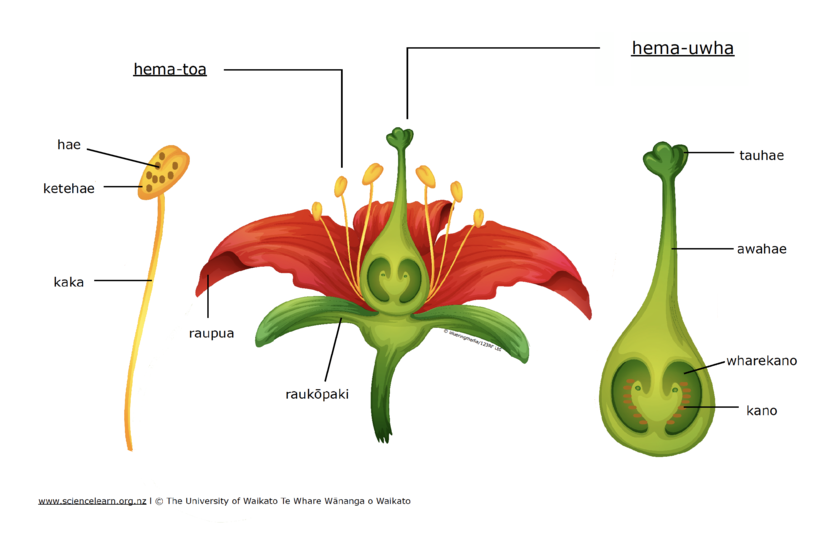
## [Te haenga me te ruinga o te kākano](https://www.sciencelearn.org.nz/resources/3169-te-haenga-me-te-ruinga-o-te-kakano-pollination-and-seed-dispersal)

## He aha te take o ngā pua?

Mā te whakaputa uri tōrua e whai uri ai te nuinga o ngā momo rākau.

Nā reira, me whakaputa kākano e te nuinga o ngā momo rākau kia ora tonu ai.

Mā ngā pua te nuinga o ngā tipu e whai kākano ai.



**Ngā wāhanga o te pua**

Kei ngētehi o ngā tipu ka noho ngātahi mai te hema-uwha me te hema-toa ki te pua kotahi. Kei ngētehi atu o ngā tipu, he rerekē ngā pua hema-uwha i ngā pua hema-toa. I ngētehi wā, kei te tupu kotahi he hema-toa anake, he hema-uwha anake rānei. He āhuatanga tēnei e kitea noatia ana i ngā tupu taketake o Aotearoa.

I ngētehi wā, ka whai raupua ngā pua, ka whakaputa waihonga rānei, kia whakamanea ai i ngā manu, pērā i te tūī, i te kākā, i te korimako, me ngā pī anō hoki.

Ka haria atu te hae i tētehi pua ki tētehi pua e ngā manu, e ngā hau o Tāwhirimātea rānei.

**Te haenga mā ngā manu**

He tino reka te waihonga o te kōwhai ki te tūī. I te wā e ngongo ana te manu i te waihonga, ka piri hoki te hae ki ōna rau. Kei tēnei whakaahua, ka kitea te hae o te kōwhai e piri atu nei ki te te māhunga o tētehi tūī.



**Te haenga mā ngā pī**

Ka kohikohia waihonga e ngā pī hei whakaputa i te mīere. Mā reira, ka haria hoki te hae. Kei tēnei whakaahua, ka kitea tētahi pī e ngongo ana i te waihonga i ngā pua o te koromiko.

Pī, Norman Mason me koromiko, Alfred Lex [CC BY-NC 2.0](https://creativecommons.org/licenses/by-nc/2.0/)

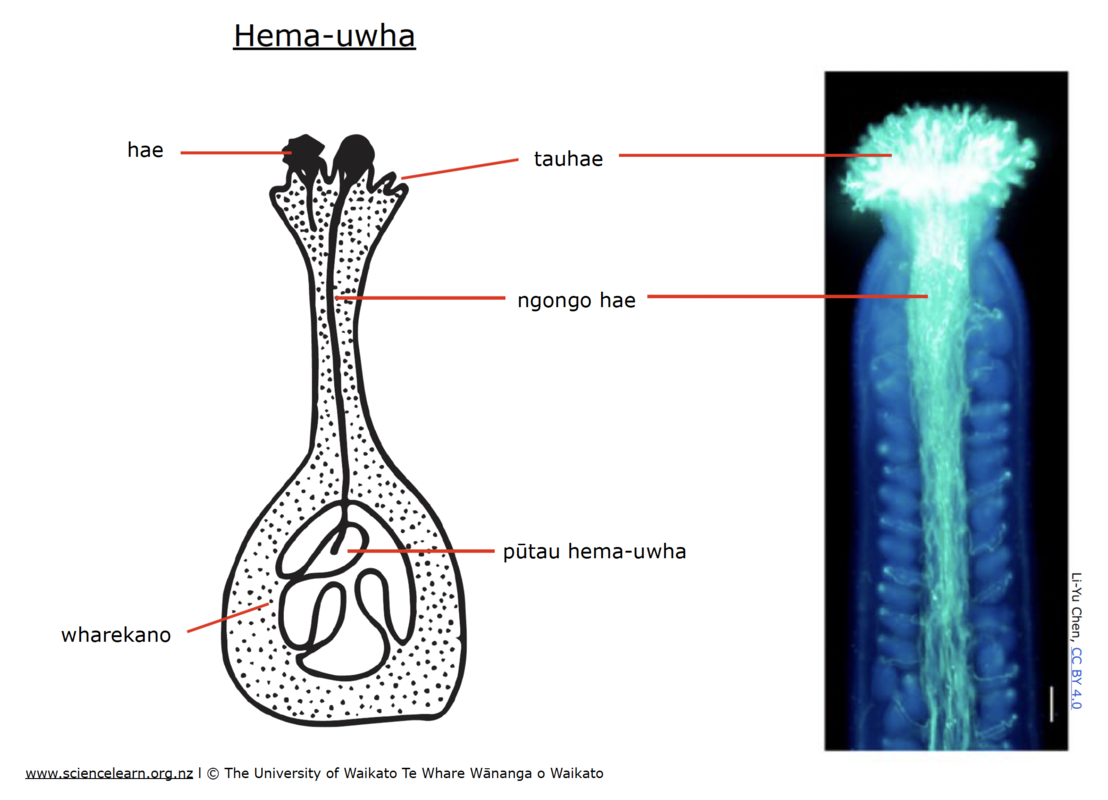
## Te hae me te haenga – te whakaputa uri tōrua o ngā tupu

Ko tēnei mea te hae, he kongakonga mōkitokito ka tuku atu i te taihema toa o te pua.

Ka kawea atu te hae ki te tauhae o te taihema uwha.

I te ngongonga o te hae, ka heke te pūtau hema-toa mā te tauhae ki te wharekano. Ka whakatōngia te pūtau hema-uwha ki reira, ā, ka tipu, ka rea te kākano.

Ko tēnei tukanga ka karangahia ko te haenga.



**Te haenga me whakatōnga**

Ko te hae he kongakonga mōkitokito ka tuku atu i te taihema toa o te pua. Kei roto i ngā kongakonga mōkitokito nei ngā pūtau hema-toa o te tipu. Ka kawea atu te hae ki te hema-uwha o taua pua, o tētahi atu pua rānei, ka tīmata ai te tukanga whakatō. Arā, ka hono tahi te pūtau hema-toa me te pūtau hema-uwha ki roto i te wharekano o te pua.

[Pistil micrograph](https://www.researchgate.net/figure/Pollen-tube-growth-in-the-pistil-a-Schematic-diagram-of-pollen-grains-that-land-on-the_fig1_328851336), Li-Yu Chen, [CC BY 4.0](https://creativecommons.org/licenses/by/4.0/)

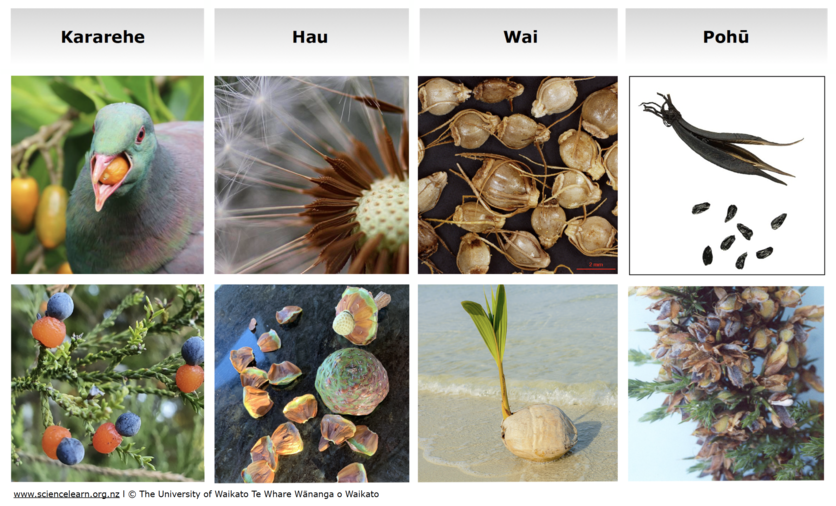
## He aha te take o ngā hua?

I te nuinga o te wā, me tau tawhiti atu te kākano i tōna rākau whaea e matomato ai te tipu o te tupu hou.

Ko tā te tupu he whakaputa i ngā hua, e taea ai ērā āhuatanga o te ruirui kākano.

Ko tēnei tukanga ka karangahia ko te ruinga kākano.

He maha hoki ngā āhuatanga urutau o ngā hua kia haria atu ai ō rātou kākano e te hau, e te kararehe, e te wai, e te tangata anō hoki.



**Ngā āhuatanga urutau o ngā hua**

He maha ngā āhuatanga urutau o ngā hua kia haria atu ai ō rātou kākano e te kararehe, e te hau, e te wai, e te pohū e te tangata hoki.

Image acknowledgements: Kererū feeding on karaka berry, Geoff de Lisle; Dandelion, Daniel Blunt, CC BY 2.0; [CC BY-NC 2.0](https://creativecommons.org/licenses/by-nc/2.0/); Kuta, Barry O’Brien, nō roto mai i [*Te Reo o Te Repo – The Voice of the Wetland*](https://www.landcareresearch.co.nz/publications/books/te-reo-o-te-repo); Harakeke, Roger Culos, [CC BY-SA 3.0](https://creativecommons.org/licenses/by-sa/3.0/deed.en); Kahikatea, Catherine Beard, [CC BY-NC 4.0](https://creativecommons.org/licenses/by-nc/4.0/), sourced from [iNaturalistNZ](https://inaturalist.nz/observations/39958421); Kauri, Mikey Marley [CC BY-NC 4.0](https://creativecommons.org/licenses/by-nc/4.0/), sourced from [iNaturalistNZ](https://inaturalist.nz/observations/41019978); Coconut, kerdkanno/123RF Ltd; Gorse, Dr Craig Sixtus.

## Kararehe

He tino reka ki te kererū ngā hua nunui o ngā rākau taketake, pērā i te karaka, i te pūriri, i te miro anō hoki. Ka kaingia ngā hua e te kererū, ka ruia ai ngā kākano ki ngā tōpito o te whenua.

He wāhi nui tō te manu ki te ruiruinga o ngā kākano, nā reira, me reka rawa atu ngā hua o te kahikatea kia whakamanea rawa rā i ngā manu, i ngā tāngata hoki!

## He kōrero kōpūtahi

* [Ngā rākau](https://www.sciencelearn.org.nz/resources/3167-nga-rakau-trees)
* [He aha hoki tērā rākau?](https://www.sciencelearn.org.nz/resources/3165-he-aha-hoki-tera-rakau-what-kind-of-tree-is-that)
* [Ngā kākano](https://www.sciencelearn.org.nz/resources/3170-nga-kakano-seeds)
* [Ngā rau o te rākau](https://www.sciencelearn.org.nz/resources/3171-nga-rau-o-te-rakau-tree-leaves)
* [He pūnaha whakarōpū](https://www.sciencelearn.org.nz/resources/3168-he-punaha-whakaropu-classifying-and-identifying-plants)

Mō te tūpono he ngākau whakapuke hoki koe ki ēnei kaupapa:

* [Pollination resources – planning pathways](https://www.sciencelearn.org.nz/resources/2536-pollination-resources-planning-pathways)
* [Pollination and fertilisation](https://www.sciencelearn.org.nz/resources/77-pollination-and-fertilisation)
* [Decline of birds and pollination](https://www.sciencelearn.org.nz/resources/75-decline-of-birds-and-pollination) – *Rhabdothamnus* research
* [Mistletoes and mutualism](https://www.sciencelearn.org.nz/resources/74-mistletoes-and-mutualism)

## Ngā hono

* [Ngā tipu puāwai](https://teara.govt.nz/mi/te-ngahere/page-4) – Te Ara
* [Pollination and pollinators](https://www.landcareresearch.co.nz/tools-and-resources/education/pollination/) – Manaaki Whenua – Landcare Research
* [Flower of the underworld – a parasitic treasure](https://www.rnz.co.nz/national/programmes/ourchangingworld/audio/201755898/flower-of-the-underworld-a-parasitic-treasure) – RNZ

**He whakamihi**

Tēnei te mihi nui ki a Mokoro Gillett (Tumuaki o Te Wharekura o Te Rau Aroha) rāua ko Norman Mason (Manaaki Whenua – Landcare Research).