnei rapanga?

Mēnā ka whakamahi te ākonga i te rautaki ‘te huri pānga riterite’, e tika ana kia kumea ia ki taumata kē atu. Me haere tika ki ngā mahi o te wāhangā ‘Te Whakamahi Tikanga Tau’ o tēnei ngohe.

Hei tauira o te rautaki ‘te huri pānga riterite’: $108 \div 12 = 54 \div 6$ (ka hauruatia ngā tau e rua)

Te Whakamahi Rauemi

Ngā tohutohu	He tauira kōrero mā te pouako												
<p>Tuhia te rapanga nei ki te papa tuhituhi, ka pānui tahi ai me ngā ākonga:</p> <p>Kei te whakarite a Hinemoana mā i ngā tēpu mō tētahi hākari. He porowhita te āhua o ngā tēpu. 12 ngā parāoa parai ka whakatakotoria ki te tēpu mēnā e 6 ngā tāngata ki taua tēpu. E hiahia ana rātou kia pērā anō te maha o ngā parāoa parai mā ia tangata.</p> <ul style="list-style-type: none"> • E hia ngā parāoa parai mēnā e 3 ngā tūru ki te tēpu? • Mēnā e 2 ngā tūru? • Mēnā e 24 ngā parāoa parai, e hia ngā tūru e tika ana mō taua tēpu? 	<p>He aha te mahi tuatahi hei whakaoti i tēnei rapanga? Whiriwhiria kia hia ngā parāoa parai mā ia tangata. 12 ngā parāoa parai mā ngā tāngata tokoono. Whakawehia te 12 ki te 6, ka 2. E 2 ngā parāoa parai mā ia tangata.</p> <p>He aha ngā whārite e hāngai ana? $12 \div 6 = 2$, $6 \times 2 = 12$.</p> <p>Pēhea te tēpu tuarua, e 3 ngā tūru? Kia hia ngā parāoa parai e tika ana mō tērā tēpu? Kia 6. E 3 ngā tūru, kia 2 ngā parāoa parai mā ia tangata. E 3 ngā 2, ka 6. $2 \times 3 = 6$.</p> <p>Pēhea te tēpu tuatoru e 2 ngā tūru? Kia hia ngā parāoa parai e tika ana mō tērā tēpu? Kia 4. E 2 ngā tūru, kia 2 ngā parāoa parai mā ia tangata. E 2 ngā 2, ka 4. $2 \times 2 = 4$.</p> <p>Pēhea te tēpu e 24 ngā parāoa parai kei runga? E hia ngā tūru e tika ana mō taua tēpu? 12. Whakawehia te 24 ki te 2, kia 2 ngā parāoa parai mā ia tangata. $24 \div 2 = 12$.</p> <p>Anei ngā whakareatanga me ngā whakawehenga e hāngai ana ki ia tēpu. He aha te tauira e kitea mai ana?</p> <p>Mēnā ka rearuatia te maha o ngā tūru, ka rearuatia anō te maha o ngā parāoa parai. Mēnā ka hauruati te maha o ngā tūru, ka hauruati anō te maha o ngā parāoa parai. Arā te tūtohi e pēnei ana:</p> <table border="1"> <tr> <td>tūru</td> <td>2</td> <td>3</td> <td>4</td> <td>6</td> <td>12</td> </tr> <tr> <td>parāoa parai</td> <td>4</td> <td>6</td> <td>8</td> <td>12</td> <td>24</td> </tr> </table>	tūru	2	3	4	6	12	parāoa parai	4	6	8	12	24
tūru	2	3	4	6	12								
parāoa parai	4	6	8	12	24								
<p>Kia pērā anō te arataki i ngā ākonga i ētahi atu whiriwhiringa pānga riterite. Hei tauira:</p> <ul style="list-style-type: none"> • 16 ngā kūtai ka tohaina ki te tēpu e 4 ngā tūru. Kia hia ngā kūtai mēnā e 2 ngā tūru? Mēnā e 6 ngā tūru? Mēnā e 24 ngā kūtai, e hia ngā tūru e tika ana mō taua tēpu? • 15 ngā kānga waru ka tohaina ki te tēpu e 5 ngā tūru. Kia hia ngā kānga waru mēnā kotahi te tūru? Mēnā 10 ngā tūru? Mēnā e 20 ngā kānga waru, e hia ngā tūru e tika ana mō taua tēpu? <p>Tukuna ngā ākonga kia whakaata i te rapanga ki ngā rauemi pērā i te poraka honohono, te porotiti rānei. Me tuhi hoki ngā whārite e hāngai ana.</p>													

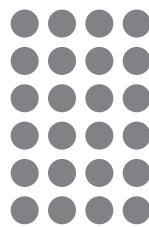
E pai ana te whakaatu i ngā whakawehenga ki te tūtohi tukutuku kia āta kitea ai te tauwehe pātahi. Hei tauira:



16 ngā kūtai ki ngā tāngata tokowhā.



E 8 ngā kūtai ki ngā tāngata tokorua.



E 24 ngā kūtai ki ngā tāngata tokoono.

Te Whakaahua ā-Hinengaro

Ngā tohutohu	He tauira kōrero mā te pouako
Tukuna ētahi atu rapanga tohatoha hei whiriwhiri mā te ākonga. Aratakina rātou kia whakaahua ā-hinengaro i te rapanga.	<p>E 36 ngā keke ka tohaina ki te tēpu, 12 ngā tūru o taua tēpu. Kia hia ngā keke mēnā tokoono ngā tāngata?</p> <p>Whakawehea ngā keke e 36 ki ngā tāngata 12, ka 3 ngā keke mā ia tangata. Arā ngā whārite:</p> $36 \div 3 = 12 \quad 3 \times 12 = 36$ <p>Nō reira, 18 ngā keke mēnā tokoono ngā tāngata. Arā ngā whārite:</p> $18 \div 3 = 6 \quad 3 \times 6 = 18$ <p>Kia hia ngā keke mēnā tokowhā ngā tāngata?</p> <p>Whakareatia ki te 3, ka 12 ngā keke. Arā ngā whārite:</p> $12 \div 3 = 4 \quad 3 \times 4 = 12$
Kia pērā anō te arataki i ngā ākonga i ētahi atu rapanga pēnei i ēnei: E 30 ngā keke ki tētahi tēpu, 10 ngā tūru	<ul style="list-style-type: none"> - kia hia ngā keke ki tētahi tēpu e 5 ngā tūru? - kia hia ngā keke ki tētahi tēpu e 2 ngā tūru? - kia hia ngā keke ki tētahi tēpu e 20 ngā tūru?
18 ngā keke ki tētahi tēpu e 9 ngā tūru	<ul style="list-style-type: none"> - kia hia ngā keke ki tētahi tēpu e 3 ngā tūru? - kia hia ngā keke ki tētahi tēpu e 6 ngā tūru? - kia hia ngā keke ki tētahi tēpu 18 ngā tūru?

Te Whakamahi Tikanga Tau

Whakanuia ngā tau o roto i ngā rapanga hei whakahau i ngā ākonga kia āta whakaaro ki ngā tikanga tau me te rautaki ‘pānga riterite’. Hei tauira:

$$208 \div 8 = \square \quad \text{Whakamāmāhia: } 104 \div 4 = \square, 52 \div 2 = \square$$

$$216 \div 12 = \square \quad \text{Whakamāmāhia: } 108 \div 6 = \square, 54 \div 3 = \square$$

- | | |
|-------------------------|--|
| $484 \div 22 = \square$ | Whakamāmāhia: $242 \div 11 = \square$ |
| $140 \div 28 = \square$ | Whakamāmāhia: $70 \div 14 = \square$, $35 \div 7 = \square$ |
| $368 \div 16 = \square$ | Whakamāmāhia: $184 \div 8 = \square$, $92 \div 4 = \square$, $46 \div 2 = \square$ |
| $390 \div 15 = \square$ | Whakamāmāhia: $130 \div 5 = \square$, $260 \div 10 = \square$ |
| $408 \div 24 = \square$ | Whakamāmāhia: $204 \div 12 = \square$, $102 \div 6 = \square$, $51 \div 3 = \square$ |
| $324 \div 27 = \square$ | Whakamāmāhia: $108 \div 9 = \square$, $36 \div 3 = \square$ |

Hei Mahi Atu Anō

Tākarohia te kēmu ‘Rautaki Whakawehe’ (**Rauemi Tārua 6-9**). He kēmu tēnei mā ngā kaitākaro tokorua, tokotoru rānei, hei whakaū i ngā momo rautaki whakawehe.

Rauemi

- He porotiti pūataata
- He papa tākaro mā ia kaitākaro (Rauemi Tārua 6-9)
- Te huinga kāri whakawehe (Rauemi Tārua 6-9)

Ngā tohutohu

- Whakatakotoria ngā kāri ki te tēpu, ko ngā mata ki runga kia kitea ai ngā whārite whakawehe.
- Ka whai tētahi ākonga i tētahi.
- Ka tangohia tētahi o ngā kāri whakawehe.
- Ka kōwhiria tētahi o ngā rautaki e whakaaturia ana ki te taha matau o te papa tākaro hei whiriwhiri i te otinga o te whakawehenga. Mā te kaitākaro e whakaingoa te rautaki e whakamahia ana e ia.
- Ka tirohia a muri o te kāri kia kitea ai mēnā i tika te otinga me te whakamahinga o te rautaki.
- Mēnā i tika, ka whakatakotoria tētahi porotiti ki te kapua e hāngai ana ki te takiwā o te otinga i te taha mauī o te papa tākaro. Ka whakatakoto hoki i tētahi porotiti ki te rautaki i whakamahia i te taha matau o te papa tākaro.
- Mēnā kua whakatakotoria kētia tētahi porotiti ki tētahi rautaki, kāore e whakaaetia te whakamahi anō i taua rautaki, kia oti rā anō te katoa o ngā rautaki te whakamahi (arā, kua whakatakotoria he porotiti ki runga i ngā rautaki katoa).
- He pērā anō te ture mō ngā kapua otinga kei te taha mauī o te papa tākaro. Arā, kia kotahi te porotiti ki ia kapua, kātahi rā ka whakaaetia te porotiti tuarua te whakatakoto ki tētahi.
- Mēnā e rua ngā rautaki ka whakamahia mō tētahi o ngā whakawehenga, ka whakatakotoria he porotiti ki ngā rautaki e rua e hāngai ana. Me āta whakamārama e te ākonga ngā rautaki e rua.
- Ka pēnei te haere o te kēmu kia pau rā anō ngā kāri whakawehenga katoa.

Kāore ngā rautaki katoa e hāngai ana ki ia whakawehenga. Me āta whiriwhiri e te kaitākaro tētahi rautaki e hāngai ana. Ko te kaitākaro nāna i whakatakoto te maha rawa atu o ngā porotiti, ko ia te toa.

He Toenga

Mahere Tau | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |

Whanaketanga | 1a | 1e | 2a | 2e | 3a | 3e | 4a | 4e | 5a |

E ako ana ahau ki te whakaoti rapanga whakawehē e whai toenga ana te otinga.

He Whakaaro Matua

- E whai toenga ana te nuinga o ngā rapanga whakawehē. Arā, he tau hautanga te otinga.
- Ka whakaaturia te toenga o tētahi whakawehenga hei tauoti (e 5 te toenga), hei hautau ($\frac{1}{4}$), hei hautanga ā-ira rānei (0.25).
- Mēnā he hautau, he hautanga ā-ira rānei te whakaatu i te toenga, he hautanga tērā o te tau whakawehē. Hei tauira, ko te $39 \div 4 = 9\frac{3}{4} = 9.75$. Ko te tikanga o te $\frac{3}{4}$, e mea ana ko te $\frac{3}{4}$ o te 4 (te tau whakawehē), arā, ko te 3 tērā (te toenga):

										39	
4	4	4	4	4	4	4	4	4	4	3	
↑ te tau whakawehē										↑ te toenga	

- Mēnā ka whakaaturia te toenga o tētahi whakawehenga hei hautau, hei hautanga ā-ira rānei, ka taea te huri hei tauoti. Hei tauira:
 - 15 mita te roa o te papanga a Riha. E 4m hei tuitui i te kaka hākinakina kotahi. E hia ngā kaka hākinakina ka taea e Riha te tuitui?
 - $15 \div 4 = 3.75$. Ko te .75 hei tohu i te $\frac{3}{4}$ o te 4 mita (arā te 3 mita), hei tohu rānei i te .75 o tētahi kaka hākinakina.
- He maha ngā momo tuhituhinga hei whakaatu i tētahi whakawehenga. Hei tauira:
$$36 \div 4 = \boxed{\quad} \quad 4 \overline{)36} \quad \frac{36}{4}$$
- Mā te horopaki o te rapanga e tohu te āhua o te whakaatu i te toenga. Hei tauira:
 - Ka tohaina ngā māpere 15 ki ētahi tamariki tokowhā, kia ōrite te whiwhinga a tēnā me tēnā. ($15 \div 4 = 3$ t3)
 - Ka tohaina te \$15 ki ētahi tamariki tokowhā. ($\$15 \div 4 = \3.75)
 - Ka tohaina ngā parehe 15 ki ētahi rōpū e 4. ($15 \div 4 = 3\frac{3}{4}$)
- I ngā horopaki o ētahi rapanga whakawehē, kāore he take o te whakaatu i te toenga. Hei tauira: E 25 mita te roa o tētahi taura. E 4 mita te roa o te taura piu kotahi. E hia ngā taura piu ka taea te hanga? ($25 \div 4 = 6$)
- I ngā horopaki o ētahi rapanga whakawehē, e tika ana kia whakaawhiwhia te toenga. Hei tauira: E 98 manomita (98km) te tawhiti o te haere o te motukā, ka pau te 8 rita kōhinu. E hia te tawhiti, ka pau te rita kotahi? ($98 \div 8 = 12$ t2). Ka whakaawhiwhia tēnei ki te takiwā o te 12km.

Te Mātauranga Matua

Kia noho tangata whenua ki te hinengaro o te ākonga ngā meka whakareatanga matua (tae atu ki te 10×10), me ngā meka whakawehenga e whai pānga ana, kia wawe tonu te whakaputa otinga. Hei tauira, $8 \times 6 = 48$, nō reira, $48 \div 6 = 8$

He Aromatawai Poto

Hei tauira pātai:

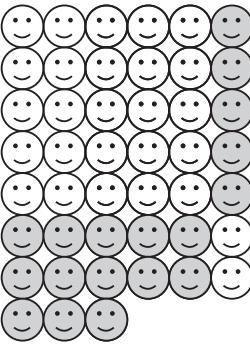
- E whakawehea ana ngā ākonga e 29 ki ētahi rōpū e 4, kia ūrite te maha ki ia rōpū. Tokohia ki ia rōpū?
- E 60 rita te rōrahi o te wai. E 8 rita te rōrahi o tētahi pākete. E hia ngā pākete e taea ana te whakaki?

Mēnā e taunga ana te ākonga ki te whakaoti rapanga whakawehi e whai wāhi mai ana tētahi toenga tauotī, toenga hautau rānei, me haere tika taua ākonga ki ngā mahi kei te wāhangā ‘Te Whakamahi Tikanga Tau’ o tēnei ngohe. Āta tirohia te āhua o tana tuhi i ngā whakawehenga e whai toenga ana.

Rauemi

- He poraka honohono
- He pīni, he porotiti rānei
- He rauemi uara tū
- Papa Mata Rau (Rauemi Tārua 6-5)
- He tātaitai

Te Whakamahi Rauemi

Ngā tohutohu	He tauira kōrero mā te pouako
<p>Tuhia te rapanga nei ki te papa tuhituhi, ka pānui tahi ai me ngā ākonga: E 45 ngā hēki i kohia e Mārama i ana heihei. Kei te whakaritea kia 6 ki ia pākete hei hoko māna i te mākete. E hia ngā pākete? E hia ka toe mai?</p> <p>Tukuna mā ngā ākonga e whakamahi ngā rauemi hei whiriwhiri i te otinga o te rapanga. Whakawhitiwhiti kōrero mō ngā rautaki.</p> 	<p>He aha te whārite e hāngai ana ki tēnei rapanga? Whakawehi te 45 ki te 6. Arā, $45 \div 6$. E hia ngā rōpū o te 6 kei roto i te 45?</p> <p>Whakamahia he rauemi hei whiriwhiri i te otinga o te rapanga nei. Whakamāramatia mai ngā rautaki. Hei tauira whakautu:</p> <ul style="list-style-type: none"> • Hurihia te whakawehi hei whakareatanga. Whakareatia te 6 ki te aha, ka 45? $6 \times \square = 45$. Whakareatia te 6 ki te 7, ka 42, e 3 atu anō ka toe mai. • E 5 ngā 6, ka 30. E 2 ngā 6, ka 12. Ko te 42 katoa ēnā. E 3 atu anō ka toe mai. <p>Anei te Papa Mata Rau e whakaatu ana i ngā rōpū o te 6. E hia ngā rōpū o te 6? E 7.</p> <p>E hia atu anō e toe mai ana? E 3.</p> <p>Me pēhea te tuhi i te otinga o te whakawehi? $45 \div 6 = 7 \frac{3}{6}$. Ko te 't' hei tohu i te toenga. $45 \div 6 = 7 \frac{3}{6} = 7 \frac{1}{2}$. Arā, e 7 me te haurua ngā pākete.</p> <p>Whakamahia te tātaitai hei whakaoti i te whakawehi. He aha te otinga ka puta? Ko te 7.5.</p>

	<p>He aha te tikanga o tēnā otinga (o te 0.5)? He rite te 0.5 (ira rima) ki te haurua.</p> <p>Ko te $7\frac{1}{2}$, ko te 7.5 rānei hei whakamōhio i te maha o ngā pākete e taea ana. Ko te 7 t3 hei whakamōhio i te maha o ngā pākete me te maha o ngā hēki e toe mai ana.</p>
	<p>Kia pērā anō te mahi hei whakaoti i ēnei rapanga e whai mai ana. Āta whakawhitiwhiti kōrero mō te whaitake o te tuhi i te otinga hei hautau, hei toenga rānei:</p> <ul style="list-style-type: none"> • E \$43 te pūtea a Tihirau. E \$5 te utu mō tētahi kōpae ataata. E hia ngā kōpae ataata e taea ana e Tihirau te hoko? • E 55 ngā pane kuīni a Henare. E 6 ngā pane kuini hei tuku i tētahi mōkī kotahi. E hia ngā mōkī e taea ana e Henare te tuku? • E 8 meneti ka oti i a Hinerau tētahi motukā te horoi. E hia ngā motukā ka oti i a ia i te haora? • E 26 mita te roa o te taura hei hanga mā Tēneti i ētahi taura piu e 8 kia orite anō te roa o ia taura piu. E hia te roa o ia taura piu ka hangaia e ia?

Te Whakaahua ā-Hinengaro

Ngā tohutohu	He tauira kōrero mā te pouako
<p>Tuhia te rapanga nei ki te papa tuhituhi, ka pānui tahi ai me ngā ākonga: E 39 ngā pihikete nā Hinewai i tunu. Kei te whakarite ia kia 4 ngā pihikete ki ia pākete hei hoko māna i te mākete o te kura. E hia ngā pākete ka hua mai?</p> <p>Aratakina ngā ākonga kia whakaahua ā-hinengaro i te Papa Mata Rau hei whakaoti i te rapanga.</p>	<p>He aha te whārite hei whakaata i tēnei rapanga? He whakawehenga. Whakawehenga ngā pihikete e 39 kia 4 ki ia pākete. Arā, ko te whārite: $39 \div 4 = \square$</p> <p>Māku e whakamahi te Papa Mata Rau hei whakaoti i tēnei whakawehenga. Mā koutou e āta whakaahua aku mahi ki roto i ō koutou hinengaro.</p> <p>Ka whakaatu au i ngā mata e 4 ki te rārangī tuatahi. Koirā hei tohu i te pākete kotahi.</p> <p></p> <p>He aha taku mahi ināianei? Hei tauira whakautu:</p> <ul style="list-style-type: none"> • Whakaaturia kia 10 ngā rārangī o te 4. Ko te 40 tēnā. Uhia tētahi mata i te rārangī whakamutunga. E 9 katoa ngā rārangī me te 3 e toe mai ana. • E 9 ngā rārangī o te 4, ka 36. E 3 atu anō e toe mai ana, ka 39. <p>Me pēhea te tuhi i te otinga o te whakawehenga? $39 \div 4 = 9 \text{ t}3$ $39 \div 4 = 9\frac{3}{4}$</p>

Kia pērā anō te arataki i ngā ākonga kia whakaahua ā-hinengaro i ngā rapanga nei:

- Kei te whakarite a Whaea Mihi i ngā tīma poitarawhiti o te kura. Tokowhitu ngā tamariki o tētahi tīma poitarawhiti. E hia ngā tīma mēnā e 46 ngā tamariki? Tokohia ngā tamariki ka noho ki te taha hei kaitautoko?
- E 6 ngā roanga o te papa tākaro i oti i a Romi te omaoma i te 76 hākona. E hia hākona ka oti te roanga kotahi?

Te Whakamahi Tikanga Tau

Hoatu he rapanga whakawehe hei whakaoti mā ngā ākonga. Tonoa mā rātou hoki e titi tētahi pakitau e hāngai ana. Hei tauira:

$34 \div 6 = \square$. E 34 ngā tamariki e hiahia ana ki te tākaro poirewa. Tokoono ngā kaitākaro o ia tīma. E hia katoa ngā tīma? E hia ngā tamariki ka noho ki te taha hei kaitautoko?

Hei mahi:

$84 \div 9 = \square$

$47 \div 3 = \square$

$35 \div 4 = \square$

$51 \div 6 = \square$

$472 \div 5 = \square$

Te Hātepe Ōkawa

Mahere Tau | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |

Whanaketanga | 1a | 1e | 2a | 2e | 3a | 3e | 4a | 4e | 5a |

E ako ana ahau ki te whakaoti rapanga whakarea, rapanga whakawehenga hoki mā te hātepe ōkawa.

He Whakaaro Matua

- He whaihua tonu te hātepe ōkawa hei huarahi whakaoti whakareatanga, whakawehenga hoki, mēnā he uua rawa te whakaoti ā-hinengaro, kāore rānei e wātea mai ana he pūrere tātaitai.

Te Whakarea

- Me āta tūhono te āhua o ngā tuhinga ūpaki me te tuhinga o te hātepe ōkawa o tētahi whakareatanga. Hei tauira, ko te 68×5 :

$$\begin{array}{r} ① \quad 60 \times 5 = 300 \\ \quad 8 \times 5 = \underline{40} \\ \hline \quad 340 \end{array}$$

$$\begin{array}{r} ② \quad \begin{array}{r} 68 \\ \times 5 \\ \hline 40 \end{array} \\ \quad (8 \times 5) \\ \hline \quad 300 \end{array}$$

$$\begin{array}{r} ③ \quad \begin{array}{r} 4 \\ 68 \\ \times 5 \\ \hline 340 \end{array} \\ \quad (60 \times 5) \\ \hline \quad 340 \end{array}$$

- Me āta tūhono te tuhinga ūkawa poto mō te whakarea (nama 3 i runga nei) ki te whakamahinga rauemi me te reo e hāngai ana.

Te Whakawehē

- Me āta tūhono te āhua o ngā tuhinga ūpaki me te tuhinga i te hātepe ūkawa o tētahi whakawehenga. Hei tauira:

$$\begin{array}{r} ① \quad 92 \div 4 = (80 \div 4) + (12 \div 4) \\ \quad = 20 + 3 \\ \quad = 23 \end{array}$$

$$\begin{array}{r} ② \quad 20 + 3 \\ 4) 80 + 12 \\ \hline \end{array}$$

$$\begin{array}{r} ③ \quad 23 \\ 4) 92 \\ \hline \end{array}$$

- I roto i te tuhinga ūkawa poto mō te whakawehē (nama 3 i runga nei), kua wāwāhia tētahi o ngā tekau, ā, kua tāpiria atu ki ngā tahi. Ināianei kua 8 ngā tekau, kua 12 ngā tahi.
- E ai ki ngā rangahau, he āwhina nui te whakaatu i ngā wāwāhitanga katoa o tētahi whakawehenga. Hei tauira, ko te $937 \div 4$:

$$\begin{array}{r} 4) 937 \\ - 400 \quad 100 \\ \hline 537 \\ - 400 \quad 100 \\ \hline 137 \\ - 80 \quad 20 \\ \hline 57 \\ - 40 \quad 10 \\ \hline 17 \\ - 16 \quad 4 \\ \hline 1 \end{array} \quad 234 \uparrow 1$$

Te Mātauranga Matua

Kia noho tangata whenua ki te hinengaro o te ākonga ngā meka whakareatanga matua (tae atu ki te 10×10), me ngā meka whakawehenga e whai pānga ana, kia wawe tonu te whakaputa otinga. Hei tauira, $8 \times 6 = 48$, nō reira, $48 \div 6 = 8$.

He Aromatawai Poto

Tonoa te ākonga kia whakamahi i tētahi momo tuhinga hei whakaoti i ngā rapanga nei:

- E 737 ngā rākau hei ono ki ētahi rārangi e 3, kia ūrite te maha ki ia rārangi. E hia ngā rākau ki ia rārangi?
- E 6 ngā papa o tētahi whare whakatū motukā, 134 ngā motukā ki ia papa. E hia katoa ngā motukā?

Mēnā ka mārama te ākonga ki te whakamahi i te tuhinga ōkawa hei whakaoti i ēnei rapanga, me haere tika ki te wāhanga ‘Te Whakamahi Tikanga Tau’ o tēnei ngohe. Mēnā he ūpaki tonu te tuhituhi a te ākonga, me tirotiro ngā wāhanga katoa o tēnei ngohe.

Rauemi

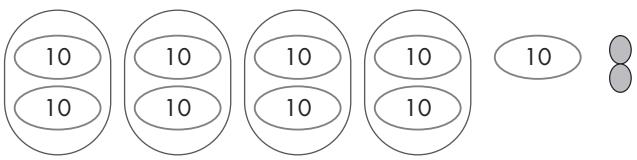
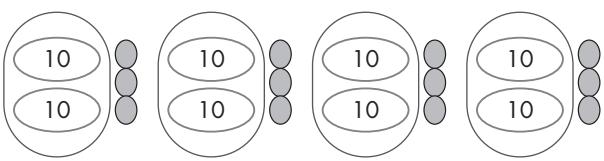
- He rauemi uara tū (pērā i te pīni, te poraka uara tū rānei)
- He ipu aihihikirīmi
- He pepa whakapiri

Te Whakamahi Rauemi

Ngā tohutohu	He tauira kōrero mā te pouako														
Whakaaturia te tuhinga o te hātepe ōkawa hei whakaoti whakareatanga. Āta whakamāramatia ngā hīkoi katoa.	<p>Mēnā he uua rawa tētahi whakareatanga hei whakaoti i rō hinengaro, koia nei tētahi rautaki. Ka kīia ko te tuhinga ōkawa. Ko te 26 whakareatia ki te 7 hei tauira.</p> <p>$\begin{array}{r} 26 \\ \times 7 \\ \hline \end{array}$ ← Ka tuhia te tau nui ki runga, ko te tau iti ki raro. Āta tuhia kia taka ai te 7 ki raro pū i te 6.</p> <p>$\begin{array}{r} 4 \\ 26 \\ \times 7 \\ \hline 2 \end{array}$ ← Tuatahi, ka whakareatia te 6 ki te 7, ka 42. Ka tuhia te 2 (o te 42) ki raro tonu i te 7, nā te mea koirā te mati o ngā tahi. Ka tuhia te 4 (mō te 40) ki te taha runga-matau o te 2 (o te 26).</p> <p>$\begin{array}{r} 4 \\ 26 \\ \times 7 \\ \hline 182 \end{array}$ ← Ināianei, ka whakareatia te 20 ki te 7, ka 140. Ka tāpiria te 40, ka 180. Ka tuhia te 18 ki te wāhi o te otinga, ki te taha mauī o te 2. Ko te 182 te otinga.</p>														
Tonoa ngā ākonga kia whakamahi rauemi hei whakamārama i ngā hīkoi o te tuhinga ōkawa.	<p>Anei ngā rauemi hei whakaatu i ngā 26 e 7.</p> <p style="text-align: center;">$7 \times 20 = 140$</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>10</td><td>10</td><td>10</td><td>10</td><td>10</td><td>10</td><td>10</td> </tr> <tr> <td>10</td><td>10</td><td>10</td><td>10</td><td>10</td><td>10</td><td>10</td> </tr> </table> <p style="text-align: center;">$7 \times 6 = 42$</p> <p>Ka whakareatia te 6 ki te 7, ka 42. Ka whakareatia te 20 ki te 7, ka 140. Ko te ‘2’ anake te mati o ngā tahi. Ka tāpiria te 40 me te 140. Hui katoa, ko te 182.</p>	10	10	10	10	10	10	10	10	10	10	10	10	10	10
10	10	10	10	10	10	10									
10	10	10	10	10	10	10									

Kia pērā anō tā te ākonga whakatauira i te tuhinga ūkawa ki ngā rauemi uara tū mō ēnei whakareatanga:

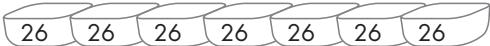
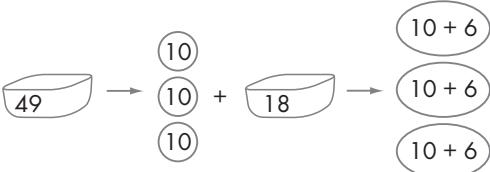
$$37 \times 4 \quad 23 \times 8 \quad 69 \times 3$$

<p>Whakaaturia te tuhinga ūkawa hei whakaoti whakawehenga. Me āta whakamārama ngā hīkoi katoa.</p> <p>$\overline{4)92}$</p> <p>$\frac{2}{4)92}$</p> <p>$\frac{23}{4)92}$</p>	<p>Mēnā he uua rawa tētahi whakawehenga hei whakaoti i rō hinengaro, ko te tuhinga ūkawa tētahi rautaki. Ko te 92 whakawehea ki te 4 hei tauira.</p> <p>Kia pēnei te tuhi. Ka tuhia te tau e whakaweha ana ki roto, ko te tau whakaweha ki te taha mauī. Ka tuhia te otinga ki runga.</p> <p>Tuatahi, ka whakaweha te 90 ki te 4. E 20 ngā 4 kei roto i te 90, ko te 10 e toe mai ana. Ka tuhia te 2 (mō te 20) ki runga ake i te 9 (o te 92). Ka tuhia te 10 e toe ana ki te taha o te 2 (o te 92).</p> <p>Ināianei, ka whakaweha te 12 ki te 4, ka 3. E 3 ngā 4 kei roto i te 12. Ka tuhia te 3 ki te wāhi o te otinga, ki runga ake i te 2 (o te 92). Ko te 23 te otinga.</p>
<p>Tonoa ngā ākonga kia whakamahi rauemi hei whakamārama i ngā hīkoi o te tuhinga ūkawa.</p>	<p>Anei ngā rauemi hei whakaatu i te 92. Ka whakaweha kia 4 ngā rōpū o te 20. Ko te 12 e toe mai ana:</p>  <p>Tohaina te 12 ki ngā rōpū e 4 nei, arā, kia 3 ki ia rōpū. Ināianei, e 23 kei ia rōpū:</p> 
<p>Kia pērā anō tā te ākonga whakatauira i te tuhinga ūkawa ki ngā rauemi uara tū mō ēnei whakawehenga:</p> $78 \div 3 = \square \quad 85 \div 5 = \square \quad 102 \div 6 = \square \quad 198 \div 9 = \square$	

Te Whakaahua ā-Hinengaro

Ngā tohutohu	He tauira kōrero mā te pouako
Aratakina ngā ākonga kia whakaahua ā-hinengaro i ngā rauemi hei whakaata i te tuhinga ūkawa mō te whakarea.	Anei te whakareatanga hei tirotiro mā tātou. Ko tā koutou mahi, he whakaahua ā-hinengaro i ngā hīkoi.

Te Whakaahua ā-Hinengaro

Ngā tohutohu	He tauira kōrero mā te pouako
<p>Whakaaturia ia hīkoi ki te tuhinga ūkawa.</p> $\begin{array}{r} 26 \\ \times 7 \\ \hline 182 \end{array}$	<p>Anei ngā rauemi hei whakaata i te whakareatanga. E 7 ngā rōpū o te 26 kei raro i ngā ipu aihikirīmi nei:</p>  <p>He aha te whārite e hāngai ana? 26×7.</p> <p>He aha te hīkoi tuatahi hei whakaoti i te whakareatanga nei? Ka wāwāhia ngā 26 ki ngā tekau me ngā tahi, arā, ko te 20 me te 6. Whakareatia te 6 ki te 7, ka 42.</p> <p>He aha te mahi ināianei? Whakareatia te 20 ki te 7, ka 140. Tāpiria te 140 me te 40, ka 180. Hui katoa ko te 182.</p>
<p>Aratakina ngā ākonga kia whakaahua ā-hinengaro i ngā rauemi hei whakaata i te tuhinga ūkawa mō te whakawehē.</p> <p>Whakaaturia ia hīkoi ki te tuhinga ūkawa.</p> $\begin{array}{r} 16 \\ 3)48 \\ \hline \end{array}$	<p>E 48 ngā pīni kei raro i te ipu aihikirīmi. E hia ngā rōpū pīni o te 10? E 4 ngā rōpū o te 10.</p> <p>E hia ngā pīni takitahi? E 8.</p> <p>Ko tā tātou mahi, he whakawehē i te 48 nei ki ētahi rōpū e 3.</p>  <p>He aha te hīkoi tuatahi hei whakaoti i te whakawehē enga nei? Ka whakawehēa ngā 10 e 4 ki ngā rōpū e 3. Kotahi te 10 ki ia rōpū, ko te 10 me te 8 ka toe mai.</p> <p>He aha te mahi ināianei? Whakawehēa te 18 ki ngā rōpū e 3. Ko te 6 ki ia rōpū. Hui katoa ko te 16 ki ia rōpū.</p> 

Kia pērā anō te mahi hei arataki i ngā ākonga kia whakaahua ā-hinengaro i ngā rauemi hei whakaata i te tuhinga ūkawa o ēnei whakareatanga me ēnei whakawehenga:

$$\begin{array}{r} 36 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 47 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 29 \\ \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} 34 \\ \times 6 \\ \hline \end{array}$$

$$\begin{array}{r} 17 \\ \times 9 \\ \hline \end{array}$$

$$\begin{array}{r} 23 \\ \times 7 \\ \hline \end{array}$$

$$4\overline{)96}$$

$$5\overline{)125}$$

$$3\overline{)81}$$

$$6\overline{)162}$$

$$8\overline{)256}$$

$$9\overline{)477}$$

Te Whakamahi Tikanga Tau

Tonoa ngā ākonga kia whakamahi i te tuhinga ūkawa hei whakaoti i ngā whakareatanga me ngā whakawehenga nei. Mā rātou anō e tuhi he pakitau e hāngai ana ki tēnā, ki tēnā:

$$\begin{array}{r} 547 \\ \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} 609 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 374 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 875 \\ \times 6 \\ \hline \end{array}$$

$$\begin{array}{r} 1,257 \\ \times 9 \\ \hline \end{array}$$

$$\begin{array}{r} 2,503 \\ \times 7 \\ \hline \end{array}$$

$$5\overline{)390}$$

$$2\overline{)1,748}$$

$$3\overline{)5,310}$$

$$4\overline{)6,060}$$

$$8\overline{)1,856}$$

$$9\overline{)4,770}$$

Whakareatanga Whakawhiti

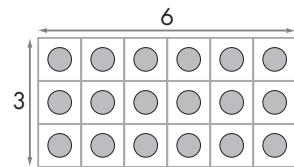
Mahere Tau | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8

Whanaketanga | 1a | 1e | 2a | 2e | 3a | 3e | 4a | 4e | 5a

E ako ana ahau ki te whakarea tauoti mati-maha.

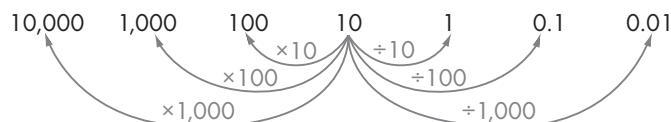
He Whakaaro Matua

- Ko te tūtohi tukutuku tētahi horopaki mō te whakarea. Ko te maha o ngā mea kei ngā tapa e rua o tētahi tūtohi tukutuku (te roa me te whānui rānei o te tūtohi tukutuku) hei tohu i ngā tau o roto i tētahi whakareatanga. Hei tauira, ko te 6×3 : →
- Ko te ‘Tūtohi Tukutuku Iraira’ (Whārangi Tārua 6-10) tētahi rauemi hei tūhura i tēnei horopaki mō te whakarea. Me tīmata ki ngā whakareatanga mati-tahi. Kia taunga rā anō te ākonga ki te whakamahi i te tūtohi tukutuku iraira, kātahi ka tūhura i te whakareatanga o ngā tau mati-maha. He āwhina nui te tuhi i ngā tau e whakareatia ana ki ngā tapa o te tūtohi.
- He tino whaihua ngā tikanga uara tū o te pūnaha tau ngahuru:
 - He taupū o te 10 ngā wāhi uara tū:



	10 mano	mano	rau	tekau	tahi	•	hautekau	haurau	
	10,000	1,000	100	10	1	.	$\frac{1}{10}$	$\frac{1}{100}$	
	$10 \times 10 \times 10 \times 10$	$10 \times 10 \times 10$	10×10	10	1	.	10^{-1}	10^{-2}	
	10^4	10^3	10^2	10^1	10^0	.			

- Ina whakareatia tētahi wāhi uara tū ki te 10, kua neke ki te wāhi uara tū ki te taha mauī.
- Ina whakawehea tētahi wāhi uara tū ki te 10, kua neke ki te wāhi uara tū ki te taha matau.



- Ina whakareatia, whakawehea rānei ētahi taupū o te 10, ko tētahi atu taupū o te 10 te otinga. Hei tauira:

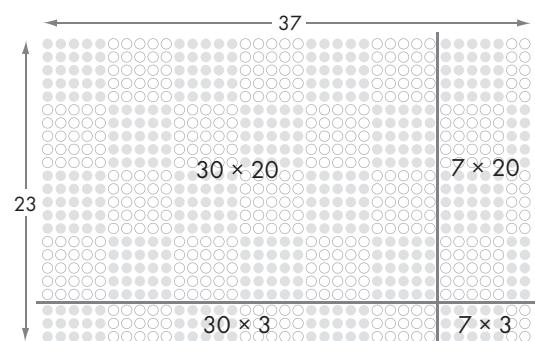
$$100 \times 100 = 10,000 \quad (10^2 \times 10^2 = 10^4)$$

$$100 \div 1,000 = 0.1 \quad (10^2 \div 10^3 = 10^{-1})$$

Ko tā te tūtohi tukutuku, he āwhina i te ākonga kia mārama ki te rautaki wāwāhi uara tū mō te whakarea. Hei tauira:

$$37 \times 23 = (30 \times 20) + (30 \times 3) + (7 \times 20) + (7 \times 3)$$

$$37 \times 23 = (37 \times 20) + (37 \times 3)$$



- He āwhina nui te tuhi i te wāwāhitanga uara tū o tētahi whakareatanga. Hei tauira:

$$\begin{array}{r} \times \quad 30 \quad 7 \\ 20 \quad 600 \quad 140 = 740 \\ 3 \quad 90 \quad 21 = \underline{111} \\ \hline 851 \end{array}$$

- He āwhina nui te whakaatu i ngā wāhanga katoa o tētahi whakareatanga, e mārama ai te ākonga ki te tuhinga ūkawa poto ā tōna wā:

$$\begin{array}{r} 23 \\ \times 37 \\ \hline 21 \quad (7 \times 3) \\ 140 \quad (7 \times 20) \\ 90 \quad (30 \times 3) \\ 600 \quad (30 \times 20) \\ \hline 851 \end{array} \quad \begin{array}{r} 23 \\ \times 37 \\ \hline 161 \quad (7 \times 23) \\ 690 \quad (30 \times 23) \\ \hline 851 \end{array}$$

Te Mātauranga Matua

Kia noho tangata whenua ki te hinengaro o te ākonga ngā meka whakareatanga matua (tae atu ki te 10×10), me ngā meka whakawehenga e whai pānga ana, kia wawe tonu te whakaputa otinga. Hei tauira, $8 \times 6 = 48$, nō reira, $48 \div 6 = 8$.

He Aromatawai Poto

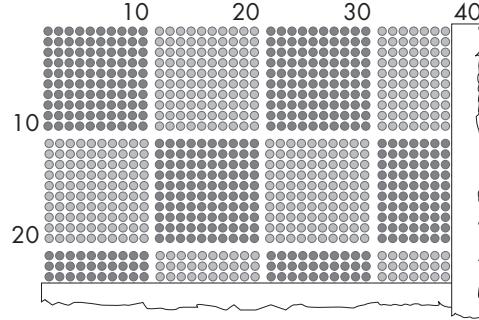
Hei tauira pātai: 33×18

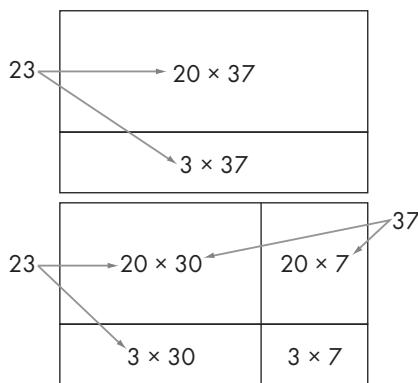
Mēnā e mārama ana te ākonga ki te tuhinga ūkawa mō ngā whakareatanga pēnei, me piki ia ki ngā rapanga whakarea e whai wāhi mai ana ngā tauwehe mati-3.

Rauemi

- He Tūtohi Tukutuku Iraira (Rauemi Tārua 6-10)

Te Whakamahi Rauemi

Ngā tohutohu	He tauira kōrero mā te pouako
<p>Hoatu he Tūtohi Tukutuku Iraira (Rauemi Tārua 6-10) ki ia ākonga.</p> <p>Aratakina ngā ākonga kia whakamahi i te Tūtohi Tukutuku Iraira hei wāwāhi i te whakareatanga 23×37, hei whiriwhiri i te otinga.</p> <p>Whakamāramahia te wāwāhitanga o ngā tau whakarea ki ngā tekau me ngā tahī.</p>	<p>Koinei te whakareatanga hei whakaotī mā tātou: 23×37. Whakaaturia tēnei whakareatanga ki te ‘Tūtohi Tukutuku Iraira.’ Kia 23 ngā pou, kia 37 ngā kapa.</p>  <p>Wāwāhia te whakareatanga ki ētahi whakareatanga māmā. Tuhia he whārite mō ia whakareatanga māmā.</p>



Hei tauira whakautu:

E tino hono ana ngā wāwāhitanga e rua nei. Arā:

$$20 \times 37 = (20 \times 30) + (20 \times 7)$$

$$3 \times 37 = (3 \times 30) + (3 \times 7)$$

He whakaaturanga anō tēnei i te wāwāhitanga o tēnei whakareatanga.

	$\begin{array}{r} 20 \times 30 = 600 \\ 3 \times 30 = 90 \\ 20 \times 7 = 140 \\ 3 \times 7 = 21 \\ \hline 851 \end{array}$
--	---

Kua wāwāhia te 23 me te 37 ki ngā tekau me ngā tahi. Ka whakareatia ia wāhanga o te tau tuatahi ki ia wāhanga o te tau tuarua. Kātahi ka tāpiria ngā otinga o ia whakareatanga.

Kia pērā anō te whakamahi i te ‘Tūtohi Tukutuku Iraira’ me te whakaatu i te wāwāhitanga o ngā tau whakarea mō ēnei whakareatanga:

$$42 \times 15$$

$$26 \times 24$$

$$18 \times 33$$

$$45 \times 35$$

Te Whakaahua ā-Hinengaro me Te Tikanga Tau

Aratakina ngā ākonga kia whakaahua ā-hinengaro i te ‘Tūtohi Tukutuku Iraira’ hei whakaata i te whakareatanga, me te wāwāhi i ngā tau whakarea ki ngā tekau me ngā tahi. He pai te tuhi i ngā otinga o ia wāhanga o te whakareatanga ki te papa tuhituhi, ki te pukapuka rānei, nā te mea he uaua kia mau tonu ki roto i te hinengaro. Kia pēnei pea te whakaatu i te wāwāhitanga me ngā otinga: 28×17

Hei tauira whakareatanga:

$$28 \times 17 = \square$$

$$19 \times 43 = \square$$

$$34 \times 22 = \square$$

$$40 \times 34 = \square$$

$$173 \times 26 = \square$$

Hei Mahi Atu Anō

Tirohia te akoranga matihiko ‘Papa Whakarea’ kei te pae tukutuku o www.nzmaths.co.nz, hei whakaū i tēnei mahi.

Whakawehea ki te Iwa, ki te Toru rānei

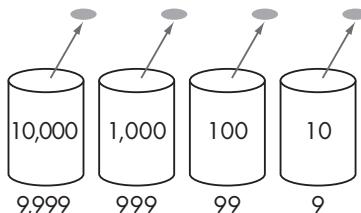
Mahere Tau | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |

Whanaketanga | 1a | 1e | 2a | 2e | 3a | 3e | 4a | 4e | 5a |

E ako ana ahau ki te whakatau mēnā e taea ana tētahi tau te whakawehe pū ki te iwa, ki te toru rānei.

He Whakaaro Matua

- He hātepe noa iho ngā ‘ture whakawehe’ mō tētahi tau, e kitea wawe ai mēnā e taea ana tētahi tau te whakawehe pū ki tētahi atu tau. Hei tauira, mō ngā taurua katoa, ko te 2, te 4, te 6, te 8, te 0 rānei te mati tahi, nō reira, e taea ana te whakawehe pū ki te 2, kāore he toenga.
- E taea ana te 3,576 te whakawehe pū ki te 2, nō reira, he ‘tauwehe’ te 2 o te 3,576. He ‘taurea’ te 3,576 o te 2.
- Ka whakamahia te rautaki wāwāhi uara tū hei tūhura i ngā ture whakawehe mō te 3 me te 9. Ki te tangohia te tahi i tētahi taupū o te 10, ka taea taua tau te whakawehe pū ki te 3 me te 9.



Ka taea ēnei tau katoa te whakawehe pū ki te 3 me te 9.

- Arā anō ngā ‘ture whakawehe’ mō te 4, te 5, te 6, te 7 me te 8. He māmā noa iho te tiki atu i ngā whakamāramatanga mō ēnei ture i te ipurangi (‘divisibility rules’). Tirohia hoki *Tē Poutama Tau, Pukapuka Tuawaru: Te Tau me te Whakaaro Taurangi*.

Te Mātauranga Matua

Kia noho tangata whenua ki te hinengaro o te ākonga ngā meka whakareatanga matua (tae atu ki te 10×10), me ngā meka whakawehenga e whai pānga ana, kia wawe tonu te whakaputa otinga. Hei tauira, $8 \times 6 = 48$, nō reira, $48 \div 6 = 8$.

He Aromatawai Poto

Hei tauira pātai:

- Ka taea te 5,688 te whakawehe pū ki te 9, kāore rānei?
- Ka taea te 4,146 te whakawehe pū ki te 3, kāore rānei?

Mēnā e taunga ana te ākonga ki te whakamahi i ngā ‘ture whakawehe’ hei whakaoti i ēnei pātai, me haere ia ki te tūhura i ētahi atu ‘ture whakawehe’ (tirohia *Tē Poutama Tau, Pukapuka Tuawaru: Te Tau me te Whakaaro Taurangi*).

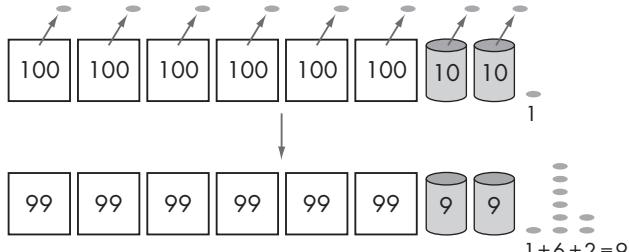
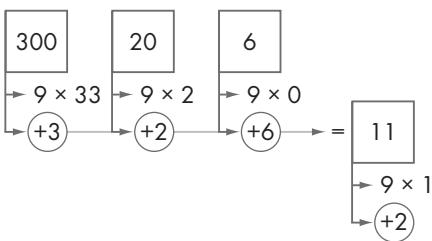
Rauemi

- He rauemi uara tū (pērā i te pīni)
- He anga tekau wātea (Rauemi Tārua 4-6)
- He ipu aihikirīmi

Te Whakamahi Rauemi

Ngā tohutohu	He tauira kōrero mā te pouako
<p>Tonoa ngā ākonga kia whakahua i ētahi tau e taea ana te whakawehē pū ki te 9. Tuhia ēnei tau ki te papa tuhituhi, ka whakaatu ai ki ngā rauemi uara tū (pīni).</p> <p>Aratakina ngā ākonga kia tirotiro mēnā e taea ana tētahi tau te whakawehē pū ki te 9.</p> <p>Diagram illustrating the exchange of 3 tens (10) for 3 ones (9). On the left, three base ten blocks (each representing 10) are shown with arrows pointing to them and the number 6 below. An arrow points from these to three base ten blocks (each representing 9) on the right, with the equation $6 + 3 = 9$ below. Arrows also point from the 9 blocks back to the text above.</p>	<p>He aha ētahi whakareatanga matua o te 9?</p> $9 \times 3 = 27$ $9 \times 4 = 36$ $9 \times 6 = 54$ <p>Ka taea te 27, te 36 me te 54 te whakawehē pū ki te 9, arā, kāore he toenga o te whakawehenga. He aha ētahi atu tau e taea ana te whakawehē pū ki te 9?</p> <p>Ko te 45, te 81, te 90, te 900 ...</p> <p>Anei ngā rauemi uara tū hei whakaatu i te 36. E 3 ngā ipu, 10 ngā pīni kei roto i ia ipu, me ngā pīni takitahi e 6. Mēnā ka tangohia tētahi pīni i ia ipu, e 9 ka toe mai ki ia ipu. Tāpiria ngā pīni e 3 i tangohia atu ki ngā pīni takitahi e 6 ($3 + 6$), ka 9 anō. Nō reira, e taea ana te 36 te whakawehē pū ki te 9.</p> <p>Anei ngā rauemi uara tū hei whakaatu i te 54. E 5 ngā ipu, 10 ngā pīni kei roto i ia ipu, me ngā pīni takitahi e 4. Mēnā ka tangohia tētahi pīni i ia ipu, e 9 ka toe mai ki ia ipu. Tāpiria ngā pīni e 5 i tangohia atu ki ngā pīni takitahi e 4 ($5 + 4$), ka 9 anō. Nō reira, e taea ana te 54 te whakawehē pū ki te 9.</p> <p>Diagram illustrating the exchange of 5 tens (10) for 4 ones (9). On the left, five base ten blocks (each representing 10) are shown with arrows pointing to them and the number 4 below. An arrow points from these to four base ten blocks (each representing 9) on the right, with the equation $5 + 4 = 9$ below. Arrows also point from the 9 blocks back to the text above.</p> <p>Diagram illustrating the exchange of 2 tens (10) for 5 ones (9). On the left, two base ten blocks (each representing 10) are shown with arrows pointing to them and the number 5 below. An arrow points from these to five base ten blocks (each representing 9) on the right, with the equation $2 + 5 = 7$ below. Arrows also point from the 9 blocks back to the text above.</p>
<p>Kia pērā anō te whakatauira i ētahi atu tau me te whakatau āe rānei e taea ana te whakawehē pū ki te 9. Whakawhitiwhiti kōrero mō te tauira e puta mai ana, arā, mēnā ko te 9 te tapeke o ngā mati o tētahi tau, e taea ana taua tau te whakawehē pū ki te 9. Hei tauira:</p> <p>162: $1 + 6 + 2 = 9$, nō reira, e taea ana te 162 te whakawehē pū ki te 9</p> <p>414: $4 + 1 + 4 = 9$, nō reira, e taea ana te 414 te whakawehē pū ki te 9</p> <p>323: $3 + 2 + 3 = 8$, nō reira, kāore e taea ana te 323 te whakawehē pū ki te 9</p>	

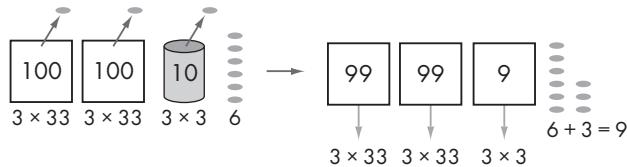
Te Whakaahua ā-Hinengaro

Ngā tohutohu	He tauira kōrero mā te pouako
<p>Aratakina ngā ākonga kia whakaahua ā-hinengaro i ngā rauemi hei whakaata i tētahi tau, me te whakatau āe rānei e taea ana taua tau te whakawehē pū ki te 9.</p>	<p>Kei raro i tēnei ipu aihikirīmi ngā pīni hei whakaatu i te tau 621. E hia ngā 9 kei roto i ngā rau e 6?</p> <p>11 ngā 9 kei roto i ia rau, nō reira, e 66 ngā 9 kei roto i te 600.</p> <p>E hia ngā pīni e toe mai ana?</p> <p>E 6. Arā te whārite: $600 = (6 \times 99) + 6$ $= (6 \times 11 \times 9) + 6$ $= (66 \times 9) + 6$</p> <p>E hia ngā 9 kei roto i ngā 10 e rua?</p> <p>E 2 ngā 9 kei roto i te 20. E 2 ka toe mai.</p> <p>E hia katoa ngā pīni takitahi ināianei?</p> <p>E 9.</p> <p>Nō reira, e hia katoa ngā 9 kei roto i te 621?</p> <p>Tāpiria te 66, te 2 me te 1, ka 69.</p> <p>Koinei te whārite: $621 \div 9 = 69$</p> 
<p>Aratakina ngā ākonga kia whakawehē i tētahi tau ki te 9.</p> 	<p>Kei raro anō i te ipu aihikirīmi nei ngā pīni hei whakaatu i te 326. E hia ngā 9 ka taea te whakawehē ki roto i te 326, e hia atu anō ka toe mai?</p> <p>11 ngā 9 kei roto i ia rau, ko te 33 tēnā, e 3 ka toe mai. E 2 ngā 9 kei roto i te 20, e 2 ka toe mai. 11 ngā pīni takitahi katoa, nō reira, kotahi anō te 9, me te 2 e toe mai ana. Hui katoa, ko te 33, te 2 me te 1, ka 36 ngā 9, e 2 ka toe mai.</p>
<p>Kia maha tonu ngā tauira hei mahi mā ngā ākonga kia tino mau i a rātou te tikanga nei mō te whakawehē i tētahi tau ki te 9.</p>	

Tonoa ngā ākonga kia āta whakaaro i tētahi rautaki hei whakatau mēnā e taea ana tētahi tau te whakawehe pū ki te 3.

He aha tētahi rautaki kia mōhiotia ai mēnā e taea ana tētahi tau te whakawehe pū ki te 3?

Whakatauiratia te tau ki ngā rauemi uara tū. Hei tauira, ko te 216.



E 33 ngā 3 kei roto i ia rau, e 2 ka toe mai. E 3 ngā 3 kei roto i te 10, kotahi ka toe mai. E 9 katoa ngā pīni takitahi ināianei. E 3 ngā 3 kei roto i te 9. Hui katoa, ko te $33 + 33 + 3 + 3$, arā, e 72 ngā 3 kei roto i te 216.

Kia pērā anō te arataki i ngā ākonga kia tirotiro mēnā e taea ana ētahi atu tau te whakawehe pū ki te 3.

Te Whakaahua ā-Hinengaro me te Tikanga Tau

Tukuna mā ngā ākonga e whiriwhiri:

852 1,008 666 2,074 5,688 6,251 ...

1. Mēnā e taea ana ēnei tau te whakawehe pū ki te 9.
2. Mēnā e taea ana ēnei tau te whakawehe pū ki te 3.
3. E hia ngā 9 kei roto i te tau, e hia ka toe mai?
4. E hia ngā 3 kei roto i te tau, e hia ka toe mai?

He Taupū

Mahere Tau | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |

Whanaketanga | 1a | 1e | 2a | 2e | 3a | 3e | 4a | 4e | 5a |

E ako ana ahau ki te whakaoti rapanga whakarea e whai wāhi mai ana te taupū.

He Whakaaro Matua

- He whaihua te tikanga taupū hei whakaatu whakareatanga tāruarua. Hei tauira:

$$3^4 = 3 \times 3 \times 3 \times 3 = 81$$

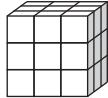
$$10^5 = 10 \times 10 \times 10 \times 10 \times 10 = 100,000$$

- He whaihua te whakaatu i ngā tau pūrua hei tapawhā rite. Hei tauira:



$$3^2 = 9 \text{ (ko te 9 te pūrua o te 3)}$$

- He whaihua te whakaatu i ngā tau pūtoru hei mataono rite. Hei tauira:



$$3^3 = 27 \text{ (ko te 27 te pūtoru o te 3)}$$

- Mā te āta tirotiro i ngā tauira o te taupū e mōhio ai te ākonga ki te tikanga o te pūtahi me te pūkore. Hei tauira:

$$\begin{array}{ccccc} 4^3 & 4^2 & 4^1 & 4^0 & 4^{-1} \\ 4 \times 4 \times 4 & 4 \times 4 & 4 & 1 & \frac{1}{4} \\ 64 & 16 & 4 & 1 & \frac{1}{4} \end{array}$$

Te Mātauranga Matua

Kia noho tangata whenua ki te hinengaro o te ākonga ngā meka whakareatanga matua (tae atu ki te 10×10), me ngā meka whakawehenga e whai pānga ana, kia wawe tonu te whakaputa otinga. Hei tauira, $8 \times 6 = 48$, nō reira, $48 \div 6 = 8$.

He Aromatawai Poto

Hei tauira pātai:

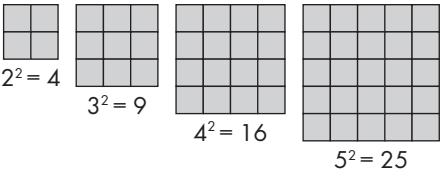
- $2^6 = \square$. Pūonotia te 2, ka hia? Tuhia te katoa o te whakareatanga. Whakaotia ki rō hinengaro.
- $3^3 = 27$, $3^4 = 81$. Nō reira, he aha te taupū o te 3 hei whakaoti i te whakareatanga 27×81 ? ($3^3 \times 3^4 = 3^7$)
- $4^5 = 1,024$, $4^3 = 64$. Nō reira, whakamahia te taupū hei whakaoti i te whakawehenga $1,024 \div 64$. ($1,024 \div 64 = 4^5 \div 4^3 = 4^2 = 16$)

Mēnā e taunga ana te ākonga ki te whakamahi taupū hei whakaoti i ngā rapanga pēnei, me haere tika ki te wāhangā ‘Te Whakamahi Tikanga Tau’ o tēnei ngohe.

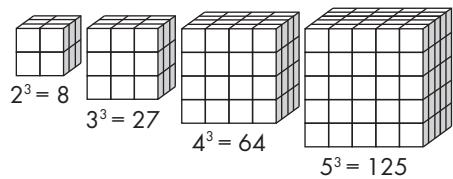
Rauemi

- He poraka honohono
- He tātaitai

Te Whakamahi Rauemi

Ngā tohutohu	He tauira kōrero mā te pouako										
<p>Whakamahia he poraka honohono hei hanga i ētahi tapawhā rite. Kia 2 mā te 2, kia 3 mā te 3, kia 4 mā te 4, kia 5 mā te 5 te rahi o ēnei tapawhā rite.</p>  <p>$2^2 = 4$ $3^2 = 9$ $4^2 = 16$ $5^2 = 25$</p> <p>Whakawhitihiti kōrero mō te tikanga o te pūrua, me te tātai i te pūrua o tētahi tau.</p>	<p>Titiro ki ngā tapawhā rite nei. He aha tētahi rautaki hei tātai i te maha o ngā poraka ki ia tapawhā rite?</p> <p>E 2 ngā poraka ki ia tapa, nō reira, whakareatia te 2 ki te 2. Koinei ngā whārite mō ia tapawhā rite:</p> <p>$2 \times 2 = 4$ $3 \times 3 = 9$ $4 \times 4 = 16$ $5 \times 5 = 25$</p> <p>E pēnei ana te tuhinga whakapoto mō ēnei whakareatanga:</p> <p>$2 \times 2 = 2^2 = 4$ $3 \times 3 = 3^2 = 9$ $4 \times 4 = 4^2 = 16$ $5 \times 5 = 5^2 = 25$</p> <p>Ko te pūrua te ingoa o tēnei tohu. Ka kīia, ko te 4 te pūrua o te 2. Ko te 9 te pūrua o te 3. He aha te pūrua o te 6? Ko te 36. Whakareatia te 6 ki te 6.</p>										
<p>Whakawhitihiti kōrero mō te pūtakerua.</p>	<p>Whakaurua te 9 ki te tātaitai. Pēhia te pātuhi ‘√’. He aha te tau ka puta?</p> <p>Ko te 3.</p> <p>Whakaurua te 16. Pēhia te pātuhi ‘√’. He aha te tau ka puta?</p> <p>Ko te 4.</p> <p>He aha te mahi a tēnei pātuhi?</p> <p>Ko te tau ka whakaurua ki te tātaitai, koirā te maha o ngā poraka ki tētahi tapawhā rite. Ko tā te pātuhi ‘√’, he tātai i te maha o ngā poraka ki ia taha.</p> <p>Ko te pūtakerua te ingoa o tēnei tohu. Ka kīia ko te 3 te pūtakerua o te 9. Ko te 4 te pūtakerua o te 16. He aha te pūtakerua o te 25?</p> <p>Ko te 5.</p> <p>He aha te pūtakerua o te 100?</p> <p>Ko te 10. Whakareatia te 10 ki te 10, ka 100.</p> <p>E tino hono ana te pūrua me te pūtakerua. Ko tētahi te kōaro o tētahi:</p> <table style="margin-left: auto; margin-right: auto;"> <tr> <td>$2^2 = 4$</td> <td>$\sqrt{4} = 2$</td> </tr> <tr> <td>$3^2 = 9$</td> <td>$\sqrt{9} = 3$</td> </tr> <tr> <td>$4^2 = 16$</td> <td>$\sqrt{16} = 4$</td> </tr> <tr> <td>$5^2 = 25$</td> <td>$\sqrt{25} = 5$</td> </tr> <tr> <td>$10^2 = 100$</td> <td>$\sqrt{100} = 10$</td> </tr> </table>	$2^2 = 4$	$\sqrt{4} = 2$	$3^2 = 9$	$\sqrt{9} = 3$	$4^2 = 16$	$\sqrt{16} = 4$	$5^2 = 25$	$\sqrt{25} = 5$	$10^2 = 100$	$\sqrt{100} = 10$
$2^2 = 4$	$\sqrt{4} = 2$										
$3^2 = 9$	$\sqrt{9} = 3$										
$4^2 = 16$	$\sqrt{16} = 4$										
$5^2 = 25$	$\sqrt{25} = 5$										
$10^2 = 100$	$\sqrt{100} = 10$										

Hangaia ētahi mataono rite ki ngā poraka honohono, ka whakawhitihitiki kōrero ai mō te pūtoru.

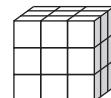


Titiro ki ngā mataono rite nei. Me pēhea te tātai i te maha o ngā poraka o ia mataono rite?

E 2 ngā poraka ki ia tapa, nō reira, $2 \times 2 = 4$ ngā poraka o te paparanga tuatahi. E 2 ngā paparanga, nō reira, $4 \times 2 = 8$ ngā mataono rite katoa. Arā te whārite: $2 \times 2 \times 2 = 8$.



E 3 ngā poraka ki ia tapa, nō reira, $3 \times 3 = 9$ ngā poraka o te paparanga tuatahi. E 3 ngā paparanga, nō reira, $9 \times 3 = 27$ ngā mataono rite katoa. Arā te whārite: $3 \times 3 \times 3 = 27$.



E pēnei ana te tuhinga whakapoto mō ēnei whakareatanga:

$$2 \times 2 \times 2 = 2^3 = 8$$

$$3 \times 3 \times 3 = 3^3 = 27$$

$$4 \times 4 \times 4 = 4^3 = 64$$

$$5 \times 5 \times 5 = 5^3 = 125$$

Ko te pūtoru te ingoa o tēnei tohu. Ka kīia, ko te 8 te pūtoru o te 2. Ko te 27 te pūtoru o te 3. He aha te pūtoru o te 6?

Ko te $6 \times 6 \times 6$ te whārite:

$$\begin{aligned} 6 \times 6 \times 6 &= 36 \times 6 \\ &= (30 \times 6) + (6 \times 6) \\ &= 180 + 36 \\ &= 216 \end{aligned}$$

Te Whakaahua ā-Hinengaro

Ngā tohutohu	He tauira kōrero mā te pouako
<p>Tonoa ngā ākonga kia whakaahua i ngā hanganga poraka mō ēnei whārite:</p> $8^2 = 64$ $100^2 = 10,000$ $6^3 = 216$ $10^3 = 1,000$ $\sqrt{400} = 20$ $\sqrt{81} = 9$	<p>Pēhea nei te āhua o te hanganga poraka hei whakaata i te whārite nei, te $8^2 = 64$?</p> <p>He tapawhā rite te āhua, e 8 ngā poraka ki ia tapa, e 64 ngā poraka katoa.</p>

Te Whakamahi Tikanga Tau

Tuhia te tūtohi nei ki te papa tuhituhi, e whakaatu ana i ngā taupū o te 2. Koinei ngā whārite hei tātai i ngā taupū o te 2. Ko te taupū hei tohu i te maha o ngā whakareatanga:

$$2^2 = 2 \times 2$$

$$2^3 = 2 \times 2 \times 2$$

$$2^4 = 2 \times 2 \times 2 \times 2$$

$$2^5 = 2 \times 2 \times 2 \times 2 \times 2$$

Tonoa mā ngā ākonga e tātai ā-hinengaro ngā taupū nei:

Te taupū	2^0	2^1	2^2	2^3	2^4	2^5	2^6	2^7	2^8	2^9	2^{10}
Te uara			4	8	16	32	64	128	256	512	1024

E pēnei ana te tauira o ngā taupū i te tūtohi nei. Rearuatia te tau i te taha mauī. Hauruatia te tau i te taha matau:

2^4	2^5	2^6
16	32	64

Mā te whai tonu i tēnei tauira e tātaihia ai te 2^0 me te 2^1 . Arā:

$$2^1 = 2 \text{ (hauruatia te 4)}$$

$$2^0 = 1 \text{ (hauruatia te 2)}$$

Tūhurangia ngā tikanga nei o te taupū:

$$8 \times 32 = 256$$

$$256 \div 8 = 32$$

$$2^3 \times 2^5 = 2^8 \quad (2^3 \times 2^5 = 2^{3+5})$$

$$2^8 \div 2^3 = 2^5 \quad (2^8 \div 2^3 = 2^{8-3})$$

Kia pērā anō te mahi hei tūhura i ngā taupū o te 3:

Te taupū	3^0	3^1	3^2	3^3	3^4	3^5	3^6	3^7	3^8	3^9	3^{10}
Te uara	1	3	9	27	81	243	729	2,187	6,561	19,683	59,049

$$81 \times 27 = 2,187$$

$$6,561 \div 27 = 243$$

$$3^4 \times 3^3 = 3^7 \quad (3^4 \times 3^3 = 3^{4+3})$$

$$3^8 \div 3^3 = 3^5 \quad (3^8 \div 3^3 = 3^{8-3})$$



Te Wāwāhi Tau Whakarea → Te Wāwāhi Tau Pānga Riterite Kaupae 7 → Kaupae 8



Mahere Tau	0	1	2	3	4	5	6	7	8
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Whanaketanga	1a	1e	2a	2e	3a	3e	4a	4e	5a
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Mātauranga Matua hei Ako

Koia nei te mātauranga hei ako i tēnei kaupae, i te wā e whanake ana te mōhio o te ākonga ki ngā momo rautaki whakarea, whakawehe hoki:

- Te tauwehe pātahi me te tauwehe pātahi nui rawa. (Tirohia: *Te Poutama Tau, Pukapuka Tuawaru: Te Tau me te Whakaaro Taurangi.*)
- Te taurea pātahi iti rawa o ngā tau 1 – 10. (Tirohia: *Te Poutama Tau, Pukapuka Tuawaru: Te Tau me te Whakaaro Taurangi.*)
- Ngā ‘ture whakawehe’ mō te 4, te 6 me te 8. (Tirohia: *Te Poutama Tau, Pukapuka Tuawaru: Te Tau me te Whakaaro Taurangi.* Me te Whārangi Tārua 8-21)

Mā te Tauwehe

Mahere Tau | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |

Whanaketanga | 1a | 1e | 2a | 2e | 3a | 3e | 4a | 4e | 5a |

E ako ana ahau ki te whakaoti rapanga whakarea, rapanga whakawehi hoki mā te whakamahi tauwehe.

He Whakaaro Matua

He tino whaihua te whakamahi tikanga tauwehe hei whakaoti whakareatanga, whakawehenga rānei, e whai wāhi mai ana ngā tau mati-maha. Hei tauira:

$$\begin{aligned} 216 \div 12 &= 216 \div 2 \div 2 \div 3 \text{ (ko te 2, te 2 me te 3 ngā tauwehe toitū o te 12)} \\ &= 108 \div 2 \div 3 \\ &= 54 \div 3 \\ &= 18 \end{aligned}$$

Te Mātauranga Matua

- Kia noho tangata whenua ki te hinengaro o te ākonga ngā meka whakareatanga matua (tae atu ki te 10×10), me ngā meka whakawehenga e whai pānga ana, kia wawe tonu te whakaputa otinga. Hei tauira, $8 \times 6 = 48$, nō reira, $48 \div 6 = 8$.
- Kia mōhio te ākonga ki ngā tauwehe o ngā tau tae atu ki te 100. Hei tauira, ko ngā tauwehe o te 81: {1, 3, 9, 27, 81}

He Aromatawai Poto

Hei tauira pātai: $1,536 \div 24$

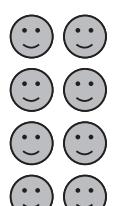
Tonoa te ākonga kia whakamārama i āna rautaki. Mēnā e taunga ana ia ki te whakamahi tikanga tauwehe hei whakaoti i ngā whakareatanga pēnei, me haere tika ia ki te wāhanga ‘Te Whakamahi Tikanga Tau’ o tēnei ngohe. Hei tauira:

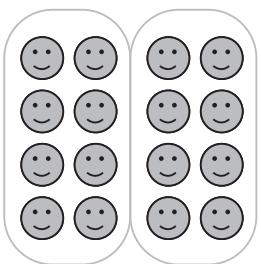
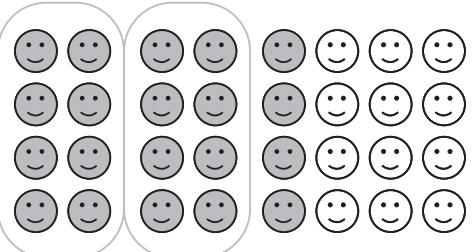
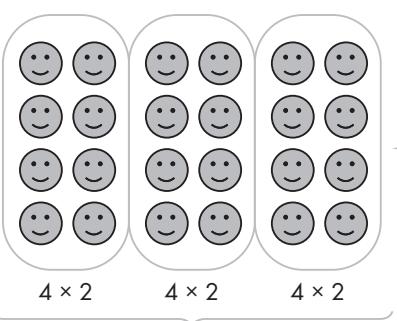
$$\begin{aligned} 1,536 \div 24 &= 1,536 \div 3 \div 2 \div 2 \div 2 \\ &= 512 \div 2 \div 2 \div 2 \\ &= 256 \div 2 \div 2 \\ &= 128 \div 2 \\ &= 64 \end{aligned}$$

Rauemi

- Papa Mata Rau (Rauemi Tārua 6-5)
- Tarapeke Tauwehe (Rauemi Tārua 6-11)

Te Whakamahi Rauemi

Ngā tohutohu	He tauira kōrero mā te pouako
Hoatu he Papa Mata Rau (Rauemi Tārua 6-5) ki ia ākonga, ka tono ai kia whakaaturia ēnei whakareatanga, me te tuhi anō i ngā whārite e hāngai ana.	<p>Titiro ki te rārangī mai o ēnei mata. E whā ngā mata harikoa kei ia pou. He aha te whakareatanga e hāngai ana?</p> <p>Ko te 4×2 te whakareatanga.</p> 

	<p>Ka rearuatia ēnei rōpū o ngā mata. He aha te whakareatanga ināianei?</p> <p>Ko te $4 \times 2 \times 2$. He rite tonu ki te 4×4.</p> <p>Ka rearuatia ēnei rōpū o ngā mata. He aha te whakareatanga e hāngai ana?</p>  <p>Ko te $4 \times 2 \times 2 \times 2$. Hui katoa, ko te 4×8.</p>
<p>Whakamāramatia te wāhi ki ngā tauwehe i ēnei whakareatanga.</p>	<p>Titiro ki ngā whakareatanga nei:</p> $4 \times 8 = 32 \quad 4 \times 2 \times 2 \times 2 = 32$ <p>He tauwehe te 2 o te 8. He ūrite te $2 \times 2 \times 2$ ki te 8.</p>
<p>Kia pērā anō te mahi hei whakaatu i te whakareatanga ki te 6.</p>  <p>4×2 4×2 4×2</p>	<p>Titiro ki te rārangī mai o ēnei mata. E whā ngā mata harikoa o ia rōpū. He aha te whakareatanga e hāngai ana?</p>  <p>Ko te 4×2 te whakareatanga.</p> <p>Ka reatorutia ēnei rōpū mata. He aha te whakareatanga e hāngai ana?</p>  <p>Ko te $4 \times 2 \times 3$. Ko tōna rite ko te 4×6.</p>
<p>Whakamāramatia te wāhi ki ngā tauwehe i ēnei whakareatanga.</p>	<p>Titiro ki ngā whakareatanga nei:</p> $4 \times 6 = 24 \quad 4 \times 2 \times 3 = 24$ <p>He tauwehe te 2 me te 3 o te 6. He ūrite te 2×3 ki te 6.</p>
<p>Kia pērā anō te mahi hei tūhura i ētahi atu whakareatanga tauwehe, pēnei i ēnei:</p> $5 \times 6 = 5 \times 2 \times 3 \quad 5 \times 16 = 5 \times 8 \times 2 \quad 5 \times 16 = 5 \times 2 \times 2 \times 2 \times 2$	
<p>Kia pērā hoki te mahi hei tūhura i ngā whakawehenga tauwehe. Hei tauira:</p> $32 \div 8 = 32 \div 2 \div 2 \div 2 \quad 24 \div 6 = 24 \div 2 \div 3 \quad 40 \div 10 = 40 \div 2 \div 5$	

Te Whakamahi Tikanga Tau

Hoatu he rapanga whakarea, he rapanga whakawehē hoki, ka tono ai i ngā ākonga kia whakamahia ngā tauwehe hei rautaki whakaoti. Hei tauira:

$$\begin{aligned} 43 \times 8 &= 43 \times 2 \times 2 \times 2 \\ &= 86 \times 2 \times 2 \\ &= 172 \times 2 \\ &= 344 \end{aligned} \qquad \begin{aligned} 216 \div 12 &= 216 \div 2 \div 2 \div 3 \\ &= 108 \div 2 \div 3 \\ &= 54 \div 3 \\ &= 18 \end{aligned}$$

$$\begin{aligned} 68 \times 15 &= 68 \times 5 \times 3 \\ &= 340 \times 3 \\ &= 1,020 \end{aligned} \qquad \begin{aligned} 612 \div 18 &= 612 \div 2 \div 3 \div 3 \\ &= 306 \div 3 \div 3 \\ &= 102 \div 3 \\ &= 34 \end{aligned}$$

$$\begin{aligned} 77 \times 24 &= 77 \times 2 \times 2 \times 2 \times 3 \\ &= 154 \times 2 \times 2 \times 3 \\ &= 308 \times 2 \times 3 \\ &= 616 \times 3 \\ &= 1,848 \end{aligned} \qquad \begin{aligned} 688 \div 16 &= 688 \div 2 \div 2 \div 2 \div 2 \\ &= 344 \div 2 \div 2 \div 2 \\ &= 172 \div 2 \div 2 \\ &= 86 \div 2 \\ &= 43 \end{aligned}$$

$$\begin{aligned} 56 \times 12 &= 56 \times 2 \times 2 \times 3 \\ &= 112 \times 2 \times 3 \\ &= 224 \times 3 \\ &= 672 \end{aligned} \qquad \begin{aligned} 1,536 \div 24 &= 1,536 \div 3 \div 2 \div 2 \div 2 \\ &= 512 \div 2 \div 2 \div 2 \\ &= 256 \div 2 \div 2 \\ &= 128 \div 2 \\ &= 64 \end{aligned}$$

$$\begin{aligned} 26 \times 18 &= 26 \times 2 \times 3 \times 3 \\ &= 52 \times 3 \times 3 \\ &= 156 \times 3 \\ &= 468 \end{aligned}$$

Hei Mahi Atu Anō

Tākarohia te kēmu ‘Tarapeke Tauwehe’ (Rauemi Tārua 6-11), hei whakaū i te rautaki ‘te whakamahi tauwehe’ mō te whakarea me te whakawehē.

Rauemi

- Tētahi o ngā papa tākaro mā ia kaitākaro (Rauemi Tārua 6-11)
- Ngā kāri tauwehe
- He porotiti pūataata

Ngā tohutohu

- Hoatu he papa tākaro mā ia kaitākaro.
- Riwhiriwhia ngā kāri tauwehe, ka tohatoha ai kia 5 ki ia kaitākaro
- Ka whai tētahi kaitākaro i tētahi.

- Ka kōwhiria kia rua, nui ake rānei ngā kāri tauwehe e rite ana ki tētahi o ngā tauwehe i te papa tākaro. Hei tauira, e rite ana te $\times 10$ ki te $\times 2$ me te $\times 5$. E rite ana te $\times 18$ ki te $\times 3$, te $\times 3$ me te $\times 2$. Kāore he take o te raupapa mai o ngā kāri tauwehe, ko te mea nui kia ōrite ki te whakareatanga i te papa tākaro.
- Ka whakamahia ngā kāri tauwehe hei whakaoti i te whakareatanga. Hei tauira, ko te 27×9 : Ka whakaotia ngā whakareatanga ki ngā tauwehe e rua, arā, $27 \times 3 = 81$ me te $81 \times 3 = 243$.
- Mā ērā atu o ngā kaitākaro e tirotiro mēnā e tika ana te whakautu, arā, ka whakamahia tētahi atu rautaki pērā i te $27 \times 9 = 27 \times 10 - 27 = 270 - 27 = 243$. Ka whakamahi rānei i te tātaita hei tirotiro i te tika o te whakautu.
- Ki te tika te whakautu, ka uhia tērā o ngā tauwehe i te papa tākaro ki te porotiti.
- Ka tīkina ētahi anō kāri kia 5 tonu ngā kāri ki ia kaitākaro.
- Ki te kore e taea e te kaitākaro tētahi o ngā tau whakarea o tana papa tākaro te hanga ki ana kāri tauwehe, ka haere ki te kaitākaro e whai mai ana. Ka whakahoutia ētahi o ana kāri e rua.
- Ka toa te kaitākaro tuatahi ki te uhi i te katoa o ngā tauwehe i tana papa tākaro.



Te Whakarea me te Whakawehe: Pukapuka Tuaono Ngā Rauemi Tārua



Kia mōhiotia ai: Kei te pae ipurangi o www.nzmaths.co.nz
ēnei rauemi tārua he tiki atu mā te pouako ina hiahiatia.

Ngaku Tau (1–100)

Te Poutama Tau
Rauemi Tārua 6–1

Hei tauira:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	...
---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	-----

1	2	3	4	5	6	7	8	9	10									
11	12	13	14	15	16	17	18	19	20									
21	22	23	24	25	26	27	28	29	30									
31	32	33	34	35	36	37	38	39	40									
41	42	43	44	45	46	47	48	49	50									

Ngaku Tau (1-100)

Te Poutama Tau
Rauemi Tārua 6-1

5	1	52	53	54	55	56	57	58	59	60
6	1	62	63	64	65	66	67	68	69	70
7	1	72	73	74	75	76	77	78	79	80
8	1	82	83	84	85	86	87	88	89	90
9	1	92	93	94	95	96	97	98	99	100

Kāri Whakareatanga Matua

Huinga A

A	2 × 4	2 × 10	3 × 5	3 × 1	10 × 4	A
Te Poutama Tau	6-2	Te Poutama Tau	6-2	Te Poutama Tau	6-2	Te Poutama Tau
A	5 × 1	5 × 10	1 × 2	4 × 5	5 × 4	A
Te Poutama Tau	6-2	Te Poutama Tau	6-2	Te Poutama Tau	6-2	Te Poutama Tau
A	4 × 1	4 × 4	4 × 5	4 × 5	4 × 3	A
Te Poutama Tau	6-2	Te Poutama Tau	6-2	Te Poutama Tau	6-2	Te Poutama Tau
A	5 × 2	2 × 3	3 × 4	10 × 2	10 × 1	A
Te Poutama Tau	6-2	Te Poutama Tau	6-2	Te Poutama Tau	6-2	Te Poutama Tau
A	5 × 3	3 × 3				
Te Poutama Tau	6-2	Te Poutama Tau				

Te Poutama Tau
Rauemi Tārua 6-2

Kāri Whakareatanga Matua

Te Poutama Tau
Rauemi Tārua 6-2

Huinga E	2 × 5	E	2 × 4	E	3 × 2	E	2 × 2	E	3 × 1
Te Poutama Tau	6-2	Te Poutama Tau	6-2	Te Poutama Tau	6-2	Te Poutama Tau	6-2	Te Poutama Tau	6-2
E	7 × 3	E	9 × 2	E	7 × 6	E	8 × 5	E	5 × 4
Te Poutama Tau	6-2	Te Poutama Tau	6-2	Te Poutama Tau	6-2	Te Poutama Tau	6-2	Te Poutama Tau	6-2
E	4 × 1	E	4 × 4	E	4 × 3	E	5 × 2	E	2 × 3
Te Poutama Tau	6-2	Te Poutama Tau	6-2	Te Poutama Tau	6-2	Te Poutama Tau	6-2	Te Poutama Tau	6-2
E	3 × 4	E	10 × 2	E	10 × 1	E	5 × 3	E	3 × 3
Te Poutama Tau	6-2	Te Poutama Tau	6-2	Te Poutama Tau	6-2	Te Poutama Tau	6-2	Te Poutama Tau	6-2

Whakareatia

Te Poutama Tau
Rauemi Tārua 6-3

Huinga A

A	Tīmatanga
1×20	20
Te Poutama Tau	6-3
A	16
5×2	8
Te Poutama Tau	6-3
A	14
9×2	25
Te Poutama Tau	6-3
A	12
2×5	45
Te Poutama Tau	6-3
A	30
2×9	40
Te Poutama Tau	6-3
A	4
6×5	50
Te Poutama Tau	6-3
A	40
10×5	16
Te Poutama Tau	6-3
A	20
5×6	10
Te Poutama Tau	6-3
A	6
5×10	
Te Poutama Tau	6-3
A	15
3×2	18
Te Poutama Tau	6-3
A	45
2×3	10
Te Poutama Tau	6-3
A	10
2×7	18
Te Poutama Tau	6-3
A	6
3×5	35
Te Poutama Tau	6-3
A	14
8×5	35
Te Poutama Tau	6-3
A	30
5×4	50
Te Poutama Tau	6-3
A	8
5×8	12
Te Poutama Tau	6-3
A	12
5×9	
Te Poutama Tau	6-3
A	15
4×2	20
Te Poutama Tau	6-3
A	20
8×2	
Te Poutama Tau	6-3
A	18
2×4	20
Te Poutama Tau	6-3
A	10
2×8	18
Te Poutama Tau	6-3
A	35
4×5	
Te Poutama Tau	6-3
A	14
9×5	35
Te Poutama Tau	6-3
A	50
5×5	
Te Poutama Tau	6-3
A	12
5×9	
Te Poutama Tau	6-3
A	12

Whakareatia

Te Poutama Tau
Rauemi Tārua 6–3

Huinga E

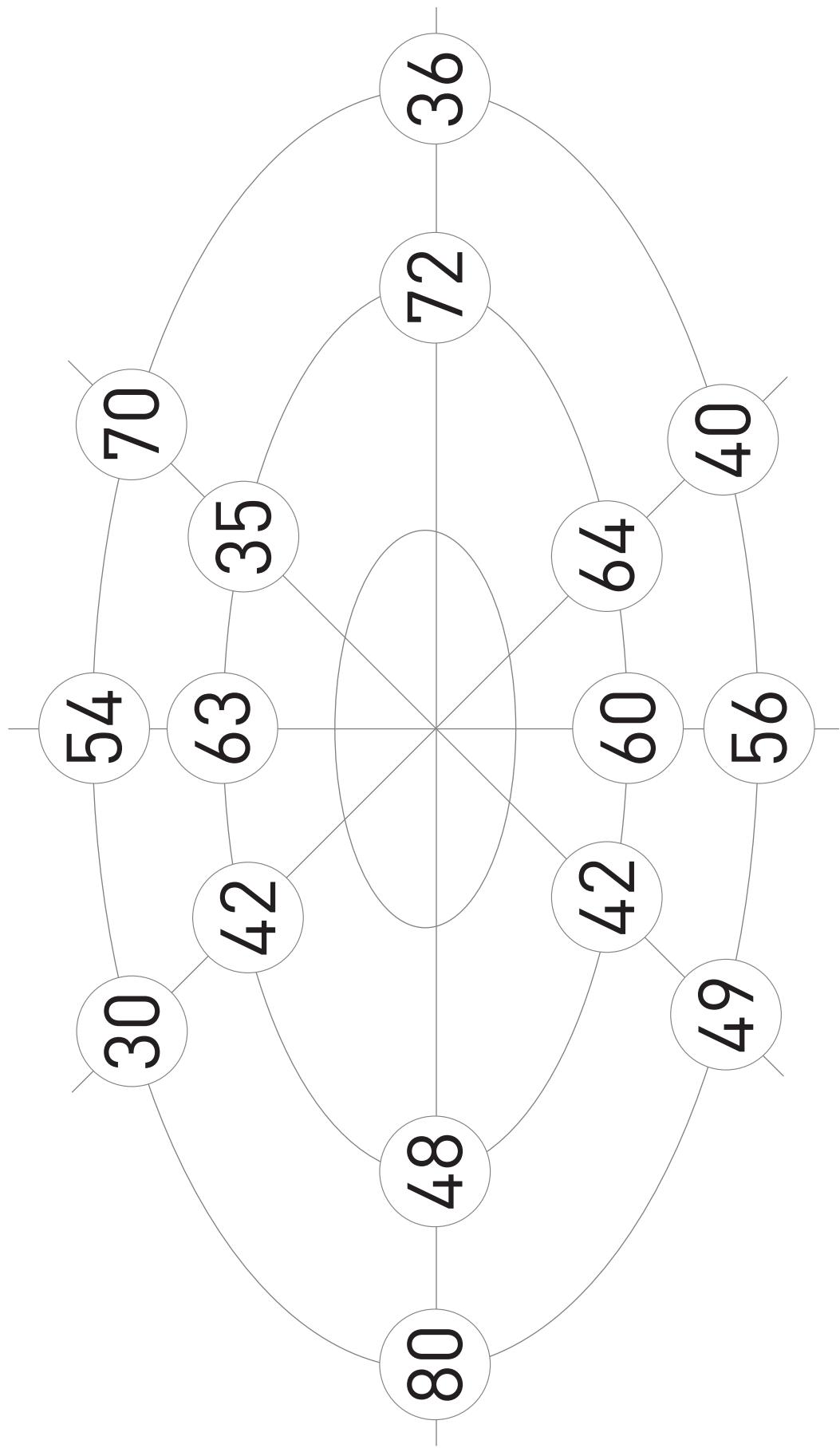
E 36	E 70	E 28	E 9
Te Poutama Tau 6–3			
E 12	E 40	E 32	E 32
9 × 4	4 × 3	10 × 3	10 × 8
Te Poutama Tau 6–3			
E 30	E 21	E 27	E 80
3 × 9	4 × 6	4 × 10	7 × 3
Te Poutama Tau 6–3			
E 40	E 60	E 60	E 90
7 × 10	3 × 7	10 × 4	3 × 6
Te Poutama Tau 6–3			
E 70	E 16	E 90	E 18
3 × 4	8 × 10	6 × 10	10 × 6
Te Poutama Tau 6–3			
E Timatanga	E 36	E 24	E 28
6 × 4	3 × 8	4 × 8	9 × 3
Te Poutama Tau 6–3			
E 100	E 24	E 18	E 12
10 × 7	9 × 10	4 × 7	6 × 4
Te Poutama Tau 6–3			
E 80	E 24	E 21	E 30
7 × 4	10 × 9	4 × 4	6 × 3
Te Poutama Tau 6–3			
E 27	E 24		
10 × 10	4 × 9		
Te Poutama Tau 6–3	Te Poutama Tau 6–3		

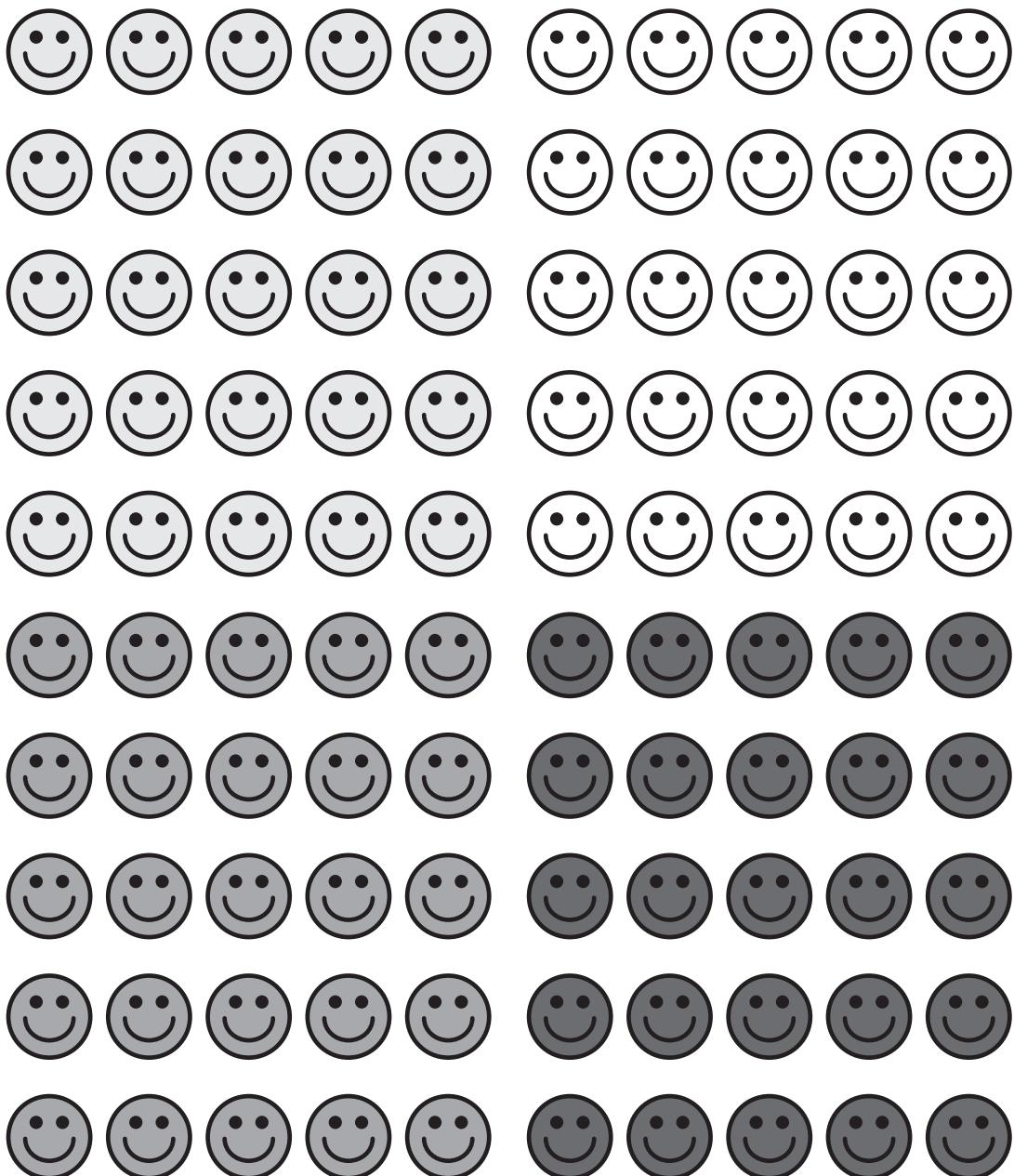
Whakareatia

Te Poutama Tau
Rauemi Tārua 6–3

Huinga H

6×6	9×8	9×9	7×4
Te Poutama Tau 6–3	Te Poutama Tau 6–3	Te Poutama Tau 6–3	Te Poutama Tau 6–3
7×9	7×3	7×6	8×7
Te Poutama Tau 6–3	Te Poutama Tau 6–3	Te Poutama Tau 6–3	Te Poutama Tau 6–3
9×6	3×6	4×9	3×9
Te Poutama Tau 6–3	Te Poutama Tau 6–3	Te Poutama Tau 6–3	Te Poutama Tau 6–3
4×6	3×8	7×8	8×4
Te Poutama Tau 6–3	Te Poutama Tau 6–3	Te Poutama Tau 6–3	Te Poutama Tau 6–3
4×8	6×9	6×8	8×8
Te Poutama Tau 6–3	Te Poutama Tau 6–3	Te Poutama Tau 6–3	Te Poutama Tau 6–3
7×7	4×4	4×3	8×6
Te Poutama Tau 6–3	Te Poutama Tau 6–3	Te Poutama Tau 6–3	Te Poutama Tau 6–3
9×7	4×7	3×7	6×4
Te Poutama Tau 6–3	Te Poutama Tau 6–3	Te Poutama Tau 6–3	Te Poutama Tau 6–3
9×3	3×3	6×3	8×3
Te Poutama Tau 6–3	Te Poutama Tau 6–3	Te Poutama Tau 6–3	Te Poutama Tau 6–3
6×7	3×4	8×9	4×6
Te Poutama Tau 6–3	Te Poutama Tau 6–3	Te Poutama Tau 6–3	Te Poutama Tau 6–3
9×4			
Te Poutama Tau 6–3			





He Rārangi Whakareatanga

Te Poutama Tau
Rauemi Tārua 6–6

Papa tākaro

35	14	16	27	12
21	4	20	18	36
15	28	30	45	63
48	32	12	72	3
40	42	24	56	7

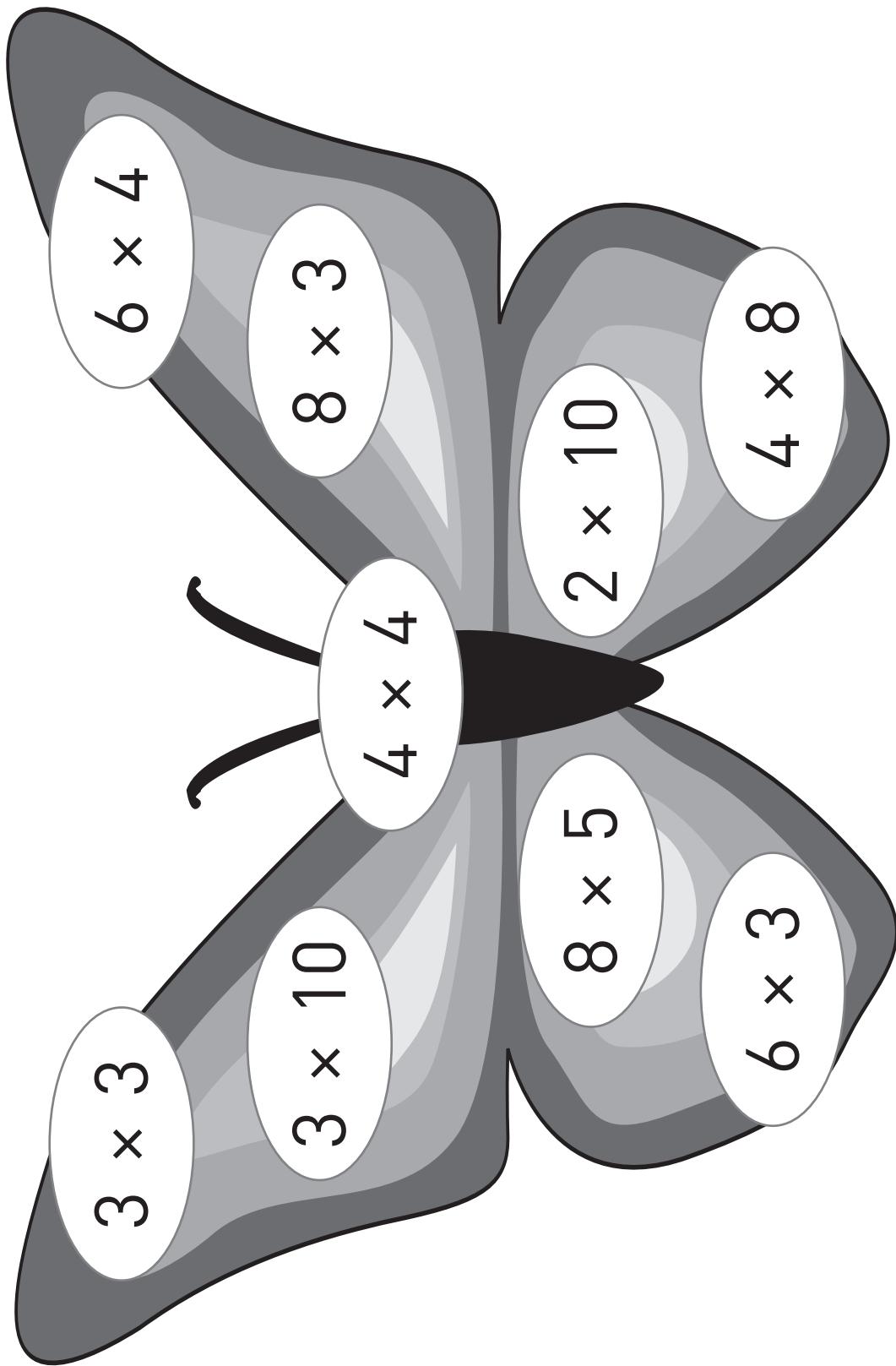
Te Poutama Tau

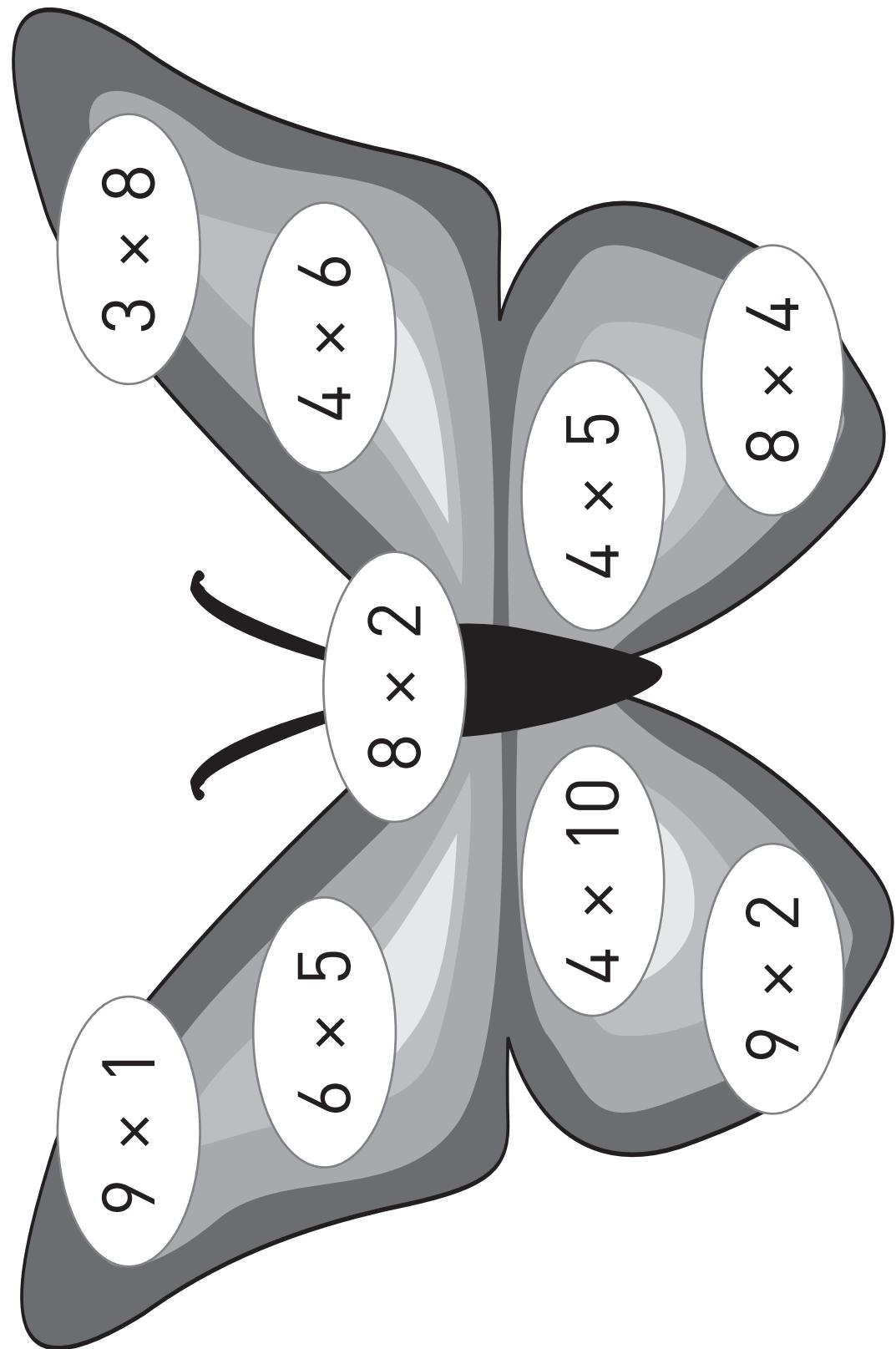
6–6

Rārangi tau

1	2	3	4	5	6	7	8	9
Te Poutama Tau								

6–6





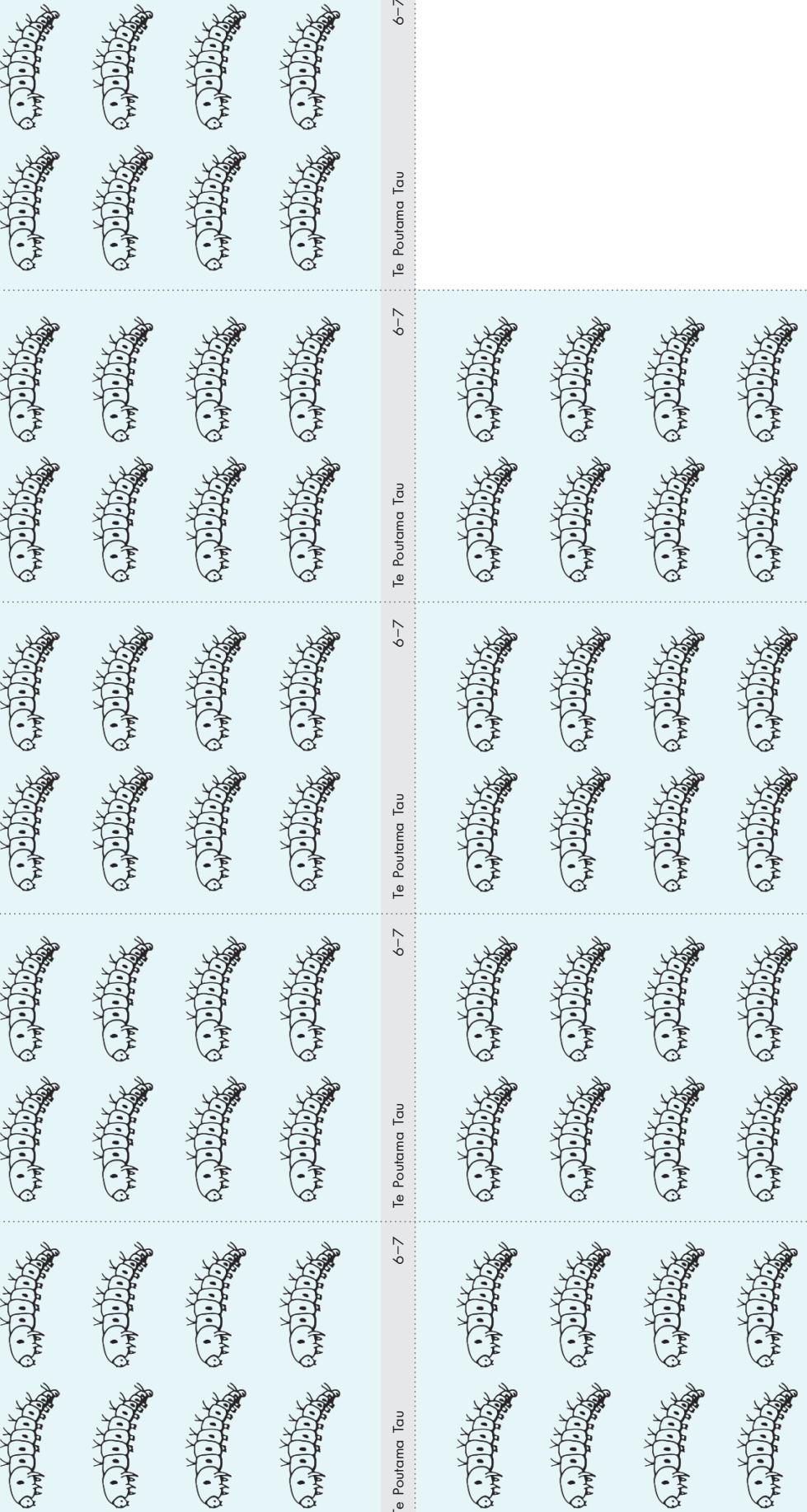
Tūtohi Tuakutuku Whakareatanga

Te Poutama Tau
Rauemi Tārua 6-7



Tūtahi Tukutuku Whakareatanga

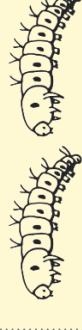
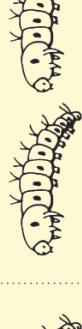
Te Poutama Tau
Rauemi Tārua 6-7



Te Poutama Tau 6-7 Te Poutama Tau 6-7 Te Poutama Tau 6-7 Te Poutama Tau 6-7

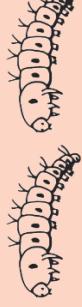
Tūtohi Tukutuku Whakareatanga

Te Poutama Tau
Rauemi Tārura 6–7

							
							
							
							
Te Poutama Tau 6–7	Te Poutama Tau 6–7	Te Poutama Tau 6–7	Te Poutama Tau 6–7				

Tūtohi Tukutuku Whakareatanga

Te Poutama Tau
Rauemi Tārua 6–7

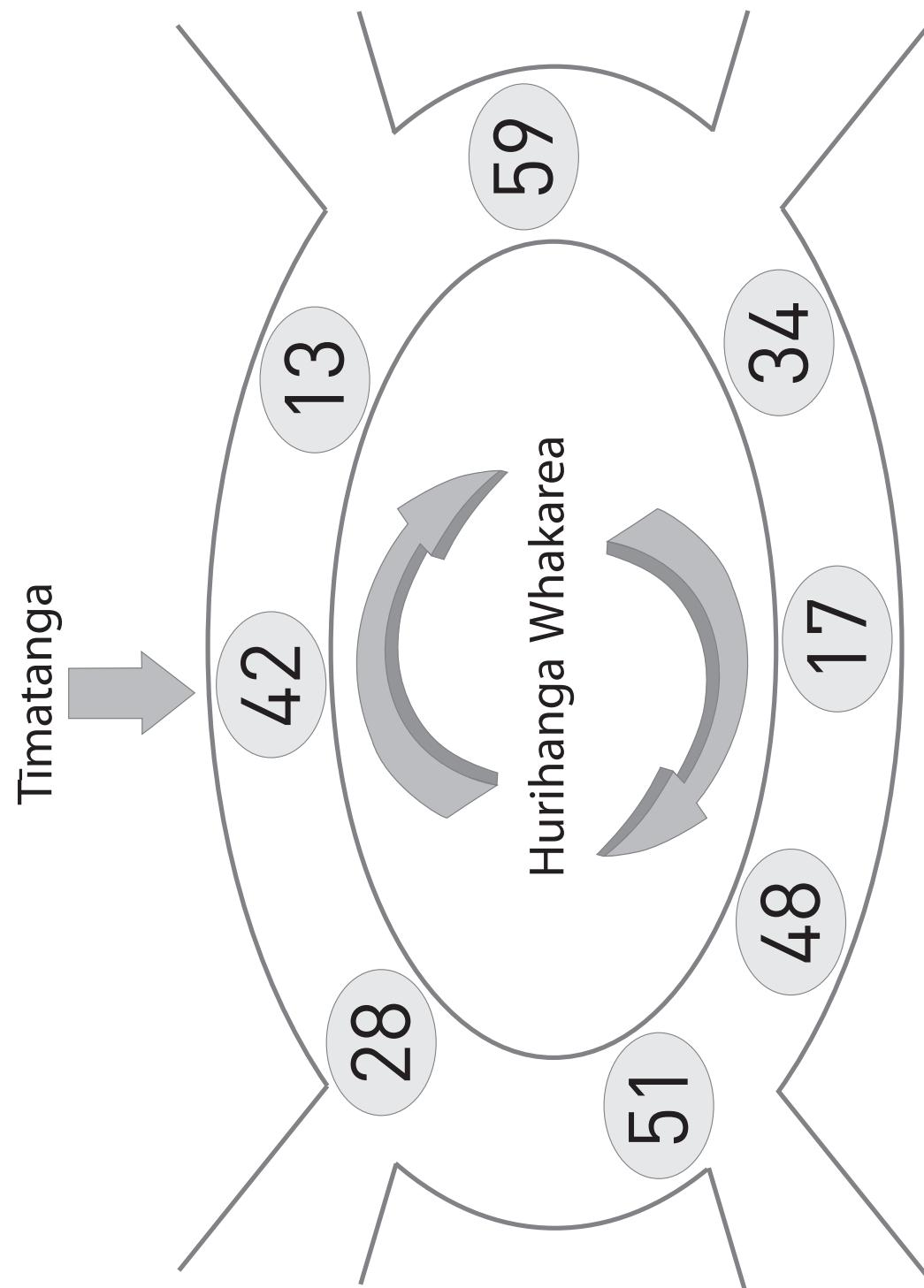


Te Poutama Tau 6–7 Te Poutama Tau 6–7 Te Poutama Tau 6–7 Te Poutama Tau 6–7



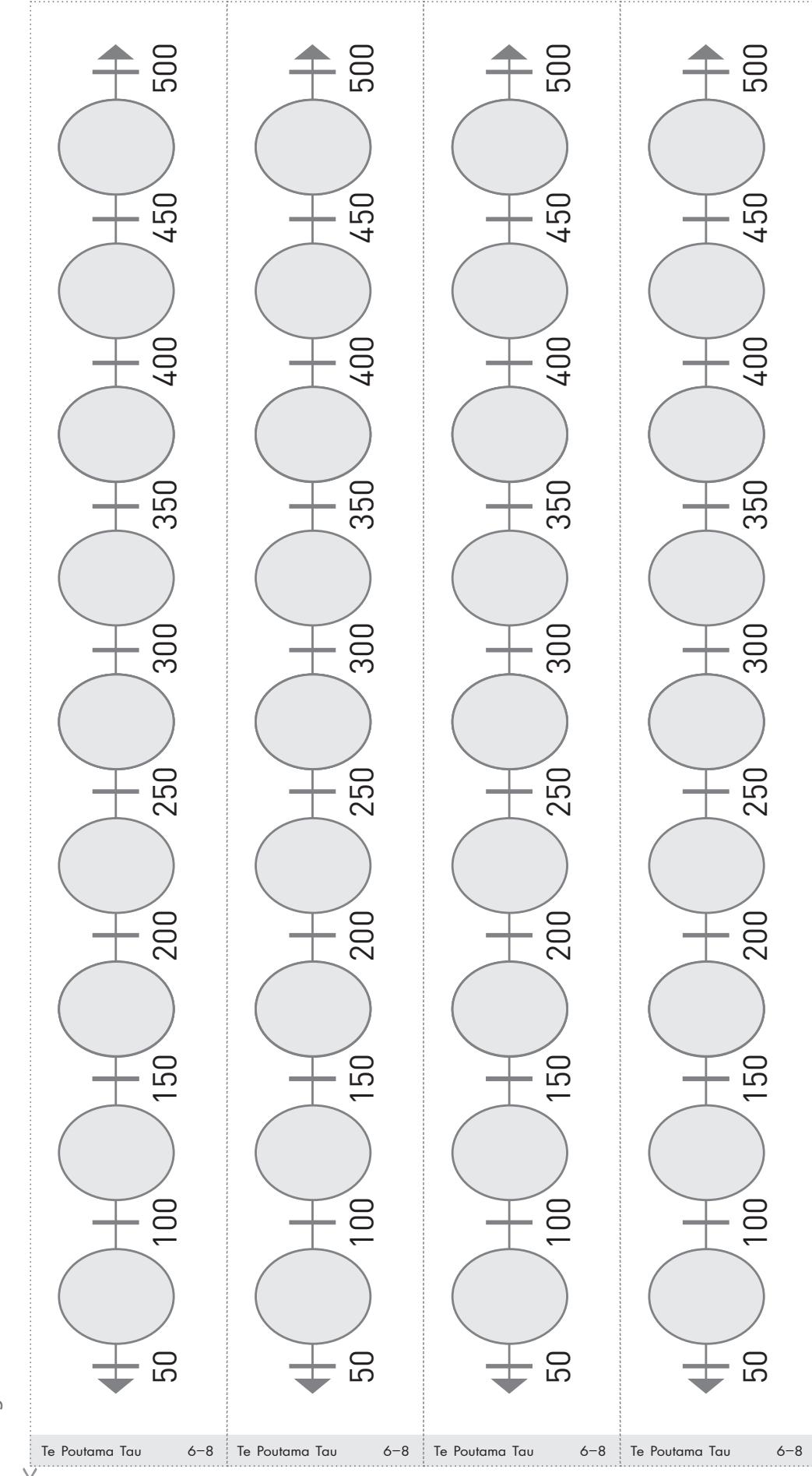
Te Poutama Tau 6–7 Te Poutama Tau 6–7 Te Poutama Tau 6–7 Te Poutama Tau 6–7

Te Poutama Tau



Hurihangā Whakarea

Rārangi tau



Rautaki Whakawehē

Papa tākaro

Te takiwā o te ottinga

10 – 29

30 – 39

40 – 49

50 – 59

60 – 79

80+

Rautaki whakawehē

Whakamahia ngā
tikanga o te uara tū

Tau māmā

Hauruatiā,
hautorutia rānei
ngā tau e rua

Whakarearuatiā,
whakareatorutia rānei
te tau whakawehē

Whiriwhiria tāu
ake rautaki

Whakamahia te
mati tahi hei kimi
i te tau whakarea

Timata ki tētahi
hautanga o te tau
tuatahi

Rautaki Whakawehenga

Te Poutama Tau
Rauemi Tārua 6–9

Ngā kāri whakawehenga



$117 \div 3$

$430 \div 5$

Te Poutama Tau

6–9

Te Poutama Tau

6–9

$344 \div 4$

$474 \div 6$

Te Poutama Tau

6–9

Te Poutama Tau

6–9

$315 \div 7$

$432 \div 8$

Te Poutama Tau

6–9

Te Poutama Tau

6–9

$381 \div 3$

$160 \div 5$

Te Poutama Tau

6–9

Te Poutama Tau

6–9

Rautaki Whakawehe

Te Poutama Tau
Rauemi Tārua 6–9

☒

$112 \div 4$

$258 \div 6$

Te Poutama Tau

6–9

Te Poutama Tau

6–9

$182 \div 7$

$288 \div 8$

Te Poutama Tau

6–9

Te Poutama Tau

6–9

$396 \div 9$

$162 \div 3$

Te Poutama Tau

6–9

Te Poutama Tau

6–9

$472 \div 4$

$195 \div 5$

Te Poutama Tau

6–9

Te Poutama Tau

6–9

Rautaki Whakawehē

Te Poutama Tau
Rauemi Tārua 6–9



$204 \div 6$ $364 \div 7$

Te Poutama Tau

6–9

Te Poutama Tau

6–9

$384 \div 8$ $603 \div 9$

Te Poutama Tau

6–9

Te Poutama Tau

6–9

$352 \div 4$ $275 \div 5$

Te Poutama Tau

6–9

Te Poutama Tau

6–9

$606 \div 6$ $238 \div 7$

Te Poutama Tau

6–9

Te Poutama Tau

6–9

Rautaki Whakawehe

Te Poutama Tau
Rauemi Tārua 6–9

☒

$639 \div 3$

$423 \div 9$

Te Poutama Tau

6–9

Te Poutama Tau

6–9

$192 \div 8$

$483 \div 7$

Te Poutama Tau

6–9

Te Poutama Tau

6–9

$336 \div 6$

$144 \div 9$

Te Poutama Tau

6–9

Te Poutama Tau

6–9

$201 \div 3$

$345 \div 5$

Te Poutama Tau

6–9

Te Poutama Tau

6–9

Rautaki Whakawehē

Te Poutama Tau
Rauemi Tārua 6–9



$228 \div 4$ $342 \div 6$

Te Poutama Tau

6–9

Te Poutama Tau

6–9

$189 \div 7$ $200 \div 8$

Te Poutama Tau

6–9

Te Poutama Tau

6–9

$312 \div 8$ $333 \div 9$

Te Poutama Tau

6–9

Te Poutama Tau

6–9

$504 \div 4$ $330 \div 5$

Te Poutama Tau

6–9

Te Poutama Tau

6–9

$$354 \div 3$$

Te Poutama Tau

6–9

$$256 \div 4$$

Te Poutama Tau

6–9

Rautaki Whakawehenga

Te Poutama Tau
Rauemi Tārua 6–9

Mō muri i ngā kāri whakawehenga



$$430 \div 5$$

$$117 \div 3$$

Uara tū: $400 \div 5 = 80$, $430 - 400 = 30$, $30 \div 5 = 6$, $80 + 6 = 86$

Tau māmā: $450 \div 5 = 90$, $90 - 4 = 86$

Whakarearuatia, whakareatorutia rānei te tau whakawehenga:
 $430 \div 10 = 43$, $43 \times 2 = 86$

Uara tū: $90 \div 3 = 30$, $117 - 90 = 27$, $27 \div 3 = 9$, $30 + 9 = 39$

Tau māmā: $120 \div 3 = 40$, $40 - 1 = 39$

Whakarearuatia, whakareatorutia rānei te tau whakawehenga:
 $117 \div 9 = 13$, $13 \times 3 = 39$

Whakamahia te mati tahi:

$30 \times 3 = 90$, nō reira, $3 \square \times 3 = 117$, $9 \times 3 = 27$, $\square = 9$

Te Poutama Tau

6–9

Te Poutama Tau

6–9

$$474 \div 6$$

$$344 \div 4$$

Uara tū: $420 \div 6 = 70$, $474 - 420 = 54$, $54 \div 6 = 9$, $70 + 9 = 79$

Tau māmā: $480 \div 6 = 80$, $80 - 1 = 79$

Hauruatiā, hautorutia rānei ngā tau e rua:
 $474 \div 6 = 237 \div 3 = 79$

Whakamahia te mati tahi: $70 \times 6 = 420$, nō reira, $7 \square \times 6 = 474$,
 $9 \times 6 = 54$, $\square = 9$

Uara tū: $320 \div 4 = 80$, $344 - 320 = 24$, $24 \div 4 = 6$, $80 + 6 = 86$

Tau māmā: $360 \div 4 = 90$, $90 - 4 = 86$

Hauruatiā, hautorutia rānei ngā tau e rua:
 $344 \div 4 = 172 \div 2 = 86$

Whakarearuatia, whakareatorutia rānei te tau whakawehenga:
 $344 \div 8 = 43$, $43 \times 2 = 86$

Whakamahia te mati tahi:

$80 \times 4 = 320$, nō reira, $8 \square \times 4 = 344$, $6 \times 4 = 24$, $\square = 6$

Te Poutama Tau

6–9

Te Poutama Tau

6–9

$$432 \div 8$$

$$315 \div 7$$

Uara tū: $400 \div 8 = 50$, $432 - 400 = 32$, $32 \div 8 = 4$, $50 + 4 = 54$

Tau māmā: $440 \div 8 = 55$, $55 - 1 = 54$

Hauruatiā, hautorutia rānei ngā tau e rua:
 $432 \div 8 = 216 \div 4 = 108 \div 2 = 54$

Whakamahia te mati tahi: $50 \times 8 = 400$, nō reira, $5 \square \times 8 = 432$,
 $8 \times 4 = 32$, $\square = 4$

Hautanga o te tau tuatahi: $216 \div 8 = 27$, $27 \times 2 = 54$

Uara tū: $280 \div 7 = 40$, $315 - 280 = 35$, $35 \div 7 = 5$, $40 + 5 = 45$

Tau māmā: $350 \div 7 = 50$, $50 - 5 = 45$

Whakamahia te mati tahi:

$40 \times 7 = 280$, nō reira, $4 \square \times 7 = 315$, $7 \times 5 = 35$, $\square = 5$

Te Poutama Tau

6–9

Te Poutama Tau

6–9

$$160 \div 5$$

$$381 \div 3$$

Uara tū: $150 \div 5 = 30$, $160 - 150 = 10$, $10 \div 5 = 2$, $30 + 2 = 32$

Tau māmā: He ōrite te mahi o runga.

Whakarearuatia, whakareatorutia rānei te tau whakawehenga:
 $160 \div 10 = 16 \times 2 = 32$

Hautanga o te tau tuatahi: $80 \div 5 = 16$, $16 \times 2 = 32$

Uara tū: $360 \div 3 = 120$, $381 - 360 = 21$, $21 \div 3 = 7$, $120 + 7 = 127$

Tau māmā: $390 \div 3 = 130$, $130 - 3 = 127$

Hauruatiā, hautorutia rānei ngā tau e rua:

$300 \div 3 = 100$, $81 \div 9 = 9$, $81 \div 3 = 27$, $100 + 27 = 127$

Whakamahia te mati tahi:

$120 \times 3 = 360$, nō reira, $12 \square \times 3 = 381$, $7 \times 3 = 21$, $\square = 7$

Te Poutama Tau

6–9

Te Poutama Tau

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Rautaki Whakawehe

Te Poutama Tau
Rauemi Tārua 6–9



$$258 \div 6$$

Uara tū: $240 \div 6 = 40$, $258 - 240 = 18$, $18 \div 6 = 3$, $40 + 3 = 43$

Tau māmā: He ōrite ki te tukanga o runga.

Hauruatia, hautorutia rānei ngā tau e rua:

$$258 \div 6 = 129 \div 3 = 43$$

Whakamahia te mati tahi: $40 \times 6 = 240$, nō reira, $4 \square \times 6 = 258$, $3 \times 6 = 18$ me $8 \times 6 = 48$, $\square = 3$

Te Poutama Tau 6–9

Uara tū: $240 \div 8 = 30$, $288 - 240 = 48$, $288 \div 8 = 6$, $30 + 6 = 36$

Tau māmā: $320 \div 8 = 40$, $40 - 4 = 36$

Hauruatia, hautorutia rānei ngā tau e rua:

$$288 \div 8 = 144 \div 4 = 72 \div 2 = 36$$

Whakarearuatia, whakareatorutia rānei te tau whakawehe: $288 \div 24 = 12$, $12 \times 3 = 36$

Whakamahia te mati tahi: $3 \square \times 8 = 288$, $6 \times 8 = 48$, $\square = 6$

Hautanga o te tau tuatahi: $72 \div 8 = 9$, $9 \times 4 = 36$

Te Poutama Tau 6–9

$$162 \div 3$$

Uara tū: $150 \div 3 = 50$, $162 - 150 = 12$, $12 \div 3 = 4$, $50 + 4 = 54$

Whakarearuatia, whakareatorutia rānei te tau whakawehe: $162 \div 9 = 18$, $18 \times 3 = 54$

Whakamahia te mati tahi:

$$50 \times 3 = 150, \text{ nō reira}, 5 \square \times 3 = 162, 4 \times 3 = 12, \square = 4$$

Hautanga o te tau tuatahi: $81 \div 3 = 27$, $27 \times 2 = 54$

Te Poutama Tau 6–9

$$195 \div 5$$

Uara tū: $150 \div 5 = 30$, $195 - 150 = 45$, $45 \div 5 = 9$, $30 + 9 = 39$

Tau māmā: $200 \div 5 = 40$, $40 - 1 = 39$

Whakarearuatia, whakareatorutia rānei te tau whakawehe: $190 \div 10 = 19$, $190 \div 5 = 38$, $195 \div 5 = 39$

Te Poutama Tau 6–9

$$258 \div 6$$

Uara tū: $80 \div 4 = 20$, $112 - 80 = 32$, $32 \div 4 = 8$, $20 + 8 = 28$

$$112 \div 4$$

Tau māmā: $120 \div 4 = 30$, $30 - 2 = 28$

Hauruatia, hautorutia rānei ngā tau e rua:

$$112 \div 4 = 56 \div 2 = 28$$

Whakarearuatia, whakareatorutia rānei te tau whakawehe: $112 \div 8 = 14$, $14 \times 2 = 28$

Whakamahia te mati tahi: $20 \times 4 = 80$, nō reira, $2 \square \times 4 = 112$, $3 \times 4 = 12$, $8 \times 4 = 32$, $\square = 8$ rānei

Hautanga o te tau tuatahi: $56 \div 4 = 14$, $14 \times 2 = 28$

Te Poutama Tau 6–9

$$182 \div 7$$

Uara tū: $140 \div 7 = 20$, $182 - 140 = 42$, $42 \div 7 = 6$, $20 + 6 = 26$

Tau māmā: $210 \div 7 = 30$, $30 - 4 = 26$

Whakamahia te mati tahi:

$$20 \times 7 = 140, \text{ nō reira}, 2 \square \times 7 = 182, 7 \times 6 = 42, \square = 6$$

Te Poutama Tau 6–9

Uara tū: $360 \div 9 = 40$, $396 - 360 = 36$, $36 \div 9 = 4$, $40 + 4 = 44$

$$396 \div 9$$

Tau māmā: He ōrite ki te tukanga o runga.

Hauruatia, hautorutia rānei ngā tau e rua: $396 \div 9 = 132 \div 3 = 44$

Whakarearuatia, whakareatorutia rānei te tau whakawehe: $396 \div 36 = 11$, $11 \times 4 = 44$

Whakamahia te mati tahi:

$$40 \times 9 = 360, \text{ nō reira}, 4 \square \times 9 = 396, 4 \times 9 = 36, \square = 4$$

Hautanga o te tau tuatahi: $198 \div 9 = 22$, $22 \times 2 = 44$

Te Poutama Tau 6–9

Uara tū: $440 \div 4 = 110$, $472 - 440 = 32$, $32 \div 4 = 8$, $110 + 8 = 118$

$$472 \div 4$$

Tau māmā: $480 \div 4 = 120$, $120 - 2 = 118$

Hauruatia, hautorutia rānei ngā tau e rua: $472 \div 4 = 236 \div 2 = 118$

Whakarearuatia, whakareatorutia rānei te tau whakawehe: $400 \div 4 = 100$, $72 \div 8 = 9$, $72 \div 4 = 18$, $100 + 18 = 118$

Whakamahia te mati tahi: $110 \times 4 = 440$, nō reira, $11 \square \times 4 = 472$, $3 \times 4 = 12$, $8 \times 4 = 32$ rānei, $\square = 8$

Te Poutama Tau 6–9

Rautaki Whakawehē

Te Poutama Tau
Rauemi Tārua 6–9



$$364 \div 7$$

Uara tū: $350 \div 7 = 50$, $364 - 350 = 14$, $14 \div 7 = 2$, $50 + 2 = 52$

Tau māmā: He ōrite ki te tukanga o runga.

Whakamahia te mati tahi:

$$50 \times 7 = 350, \text{ nō reira}, 5 \square \times 7 = 364, 2 \times 7 = 14, \square = 2$$

Hautanga o te tau tuatahi: $182 \div 7 = 26$, $26 \times 2 = 52$

$$204 \div 6$$

Uara tū: $180 \div 6 = 30$, $204 - 180 = 24$,
 $24 \div 6 = 4$, $30 + 4 = 34$

Tau māmā:

He ōrite ki te tukanga o runga, ā, $240 \div 6 = 40$, $40 - 6 = 34$.

Hauruatia, hautorutia rānei ngā tau e rua:

$$204 \div 6 = 102 \div 3 = 34$$

Whakamahia te mati tahi: $30 \times 6 = 180$, nō reira, $3 \square \times 6 = 204$,
 $4 \times 6 = 24$, $9 \times 6 = 54$, $\square = 4$ rānei

Hautanga o te tau tuatahi: $102 \div 6 = 17$, $17 \times 2 = 34$

Te Poutama Tau

6–9

Te Poutama Tau

6–9

$$603 \div 9$$

$$384 \div 8$$

Uara tū: $540 \div 9 = 60$, $603 - 540 = 63$, $63 \div 9 = 7$, $60 + 7 = 67$

Hauruatia, hautorutia rānei ngā tau e rua:

$$603 \div 9 = 201 \div 3 = 67$$

Whakamahia te mati tahi:

$$60 \times 9 = 540, \text{ nō reira}, 6 \square \times 9 = 603, 7 \times 9 = 63, \square = 7$$

Uara tū: $320 \div 8 = 40$, $384 - 320 = 64$, $64 \div 8 = 8$, $40 + 8 = 48$

Tau māmā: $400 \div 8 = 50$, $50 - 2 = 48$

Hauruatia, hautorutia rānei ngā tau e rua:

$$384 \div 8 = 192 \div 4 = 96 \div 2 = 48$$

Whakamahia te mati tahi: $40 \times 8 = 320$, nō reira, $4 \square \times 8 = 384$,
 $3 \times 8 = 24$, $8 \times 8 = 64$ rānei, $\square = 8$

Hautanga o te tau tuatahi: $96 \div 8 = 12$, $12 \times 4 = 48$

Te Poutama Tau

6–9

Te Poutama Tau

6–9

$$275 \div 5$$

$$352 \div 4$$

Uara tū: $250 \div 5 = 50$, $275 - 250 = 25$, $25 \div 5 = 5$, $50 + 5 = 55$

Tau māmā: He ōrite ki te tukanga o runga, me tēnei:

$$300 \div 5 = 60, 60 - 5 = 55$$

Whakarearuatia, whakareatorutia rānei te tau whakawehē:

$$270 \div 10 = 27, 270 \div 5 = 54, 275 \div 5 = 55$$

Uara tū: $320 \div 4 = 80$, $352 - 320 = 32$, $32 \div 4 = 8$, $80 + 8 = 88$

Tau māmā: $360 \div 4 = 90$, $90 - 2 = 88$

Hauruatia, hautorutia rānei ngā tau e rua:

$$352 \div 4 = 176 \div 2 = 88$$

Whakamahia te mati tahi: $80 \times 4 = 320$, nō reira, $8 \square \times 4 = 352$,
 $3 \times 4 = 12$, $8 \times 4 = 32$ rānei, $\square = 8$

Te Poutama Tau

6–9

Te Poutama Tau

6–9

$$238 \div 7$$

$$606 \div 6$$

Uara tū: $210 \div 7 = 30$, $238 - 210 = 28$, $28 \div 7 = 4$, $30 + 4 = 34$

Tau māmā:

He ōrite ki te tukanga o runga, ā, $280 \div 7 = 40$, $40 - 6 = 34$.

Whakamahia te mati tahi:

$$30 \times 7 = 210, \text{ nō reira}, 3 \square \times 7 = 238, 4 \times 7 = 28, \square = 4$$

Uara tū: $600 \div 6 = 100$, $606 - 600 = 6$, $6 \div 6 = 1$, $100 + 1 = 101$

Hauruatia, hautorutia rānei ngā tau e rua:

$$606 \div 6 = 202 \div 2 = 101$$

Whakamahia te mati tahi:

$$100 \times 6 = 600, \text{ nō reira}, 10 \square \times 6 = 606, 1 \times 6 = 6, \square = 1$$

Te Poutama Tau

6–9

Te Poutama Tau

6–9

Rautaki Whakawehē

Te Poutama Tau
Rauemi Tārua 6–9



$$423 \div 9$$

Uara tū: $360 \div 9 = 40$, $423 - 360 = 63$, $63 \div 9 = 7$, $40 + 7 = 47$

Tau māmā: $450 \div 9 = 50$, $50 - 3 = 47$

Hauruatia, hautorutia rānei ngā tau e rua:

$$23 \div 9 = 141 \div 3 = 47$$

Whakamahia te mati tahi:

$$40 \times 9 = 360, \text{ nō reira}, 4 \square \times 9 = 423, 7 \times 9 = 63, \square = 7$$

Te Poutama Tau

6–9

$$639 \div 3$$

Uara tū: $600 \div 3 = 200$, $39 \div 3 = 13$, $200 + 13 = 213$

Tau māmā: He ōrite ki te tukanga o runga, ā, $630 \div 3 = 210$, $639 - 630 = 9$, $9 \div 3 = 3$, $210 + 3 = 213$.

Whakarearuatia, whakareatorutia rānei te tau whakawehē: $639 \div 9 = 71$, $71 \times 3 = 213$

Whakamahia te mati tahi:

$$210 \times 3 = 630, \text{ nō reira}, 21 \square \times 3 = 639, 3 \times 3 = 9, \square = 3$$

Te Poutama Tau

6–9

$$483 \div 7$$

Uara tū: $420 \div 7 = 60$, $483 - 420 = 63$, $63 \div 7 = 9$, $60 + 9 = 69$

Tau māmā:

He ōrite ki te tukanga o runga, ā, $490 \div 7 = 70$, $70 - 1 = 69$.

Whakamahia te mati tahi:

$$60 \times 7 = 420, \text{ nō reira}, 6 \square \times 7 = 483, 9 \times 7 = 63, \square = 9$$

Hautanga o te tau tuatahi: $161 \div 7 = 23$, $23 \times 3 = 69$

$$\boxed{Uara tū: 160 \div 8 = 20, 192 - 160 = 32, 32 \div 8 = 4, 20 + 4 = 24}$$

$$192 \div 8$$

Tau māmā: $200 \div 8 = 25$, $25 - 1 = 24$

Hauruatia, hautorutia rānei ngā tau e rua:

$$192 \div 8 = 96 \div 4 = 48 \div 2 = 24$$

Whakarearuatia, whakareatorutia rānei te tau whakawehē: $192 \div 16 = 12$, $192 \div 8 = 24$

Whakamahia te mati tahi: $20 \times 8 = 160, \text{ nō reira}, 2 \square \times 8 = 192$, $4 \times 8 = 32$, $9 \times 8 = 72$ rānei, $\square = 4$

Hautanga o te tau tuatahi: $96 \div 8 = 12$, $12 \times 2 = 24$

Te Poutama Tau

6–9

Uara tū: $90 \div 9 = 10$, $144 - 90 = 54$, $54 \div 9 = 6$, $10 + 6 = 16$

$$144 \div 9$$

Tau māmā:

He ōrite ki te tukanga o runga, ā, $180 \div 9 = 20$, $20 - 4 = 16$.

Hauruatia, hautorutia rānei ngā tau e rua:

$$144 \div 9 = 48 \div 3 = 16$$

Uara tū: $300 \div 6 = 50$, $336 - 300 = 36$, $36 \div 6 = 6$, $50 + 6 = 56$

$$336 \div 6$$

Tau māmā:

He ōrite ki te tukanga o runga, ā, $360 \div 6 = 60$, $60 - 4 = 56$.

Hauruatia, hautorutia rānei ngā tau e rua:

$$336 \div 6 = 112 \div 2 = 56$$

Whakamahia te mati tahi: $50 \times 6 = 300, \text{ nō reira}, 5 \square \times 6 = 336$, $1 \times 6 = 6$, $6 \times 6 = 36$ rānei, $\square = 6$

Hautanga o te tau tuatahi: $168 \div 6 = 28$, $28 \times 2 = 56$

Te Poutama Tau

6–9

$$345 \div 5$$

Uara tū: $300 \div 5 = 60$, $345 - 300 = 45$, $45 \div 5 = 9$, $60 + 9 = 69$

Tau māmā: $350 \div 5 = 70$, $70 - 1 = 69$

Whakarearuatia, whakareatorutia rānei te tau whakawehē: $340 \div 10 = 34$, $340 \div 5 = 68$, $345 \div 5 = 69$

$$201 \div 3$$

Uara tū: $180 \div 3 = 60$, $201 - 180 = 21$, $21 \div 3 = 7$, $60 + 7 = 67$

Tau māmā: $210 \div 3 = 70$, $70 - 3 = 67$

Whakamahia te mati tahi:

$$60 \times 3 = 180, \text{ nō reira}, 6 \square \times 3 = 201, 7 \times 3 = 21, \square = 7$$

Te Poutama Tau

6–9

Te Poutama Tau

6–9

Rautaki Whakawehē

Te Poutama Tau
Rauemi Tārua 6–9



Uara tū: $300 \div 6 = 50$, $342 - 300 = 42$, $42 \div 6 = 7$, $342 \div 6$
 $50 + 7 = 57$

Tau māmā:

He ōrite ki te tukanga o runga, ā, $360 \div 6 = 60$, $60 - 3 = 57$.

Hauruatiā, hautorutia rānei ngā tau e rua:

$$342 \div 6 = 171 \div 3 = 57$$

Whakarearuatiā, whakareatorutia rānei te tau whakawehē:

$$342 \div 18 = 19$$
, $19 \times 3 = 57$

Whakamahia te mati tahi: $50 \times 6 = 300$, nō reira, $5 \square \times 6 = 342$, $2 \times 6 = 12$, $7 \times 6 = 42$ rānei, $\square = 7$

Hautanga o te tau tuatahi: $114 \div 6 = 19$, $19 \times 3 = 57$

Te Poutama Tau

6–9

$$200 \div 8$$

Uara tū: $160 \div 8 = 20$, $200 - 160 = 40$, $40 \div 8 = 5$, $20 + 5 = 25$

Tau māmā: He ōrite ki te tukanga o runga, ā, $200 \div 8 = 25$.

Hauruatiā, hautorutia rānei ngā tau e rua:

$$200 \div 8 = 100 \div 4 = 50 \div 2 = 25$$

Whakamahia te mati tahi: $20 \times 8 = 160$, nō reira, $2 \square \times 8 = 200$, $5 \times 8 = 40$, $\square = 5$

Hautanga o te tau tuatahi: $40 \div 8 = 5$, $5 \times 5 = 25$

Te Poutama Tau

6–9

$$333 \div 9$$

Uara tū: $270 \div 9 = 30$, $333 - 270 = 63$, $63 \div 9 = 7$, $30 + 7 = 37$

Tau māmā: $360 \div 9 = 40$, $40 - 3 = 37$

Hauruatiā, hautorutia rānei ngā tau e rua:

$$333 \div 9 = 111 \div 3 = 37$$

Whakamahia te mati tahi:

$$30 \times 9 = 270$$
, nō reira, $3 \square \times 9 = 333$, $7 \times 9 = 63$, $\square = 7$

Te Poutama Tau

6–9

$$330 \div 5$$

Uara tū:

$$300 \div 5 = 60$$
, $330 - 300 = 30$, $30 \div 5 = 6$, $60 + 6 = 66$

Tau māmā:

He ōrite ki te tukanga o runga, ā, $350 \div 5 = 70 - 4 = 66$.

Whakarearuatiā, whakareatorutia rānei te tau whakawehē:

$$330 \div 10 = 33$$
, $33 \times 2 = 66$

Te Poutama Tau

6–9

Uara tū: $200 \div 4 = 50$, $228 - 200 = 28$, $228 \div 4$
 $28 \div 4 = 7$, $50 + 7 = 57$

Tau māmā: He ōrite ki te tukanga o runga, me tēnei anō hoki:
 $240 \div 4 = 60$, $60 - 3 = 57$

Hauruatiā, hautorutia rānei ngā tau e rua:

$$228 \div 4 = 114 \div 2 = 57$$

Whakamahia te mati tahi: $50 \times 4 = 200$, nō reira, $5 \square \times 4 = 228$, $2 \times 4 = 8$ or $7 \times 4 = 28$, $\square = 7$

Hautanga o te tau tuatahi: $76 \div 4 = 19$, $19 \times 3 = 57$

Te Poutama Tau

6–9

Uara tū: $140 \div 7 = 20$, $189 - 140 = 49$, $49 \div 7 = 7$, $189 \div 7$
 $20 + 7 = 27$

Tau māmā:

He ōrite ki te tukanga o runga, ā, $210 \div 7 = 30$, $30 - 3 = 27$.

Whakarearuatiā, whakareatorutia rānei te tau whakawehē:
 $189 \div 21 = 9$, $9 \times 3 = 27$

Whakamahia te mati tahi:

$$20 \times 7 = 140$$
, nō reira, $2 \square \times 7 = 189$, $7 \times 7 = 49$, $\square = 7$

Hautanga o te tau tuatahi: $63 \div 7 = 9$, $9 \times 3 = 27$

Te Poutama Tau

6–9

$$312 \div 8$$

Uara tū: $240 \div 8 = 30$, $312 - 240 = 72$, $72 \div 8 = 9$, $30 + 9 = 39$

Tau māmā: $320 \div 8 = 40$, $40 - 1 = 39$

Whakamahia te mati tahi:

$$30 \times 8 = 240$$
, nō reira, $3 \square \times 8 = 312$, $9 \times 8 = 72$, $\square = 9$

Hautanga o te tau tuatahi: $104 \div 8 = 13$, $13 \times 3 = 39$

Te Poutama Tau

6–9

Uara tū: $480 \div 4 = 120$, $504 - 480 = 24$, $24 \div 4 = 6$, $504 \div 4$
 $120 + 6 = 126$

Tau māmā:

He ōrite ki te tukanga o runga, ā, $500 \div 4 = 125 + 1 = 126$.

Hauruatiā, hautorutia rānei ngā tau e rua:

$$504 \div 4 = 252 \div 2 = 126$$

Whakarearuatiā, whakareatorutia rānei te tau whakawehē:
 $504 \div 24 = 21$, $21 \times 6 = 126$

Whakamahia te mati tahi: $120 \times 4 = 480$, nō reira,
 $12 \square \times 4 = 504$, $1 \times 4 = 4$, $6 \times 4 = 24$ rānei, $\square = 6$

Hautanga o te tau tuatahi: $252 \div 4 = 63$, $63 \times 2 = 126$

Te Poutama Tau

6–9

Rautaki Whakawehe

Te Poutama Tau
Rauemi Tārua 6–9



Uara tū: $240 \div 4 = 60$, $256 - 240 = 16$, $16 \div 4 = 4$, $256 \div 4$
 $60 + 4 = 64$

Tau māmā: He ōrite ki te tukanga o runga, ā, $280 \div 4 = 70$,
 $70 - 6 = 64$.

Hauruatia, hautorutia rānei ngā tau e rua:
 $256 \div 4 = 128 \div 2 = 64$

Whakarearuatia, whakareatorutia rānei te tau whakawehe:
 $256 \div 8 = 32$, $32 \times 2 = 64$

Whakamahia te mati tahi: $60 \times 4 = 240$, nō reira, $6 \square \times 4 = 256$,
 $4 \times 4 = 16$, $9 \times 4 = 36$ rānei, $\square = 4$

Hautanga o te tau tuatahi: $64 \div 4 = 16$, $16 \times 4 = 64$

Te Poutama Tau

6–9

$354 \div 3$

Uara tū:
 $330 \div 3 = 110$, $354 - 330 = 24$, $24 \div 3 = 8$, $110 + 8 = 118$

Tau māmā:
He ōrite ki te tukanga o runga, ā, $360 \div 3 = 120$, $120 - 2 = 118$.

Whakarearuatia, whakareatorutia rānei te tau whakawehe:
 $354 \div 6 = 59$, $59 \times 2 = 118$

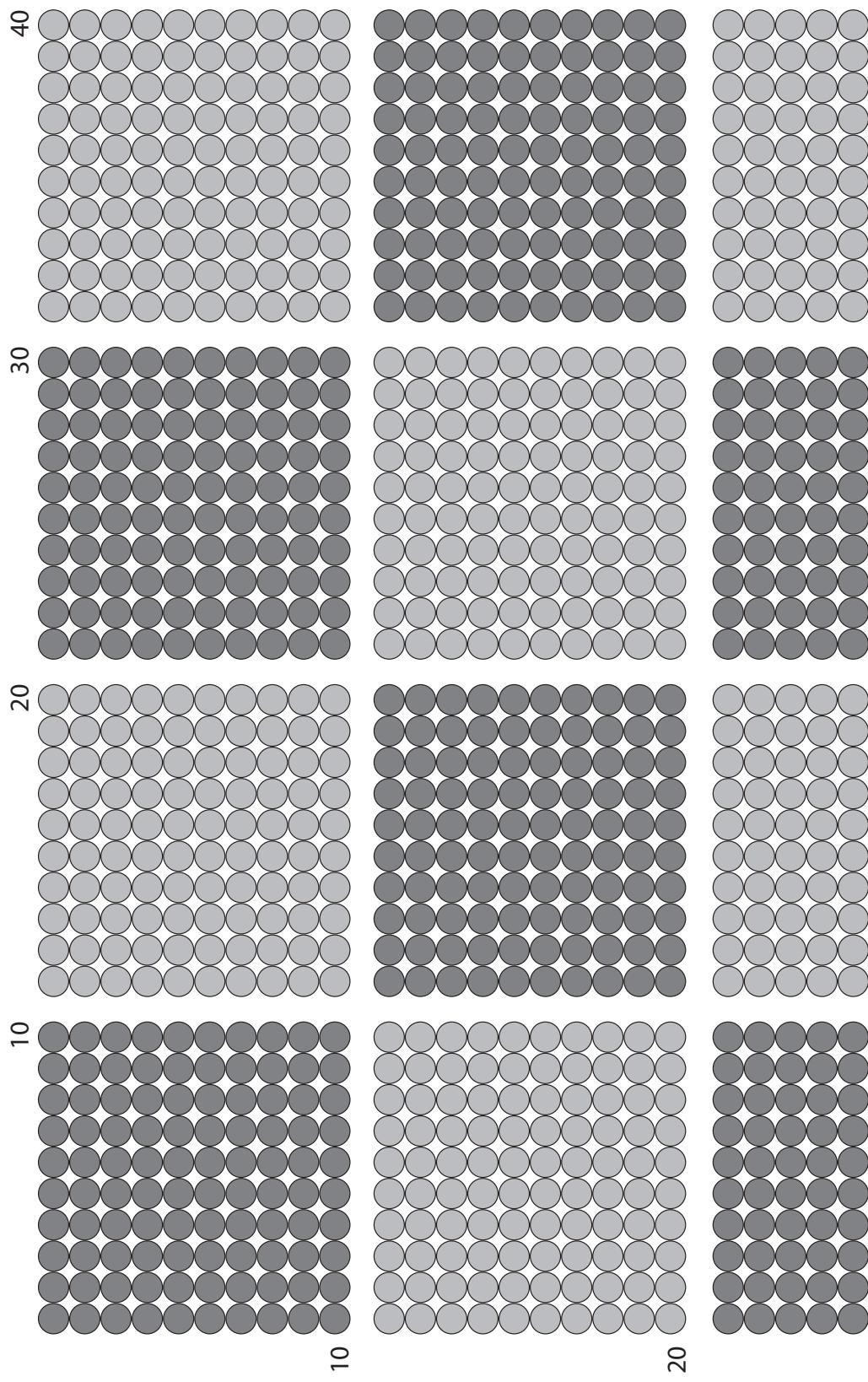
Whakamahia te mati tahi:
 $110 \times 3 = 330$, nō reira, $11 \square \times 3 = 354$, $8 \times 3 = 24$, $\square = 8$

Te Poutama Tau

6–9

Tūtōhi Tukutuku Iraira

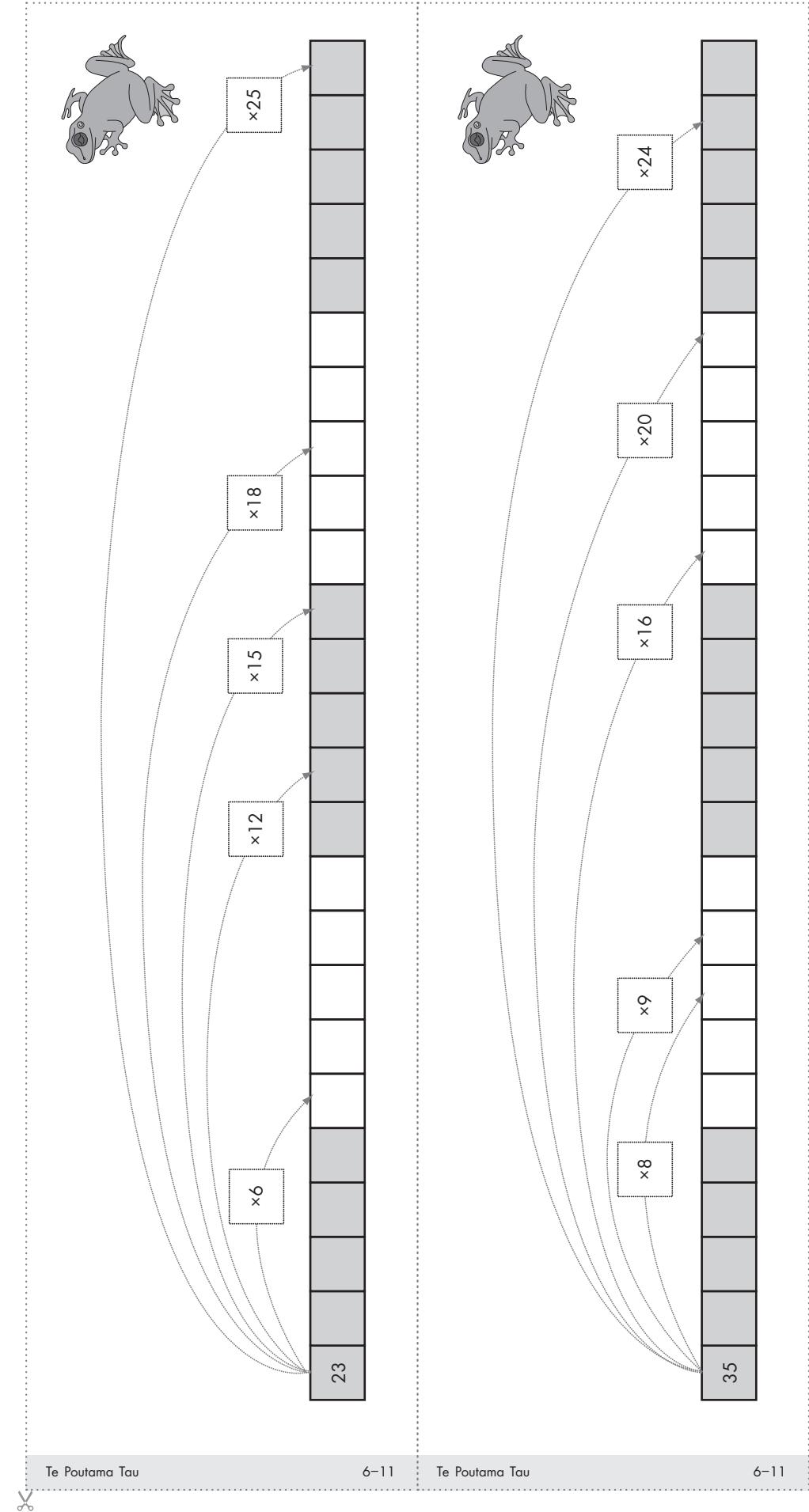
Te Poutama Tau
Rauemi Tāruat 6–10



Tarapeke Tauwehe

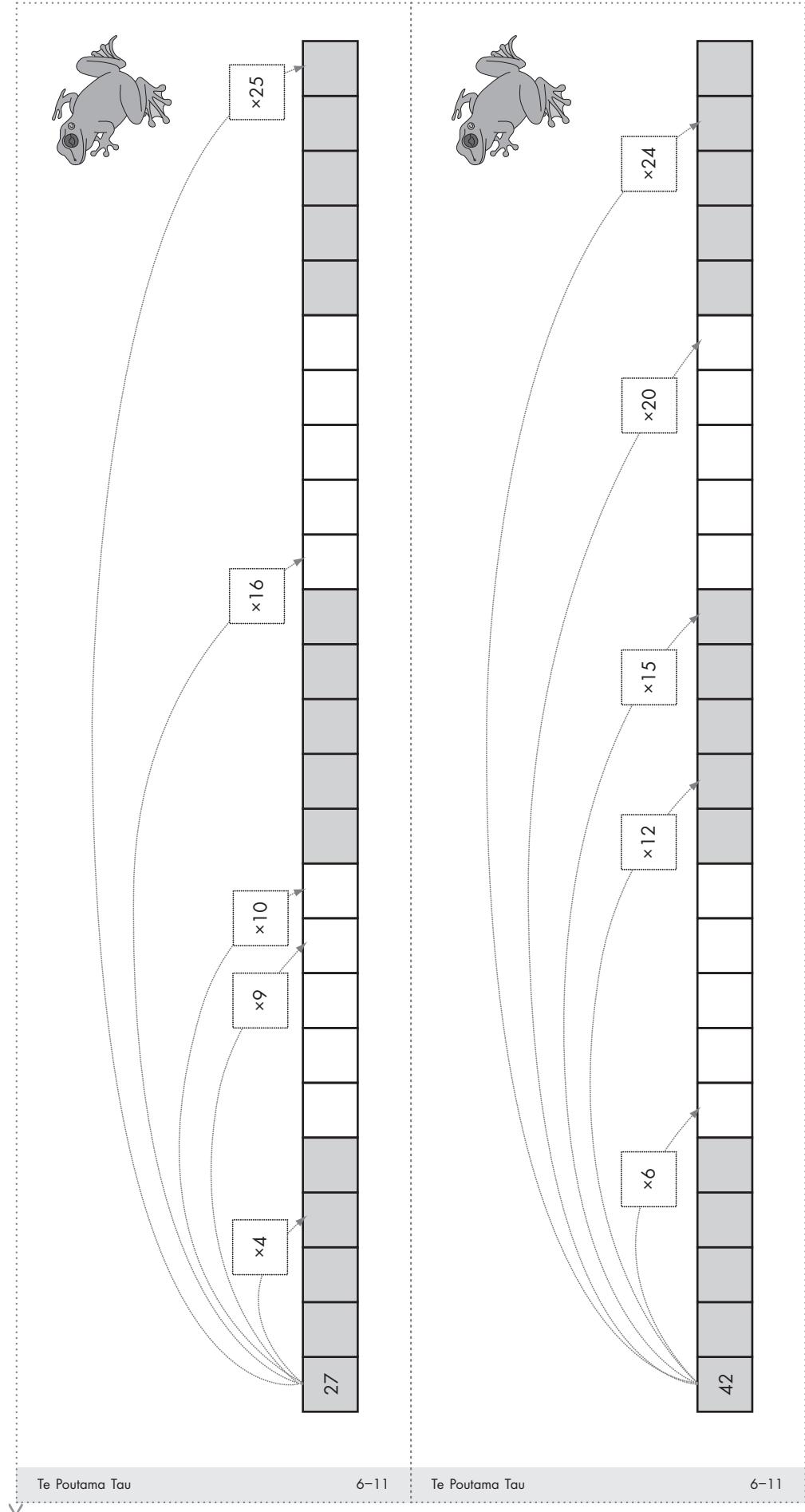
Te Poutama Tau
Rauemi Tārua 6–11

Ngā papa tākaro



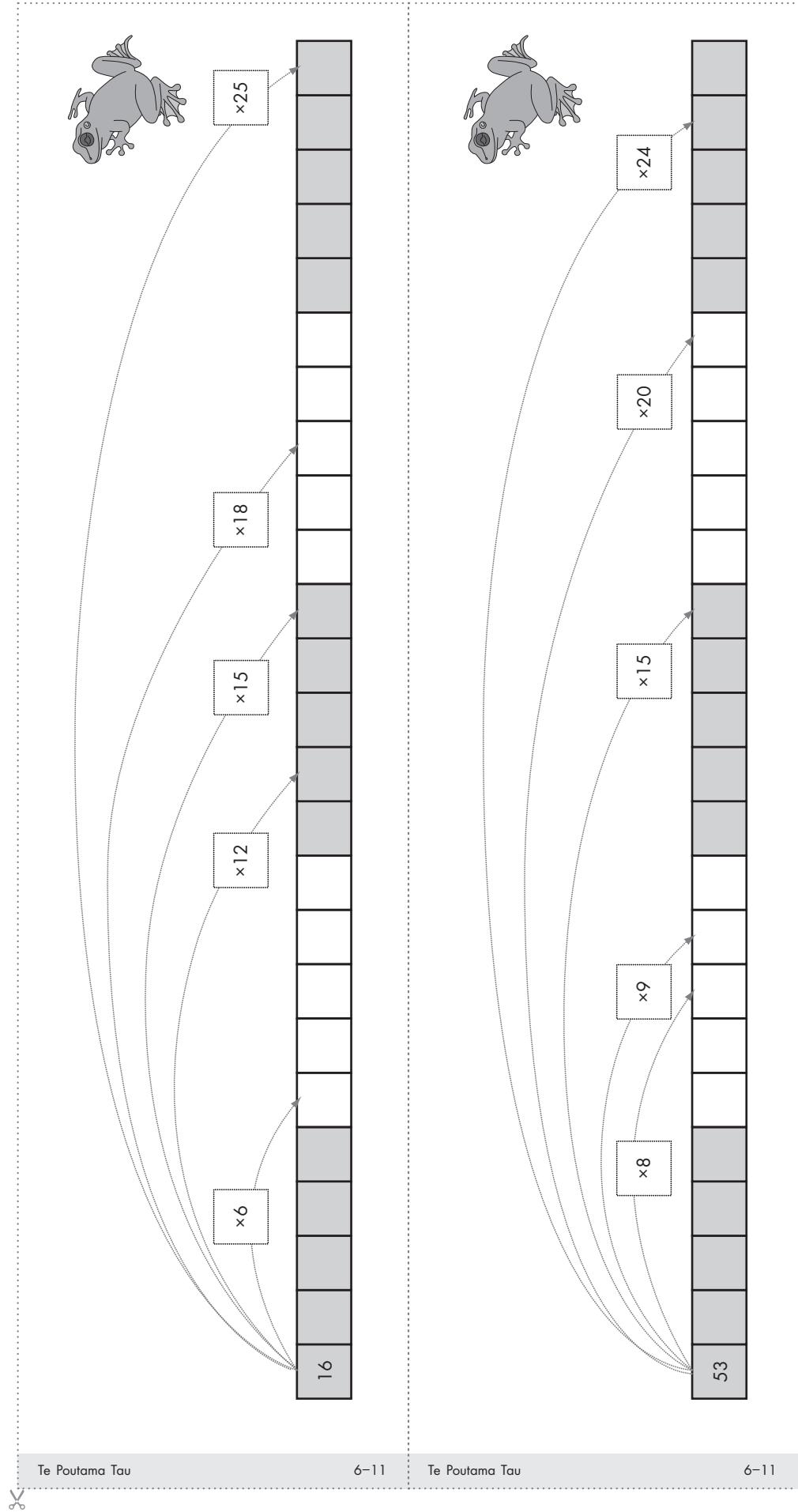
Tarapeke Tauwehe

Te Poutama Tau
Rauemi Tārua 6–11



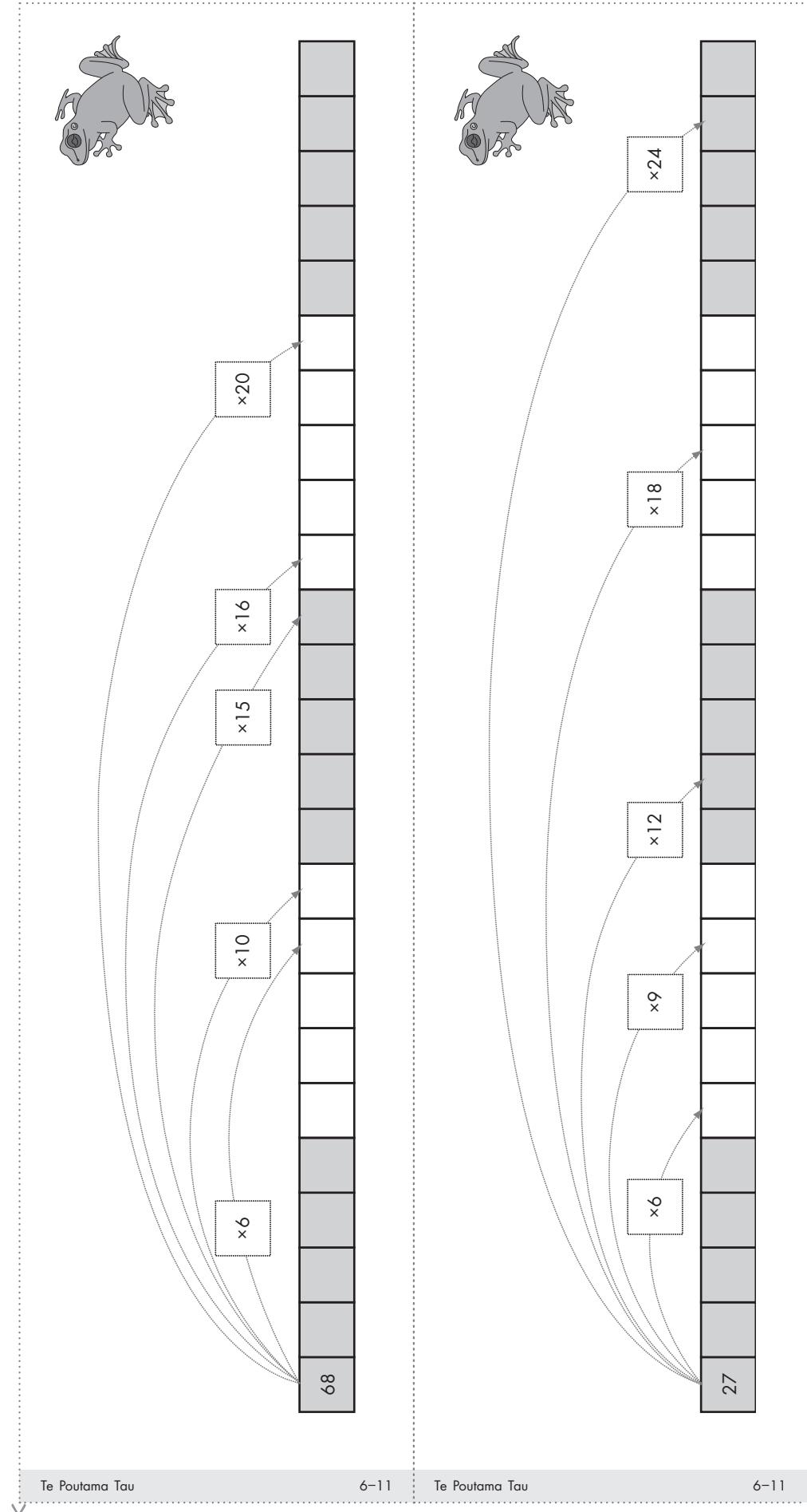
Tarapeke Tauwehe

Te Poutama Tau
Rauemi Tārua 6–11



Tarapeke Tauwehe

Te Poutama Tau
Rauemi Tārua 6–11



Tarapeke Tauwehe

Ngā kāri tauwehe

$\times 2$	$\times 2$	$\times 2$	$\times 2$
Te Poutama Tau 6-11	Te Poutama Tau 6-11	Te Poutama Tau 6-11	Te Poutama Tau 6-11
$\times 2$	$\times 2$	$\times 2$	$\times 2$
Te Poutama Tau 6-11	Te Poutama Tau 6-11	Te Poutama Tau 6-11	Te Poutama Tau 6-11
$\times 2$	$\times 3$	$\times 3$	$\times 3$
Te Poutama Tau 6-11	Te Poutama Tau 6-11	Te Poutama Tau 6-11	Te Poutama Tau 6-11
$\times 3$	$\times 3$	$\times 5$	$\times 5$
Te Poutama Tau 6-11	Te Poutama Tau 6-11	Te Poutama Tau 6-11	Te Poutama Tau 6-11

Te Poutama Tau
Rauemi Tārua 6-11

Tarapeke Tauwehe

Ngā kāri tauwehe

× 2	× 2	× 2	× 2
Te Poutama Tau 6-11	Te Poutama Tau 6-11	Te Poutama Tau 6-11	Te Poutama Tau 6-11
× 2	× 2	× 2	× 2
Te Poutama Tau 6-11	Te Poutama Tau 6-11	Te Poutama Tau 6-11	Te Poutama Tau 6-11
× 2	× 3	× 3	× 3
Te Poutama Tau 6-11	Te Poutama Tau 6-11	Te Poutama Tau 6-11	Te Poutama Tau 6-11
× 3	× 5	× 5	× 5
Te Poutama Tau 6-11	Te Poutama Tau 6-11	Te Poutama Tau 6-11	Te Poutama Tau 6-11



Te Kuputaka



Māori → Ingarihi

aho pirepire	bead string
āhuahanga	geometry
āhuatanga tātai herekore	associative property
āhuatanga tātai kōaro	commutative property
āhuatanga tātai tohatoha	distributive property
anga pirepire	Slavonic abacus, bead frame (<i>kupu kē atu: takatātai huapae</i>)
anga tekau	tens frame
anga tekau wātea	blank tens frame
arotake	review, evaluate
āwhata	scale
āwhiwhi	approximate
hātepe ōkawa	formal algorithm
haurau	hundredth (<i>tohu: $\frac{1}{100}$</i>)
hauroki	diagonal
hautau ā-ira	decimal fraction (<i>kupu kē atu: hautanga ā-ira</i>)
hautau ūrite	equivalent fraction
hautau waetahi	unit fraction
hautau waetahi-kore	non-unit fraction
hautekau	tenth (<i>tohu: $\frac{1}{10}$</i>)
horahanga	area
huānga	member (of a set)
huapae	horizontal (<i>kupu kē atu: pae, whakapae</i>)
huarea	factorial
huatango	difference (between two numbers) (<i>takenga mai: hua – outcome, product; tango – subtract</i>)
huatau	concept
hui katoa	all together
huinga	set
huripoki ~na	turn over
ipu kiriata	film canister
ira	decimal point (<i>kupu kē atu: tongi</i>)
kapa	row (<i>kupu kē atu: rārangī huapae [horizontal line]</i>)
kāri tākaro	game card
kaupae	stage (step on a ladder)
kauruku ~tia	shade
kōaro	inverse

māpere	marble
mataono tau	dice
matapae	predict
matapōkere	random (<i>kupu kē atu</i> : kapo noa, tupurangi)
mātauranga tau	number knowledge
mati	digit
matimaha	multi-digit
mati rau	hundreds digit
matirua	two digit
matitahi	single digit
mati tahi	ones digit
mati tekau	tens digit
mātiti	peg
meka matua	basic fact
mōhio wawe	immediate recall
moni hua	profit
monipuka	note (paper money)
ngaku	strip
ngaku kararehe	animal strip
ngaku pepa	paper strip
ngaku tau	number strip
ngohe	activity, task
ōrau	percent (<i>kupu kē atu</i> : pāihēneti)
otinga	result, solution
otinga kōwhiriwhiri	cartesian product
ōwehenga	ratio
paheko kōaro	inverse operation
paheko tāhūrua	binary operation
paheko tau	number operation
paihere ~a ~nga	bundle
paipa ā-ira	deci-pipe
pākete	1. packet 2. bucket
pakitau	number story
paparanga uara tū	place value hierarchy
paparau	hundreds board
paparau hurahura	hundreds board flip array

pāpātanga	rate
parehe	pizza
paremata ~tia	compensate, compensation
pātuhi	button or key on a calculator or computer
pepa tukutuku	grid paper
pīni	bean
pīrori ~a	roll (a dice)
poraka	block (<i>kupu kē atu:</i> poro)
poraka honohono	multi-link cubes (blocks)
pororapa	ellipse
porotiti	counter (<i>kupu kē atu:</i> pātene)
porotiti pūataata	transparent counter
pou	column (<i>kupu kē atu:</i> rārangi pou [vertical line])
poutū	vertical (<i>kupu kē atu:</i> pou, poupou)
pūataata	transparent
puka mano	thousands book
pūkei kāri	pack of cards (<i>kupu kē atu:</i> pūranga kāri)
pūmahara	memory
pūmau	invariant, unchanging
pūnaha tau	number system
pūrua ~tia	power of two (square of a number) (<i>tohu:</i> ²)
pūtakerua	square root (<i>tohu:</i> $\sqrt{}$)
pūtaketoru	cube root (<i>tohu:</i> $\sqrt[3]{}$)
pūtoru ~tia	power of three (cube of a number) (<i>tohu:</i> ³)
putunga kāri	stack of cards
rapanga	problem
rārangi hautau	fraction number line
rārangi tau	number line (<i>kupu kē atu:</i> aho tau)
rārangi tau ā-ira	decimal number line
rārangi tau wātea	blank number line
rauemī tārua	copymaster
rauemī uara tū	place value equipment
raupapa ~hia	sequence, put in order
raupapatanga paheko	sequence of operations
rautaki ā-hinengaro	mental strategy
rautaki tau	number strategy

rearua ~tia	double
(te) reo matatini o te pāngarau	mathematical literacy
riwhiriwhi ~a	shuffle (cards)
roha ~ina	expand, spread out
tāhūrua	binary
takirua	pair, in twos (<i>kupu kē atu: punaruua</i>)
takirua tau	number pair
takitahi	single
tapeke	total
tāpiritanga ōrite	equal addition
tātaitai	calculator
tatau ake	count on
tatau māwhitiwhiti	skip count
tatau pānga tahi	one to one counting
tau ā-ira	decimal
tauanga	statistics
tauhono	addend (number being added)
tau māmā	easy number, tidy number
tau ngahuru	tens number (10, 20, 30 ...)
tauoti	whole number
taupū	power, exponent (<i>kupu kē atu: pū</i>)
taurangi	1. algebra 2. variable
tauraro	denominator
tauraro pātahi	common denominator
taurea	multiple
taurea pātahi	common multiple
tau roha	expanded number
taurunga	numerator
tautohu ~a	identify
tau toitū	prime number
tau tōpū	integer
tau tōraro	negative number (<i>tohu: -</i>)
tau tōrunga	positive number (<i>tohu: +</i>)
tauwehe	factor
tauwehe pātahi	common factor
tohu ōrite	equal sign

tohutau	numeral
tongi	dot (<i>kupu kē atu: ira</i>)
tūāpapa	foundation
tuhinga ōkawa	formal written form
tūhura ~tia ~tanga	investigate, investigation
tukutuku	grid
tūmau	identity element
ture whakawehenga	divisibility rule
tūtahi	whole (<i>kupu kē atu: katoa</i>)
tūtohi	chart, table
tūtohi tukutuku	array
uara tū	place value
waeine	unit of measurement
wāwāhi ~a	partition, break down (<i>kupu kē atu: wāhi ~a</i>)
wāwāhi uara tū	place value partitioning
whakaahua ā-hinengaro	mental image
whakaaro arorau	logical thinking
whakaaro pānga riterite	proportional reasoning
whakaaro tāpiri	additive thinking
whakaaro whakarea	multiplicative thinking
whakaawhiwhi ~a	round (a number)
whakarea ~tia ~tanga	multiply, multiplication
whakatairite	compare (<i>kupu kē atu: whakataurite ~a</i>)
whakatau tata	estimate
whakatepae	in a horizontal direction
whakatepou	in a vertical direction
whakawehe ~a ~nga	divide, division (<i>tohu: ÷</i>)
whakawehenga tohatoha	partitive division
whakawehenga whakarōpū	quotitive division
whakawhiti ~a	exchange, cross over
whare uara tū	place value house
wharewhare	housie, bingo
whārite	equation
whenu	strand
whētui ~a	fold
whiriwhiri ~a ~nga	work out (an answer)
whitianga	diameter

Ingarihi → Māori

activity, task	ngohe
addend (number being added)	tauhono
additive thinking	whakaaro tāpiri
algebra	taurangi
all together	hui katoa
animal strip	ngaku kararehe
approximate	āwhiwhi
area	horahanga
array	tūtohi tukutuku
associative property	āhuatanga tātai herekore
basic fact	meka matua
bead string	aho pirepire
bean	pīni
binary	tāhūrua
binary operation	paheko tāhūrua
bingo	wharewhare
blank number line	rārangī tau wātea
blank tens frame	anga tekau wātea
block	poraka (<i>kupu kē atu</i> : poro)
bucket	pākete
bundle	paihere ~a ~nga
button or key on a calculator or computer	pātuhi
calculator	tātaitai
cartesian product	otinga kōwhiriwhiri
chart, table	tūtohi
column	pou (<i>kupu kē atu</i> : rārangī pou [vertical line])
common denominator	tauraro pātahi
common factor	tauwehe pātahi
common multiple	taurea pātahi
commutative property	āhuatanga tātai kōaro
compare	whakatairite ~a (<i>kupu kē atu</i> : whakataurite ~a)
compensate, compensation	paremata ~tia
concept	huatau
copymaster	rauemī tārua
count on	tatau ake

counter	porotiti (<i>kupu kē atu: pātene</i>)
cube root	pūtaketoru (<i>tohu: $\sqrt[3]{}$</i>)
decimal	tau ā-ira
decimal fraction	hautau ā-ira (<i>kupu kē atu: hautanga ā-ira</i>)
decimal number line	rārangī tau ā-ira
decimal point	ira (<i>kupu kē atu: tongi</i>)
deci-pipe	paipa ā-ira
denominator	tauraro
diagonal	hauroki
diameter	whitianga
dice	mataono tau
difference (between two numbers)	huatango (<i>takenga mai: hua – outcome, product; tango – subtract</i>)
digit	mati
distributive property	āhuatanga tātai tohatoha
divide, division	whakawehe ~a ~nga (<i>tohu: ÷</i>)
divisibility rule	ture whakawehenga
dot	tongi (<i>kupu kē atu: ira</i>)
double	rearua ~tia
easy number	tau māmā
ellipse	pororapa
equal addition	tāpiritanga ūrite
equal sign	tohu ūrite
equation	whārite
equivalent fraction	hautau ūrite
estimate	whakatau tata
exchange, cross over	whakawhiti ~a
expand, spread out	roha ~ina
expanded number	tau roha
exponent, power	taupū (<i>kupu kē atu: pū</i>)
factor	tauwehe
factorial	huarea
film canister	ipu kiriata
fold	whētui ~a
formal algorithm	hātepe ūkawa
formal written form	tuhinga ūkawa
foundation	tūāpapa

fraction number line	rārangi hautau
game card	kāri tākaro
geometry	āhuahanga
grid	tukutuku
grid paper	pepa tukutuku
horizontal	huapae (<i>kupu kē atu</i> : pae, whakapae)
housie	wharewhare
hundreds board	paparau
hundreds board flip array	paparau hurahura
hundreds digit	mati rau
hundredth	haurau (<i>tohu</i> : $\frac{1}{100}$)
identify	tautohu ~a
identity element	tūmau
immediate recall	mōhio wawe
in a horizontal direction	whakatepae
in a vertical direction	whakatepou
integer	tau tōpū
invariant, unchanging	pūmau
inverse	kōaro
inverse operation	paheko kōaro
investigate, investigation	tūhura ~tia ~tanga
logical thinking	whakaaro arorau
marble	māpere
mathematical literacy	(te) reo matatini o te pāngarau
member (of a set)	huānga
memory	pūmahara
mental image	whakaahua ā-hinengaro
mental strategy	rautaki ā-hinengaro
multi-digit	matimaha
multi-link cubes (blocks)	poraka honohono
multiple	taurea
multiplicative thinking	whakaaro whakarea
multiply, multiplication	whakarea ~tia ~tanga
negative number	tau tōraro (<i>tohu</i> : -)
non-unit fraction	hautau waetahi-kore
note (paper money)	monipuka

number knowledge	mātauranga tau
number line	rārangī tau (<i>kupu kē atu</i> : aho tau)
number operation	paheko tau
number pair	takirua tau
number story	pakitau
number strategy	rautaki tau
number strip	ngaku tau
number system	pūnaha tau
numeral	tohutau
numerator	taurunga
one to one counting	tatau pānga tahi
ones digit	mati tahi
pack of cards	pūkei kāri (<i>kupu kē atu</i> : pūranga kāri)
packet	pākete
pair, in twos	takirua (<i>kupu kē atu</i> : punarua)
paper strip	ngaku pepa
partition, break down	wāwāhi ~a (<i>kupu kē atu</i> : wāhi ~a)
partitive division	whakawehenga tohatoha
peg	mātiti
percent	ōrau (<i>kupu kē atu</i> : paihēneti)
pizza	parehe
place value	uara tū
place value equipment	rauemī uara tū
place value hierarchy	paparanga uara tū
place value house	whare uara tū
place value partitioning	wāwāhi uara tū
place value pipe	paipa uara tū
positive number	tau tōrunga (<i>tohu</i> : $^+$)
power, exponent	taupū (<i>kupu kē atu</i> : pū)
power of three (cube of a number)	pūtoru ~tia (<i>tohu</i> : 3)
power of two (square of a number)	pūrua ~tia (<i>tohu</i> : 2)
predict	matapae
prime number	tau toitū
problem	rapanga
profit	moni hua
proportional reasoning	whakaaro pānga riterite

quotitive division	whakawehenga whakarōpū
random	matapōkere (<i>kupu kē atu</i> : kapo noa, tupurangi)
rate	pāpātanga
ratio	ōwehenga
result, solution	otinga
review, evaluate	arotake
roll (a dice)	pīrori ~a
round (a number)	whakaawhiwhi ~a
row	kapa (<i>kupu kē atu</i> : rārangi huapae [horizontal line])
scale	āwhata
sequence of operations	raupapatanga paheko
sequence, put in order	raupapa ~hia
set	huinga
shade	kauruku ~tia
shuffle (cards)	riwhiriwhi ~a
single	takitahi
single digit	matitahi
skip count	tatau māwhitiwhiti
Slavonic abacus, bead frame	anga pirepire (<i>kupu kē atu</i> : takatātai huapae)
square root	pūtakerua (<i>tohu</i> : $\sqrt{}$)
stack of cards	putunga kāri
stage (step on a ladder)	kaupae
statistics	tauanga
strand	whenu
strip	ngaku
tens digit	mati tekau
tens frame	anga tekau
tens number (10, 20, 30 ...)	tau ngahuru
tenth	hautekau (<i>tohu</i> : $\frac{1}{10}$)
tidy number	tau māmā
thousands book	puka mano
total	tapeke
transparent	pūataata
transparent counter	porotiti pūataata
turn over	huripoki ~na
two digit	matirua

unit fraction	hautau waetahi
unit of measurement	waeine
variable	taurangi
vertical	poutū (<i>kupu kē atu</i> : pou, poupou)
whole	tūtahi (<i>kupu kē atu</i> : katoa)
whole number	tauoti
work out (an answer)	whiriwhiri ~a ~nga



Pukapuka Tuaono

1 2 3 4 5 6 7 8

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HE KUPENGA HAQ I TE REO



Te Kawanatanga o Aotearoa