

# Ko Ngā Ture o Te Wero a Rohe o NZ Aquabots 2025

Ko ngā kaitautoko



**TAPUWAE ROA**  
ka haruru te moana



**Rotorua Trust**  
MŌ TĀTAU KATOĀ



**Rātā  
Foundation**



**tasman**  
district council

Te Kaunihera o  
**te tai o Aorere**



**BAY  
TRUST**

**hayes**  
INTERNATIONAL

**TŌNUI**  
COLLAB

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## Ko ngā whakataetae me ngā whakawā

### 1. Ko te tohu wero

1. Ara taupare NZAquabots
2. Whakataetae
3. Whakataetae
4. Te Wero ohooho a Motu
5. Te Wahi Tirohanga

### 2. Ko te tohu whakaaturanga

1. Whakaaturanga Hangarau/Mātai Pūhanga
2. Rīpoata Hangarau (Akomanga Tuwhera a rohe, Ngā kapa katoa ki ngā a Motu)
3. Meka Matua
4. Pātaitai

## Pakeke

- **Kura Tuatahi** - Ko ngā ākonga Tau 1-6 anake
- **Kura Takawaenga** - Ko ngā ākonga Tau 7-8 anake
- **Kura Tuarua** - Ko ngā ākonga Tau 9-13 anake

Ko te pae kaiwhakawā he rāwaho nō ngā ahumahi, te tari kawanatanga. me ngā taurahere matauranga ā waihoki ko te whare wānanga hoki, kia kake ngā taumata katoa.

## Ngā Ture

### 1. Te Herehere

I roto i te whakataetae, me neke ngā ROV ki raro i o rātou ake mana. Kāore e whakaaetia kia kumea e ngā mema o te rōpū te taura herehere ki te pēnā, ka whakakorea rātou i te whakataetae.

### 2. Te Raweke o te ROV

Ko ngā ROVs ka tiki i ngā wāhanga me ngā kōwai kei roto i te kete kotahi o NZAquabot me ngā whakaritenga e whai ake nei:

- He whakaritenga pūtea \$25 NZD tā ngā tīma hei whakarite i te ROV. Ka whakahau ngā ākonga ki te 'whakaaro i waho o te pouaka' mō ngā whakarereketanga. Me mātai ngā rauemi i tuku ki te utu e pā ana ki te hoko i ngā rauemi. Ko te here \$25 NZD hei utu mō ngā rauemi i whakamahia i te ROV whakataetae whakamutunga. Kāore te pūtea nei e kapi i ngā wāhanga pērā i ngā wāhanga tāpiri. Me whakaatu te perehitanga 3D i te utu \$0.05 mō ia rāmaka.
- Ka taea te tāpiri ka taea hoki te tango i ngā hīra me ngā hapa i runga i te rārangi whakataetae.

- Ka taea e ngā tīma te whakamahi i ngā mīhini NZAquabot nō te kaupapa anake i ngā pūhiko (Jameco P/N 232022). He rerekē ēnei i ngā NZAquaBot 2.0.
- Kāore e taea e ngā tīma te tāpiri i ngā 'thruster' atu ki te ROV. Ko te 'thruster' he whakatauirā o te whakawhiti, i te nuinga o te wā, engari kāore e rahi atu ki te pukaha me te hurirere.
- Ka hoahoa ngā tīma hei whakamahi i te puna pūngao 12-volt. Kāore e whakaaetia te uta i ngā pūhiko, te pākihi nō te āwhina. Me noho ngā pūhiko i tukuna e te tīma, kāore e teitei ake i te 16.5 cm te roa x 7.6 cm te whānui x 10.2 cm te teitei, ā, me noho hei pūhiko 12 VDC te teitei me te 9-amp rānei te taumata teitei.
- Kei roto i te pouaka e pai ana ki ngā rahi o 30 x 45 x 45 cm.
- Kāore e whakaaetia ngā kamera
- Ki te tāpirihia ngā perehitanga 3D ka āpiti atu te \$0.05 to ia gram.

### 3. Ko te Rā Whakataetae

- E toru anake ngā mema kapa ka whakaaetia ki runga i te papa kauhoe i te wā whakataetae (te takiwā kahurangi).
- Kāore e whakaaetia ngā mātua, whānau, me ngā kaiako ki runga i te papa kaukau i te wā whakataetae (te takiwā kahurangi).
- Kāore he mea tu atu i te ROV ka kuhu i te wai.
- Ka tirohia, ka whakamanahia ia ROV e te kaiwhakawā i mua i te whakataetae.
- I te take e pāngia ana tētahi ROV i runga i te hapa i te taumata whakamātautau, e hāngai ana ki te raru o ngā wāhanga o te ROV (arā, te pūkaha) kāore e taea te whakahaere i raro i te whakamahere me te hanga i whakakotahi e te rōpū, ka whai mana te kaiwhakawā ki te tuku wā ki te rōpū ki te whakatika i tā rātou ROV, ka tuku hoki i a rātou ki te whakataetae i muri mai i te rauna. Ka arotakehia ēnei hapa i runga i te ahuatanga to tēnā to tēnā.

### 4. Haumarutanga

Ka uru ngā tīma ki te wāhi whakataetae kua porowhita ki te whakaiti, te whakarite, te whakangungu, te whakataetae rānei, kāore e taea e ngā mema o ngā tīma te tiki āwhina, rauemi, kōrero mai i waho rānei. Mēnā ka whakatete ngā tīma i tēnei tura, ka whakatauhia ki raro i ngā tīma katoa.

Me whai i ngā tikanga haumaruru i ngā wā katoa. Kāore rawa e whakaaetia kia kuhu atu te kaiwhakataetae ki roto i te puna whakataetae i ngā wā whakataetae NZAquabots. Ki te kuhu atu ki te puna tētahi kaiwhakataetae NZAquabots, tētahi atu rānei e hono ana ki tētahi tīma (pērā i te kaimatakitaki, te kaiako, te mātua, me ērā atu), ka whakakorea taua kura, rōpū rānei, i te whakataetae.

## 5. Ngā Tono, Ngā Wero, me Ngā Pakanga

Ka tūmanako ko te whakaiti me te whakaute i ngā wā katoa. Mehemea ka puta he amuamu, he tautohe rānei i te wā o te whakataetae, ka whai kia whakatau wawe i taua take i taua wā tonu, ā, ko te whakatau a te Kaiwhakawā Matua ka noho hei whakatau whakamutunga.

Ko te rōpū e hiahia ana ki te whakaarohia he take me tuku e ngā kāpene o te rōpū tauira me tētahi atu mema tauira (2) ki te kaiwhakawā matua me te pātai. Ka whakatauhia e te kaiwhakawā matua te take, ā, ko tēnei whakatau he mutunga. Kāore e taea e tētahi mema o te rōpū te whakahoki te take ki te kirimana i te tuarua.

Kāore e taea e ngā pakeke te haere ki te kaiwhakawā rangatira kei te paparahi wai mō ngā raru e whakaaro ana. Kāore e taea e ngā tīma te pātai i te tika o ētahi atu ROV e whakataetae ana; ko te mahi a te kaiwhakawā te whakatau mēnā e tutuki ana ngā rōpū i ngā whakaritenga tuhinga me ngā whakaritenga.

Ki te nanakia ki te whakaiti tētahi ki tētahi atu he take mō te whakakāhore i te rōpū. Ko ngā mema o te rōpū me ngā kaiwhakangungu he kawenga mō te pona o ngā mema katoa me ngā pakeke e whai wāhi ana ki te rōpū.

### Āheinga Waka

1. Ka timata te tatau wā i whakaaria mō ia te rere i te wā e tuku ana te tauira e mau ana i te ROV, ka tū ana ngā ringaringa ki te rangi, e māmā ana te kite ki te kaiārahi wā. Ka mutu te tāia i te wā e pa ana te ROV ki te pa whiri te pakitara o te rarangi whakamutunga.
2. Ka āhei tētahi mema o te tīma ki te whakahaere i te roa o te pūhiko taura kei roto i te wai, mā te whāngai, mā te tango hoki i te taura kia rite ki ngā hiahia. Heoi anō, me noho ngohengohe te pūhiko taura i ngā wā katoa – kāore e whakaetia kia whakamahia te taura hei āwhina i te nekehanga o te ROV, ahakoa te huarahi.
3. Ko te whakarato i te timatanga parau: Mēnā kua whai te tīma i te " timatanga parau" e pā ana ki te ROV kua wehe i te pakitara i mua i te tohu timata, ka whakaroahia te 20 hēkona ka āpiti atu ki te wā o te tīma.
4. I roto i te āhuatanga kāore e kitea ana i te takahanga ki tētahi atu ROV, ka taea e te tīma te whiriwhiri ki te whakahou. Kāore te wā e rima meneti e pā ana ki taua rerenga hou.

### Karetao o Mua

Ka taea e ngā kura e whai rawa ana i tētahi ROV mai i ngā tau i pāhekoheko kē te whakataetae mā te whakamahi i tā rātou ROV tawhito, me panoni ētahi momo huringa hanganga, hei tauira: huringa āhua, huringa rauemi, pūnaha hao, me ērā atu. Me tuhi tēnei i tā rātou whakaaturanga.

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**KIA MAUMAHARA! Me 2/3 o tō roopu e whakahaere i tō ROV. Kāore e te tangata kotahi e tīpakohia hei kaiwhakahaere anake!**

**Whai Piro:**

- Ka whakaritea kia 100 ngā piro mō ia wāhanga o te whakataetae (ko te ara ārai anake ka whakamahia te wā, kāore he piro). Mēnā ka taurite ngā piro i waenga i ētahi tīma, ka whakawhiwhia te tīma nāna i whakaoti te mahi i te wā poto rawa ki te 10 piro tāpiri, i mua i te whakatauritenga o ngā piro.
- Ka whakaritea te rārangi mō ia whakataetae.
- Ka tāpiri ngā rārangi i ngā kaupapa katoa.
- Ka whakawhiwhia ngā tīma tuatahi ki te tuatoru ki ngā rīpene i te paerewa 1, paerewa 2 mō ia taumata tau: kura tuatahi, kura takawaenga, kura tuarua
- Ka whakawhiwhia te tohu ā-rohe ki te toa wakaihu waka i roto i ia rōpū tau, ahakoa te akomanga.
- Ka pōwhiritia ngā toa o te wā tuatahi me te tuarua i te kāhui paerewa 1 me 2, me ngā kāhui tuwhera ki ngā whakataetae ā-motu (ehara i te mea e taea e ngā takiwa te tuku atu i te nui o ngā rōpū e iwa ki ngā whakataetae ā-motu).
- Ko te tīma i te wāhi tuatahi katoa i ngā whakataetae kāwana, ahakoa te akoranga, mai i te Kura Tuarua me te Kura Kōhungahunga ka powhirihi ki ngā whakataetae Sea Perch International, ki ngā whakataetae MATE International rānei. Mēnā kāore e hiahia ana tētahi o ēnei tīma ki te haere, ka tuwhera te wāhi nei i runga i te raupapa nei: te wāhi tuatahi i te kura tuatahi, te wāhi tuarua i te kura tuarua, te wāhi tuarua i te kura takawaenga.
- Ko te maha o ngā tīma e pōwhiriha ana ki te Sea Perch International/MATE International e whakatauhia ana e Sea Perch/MATE, ā, kāore e mōhiotia te rahi o taua rōpū tae noa ki te mutunga o Noema ia tau.

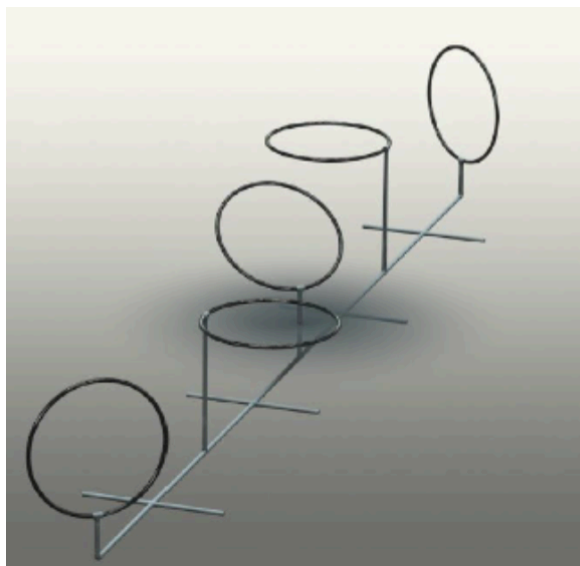
**E ai ki ngā tikanga, ka whai wāhi ki te whakaatu i tētahi hui 'maere' i te whakarite i te Rāmere. Kāore e taea e ngā rōpū te whakangungu i te hui 'maere', engari ka taea e rātou te tiroiro katoa. Ka tino rerekē pea ngā whakaritenga whakataetae i ngā kaupapa a rohe hei whakaatu i ngā tamariki.**

## Mahi 1: Ara Taupare

**Whakaahuatanga:** Ka whakahaerehia e ngā tīma tā rātou ROV mā tētahi ara whakarae kei raro i te wai, kia tere rawa te oti. Kua hoahoa te ara hei tauira, e tata ana ki te whakaāhua kua tukuna.

**Te rahi nui o ngā mema o te rōpū i runga i te ara: 3**

**Te wā e tuku ana mō ia ara: 10 meneti.**



### Āheinga Waka

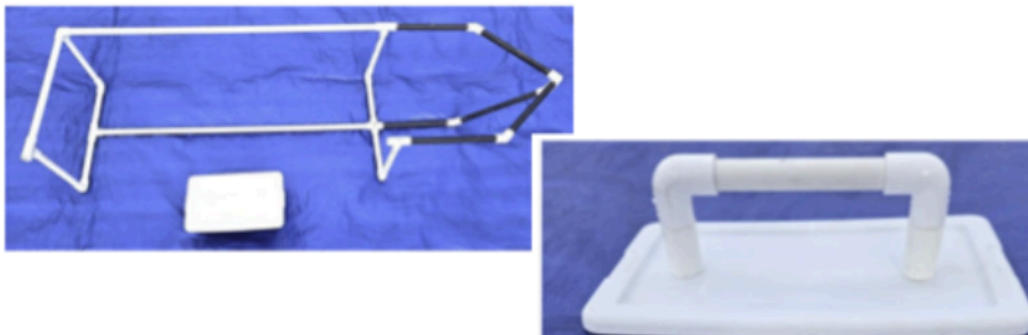
1. Ka taea e ngā tīma te whakahaere i ngā rerenga ā-tīma e whai ana i ngā ROV me te wā iti rawa e whakamōhiotia ana i roto i te wā o te 10 meneti.
2. Te tīmatanga o te rerenga: Me noho ki te mata o te wai te ROV, kei roto i te 15 cm o te pakitara, ā, me whakamahi i tōna ake hiko hei tīmata. Kāore e whakaaetia ngā mema o te tira ki te pa ki te ROV i muri i te tīmatanga o te tataua a te kaiwhakahaere.
3. Me whakawhiti te ROV i ia o ngā porowhita e rima o te ara taupare, i runga i te raupapa tika, ka tīmata i te porowhita e tata ana ki te pakitara o te puna wai.
4. Me puea ake te ROV ki te mata o te wai i muri i te whakawhitinga i te porowhita e tino tawhiti atu ana i te pakitara o te puna wai. Ka kīia kua oti te pueatanga ake ina pakaru te mata o te wai e tētahi wāhanga o te ROV.
5. Me hoki anō te ROV ki raro i te wai, ā, me hoki atu ki te pakitara o te puna mā te whakawhiti i ia o ngā porowhita e rima i te raupapa whakamuri.
6. Te mutunga o te rerenga: Ka mutu te rerenga ina pā te ROV ki te pakitara i a ia e rewa ana (arā, ka pakaru te mata o te wai e tētahi wāhanga o te ROV). Ka whakakorehia te rerenga mēnā ka pau te wā kua tohua ahakoa kāore anō kia oti i te ROV te ara.
7. Ka tata ki te 2 mita te tawhiti i waenga i ia kēti, ā, ka tata ki te 60cm te whānui o ia porowhita.

## Mahi 2: Tirohia te 'Goat Island Marine Reserve', ko 'Te Āpure moana o Te Hāwere-a-Maki' rānei

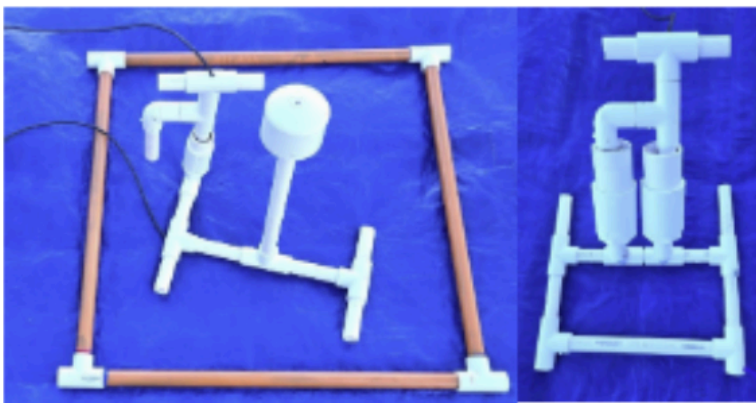
(Ko ngā whakaāhua katoa i te whakataetae MATE RANGER 2025)

Ko 'Goat Island Marine Reserve', ko 'Te Āpure moana o Te Hāwere-a-Maki' rānei te āpure moana tuatahi o Aotearoa. I hangaia i te 1975, ā, e noho ana inaianei ngā momo kararehe 100 neke atu i te hohonu, te whaiaro me te takiwā o te wai. Ko ēnei mahi e hāngai ana ki te tiroiro me te mātai i te 'Goat Island Marine Reserve', ko 'Te Āpure moana o Te Hāwere-a-Maki' rānei. Ka taea te whakaoti i ngā mahi i runga i ngā tikanga e hiahia ana koe. Ka taea e ngā rōpū te whiriwhiri kāore e hiahia ki te whakaoti i ngā mahi katoa.

1. Ruku iho tō ROV ki tētahi kāoa kāore anō kia mōhiotia, ā, huri haere i te taha o taua kāoa. Huakina te pouaka e tata ana, ka tiki i ngā kōrero mīhana. I utā, whakatauritehia te kāoa kia mōhiotia ai te momo me tōna pakeke.

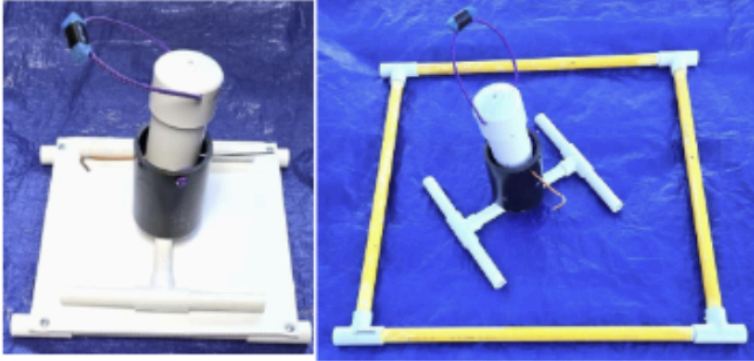


- Huri noa i te ākau kororā (hautu i te hanganga) 5 piro
  - Hikina i te taupoki 10 piro
  - Tōia mai ngā kōrero rangatira\* ki te taha o te puna 15 piro  
\*he pēke kirihou me te peke kakahu
  - Kimihia te momo korari tika mai i te rārangi 5 piro
2. Tukua te puihi ki te tapawhā kua whakaritea. Kohia te rorohiko mai i te puihi tiroiro, ā, whakauruhia ki te puihi neke i te wāhi kua whakaritea. Ka taea e tēnei te āwhina i te tiroiro i te hohonu kōrari me ngā momo ika e noho ana i te taha.



- Tukua te puihi ki te tapawhā 50 piro

- Tangohia te paerongo mai i te puihi motuhake 50 piro
  - Tukua te paerongo ki te puihi hou 50 piro
3. Tangohia te pūoro waihiko i tōna papamahi, ā, ka tukuna ki te wāhi kua whakaritea. I muri mai, ā kukume i te matau kia tuku ai.



- Tangohia te pūoro waihiko mai i te taumata 10 piro
- Tukua te pūoro waihiko ki te wāhi 20 piro
- Tangohia te pini 50 piro

Te rahi nui o ngā mema o te rōpū i runga i te ara: 3.

Te wā e tuku ana mō ia ara: 10 mēneti.

### Āheinga Waka

Ka whakapūmautia e ngā tīma **tētahi** rerenga ā-kiriwhina me tā rātou ROV i **te wā iti rawa i te 10 mēneti**.

- **Ko te huri huri:** Ko te tikanga kua whakahaerehia e te tīma tā rātou ROV kia huri katoatia i te taha o te kāoa.
- **Ko te hiki:** Ko te tikanga kua neke te taupoki kia piki ake i te 10 cm i runga ake i te ipu, ā, kua neke rānei i te ipu.
- **Ko te tiki:** Ko te tikanga kua whakahokia mai te taonga ki te taha o te puna kaukau.
- **Ko te whakataurite kāoa:** Me tohu e te tīma te taurira tika, te mōhiohia tika rānei i te papa whakaatu kei te taha o te puna kaukau.
- **Ko te tuku:** Ko te tikanga kua tukuna te pūoko ki roto i te puihi hou.
- **Ko te tango:** Ko te tikanga kua hiki ake te pūoro waihiko kia iti rawa atu i te 1 m ki te rangi, kāore rānei i te noho i runga i te papa.

Ka āhei te tīma ki te toro atu ki te puna, tae noa ki te ōpunga ringa, hei tango i te taonga i tā rātou ROV. Ka taea hoki te tiki i ngā taonga maha i te wā kotahi. Kei te taha o te puna te puihi pūoko i te tīmatanga o te rerenga.

### Mahi 3: Te Mātai i te 'Goat Island Marine Reserve', ko 'Te Āpure moana o Te Hāwere-a-Maki' rānei

(Ko ngā whakaāhua katoa i te whakataetae MATE RANGER 2025)

I te mea hei āwhina i te tirohanga i ngā mahi i roto i te 'Goat Island Marine Reserve', ko 'Te Āpure moana o Te Hāwere-a-Maki' rānei, me mātakitaki ngā kaipūtaiao i te pāe mahana, ngā kararehe, me ētahi atu mea pērā i ngā au moana.

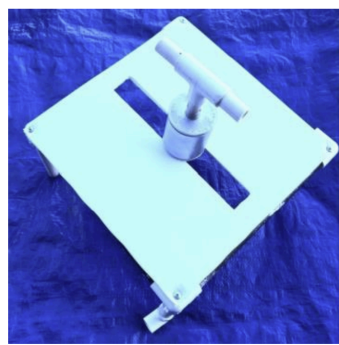
Ko tō mahi ko te:

1. Tōia te hononga hiko, tangohia te hononga taupoki ka hoki mai ki te taha o te puna wai ka hono i te hononga hiko ki te rārangi paerongo.



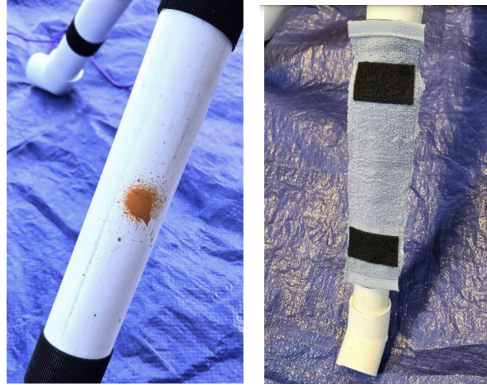
- Tangohia te hononga taupoki 30 piro
- Tikina te hononga taupoki 10 piro
- Kohia te hononga hiko 10 piro
- Tūhonotia te hononga hiko 30 piro

2. Tīni te paerongo pakaru i te rōpū. Tango te paerongo pakaru, tuku, ā, whakauruhia he mea hou.

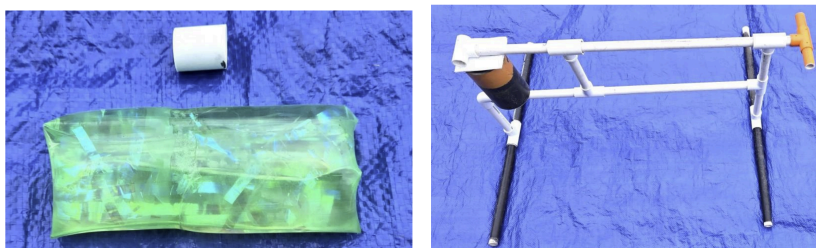
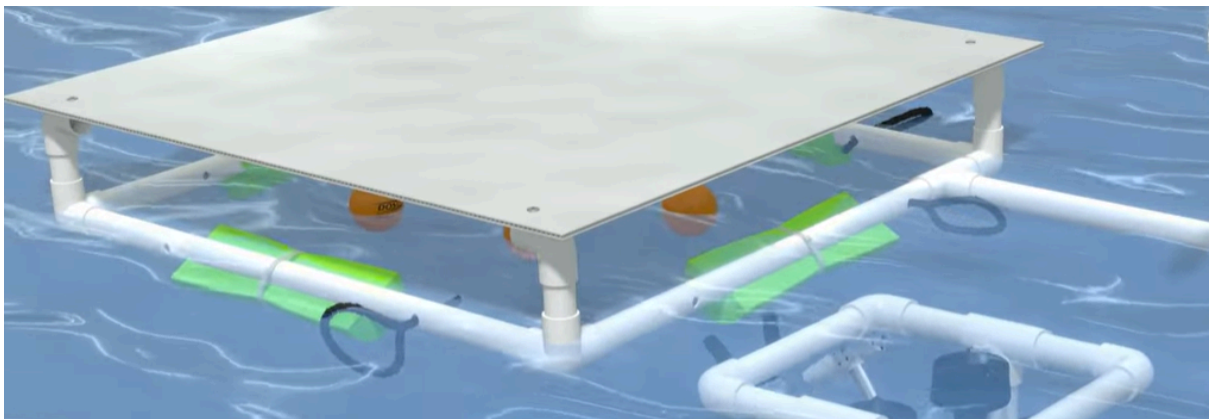


- Tangohia te paerongo pakaru 30 piro
- Tikina te paerongo pakaru 10 piro
- Tūkua te paerongo hou 10 piro
- Whakaurua te paerongo hou 100 piro

3. Tāpirihia he papa ēpohi kōpure ki te waewae parore o te paerongo. E tohu ana te whakarewa ki te peita karaka.



- Apiti atu te ēpohi kōpure 20 piro
4. Kia kohikohia ngā wāhanga rerekē o ngā petipeti. Ko ngā petipeti kua he tīwhai e piritahi ana ki te papa. Ko te Petipeti Medusa kei roto i te whakamau, ā, me tuku ia mā te toia i te taupānga e kitea ana i te karaka. Tēnā, tangohia te ika i raro i te pokapū pūrongo (ngā pōro 'ping pong').



- Tangohia te petipeti kua 5 piro
- Tikina te petipeti kua 5 piro
- Tuku te Petipeti Medusa mā te toia i te taupānga 20 piro
- Tikina te Petipeti Medusa 50 piro
- Tangohia te ika mā raro i te tutohi 5 piro
- Tikina te ika 10 piro

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Te rahi nui o ngā mema o te rōpū i runga i te ara: 3

Te wā e tuku ana mō ia ara: 10 meneti

### Āheinga Waka

Ka whakapūmautia e ngā tīma **tētahi** rerenga ā-kiriwhina me tā rātou ROV i **te wā iti rawa i te 10 mēneti**.

- **Ko te tango** e tohu ana kāore te taonga e noho ana i te wāhi.
- **Ko te tiki** he tikanga ki te kawē i te taonga ki te mata mo te kōhi i te taha o te puna.
- **Ko te hono** te tikanga ka tino mau te hononga pūngao ki te kohao.
- **Ko te tono** ki te whakamahi i te, ēpohi kōpure ai ki te tikanga, kua hangaia te kōpure ki te whakakakahu i te ‘rūri’ karaka, kāore i te kitea, ā, e hono ana ngā pito e rua o te kōpure ki te pou.
- E mea ana te wāhi ko te waihiko rongō e noho ana ki te takiwā kua whakaritehia.
- **Ko te whakauru** e kōrero ana ko te rōpū paerongo kua oti te whakauru ki te kōhao i whakaritea.
- **Ko te tikanga** o te tukuna he pānui te hōpunga paerongo ki te mata o te whakaurunga.
- **Ko te tuku** i te tikanga ko te Petipeti Medusa ka puta i te pou.

Ka taea e ngā rōpū te toro ki roto i te puna wai tae atu ki tā rātou whatianga ki te tango i te mea mai i tā rātou karetao. Ka taea e ngā mea nui te tiki i te wā kotahi.

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## Mahi 4: Pātaitai

**Whakamārama:** I te wa o te whakataetae, ka tuku hoki te whakamātautau ki a koe. Ko te whakamātautau ka whakaritea ki te 10 ngā pātai, he rerekē mai i ngā pātai pono/hē, ko ngā pātai whiringa, me ngā pātai poto. Ka puta ēnei pātai mai i ngā paetukutuku me ngā kōrero ka tukuna.

**Ko te nui o te wā mō ngā pātai:** 10 mēneti

### Pātaitai:

1. Kāore e taea te tango i te whakautu i te teihana.
2. Kāore e taea e ngā whānau, ngā kaiako, ngā kaiwhakaako te noho i te teihana whakautu.
3. Kāore e taea te whakamahi i ngā rauemi mai i waho, tae atu ki ngā tuhinga, te ipurangi, ngā pūkoro, ngā tono, ngā mea ka whakautungia te pātai

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## Mahi 5: Te Wahi Tirohanga

Ka whakakiia e ia mema o to roopu tētahi rangahau e pā ana ki tō rātou wheako i te hōtaka NZAB. Ka taea tēnei te whakatutuki ā-rorohiko, ā-tuhinga rānei.

## Mahi 6: Whakaaturanga

Me mahi ngā tīma katoa i tētahi kōrero **10 meneti** e pā ana ki tā rātou wheako NZAquabot. E tūtohia ana kia kōrero mō te 6-7 meneti, ā, waiho 3-4 meneti mō ngā pātai.

Me whai wāhi te katoa o ngā mema tīma kei te ruma ki te tuku i te kōrero. Ka taea e te kaipōti/kaikawe te noho i te ruma, mēnā ka hiahia ia, engari kāore e taea e ia te whai wāhi ki te kōrero, ki te whakawhitiwhiti kōrero me ngā mema tīma.

E taunaki ana kia tae atu ngā tīma ki tā rātou ruma whakaaturanga 10 meneti i mua i te wā kua whakaritea mō rātou. Mēnā ka roa ake i te 5 meneti te tōmuri, kāore e whakaetia kia whakaatu.

## Pānui/Whakaaturanga ataata

A te wā e whakaatu atu e āhei ana ngā tīma he pānui/whakaāhua rānei (kāore e whakaetia kia nui ake i te 90cm x 145cm, he whakaaturanga ataata rānei, hei tautoko i ngā kōrero ka tuku ki ngā kaiwhakawā.

Ko ngā mea me whakauru atu ki te whakaaturanga ataata.

- **Tapanga/Taitara** - Te ingoa o te tīma.
- **Tīma** - Kōrero atu ki ngā kaiwhakawā ko wai koutou, ngā mema katoa o te tīma/kaiako mā/kaiāwhina.
- **Te Hātepe Hangahanga me ngā Wero** - Whakamarama i te tukanga i haere ai te rōpū i te hoahoa me te hanga i te ROV, tae atu ki ngā wero/ngā akoranga i pāngia e te rōpū i te wā o te hoahoa, te hanga, ngā hoahoa e whai mua, me ngā wā whakamātautau.
- **Rangahau** - Ngā rangahau i oti mō te hoahoa me ngā mātāpono pūtaiao (rānei).
- **Ngā Whakarerekētanga** - Whakamārama me te tautoko i ngā whakarerekētanga katoa.
- **Ngā Whakamātautau** - Whakamārama i ngā whakamātautau i whakaheretia ā i pēhea nei te whakaritea ai te ROV i muri i ngā whakamātautau.
- **Tuhinga mo te Utu** - Nga rīhiti, nō reira he tohu kē e pā ana ki ngā utu tāpiri i pāngia i te hanga o te ROV. Me whakauru tēnei i te utu tuhinga o ngā taonga tāpiri kua hoko, ēnā kia rerekē te uara i roto i tētahi ripanga māmā. Me pupuri ngā rīhiti i roto i tētahi kātene, ā, me mārara te tohu i te ingoa o te tīma, te taonga, me te utu. NB: Ka tirohia ēnei anake mēnā he tata te ROV ki te pae moni \$25.

Ahako te tikanga whakaatu i whiriwhiria, me te whakarite te tīma ki te whakahoki tika i ngā pātai a ngā kaiwhakawā i muri i te whakakapi o te whakaaturanga.

*Kei roto i te whakaaturanga 10 meneti te wā mō ngā pātai me ngā whakautu.*

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## Mahi 7: Meka Matua

Ka whakarite ngā tīma, ka tukuna he pepa A4 kotahi e whakarārangihia ana ā rātou tīma, ngā wheako, me tā rātou karetao.

Me uruhia:

- Ko te ingoa o te rōpū me te kura/te whakahaere
- He whakaāhua o tā rātou karetao
- He tirohanga 100 kupu mo tā rātou hoahoaia.
- Ngā tau kua kuhuna ki te NZAquabots
- 50 kupu mō **“He mea motuhake tō mātou ROV nā te mea...”**
- 50 kupu mō **“ Ko te akoranga nui ki a mātou i tēnei tau, ko te...”**
- He whakaāhua o te tīmā
- Ko ngā ingoa me ngā tau ako to ia mema
- Ko ngā ingoa o ngā kaitautoko/kaiako/kaiāwhina/ me ngā kamupene e piri nei ki ngā ākongā

Pānuitia te rārangi aromatawai kia mōhiohia ai te wāhi e tukuna ai ngā piro.

Ka taea e ngā tīma te tuku i tā rātou pukapuka meka matua i te reo māori.

**Me tuku i te pukapuka meka matua kotahi wiki i mua i te whakataetae.**

## Mahi 1: Ara Taupare

<b>KURA:</b>	<b>Kua Whakawāteatia Ngā Kēti (ki waho)</b>	<b>1</b> <input type="checkbox"/>
		<b>2</b> <input type="checkbox"/>
<b>INGOA:</b>		<b>3</b> <input type="checkbox"/>
		<b>4</b> <input type="checkbox"/>
		<b>5</b> <input type="checkbox"/>
<b>Kaihautu Tuarua?</b> <input type="checkbox"/> (tāpirihia kia rua meneti)	<b>ROV ki te Mata</b>	<input type="checkbox"/>
	<b>Kua Whakawāteatia Ngā Kēti (ki roto)</b>	<b>1</b> <input type="checkbox"/>
		<b>2</b> <input type="checkbox"/>
<b>KATI NGA KĒTI?</b> <input type="checkbox"/>		<b>3</b> <input type="checkbox"/>
		<b>4</b> <input type="checkbox"/>
		<b>5</b> <input type="checkbox"/>
<b>Wā</b> (ki te haurau o te hēkona)	<b>Ka Pa Te ROV Ki Te Pakitara</b>	<input type="checkbox"/>

## Mahi 2: Tirohia te 'Goat Island Marine Reserve', ko 'Te Āpure moana o Te Hāwere-a-Maki' rānei

INGOA: \_\_\_\_\_ WĀ I OTI AI: \_\_\_\_\_

KURA: \_\_\_\_\_

Mahi:	Taea Piro:	Whai Piro:
Huri noa i te ākau kāoa	5 piro	/5
Hikina te taupoki o te pouaka	10 piro	/10
Tikina ngā tuhipuka	15 piro	/15
Tautuhitia te momo kāoa tika (bubble gum, bubble, elkhorn, Sea fan coral)	5 piro	/5
Tuku te kārewa ki te tapawhā kua tohua	50 piro	/50
Tangohia te paerongo mai i te kārewa motuhake	50 piro	/50
Tukua te paerongo ki te kārewa hou	50 piro	/50
Tangohia te pūōro waihiko	10 piro	/10
Tukua te pūōro waihiko	20 piro	/20
Tangohia te pine	50 piro	/50
<b>Kaihautu Tuarua</b>	- 20 piro	
	<b>Ngā piro katoa</b>	<b>/265</b>

**Te rahi nui o ngā mema o te rōpū i runga i te ara: 3**

**Te wā e tuku ana mō ia ara: 10 meneti**

### Āheinga Waka

Ka whakapūmautia e ngā tīma **tētahi** rerenga ā-kiriwhina me tā rātou ROV i **te wā iti rawa i te 10 mēneti**.

- **Ko te huri huri:** Ko te tikanga kua whakahaerehia e te tīma tā rātou ROV kia huri katoatia i te taha o te kāoa.
- **Ko te hiki:** Ko te tikanga kua neke te taupoki kia piki ake i te 10 cm i runga ake i te ipu, ā, kua neke rānei i te ipu.
- **Ko te tiki:** Ko te tikanga kua whakahokia mai te taonga ki te taha o te puna kaukau.
- **Ko te whakataurite kāoa:** Me tohu e te tīma te taurira tika, te mōhiohia tika rānei i te papa whakaatu kei te taha o te puna kaukau.
- **Ko te tuku:** Ko te tikanga kua tukuna te pūoko ki roto i te puihi hou.
- **Ko te tango:** Ko te tikanga kua hiki ake te pūōro waihiko kia iti rawa atu i te 1 m ki te rangi, kāore rānei i te noho i runga i te papa.

### Mahi 3: Te Mātai i te 'Goat Island Marine Reserve', ko 'Te Āpure moana o Te Hāwere-a-Maki' rānei

INGOA: \_\_\_\_\_ WĀ I OTI AI: \_\_\_\_\_

KURA: \_\_\_\_\_

Mahi:	Taea Piro:	Whai Piro:
Kōhia te hononga hiko	10 piro	/10
Tangohia te hononga taupoki	30 piro	/30
Tiki atu te hononga taupoki	10 piro	/10
Hono atu te hononga hiko	30 piro	/30
Tangohia te paerongo pakaru	30 piro	/30
Tiki atu te paerongo pakaru	10 piro	/10
Tuku atu te paerongo hou	10 piro	/10
Whakaurua te paerongo hou	100 piro	/100
Āpiti atu te kōpure ēpohi	20 piro x2	/40
Tangohia te petipeti kuao	5 piro x5	/25
Tiki atu te petipeti kuao	5 piro x5	/25
Tukua te petipeti 'medusa'	20 piro	/20
Tiki atu te petipeti 'medusa'	50 piro	/50
Tangohia te ika mai i raro i te paerongo	5 piro x6	/30
Tiki atu te ika	10 piro x6	/60
Kaihautu Tuarua	-20 piro	
	<b>Ngā piro katoa</b>	<b>/470</b>

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Te rahi nui o ngā mema o te rōpū i runga i te ara: 3

Te wā e tuku ana mō ia ara: 10 meneti

### Āheinga Waka

Ka whakapūmautia e ngā tīma **tētahi** rerenga ā-kiriwhina me tā rātou ROV i **te wā iti rawa i te 10 mēneti**.



- **Ko te tango** e tohu ana kāore te taonga e noho ana i te wāhi.
- **Ko te tiki** he tikanga ki te kawē i te taonga ki te mata mo te kōhi i te taha o te puna.
- **Ko te hono** te tikanga ka tino mau te hononga pūngao ki te kohao.
- **Ko te tono** ki te whakamahi i te, ēpohi kōpure ai ki te tikanga, kua hangaia te kōpure ki te whakakakahu i te 'rūri' karaka, kāore i te kitea, ā, e hono ana ngā pito e rua o te kōpure ki te pou.
- E mea ana te wāhi ko te waihi rongo e noho ana ki te takiwā kua whakaritehia.
- **Ko te whakauru** e kōrero ana ko te rōpū paerongo kua oti te whakauru ki te kōhao i whakaritea.
- **Ko te tikanga** o te tukuna he pānui te hōpunga paerongo ki te mata o te whakaurunga.
- **Ko te tuku** i te tikanga ko te Petipeti Medusa ka puta i te pou.

Ka taea e ngā rōpū te toro ki roto i te puna wai tae atu ki tā rātou whatianga ki te tango i te mea mai i tā rātou karetao. Ka taea e ngā mea nui te tiki i te wā kotahi.

#### Mahi 4. Pātaitai

Ka whakarato te roopu o Ministry of Inspiration hei te rā o te whakataetae.



## Mahi 5: Whakaturanga

Te Mahere Paerau Kounga  Te Whakahoahoa 	<b>Taumata Rau (8 piro)</b>	<b>Kairangi (6 piro)</b>	<b>Pai (4 piro)</b>	<b>Tōkeke (2 piro)</b>	<b>Whakapai (0 piro)</b>
<b>Hoahoa me te hanganga ROV</b>	Kātahi rā te whakarākei ko tēnā. Te aro ki ngā taipitopito me te āhuareka o te āhua. Ka uru ki runga i ngā kaupapa katoa o te roopu/tohu.	He pai ngā whakarākeitanga.	Kāore i whakapaipai pai.	Kāore i whakapaipai.	Kāore i tutuki.
<b>Pānui/ Whakaaturanga ataata/ Pūheke whakahaere</b>	Āhua ngaio. Ko te whakamahinga motuhake o ngā tae, tuhinga, whakairoiro, me te rere he māmā ki ngā kaitirotiro.	He tino pai ki te karu, he pai ngā tae me ngā whakairoiro. Ka taea te whai i ngā tikanga kua whakamāramatia i runga i te papa.	He pai ki te karu. He pai hoki ngā tapanga o te wāhanga engari kāore i te mārāma te rere o ngā kōrero.	Ko te āhua he tōroherohe, he puhoi rānei. Ka puta te āhua o te papatipu totoka o te tuhinga. Kāore e rere tika.	Kāore e taea te pānui.
<b>Whakaaturanga</b>	Āhua ngaio. Ka kōrero tika te rōpū ki ngā kaiwhakawā. He rite tonu te whai wāhi o ia mema. He māmā ngā kōrero.	Taurite ana. He rite ngā tuhinga me ngā whakairoiro. Ka mau ngā ākonga i ngā ariā me te whakaatu i te tino mōhio ki te kaupapa.	He nui rawa te tuhinga. Ko te pānui e whakaatu ana i te āhua nui o te tuhinga anake.	Kei te pānui te tīma i te mata, he iti, kāore rānei he titiro kanohi. Kei te huri o rātou tuarā ki ngā kaiwhakawā.	Kāore ngā ākonga i te mōhio ki te whakaaturanga.
<b>Whakaaturanga pūheke whakahaere</b>	Taumata rau te wā o te whakahaere ngaio me te rere o te whakaaturanga, he ngāwari ki te whai, ā, he tino whai wāhi ki te hunga whakarongo.	Taumata rau te wā o te whakahaere ngaio me te rere o te whakaaturanga, he ngāwari ki te whai, ā, i te nuinga o te wā e whai wāhi ana ki te hunga whakarongo.	Matatau. Ko te whakariterite me te rere o te whakaaturanga he maeneene, he pai hoki.	Tauhou. Kei te kitea te whakamahere i te whakahaere me te rere o te whakaaturanga, engari he kotitii, kāore i māmā te rere.	Korekore te hono. He iti noa iho te whakahaere, te rere rānei ki te whakaaturanga.

### Mahi 5: Whakaturanga

<b>Whakaaturanga Mahi tahi</b>	Taumata rau te roopu ngaio puta noa i te whakaaturanga. Kōrero katoa ngā mema o te kapa.	Tino matatau. Ko te roopu e whakakotahi ana puta noa i te nuinga o te whakaaturanga. Ko te nuinga o ngā mema o te kapa e kōrero ana.	Matatau. I ētahi wā e mahi ngātahi ana te tīma i te wā o te whakaaturanga. He tokoiti noa iho o te tīma ka kōrero.	Tauhou. Ka raru te kapa ki te whakakotahi engari kei te mōhio ki te mahi tahi i te wa o te whakaaturanga.	Kāore te roopu e whakakotahi i te wa o te whakaaturanga. Kotahi anake te mema e kōrero ana.
<b>Hoahoa ngā ariā me ngā whakamārama</b>	Tohunga. Ka tino mōhio ngā ākonga ki te hangarau, te pāngarau, me ngā ariā ahupūngao i muri i a rātou hoahoa me te whakamārama i a rātou ki ngā kaiwhakawā.	Tino matatau. Kei te mōhio ngā ākonga ki te hangarau, te pāngarau, me ngā ariā ahupūngao i muri i a rātou hoahoa me te whakamārama i a rātou ki ngā kaiwhakawā.	Matatau. Kei te mōhio ngā ākonga ki te 1, te 2 rānei o te pūkaha, te pāngarau, me ngā ariā ahupūngao ka taea te whakamārama i a rātou.	Tāuhou. Ka taea e ngā ākonga te whakaingoa i etahi o te miihini, te pāngarau, me ngā ariā ahupūngao engari kāore e taea te whakamārama i a rātou.	Kāore he whakaaturanga.
<b>Pātai me te Whakautu</b>	Tohunga. He ngawari te whakahaere a ngā ākonga i ngā pātai, e whakaatu ana i o rātou mohiotanga ki ngā kaupapa. Ka uiui hoki ngā ākonga ki ngā pātai whakaaroaro ki ngā kaiwhakawā.	Tino matatau. He pai te whakahaere a ngā ākonga i ngā pātai, e whakaatu ana i o rātou mohiotanga ki ngā kaupapa. Ka uiui hoki ngā ākonga ki ngā pātai whakaaroaro ki ngā kaiwhakawā.	Matatau. Ka whakahaerehia e ngā ākonga ngā pātai me etahi uaua, e whakaatu ana i tētahi māramatanga.	Tāuhou. Kāore e taea e ngā ākonga te hāpai i ngā pātai a te kaiwhakawā.	Kāore he whakaaturanga.

## Mahi 6: Meka Matua

Te Mahere Paerau Kounga  Whakahoahoa 	<b>Taumata Rau (8 Piro)</b>	<b>Kairangi (6 Piro)</b>	<b>Pai (4 Piro)</b>	<b>Tōkeke (2 Piro)</b>	<b>Whakapai (0 Piro)</b>
<b>Meka Matua</b> <b>Hōputu: Pepa A4</b> Ko ngā tūemi e 9, ā kua tae i te wā tika.	Kua tutuki ngā mahi katoa.	I tae i te wā tika, 1-2 ngā wāhanga e ngaro.		Kāore i tae i te wā tika, heoi kei reira ngā mahi katoa.	Neke atu i te 2 ngā whakaritenga kua ngaro, kāore rānei i tukuna.
<b>Pānui/ Whakaaturanga ataata/ Pūheke whakahaere</b>	He kounga te āhua, i whai whakaaro mō ngā tae, ngā kōrero, me ngā whakairoiro hoki, ōtira he mārama te hoahoa rerenga ki te karu.	He tino pai ki te karu, he pai ngā tae me ngā whakairoiro, ka taea e te tima te whai i ngā tukanga mahi.	He pai ki te karu, he pai hoki ngā tapanga, heoi āno kāore i tino kite i te ariari o te hoahoa rerenga mahi.	Ko te āhua he tōroherohe, he pūhoi rānei. Ka puta te āhua o te papatipu totoka o te tuhinga. Kāore e rere tika.	Tē taea te pānui/kāore i tae mai te pānui.
<b>Wetereo / Tātaki kupu</b>		Kāore he hapa mō ngā kōrero, mō ngā whakairoiro hoki.	He iti noa iho ngā hapa mō ngā tuhinga kōrero (1 - 5).		He maha ngā hapa mō te tuhinga kōrero, me te tikanga reo (5+)
<b>Ko te Tirohanga whānui mō te whakahoahoa mahi (100 kupu)</b>	Ka taea te whakauru i te tukanga i whāia hei waihanga i te hoahoa, tae atu ki te whakamātau me te tukanga hoahoa.	He pai ngā whakamārama i roto i ngā kōrero me ngā tātari mahi hoahoa hoki. Ka taea te whakauru i te tukanga i whāia hei waihanga i te hoahoa, tae atu ki te whakamātau me te tukanga hoahoa.	Kei reira ētahi whakamārama i roto i ngā kōrero me ngā tātari mahi hoahoa hoki. Ka taea te whakauru i te tukanga i whāia hei waihanga i te hoahoa, tae atu ki te whakamātau me te tukanga hoahoa.	He kōrero waiwai ngā whakamārama i roto i ngā kōrero me ngā tātari mahi hoahoa hoki. Ka taea te whakauru i te tukanga i whāia hei waihanga i te hoahoa, tae atu ki te whakamātau me te tukanga hoahoa.	Kāore he whakamārama ki ngā mahi hoahoa ōtira kāore i aro atu ki ngā tohutohu mō te tatauria kupu.

## Mahi 6: Meka Matua

<p><b>He tūhāhā tā mātou karetao nā te mea.....(50 kupu)</b></p>	<p>He kaha ngā kōrerorero me te whakatātari ki te hanga karetao, ā hei āpiti atu ko ngā tohutoro me te āhua, ā ko ngā mātiu hoki i whakamahi.</p>	<p>He pai ngā kōrerorero mō te mahi hoahoa, ā hei āpiti atu ko ngā tohutoro me te āhua, ā ko ngā mātiu hoki i whakamahi.</p>	<p>Kei reira ētahi kōrerorero mō te mahi hoahoa, ā hei āpiti atu ko ngā tohutoro me te āhua, ā ko ngā mātiu hoki i whakamahi.</p>	<p>He kōrerorero waiwai mō te mahi hoahoa, ā hei āpiti atu ko ngā tohutoro me te āhua, ā ko ngā mātiu hoki i whakamahi.</p>	<p>Kāore he kōrero mō ngā mahi hoahoa ā waihoki kāore i tutuki te tatauria kupu .</p>
<p><b>Ko ngā akoranga nui mā mātou i tēnei tau....(50 kupu)</b></p>	<p>Angitu ana ngā whakaaro ki te tukanga o te hoahoa mahi, ā me ngā huritao o te mahi me ngā tātari kōrero hoki. Kei te kite atu i te mahi ngātahi, ā ko ngā arotake whaiaro, ko ngā pūmanawa, ko ngā pukenga hāngarau waihoki ko te whakaaro rautaki hoki.</p>	<p>Kua whai whakaaro ki te tukanga o te mahi hoahoa, ā me ngā huritao o te mahi me ngā tātari kōrero hoki. Kei te kite atu i te mahi ngātahi, ā ko ngā arotake whaiaro, ko ngā pūmanawa, ko ngā pukenga hāngarau waihoki ko te whakaaro rautaki hoki.</p>	<p>Kei reira te whakaaro ki te tukanga o te mahi hoahoa, ā me ngā huritao o te mahi me ngā tātari kōrero hoki. Kei te kite atu i te mahi ngātahi, ā ko ngā arotake whaiaro, ko ngā pūmanawa, ko ngā pukenga hāngarau waihoki ko te whakaaro rautaki hoki.</p>	<p>He waiwai ngā whakaaro ki te tukanga o te mahi hoahoa, ā me ngā huritao o te mahi me ngā tātari kōrero hoki. Kei te kite atu i te mahi ngātahi, ā ko ngā arotake whaiaro, ko ngā pūmanawa, ko ngā pukenga hāngarau waihoki ko te whakaaro rautaki hoki.</p>	<p>Kāore kau he arotake whaiaro ki ngā mahi hoahoa, ā i kake hoki i te tatauria kupu.</p>

Ko ngā mea e 9:

1. Te ingoa o te tīma me te kura/whakarauika
2. He whakaāhua o te rōpū
3. He tuhinga 100 kupu mō te whakaritenga
4. Te tau e pā ana ki te whakauru
5. "He mea motuhake tā mātou ROV nā te mea..."
6. "Ko te akoranga nui i tēnei tau..."
7. He whakaāhua o tō rātou tīma
8. Ngā ingoa me ngā taumata tau o ngā mema o te tīma
9. Ngā ingoa o ngā kaiwhakaako/mentor me ō rātou whakahaere/whānaungatanga ki ngā ākonga.

## Hanganga Ture ROV

INGOA: _____	
KURA: _____	
<b>Te Mahi Hanga</b>	
Kāore he wāhanga e tangatanga ana, hei te wā e whakataetae ana, hei te wā e mau nei ngā ringa rānei.	<input type="checkbox"/> Pāhi <input type="checkbox"/> Pāheke
Kua haumaruru te 'Ballast'	<input type="checkbox"/> Pāhi <input type="checkbox"/> Pāheke
Kua haumaruru te hurirere ki te 'motor shaft'	<input type="checkbox"/> Pāhi <input type="checkbox"/> Pāheke
<b>Haumarutanga</b>	
Kāore ngā waea e puta mai ana i te raumamao	<input type="checkbox"/> Pāhi <input type="checkbox"/> Pāheke
Kāore ngā waea e ORA ana ki te 'ROV', ki te 'Tether' rānei	<input type="checkbox"/> Pāhi <input type="checkbox"/> Pāheke
Kāore he taha koikoi	<input type="checkbox"/> Pāhi <input type="checkbox"/> Pāheke
Ko ngā ārai o ngā 'Alligator Clips' (kei roto i te pouaka) kua tāuta ki ngā wāhi tika	<input type="checkbox"/> Pāhi <input type="checkbox"/> Pāheke
<b>Ngā Mahi</b>	
Ka taea e te tīma te whakamahi i ngā hurirere katoa, ā e tika ana hoki te mahi hurirere whakamua, ā whakamuri hoki.	<input type="checkbox"/> Pāhi <input type="checkbox"/> Pāheke
<b>Te Whakahoahoa</b>	
Kauaka e nui ake i te 3 hurirere ki te karetao	<input type="checkbox"/> Pāhi <input type="checkbox"/> Pāheke
Kāore āno kia whakahou, whakapakari rānei i ngā pūkaha	<input type="checkbox"/> Pāhi <input type="checkbox"/> Pāheke
Ka uru te ROV ki roto i ngā inenga 30x45x45cm, tae atu ki te ringa kohikohi.	<input type="checkbox"/> Pāhi <input type="checkbox"/> Pāheke
Ki te kite atu kua whakapau rua tekau tāra ki te karetao, me whakaatu i ngā rehiti hei whakamārama i te whakahoahoatanga o te karetao.	<input type="checkbox"/> Pāhi <input type="checkbox"/> Pāheke