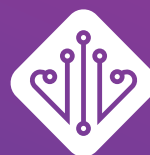


Tau 6 Ngā Rauemi mā te Kaiako



Māpura Matihiko
Digital Ignition

Whakarākei Ringa Tāhūrua

He Whakamārama:

Ka whai wā te ākonga ki te ako me pēhea te whakamahi i ngā pū ki roto o ngā mahi tāhūrua. Ko tā rātou, he hanga karere-huna kia hāngaia i tētahi whakarākei ringa tāhūrua.

Te Tiaroaro Marau - Ngā Whainga Paetae

Te Marau Hangarau o Aotearoa: Hangarau Matihiko

Te Tupuranga

Whakaaro Rorohiko:

Whakatupuranga 3

Ko te waihanga papatono rorohiko

- Ka whakawhanake i tōna mōhiotanga ki te pūtake o te hātepe hei mahi waihanga papatono rorohiko.

Te Marau o Ngā Reo

Te Whakawhiti Whakaaro:

Taumata 1 me te 2

I ngā horopaki reo, ahurea-pāpori kua tīpakohia, koinei ngā mahi ka oti e te ākonga:

I runga i te tīpako me te whakamahi i te reo, i ngā tohu, i ngā tānga hei whakawhiti whakaaro

- Te kapo me te waihanga mōhiotia; I runga i te whakataki i a ia, me te whakapā atu ki ētahi atu
- Te hanga me te whakautu i ngā pātai me ngā tono; I runga i te uru atu me te whai wahi atu ki ngā hāpori
- Te whakaatu i te mārama ki ngā āhuatanga pāpori i roto i āna mahi tahi, kōrero tahi ki ētahi atu.

Ngā Taipitopito Awheawhe

Ngā Putanga Ako

Ka tāea e ngā ākonga te:

- Mārama e rua ngā āhua mō ngā raraunga tāhūrua.
- Mārama ka tāea rātou i te whakamahi i ngā uara rerekē hei whakaatu i ngā āhua rerekē o te tāhūrua
- Kite i ngā hanganga rerekē o ngā tāhūrua i roto i ngā mahi o ia rā.
- Te whakamahi pū hei whakaatu tāhūrua.

Ngā Taputapu

- [] He ngohe tāhūrua whakarākei ringa
- [] He māhere pū tāhūrua
- [] Pene rākau karakara
- [] Kutikuti
- [] Tāpia

Te roanga

- 30 mīniti

Ngā whakaritenga

- I mua i te tīmatatanga o te akoranga, mā te kaiako e tāruatia e ngā pepa ngohe mā ngā ākonga.
- Tāruatia hoki te mahere o ngā pū (tāhūrua) mō ngā ākonga kia taki-rua te atawhai, kia atawhai ā-rōpū rānei.
- Me whānui, me hohonu hoki, tō māramatanga mō ngā āhuetanga tāhūrua me tōna whakamahinga kia whakaariari ai i ngā pū. Pānuiatia ngā kōrero kua tuhia ki te whārangi ipurangi kei raro iho hei rauemi anō māu. <https://www.sciencefriday.com/educational-resources/write-your-name-in-binary-code/>
- Hei mōhiotanga māu, mehemea ka tirohia ēnei rauemi, ka kitea kua hurihia ngā pū hei nama kē kia māmā ai te mārama.

Mahere Ako

He whakatakinga

1. Hōatu he horopaki pōhewa ki ngā ākonga kia akiaki ai i tā rātou pīrangi kia whakamahi i ngā kōrero huna. Kei ā koe te tikanga me pēhea te whakatakotoranga o ngā whakaaro, ēngari me pūrakau tonu te āhua o ngā kōrero me tōna whakapuakitanga. Hei tauira, he pūrahōrua koe, ko tāu he whāki ki āu hoa mahi me pēhea koutou e aukati ai i ētahi mahi nanakia, mahi kino rānei. Ka tāea rānei e koe te pānui pakiwaitara ki ngā ākonga e hāngai ana ki ngā pūrahōrua, ā, mā rātou anō e waihanga i ō rātou ake kōrero huna. Hei te mutunga, māu e whakamōhio ki ngā ākonga kua akona kētia e rātou i ngā āhuetanga o te waehe i roto i ngā akoranga Māpura Matihiko Tau 6

Te Whakahaere Mahere Ako

1. Me mau pai ki ngā whakamāramatanga mō te kaupapa 'tāhūrua', koia he pūnaha e rua noa iho ngā āhua.
2. Pāhotia atu ki ngā ākonga he aha ngā mahi kei mua i ā rātou, arā, he hanga whakarākei ringa tāhūrua. Mā rātou hoki e tā i ētahi kōrero huna ki runga i te taonga whakarākei ringa.
3. Whakaharatau me pēhea te whakaariari pū mā te whakamahi tāhūrua.
4. Whakaatungia Te Mahere Pū Tāhūrua mā runga i te mīhini tukuata, tohaina rānei ngā mahere ki te kore āu mīhini tukuata.
5. Tohaina ngā pepa ngohe ki ngā ākonga.
6. Mā ngā ākonga anō e whiriwhiria he aha ngā kōrero huna ka tuhia e rātou. Mā te kaiako ēnei tohutohu e tohaina.
7. Whakamōhio atu ki ngā ākonga kei ā rātou te tikanga kia tukua ā rātou tāonga whakarākei ringa hei koha mā tētahi atu. Kei ā rātou hoki te tikanga kia tuhi kōrero whakamihi ki taua tangata anō.
8. Me kōwhiri e te ākonga i ngā tae e rua – ko te tae tuatahi hei waitohu i te nama '0 – kore', ā, ko te tae tuarua ka waitohungia te nama '1 – tahi'.

Te Whakahaere Māhere Ako

9. Kia pai te rere o āu tohutohu kia mārama pai ai ngā ākonga, ko ngā pouaka kua karakara kētia, e whakaariari ana i te 'waehere tāhūrua' mō taua reta.
10. Whakaki atu ki ngā ākonga hei te otinga o ngā mahi, ka tāea e rātou te whakamau i te taonga whakārakei ki ō rātou ringaringa. Anō nei, mā ngā ākonga o tēnei akomanga anake e whai māramatanga ki ngā kōrero huna kua tuhia.
11. Me whai wā ngā ākonga hei whakaoti i ā rātou tuhinga i roto i te reo tāhūrua.
12. Tohutohua ngā ākonga kia whakawhitiwhitia ā rātou tāonga whakarākei ringa ki tētahi ākonga kē. Mā ia ākonga e wetewete i ngā kōrero tāhūrua kua tuhia e tōna hoa.
13. Me mahi tahi ngā ākonga kia kimihia ngā hapa, ā, he mahi takirua tēnei.
14. Tohutohua ngā ākonga kia tapahia ā rātou taonga whakarākei ringa.
15. Mehemea e pīrangi ana ngā ākonga kia whakamau tonu i ngā taonga, whakamaua ki ō rātou ringaringa.

Te Whakamutunga

1. Mā te kaiako ngā ākonga e whakamahara, e mārama noa iho ana ngā rorohiko ki te reo tāhūrua, arā, ngā nama 0 me te 1 anake.
2. Pātaihia ki ngā ākonga mō ngā wāhi e whakamahia ai te tāhūrua e ngā tāngata hurinoa i ā ratou? (Hei tauira, e pai ana ngā whakautu e kiia ana e rua noa iho ngā āhua tō ia pūnaha. Tauira tuatahi, he whakamahi-ā-matihiko i tōna whakamahinga pēnei tonu i ngā pātuhi o te papa pātuhi e kiia ana "key-up" (kāore anō kia patohia), "key-down" rānei, kua patohia kētia. Tauira tuarua, he pūnaha hiko-kore pēnei i te tuhi matapō, ki konei whakaariari ai ngā pū hei ira kati, ira kati-kore, he papa kēhi board rānei ka kitea ai ngā tima e rua e waitohu ana ki te kara kikorangi me te kara whero hoki.

He ngohe torohanga

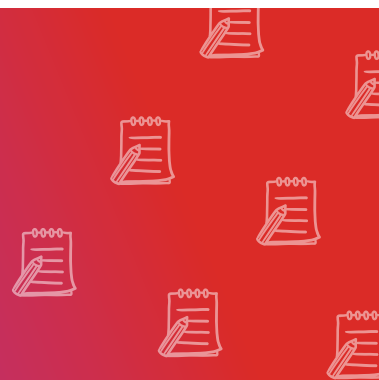
1. Tohua ngā ākonga kia rangahau i ngā tauira i whakamahia i roto i ngā mahi Raranga.
2. Hei te mutunga me tū ia ākonga ki te whakapuaki i ō rātou rangahau.
3. Me whakawhitiwhiti kōrero mō ngā āhuatanga o te tāhūrua, anō nei ngā pēheatanga e whakaariari ana i ngā mahi raranga ki roto i ngā mahi tāhūrua (arā, ngā āhua e rua, tuatahi) te kume 'mā runga', 'mā raro' hoki, 2) te whakamahi i ngā harakeke kua tāwaia, a, ngā harakeke kāore anō kia tāwaia).

Papa Ngā Kupu Hou

Tāhūrua

He pūnaha me ngā āhua e rua.

Ētahi atu rauemi mā te kaiako



Rauemi	Whakamāramatanga
BBC Bitesize Tāhūrua Data and Representation https://www.bbc.com/education/guides/zqyrq6f/revision	<p>Kei tēnei whārangi ipurangi i ētahi pitopito kōrero, paku kiriata hoki, e hāngai ana ki ngā āhuatanga o ngā rorohiko i tēnei ao, ngā tāhūrua me te mawe raraunga, ngā taputapu rorohiko, tūhononga, pūmanawa rorohiko, putu raraunga me te mahi papatono.</p>
Mahi Rorohiko https://www.bbc.com/education/subjects/z34k7ty	<p>Kei tēnei whārangi ipurangi i ētahi pitopito kōrero, paku kiriata hoki, e hāngai ana ki ngā āhuatanga o ngā rorohiko i tēnei ao, ngā tāhūrua me te mawe raraunga, ngā taputapu rorohiko, tūhononga, pūmanawa rorohiko, putu raraunga me te mahi papatono.</p>
CS Unplugged: Mawe Whakaahua https://classic.csunplugged.org/wp-content/uploads/2014/12/unplugged-02-image_representation.pdf	<p>Ko ngā Mahere akoranga ā CS Unplugged e hāngai ana ki ngā tāhūrua me ōna pikitia whakaariari.</p>
He Rauemi Anō https://www.csunplugged.org/en/	<p>He whārangi ipurangi tēnei kua kohia ai ngā rauemi maha (maha kē atu i ngā rauemi kua whakaaturia kētia) hei whakamahinga mō ngā kaiako me ā rātou ākonga.</p>
Code.org Unplugged https://code.org/curriculum/unplugged	<p>Kua kohikohia e Code.org i tētahi rārangi akoranga kia whakaako ai i te tino ngako o te māpura matihiko ahakoa he rorohiko tā tētahi kāore rānei. Ka tāea tonu te whakaako i ēnei akoranga hei kaupapa matua, hei akoranga rānei e kīnaki ana i tētahi akoranga kē e hāngai ana ki te ao hangarau matihiko.</p>
Ngā Kōhī https://studio.code.org/courses?view=teacher	<p>E whakaako ana e Code.org i ngā akoranga mō ngā ākonga kei te reanga K-12, ā, mō ngā kaiako hoki e rapu ana i ngā akoranga whakangūngū. Ka tāea e koe te rehita mō ēnei akoranga, ā, kāore hoki he utu. Ko tētahi atu painga, māu anō e whiriwhiri i te roanga, i te rāpopoto rānei, o te wā hei wā ka oti ai koe i ēnei ara akoranga katoa. Kei reira hoki he rōpū kaiako e kaha ana ki te whakawhitiwhiti kōrero, whakawhitiwhiti whakaaro hoki, mō ā rātou hīkoinga aha atu rānei.</p>

Rauemi	Whakamāramatanga
Mā ngā Ākonga https://studio.code.org/projects/public	<p>Kei te wahanga 'kaupapa o te whārangi ipurangi a Code.org e āhei ai ngā ākonga kia waihanga kēmu kia tākarohia e ētahi atu, ā, kia tākaro rānei i ngā kēmu kua waihangatia e ngā ākonga huri noa i te ao.</p>
He Haora Waehere https://code.org/learn	<p>Nā Code.org i waihanga i te kaupapa e kiia nei ko te 'Hour of Code', ko te aronga o tēnei he atawhai i ngā akoranga-ā-hiko e pā ana ki ngā mahi waehere mō ngā tamariki ahakoa he aha te pakeke. Ko te hanganga o ēnei akoranga-ā-hiko he whakamahi i ngā atāmira, me kīī, e whakamahia ai ngā tuāhua tangata rongonui e mōhio whānuitia ai e ngā tamariki katoa o te ao, pēnei tonu i a Minecraft, Star Wars, Moana and Frozen. Ko te nuinga o ēnei akoranga-ā-hiko kua tuhia ki ngā reo maha, ko ētahi kua tuhia hoki ki te reo Māori. Ko tētahi hua anō ka puta i ēnei akoranga ko te whakaako i ngā momo tikanga- ā-iwi (pēnei tonu i te Gamefroot's Mihi Maker).</p>
GameFroot Te Hanga Mihi http://make.gamefroot.com/#/activity/mihi-maker	<p>He peka anō tēnei o te Hour of Code, ā, i waihangatia e Gamefroot i ētahi akoranga-ā-hiko e whakaako ana i ngā taonga e tino hāpai ana i ngā mahi tuhi waehere, hēoi, ko tētahi aronga anō ā rātou he whakaako ki te minenga me pēhea e whakatakoto ai i te pepehā o te tangata. Ka kitea whānuitia te reo Māori ki tēnei o ngā akoranga-ā-hiko.</p>
Scratch Paetukutuku https://scratch.mit.edu/	<p>Kei te whārangi ipurangi ā Scratch ētahi hotaka kua whakaritea kētia, mā ēnei hōtaka e tāea ai ngā ākonga te auahatia ngā pakiwaitara matihiko, ngā kēmu, ngā pakiwaituhi hoki. Ka tāea hoki ngā ākonga te pupuri, te atawhai rānei i ēnei hanganga kia kitea ai e te minenga.</p>
Ngā Akoako Ataata https://scratch.mit.edu/help/videos/	<p>Kei te whārangi ipurangi o Scratch tētahi rārangi ataata e mau ana i ngā akoranga ataata e whakaatu ana i ngā tini pūkenga kia mārama mai ai koe me pēhea te whakamahi i a Scratch.</p>
N gā Akoako kua whakaritea e ngā Kaimahi http://scratch.redware.com/videos	<p>Kei tēnei whārangi ipurangi ētahi ataata e whakaatu ana me pēhea te whakamahi i a Scratch.</p>
Paetukutuku Hanga Paraka http://learn.makeblock.com/	<p>Kei te whārangi Make Block ētahi pitopito kōrero e whakapuaki ana me pēhea te whakatū, whakahaere, (taupānga) hoki i te mBot.</p>
Te Papatonomā te mParaka http://learn.makeblock.com/en/getting-started-programming-with-mblock/	<p>Ahakoa ngā uauatanga mā ngā ākonga kia mārama i ngā tuinga Pākeha kua tuhiaki tēnei whārangi ipurangi (nā ngā raruraru whakapākeha i arā ake), e tāea tonu ana e tēnei whārangi ki te whakahora i ētahi whakaaro pai e hāngai ana ki ngā Mahere ako hei tirohanga mā ngā kaiako</p>
Udemy mBot for Beginners https://www.udemy.com/mbot-for-beginners/	<p>He kōhi uDemy utukore hei tākaro, hei hōtaka hoki i te mBot.</p>
Technology Online / Te Kete Ipurani Paetukutuku ipurangi: http://technology.tki.org.nz/Resources	<p>Kei tēnei whārangi ipurangi ētahi rauemi whakahāpai marau, rauemi hoki mō ngā kaiako e pā ana ki ngā mātauranga hangarau ki roto o Aotearoa.</p>

Rauemi	Whakamāramatanga
NgāKarere Waehere http://technology.tki.org.nz/content/download/37496/188868/file/A0224_Exchange_CT_Coded_messages_006.pdf	<p>Ahakoia ngā uauatanga mā ngā ākonga kia mārāma i ngā tuhinga Pākehā kua tuhia ki tēnei whārangi ipurangi (nā ngā raruraru whakapākehā i arā ake), e tāea tonu ana e tēnei whārangi ki te whakahora i ētahi whakaaro pai e hāngai ana ki ngā Mahere ako hei tirohanga mā ngā kaiako.</p>
Disney Moana: Tuhuratanga mā te Tohu Waehere https://partners.disney.com/hour-of-code/wayfinding-with-code	<p>I hangaia e Disney tētahi akoranga-hiko e whakaatungia ana te kiriata 'Moana'. He momo kēmu akoranga tēnei e whakaako ana i ngā āhuetanga o ngā mahi waehere me ngā mahi pūmanawa rorohiko. He hononga tō te kēmu nei ki te kaupapa 'Hour of Code', a, kua tuhia katoatia ki ngā reo e 180, ki roto i ngā reo hoki nō te moana-nui-a-kiwa pera i ā Hāmoa.</p>
Papa Kupu Whakaaroaro Rorohiko Tauira Marautanga http://technology.tki.org.nz/Technology-in-the-NZC/CT-Progress-outcomes-exemplars-and-snapshots Te Whakahoahoa me te Whakawhanake Huanga Matihiko http://technology.tki.org.nz/Technology-in-the-NZC/DDDO-Progress-outcomes-exemplars-and-snapshots	<p>Kua whakatinanahia e Te Tāhuhu o te Mātauranga i ētahi mahi whakapakari i te marautanga hangarau ki ngā marautanga maha. He whakaaturanga e wātea ana hei tauira mō ngā rautaki whakaako hangarau kei te whārangi ipurangi.</p>

Kupu Hou	
Whakamatariki	He mahi wāwāhi i tētahi raru ki ētahi wāhanga ririki.
Hātepe	He ara tohutohu ki te whakatika i tētahi rapanga. He ngāwari, ka mārāma hoki te whai atu.
Iro	Kua rerekē te hua o te hātepe ki tāu i whakaaro ai.
Patuiro	<p>He tukanga hei kimi me te whakatika i tētahi raru kei roto i tētahi hātepe.</p> <p>Te tukanga patuiro:</p> <ol style="list-style-type: none"> Timatahia mai i te timatanga o te hātepe Whai atu i nga tohutohu kia puta ake he raru mai i te hātepe Whakatikahia i tērā raru Ka timata mai ano i te hātepe kia puta ake te hua tika

Ngā Tūtohi Pū Tāhūrua

Ngā Pū	Tau	Tuhinga	Tae
a	1	00001	● ● ● ● ●
b	2	00010	● ● ● ● ●
c	3	00011	● ● ● ● ●
d	4	00100	● ● ● ● ●
e	5	00101	● ● ● ● ●
f	6	00110	● ● ● ● ●
g	7	00111	● ● ● ● ●
h	8	01000	● ● ● ● ●
i	9	01001	● ● ● ● ●
j	10	01010	● ● ● ● ●
k	11	01011	● ● ● ● ●
l	12	01100	● ● ● ● ●
m	13	01101	● ● ● ● ●
n	14	01110	● ● ● ● ●
o	15	01111	● ● ● ● ●
p	16	10000	● ● ● ● ●
q	17	10001	● ● ● ● ●
r	18	10010	● ● ● ● ●
s	19	10011	● ● ● ● ●
t	20	10100	● ● ● ● ●
u	21	10101	● ● ● ● ●
v	22	10110	● ● ● ● ●
w	23	10111	● ● ● ● ●
x	24	11000	● ● ● ● ●
y	25	11001	● ● ● ● ●
z	26	11010	● ● ● ● ●