

# HE WAI ŌRA MAHERE MĀTAI I NGĀ WAIKAIKAI



He rauemi mātai huakita

Ngā mihi nui ki ngā rangatira mō āpōpō, ngā tauria, kaiako me te hapori whānui o Māhia me Rongomaiwahine. Anei tētahi o ngā hua mā koutou. Haere tonu i tō mahi pūtaiao, ā, kei konei mātou ko ESR ki te āwhina.

Nā Arna Whaanga, rātou ko Miriama Ainsley,  
ko Georgia Bell tēnei pukapuka i tuhi.

Nā Elaine Moriarty me Te Kaupapa Māori o Te Parehuia  
te kōrero pūtaiao i koha mai.

Nā Komene Kururangi i whakamāori.

Nā Mark O'brien ngā pikitia  
([www.monsta.co.nz](http://www.monsta.co.nz))

# He Wai Ora?

Mahere mātai i ngā waikaukau

Developed by Te Kura Kaupapa Māori o Te Parehuia with the support  
of the Institute of Environmental Science and Research (ESR)



Tikina ngā taputapu me ngā  
kākahu tika ki te kohikohi  
tīpako wai. He hū, he pōtae, he  
pani ārai rā hoki ngā taputapu  
mō te haere.



Whakaritea ngā taputapu ki te kohikohi fīpako wai.  
He ipu, he wai parakore, he pākete wai, he pēke  
fīpako me ētahi atu taputapu.





Āta haere ki te awa, kia tūpato ki te rori me ngā waka.  
Waiatatia he waiata i a koe e hīkoi ana.



Kia tae koe ki te awa, tuatahi, tirohia ngā tohu o te awa. Whakarongo! E ora ana te awa? Āe? Kāore rānei? He paruparu te awa? He aha te tae o te awa? Ka rongō i te kakara o te awa? Kimihia ngā hua ora i te wai, e ora ana ngā hua? He maha ngā momo hua rere kē?



Kohia te wai ki te pākete.





Puritia te kakau o te pākete,  
kaua e tukua kia makere!



Ringihia te wai ki roto i te ipu.





Tuhia ngā taipitopito ki te pēke, arā, te rangi i kohia ai te fīpako, te wāhi i kohia ai te fīpako, te waimeha o te wai, me te ingoa o te tangata nāna te fīpako i kohi.



Ringhia te wai ki roto i te  
pēke whakarite tīpako.







Whakaritea he waimeha wai tīpako  
ki te wai parakore. E ai ki te para  
wai, he 1:2, he 1:10 hoki ka kitea.

Raua te pire ki roto i te pēke,  
anei te kai mā te huakita.  
Tākaia te pēke, tākaia hoki ngā  
'wire tabs' kia katia ai te pēke.



Oitia te pēke. Waiho te pēke kia tutuki  
te mahi a te pire, kia mā ai te pire.



Ringhia te wai tīpako ki  
roto i te pēke wāwahi.  
Kaua e wareware ki te  
tuhi i ngā taipitopito ki  
te pēke.

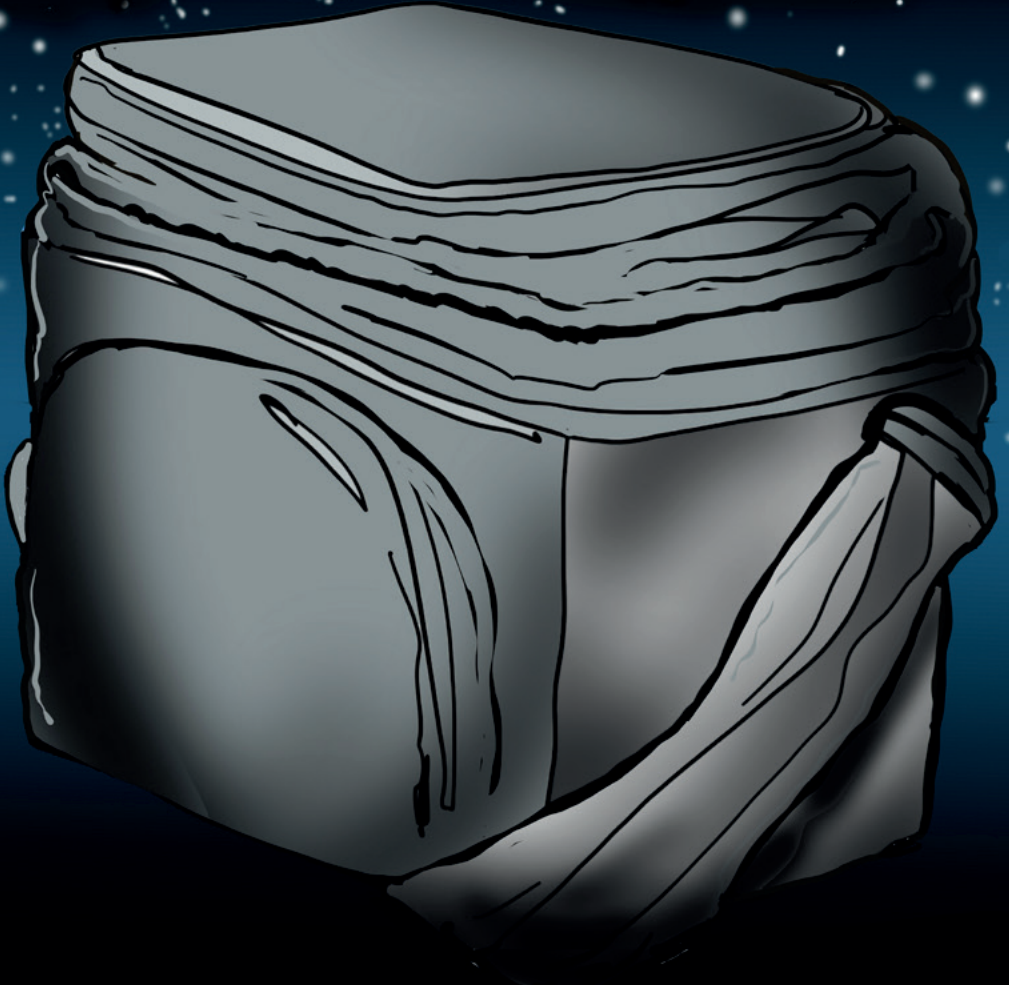






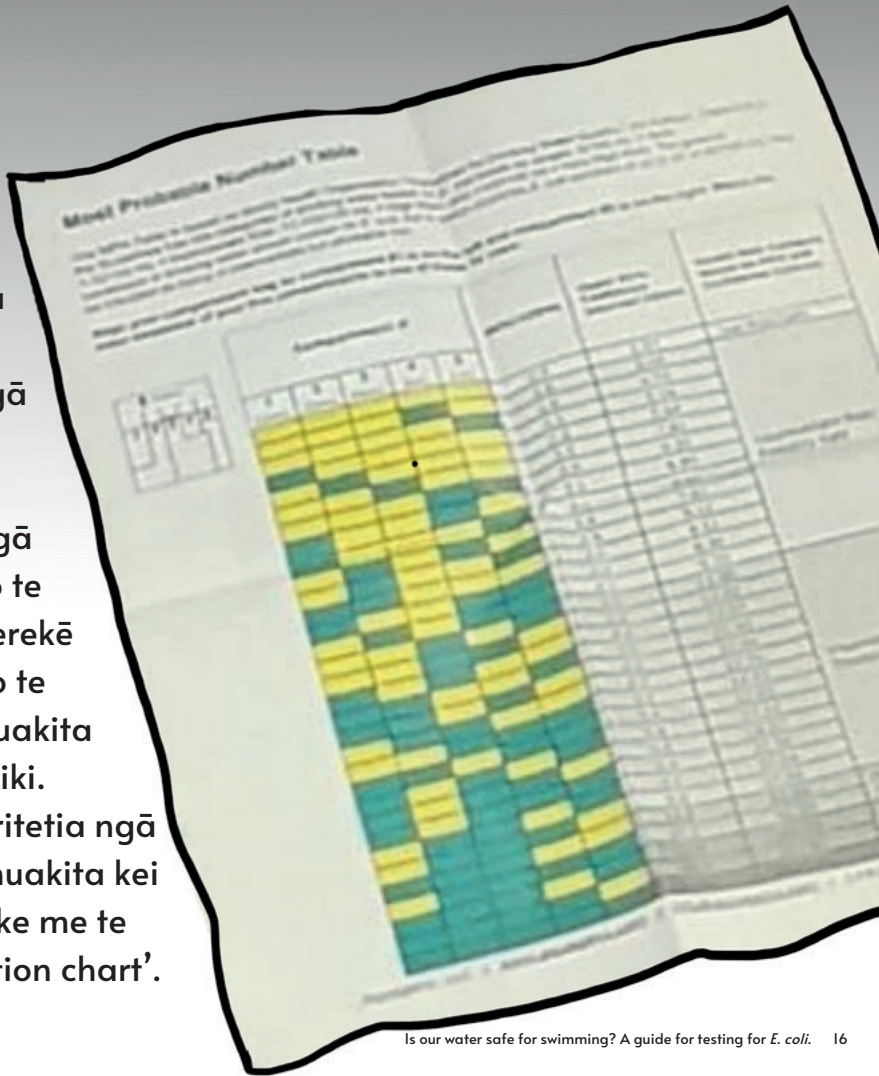
Tukuna  
ngā pēke ki  
te whare huakita.  
Whakamahanatia  
te whare ki te 37 pā  
mahana.

Waiho ngā pēke i te whare  
huakita mō te pō. Kimihia he  
wāhi tika kia kore ai e haunga!





Ao ake ana i te ata, tātāritia ngā wāhanga o te pēke, tatauhia ngā wāhanga o te pēke kua rerekē ngā tae. Ko te tohu o te huakita ko te kākāriki. Whakatauritetia ngā tae o ngā huakita kei roto i te pēke me te 'concentration chart'.



Tūhia te maha o ngā huakita i te wai.

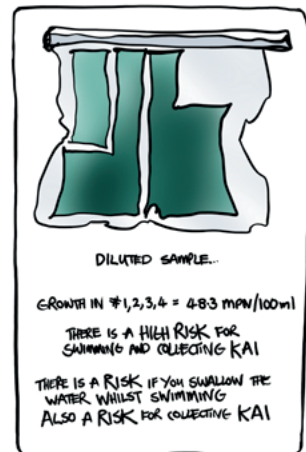
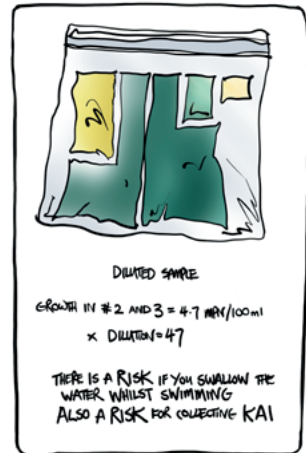
Kaua e wareware ki ngā tīpako waimeha, whakaraatia te kukū ki te nama waimeha e ai ki te tūtohu kia mōhio ai koe i te rahi o ngā huakita i tatauhia i te tīmatanga.

Matapakihia ngā hua o tēnei mahi ki te whānau me te hapori whānui.

He aha te tikanga o ēnei mahi?

Nā te aha te awa i rere kē ai ki ērā atu tīpakonga wai?

He aha i pērā ai?







Ānei ngā kaipūtaiao o te rā nei! He pukumahi rātou!

He pūtaiao,

He taiao,

He tāngata!

## Ānei ētahi o ngā taputapu mō te mahi:

- he pākete wai
  - he pōtae
  - he pani ārai
  - he koti muramura
  - he wai parakore
  - he ipu
- Ngā wāhanga o te 'Aquagenx® (CBT EC+TC MPN) testing kits': he pēke wawahi, he pēke tīpako, he pire, he 'concentration chart' hoki



## ABOUT THIS RESOURCE:

This resource was developed out of a Curious Minds MBIE funded project led by Te Kura Kaupapa Māori o Te Parehuia with the support of the Institute of Environmental Science and Research (ESR).

This resource acts as a sampling guide for testing water quality using the Aquagenx® (CBT EC+TC MPN) testing kits (<https://www.aquagenx.com/cbt-ectc/>).

The resource outlines the protocol for testing *E. coli*, a type of bacteria found in faeces from warm-blooded animals. It is used as a faecal indicator organism, or, an indicator of faecal contamination. *E. coli* is not harmful itself but faeces can contain pathogens, (disease causing microbes) that can make us ill.

Measuring the amount of bacteria, or concentration, is important for understanding the health risk for some activities. For example, drinking water must not contain any *E. coli* for it to be considered safe. However, swimming may contain lower concentrations of *E. coli* and not pose a risk of illness.

High *E. coli* concentrations generally indicate a risk for harvesting wild foods such as shellfish. Faecal contamination can contain other components that are harmful to the environment as well, such as nutrients from farm waste, or chemicals from sewage.

For more information about *E. coli* and water quality in Aotearoa you can check out:

### The Learning Hub

<https://www.sciencelearn.org.nz/resources/1899-e-coli-the-biotech-bacterium>

### LAWA

<https://www.lawa.org.nz/>

<https://www.lawa.org.nz/learn/factsheets/faecal-indicators/>

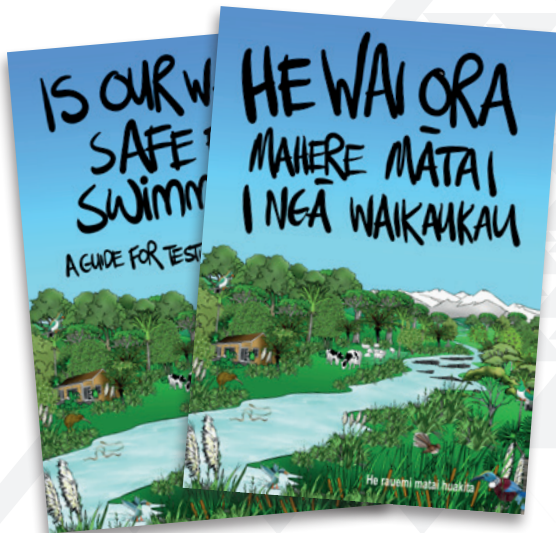
### Ministry for the Environment

<https://www.mfe.govt.nz/fresh-water/tools-and-guidelines/microbiological-guidelines-recreational-water>

Ngā wāhanga o te 'Aquagenx® (CBT EC+TC MPN) testing kits:  
he pēke wawahi, he pēke tīpako, he pire, he 'concentration chart' hoki.

## He Wai Ora?

Māhere mātai i ngā whakakau



Developed by Te Kura Kaupapa Māori o Te Parehūia with the support  
of the Institute of Environmental Science and Research (ESR)