

TAU 7-10

# He aha taku Tapuwae Waro?

## What's my Carbon Footprint?



### TIROHANGA WHĀNUI

Ka ārahi tēnei rauemi ako marau-maha, uiui i ngā ākonga ki te tūhura me te tātaimai i tō rātou ake tapuwae waro, me te whakarite i tētahi mahere mahi takitahi hei whakaiti i ō rātou tukunga waro. Ka kite ngā ākonga he pēhea te āhua o ā rātou mahi kī ā ētahi atu i tō rātou whenua me te ao, ā, ka whai wāhi pea ki te whakawhitiwhiti ki ētahi atu ākonga i whenua kē.

## NGĀ HONO O TE MARAUTANGA O AOTEAROA

| NGĀ WĀHANGA AKO:                                                                                        | NGĀ WHĀINGA PAETAE:                                                                                                                                                                                                                                                                                                                                          | NGĀ TAUMATA: | NGĀ TAU: |
|---------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|----------|
| Pūtaiao: Te Āhua o te<br>Pūtaiao: Te Whai Wāhi me<br>te Whakatakoto Whakaaro:<br>Papatūānuku me Tua Atu | Te whakawhanake i te mārāma ki ngā<br>take pūtaiao-pāpori mā te kohikohi<br>i ngā mōhiohio pūtaiao hāngai hei<br>whakatakoto whakatau mai i ngā<br>whakaaturanga me te kōkiri mahi ina<br>tika ana.<br>Te whakawhanake i te mārāma he pēhea<br>te mahi tahi a te ao ā-nuku, te ao wai,<br>te kōhauhau me te ao koiora ki te neke<br>haere i te waro i te ao. | 5-6          | 7-10     |
| Tikanga ā-lwi                                                                                           | Ka whiwhi mōhio, pūkenga, wheako<br>hoki ngā ākonga kia mārāma ai ki te<br>pānga ki te taiao me te toitūtanga pāpori<br>i te āhua o te whakahaere a te tangata i<br>ngā rawa.                                                                                                                                                                                | 5-6          | 7-10     |

## NGĀ MŌHIOHIO MĀ TE KAIKO

Mā tēnei rauemi ka taea e te ākonga te whakahaere tāna ake uiui ki te ariā, te ine me te whakamahi i te tapuwae waro. Ko te koronga mā te ākonga tonu e whakahaere tana kaupapa uiui whai muri i te tuku whakamārama me te whakatakoto i te horopaki.

Ka whakahaerehia takitahitia e ngā ākonga te rangahau motuhake mō ngā tapuwae waro, i rō rōpū iti rānei (he pai te tokotoru), kātahi ka whakamahi i ngā ariā ka riro mai hei tātaiai i tō rātou ake tapuwae waro. Whai muri i tēnei ka hangaia he mahere mahi hei whakaiti i tō rātou tapuwae waro.

He pai tēnei mahi mā ngā ākonga pūtaiao Tau 9-10, he kōrero mōhiohio tuatahi pea ēnei mō te waro mō te Pūtaiao NCEA 1.14 (Te whakaatu māramatanga mō te nekeneke a te waro). Ka taea hoki te whakamahi tēnei rauemi hei mahi whakawhānui mā ō ākonga tamariki ake.

## He Whakamārama mō te Waro

He haurehu tae-kore, rongo-kore te hauhā, kitea ai ōna rahinga iti i te kōhauhau. Ka ngongoa e ngā tipu te hauhā i te tukanga ahotakakame. Tuku ai ngā kararehe me ngā tipu i te hauhā i te wā tukupūngao. Ka nekeneke haere te waro i ōna tūmomo āhua i te kōhauhau, te ao wai, te ao koiora me te ao ā-nuku. Ka piki i te ngingiha waro mātātoka (waro, hinu, haurehu) mai i te ao ā-nuku te nui o te hauhā kei te kōhauhau. He haurehu kati mahana te hauhā, arā he tuku

mai i te iraruke kōmaru (pūngao ngaru poto) engari he ngongo i te iraruke pōkākā ngaru roa e whakahokia atu ana e Papatūānuku ki te tuārangi mai i ngā mata mahana. Mā te whakapiki i te hauhā i te kōhauhau ka whakahekea te nui o te iraruke ngaru roa e puta ana ki te tuārangi e mahana ake te pūnaha moana-kōhauhau.

Tukuna ai te hauhā mā te ngingiha koranehe e ngā tūmomo mahi rerekē a te tangata tae atu ki te whakanao hiko, te tūnuku, ngā mahi hangatanga me te ahuwhehenua. Ko ngā tukunga waro, otirā i te āhua hauhā, ka whai pānga ki te taiao mā te whakarei ake i te pānga hau kati kōtuhi o te kōhauhau. Kua kitea kētia ngā pānga o ēnei tukunga nā te whakamahanatanga o te mata o te ao, te mahana haere o ngā moana, te kino haere o te huarere, te rewatanga o ngā kōpaka, te piki o te tai moana, te waikawatanga o ngā moana me ētahi atu pānga.

Mō ngā tukunga waro o te tangata kei runga kē i ngā hanganga o te whenua me te rohe e noho ana rātou, engari ka taea hoki te whakaawe e ai ki ngā kōwhiringa āhua noho me ngā ritenga a te tangata. Ko te tapuwae waro tētahi āhuatanga o te ine i te rahinga ā-tana o te waro ka puta i te tangata kotahi mō te kotahi tau me te whai wāhi o tērā ki te whakamahana o te ao.

He tino arawātea tēnei uiui mō ngā akoranga marau-maha me te hono ki ētahi atu wāhi maha o te NZC:

|                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-----------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Te Pāngarau me te Tauanga                                       | <p>Ko tēnei rauemi pea te tūāpapa mō te akomanga ki te kōrero, te whakaemi me te wetewete i ngā mōhiotio kua riro mai mō ō rātou tapuwae waro. Hei tauira, ngā raraunga akomanga kauwhata hei kauwhata pouhere me te kimi i te toharite me te ine mahora.</p> <p>Me whakataurite ki ētahi atu ākonga puta noa i te ao mā tētahi kaupapa e whakahaerehia ana e Te Whare Wānanga o Stanford e kiia ana ko te International Student Carbon Footprint Challenge.</p> |
| Te Mātauranga<br>Ōhanga, te Mātauranga<br>Matawhenua hoki/rānei | <p>He puna raraunga tino rawe te Carbon Footprint of Nations e taea ai te whakataurite ngā raraunga takiwā, whakairoiro, tatau hāngai pērā i te taupori o te whenua ki te GDP/CO<sub>2</sub> mā ia tangata me te tiroiro i tōna rerekē haere i roto i te wā (mai i te tau 1990).</p>                                                                                                                                                                             |

## Ngā rauemi e hiahiatia ana

- Hono ki te raumahi ākonga i **konei**
- Hono ki ngā tautoko rauemi i **konei**

E tohu ana ngā kuputuhi miramira **karaka** i tētahi hono ki ētahi rauemi atu anō. Mēnā kua tāngia e koe tēnei rauemi, me hoki ki [schoolgen.co.nz/for-teachers/resources/](https://schoolgen.co.nz/for-teachers/resources/) hei toro atu ki ngā rauemi kua honoa.



## Raumahi Ākonga

# He aha Taku Tapuwae Waro? What's My Carbon Footprint?

## Uiui a te Ākonga

### Tirohanga whānui

Ka whakamahia e koe ngā rangahau kei te ipurangi kia mōhio ai koe ki tō tapuwae waro mā te whakamahi i ngā tātaimai waro tuihono. Kātahi ka whakarite mahere mō ngā āhuatanga hei whakaheke i tērā!

Hei tīmata me oti i a koe he rangahau kia mārama ai koe ki ngā ariā hira e mahi ana koe. Kua tukuna kētia ētahi rauemi paetukutuku pai hei āwhina i a koe kia tīmata. Kia maumahara ki te whakamahi anake ko ngā paetukutuku tōtika me te pono mō ngā mōhiohio.

### Tapuwae Waro - he aha ngā mea e mōhio ana koe?

Ohia manomanotia ō whakaaro ki konei:



## Raumahi Ākonga

**Kia mōhio:** Ina whakamahia e koe te ipurangi hei rangahau whakaaro, me mātua whakamārama koe nō hea ō mōhiohio. Kaua e whakamahi noa ko ngā mōhiohio tuatahi ka kitea e koe, me mātua whakarite kei te tika te puna e whakamahi ana koe mā te whakataurite i ētahi whakautu mai i ngā puna rerekē.

Kaua rawa e kape ka whakapiri tonu atu mai i tētahi paetukutuku. Pānuitia ngā mōhiohio, me tuhi ki roto i ōu ake whakaaro ka whakamārama mai nō hea ō mōhiohio. Anei ētahi āhuatanga rerekē ka taea e koe mō tēnei.

**Tauira 1:** *E ai ki te National Geographic 2023, whakamahia ai e ngā arewhana te paruparu hei ārai atu i te pare tīkākā. Ka whiua ngā paruparu ki runga katoa i te tinana mā te ihu roa hei tiaki i te kiri mai i te rā.*

**Tauira 2:** *Ko tētahi āhuatanga e mōhio ai koe ki te rerekē o ngā momo arewhana ko te āhua o ngā taringa. He nui ake ngā taringa o ngā arewhana o Awherika tēnā i ngā arewhana o Āhia. (World Wildlife Fund, 2023)*

### Tūmahi 1: Ngā whakamārama o ngā kupu hira

Tuhia ngā whakamārama o ngā kupu hira ki te tūtohi i raro kia mārama ai koe. Kaua e kape tika mai i ngā whakamārama mai i ngā puna, me whakamātau ki te tuhi mā āu ake kupu i ngā wāhi ka taea.

|                     |                   |
|---------------------|-------------------|
| Kupu hira           | Taku whakamārama: |
| Waro                |                   |
| Hauhā               |                   |
| Ngingiha            |                   |
| Hau Kati Kōtuhi     |                   |
| Whakamahana o te Ao |                   |
| Huringa Āhuarangi   |                   |



## Raumahi Ākonga

### Tūmahi 2: Tūhura

He aha ētahi painga o te mōhio he aha te tapuwae waro?

### Tūmahi 3: Tātaitai

Tātaitaitia tōu ake tapuwae waro

### Tūmahi 4: Mahere Mahi

| Whakamāramahia te mahi ka taea e koe | Te taumata uaua o te mahi (Māmā/āhua māmā/uaua) Me whakamārama he aha i kōwhiria ai e koe tēnei taumata uaua. | Me whakamārama ka pēhea te whakaheke a tēnei mahi i tō tapuwae waro |
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## Raumahi Ākonga

### Tūmahi 5: Aromātai

Me whiriwhiri i ngā mahi e 2 ka tino pūmau koe i roto i te tau.

|        |                                                                                                                                                                                                                                      |
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| Mahi:  | Aromātai:<br><i>Me whakaaro ake ko wai te hunga hei āwhina i a koe kia tutuki ai te mahi. He aha te take he pai tō mahi i tēnei mahi? He aha ngā mea ka aukati pea i tō mahi i tēnei? Me pēhea te whai a ētahi atu i tēnei mahi?</i> |
| Mahi 1 |                                                                                                                                                                                                                                      |
| Mahi 2 |                                                                                                                                                                                                                                      |

### Tūmahi 6: Whakawhānui

Kimihia te tapuwae waro o Aotearoa mō tētahi tau tata nei ka whakataurite ki ētahi atu whenua.

He nui ake, he iti iho rānei te tapuwae waro o Aotearoa i ētahi atu whenua?  
He aha ki a koe pea ētahi take mō ngā rerekētanga?

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### Tūmahi 7: Arohaehae

Ki te tangata, “E kore e taea te huri tō tātou tapuwae waro ā-ao, he uaua rawa”.  
Ka pēhea tō whakautu ki tērā, ā, ka pēhea tō whakamahi i ngā whakaaturanga pūtaiao hei tautoko i ō kōrero?

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## Raumahi Ākonga

### Tūmahi 8: Hanga

Hangaia tāu ake whakaaturanga mō te tapuwae waro hei whakamōhio atu ki te kura mō  
ō kitenga mai i tēnei uiui.

Tērā pea he pānui whakaahua/kauhau/waiata/rapi/tuhinga roa/mahi toi

Ohia manomanotia ō whakaaro ki konei ka tono kia waitohua e tō kaiako i mua i tō tīmata ki  
te hanga!

