## [Ngā rau o te rākau](https://www.sciencelearn.org.nz/resources/3171-nga-rau-o-te-rakau-tree-leaves)

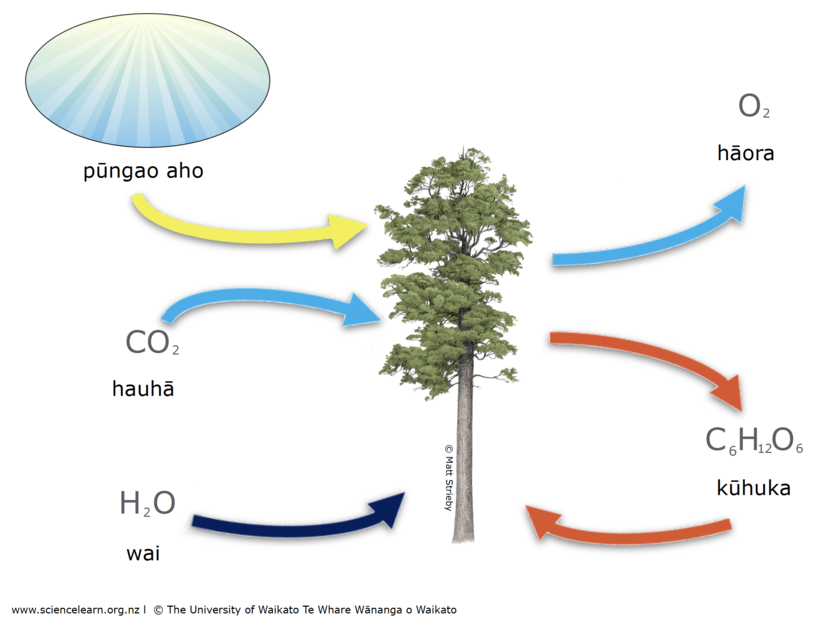
## He aha te take o ngā rau o te rākau?

Ko te take matua o ngā rau ko te ahotakakame.

Mā te ahotakakame te tupu e mahi kai māna anō.

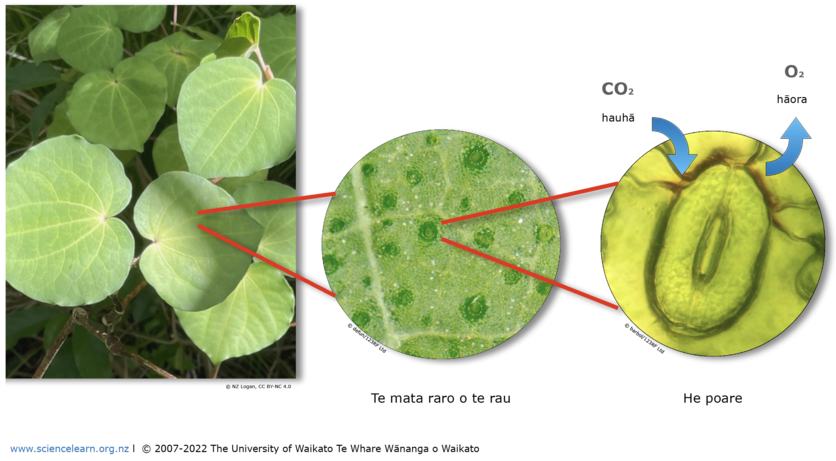
Ko tā ngā rau o te rākau, he miti i te hauhā o te hau takiwā me te pūngao aho o Tama-nui-te rā.

Ka kōmitimiti ngēnei huānga me te wai hei whakaputa i te kūhuka me te te hāora.



**Te ahotakakame – he tiro whānui**

Ka whakaahuatia nei te kahikatea hei tauira.



Ngā poare

Mā te poare te hauhā e urururu ki te rau, ā, te hāora e puta i te rau.

Te whakaahua o te kawakawa: NZLogan, [CC BY-NC 4.0](https://creativecommons.org/licenses/by-nc/4.0/), Ahunga i a [iNaturalistNZ](https://inaturalist.nz/observations/104235227).

## Te hopunga o te aho – te kanokāriki me ngā pūmāota

Ko te pūmāota tētehi wāhanga o ngā pūtau o te rau rākau.

Nā te kanokāriki kei roto i ngā pūmāota, ka taea e ngā rau te huri i te pūngao aho o Tama-nui-te rā hei pūngao matū.

Nā te kanokāriki e kākāriki ai ngā pūmāota me ngā rau.

## 

**Ka hangaia e te rākau ngōna wāhanga katoa i te kūhuka e puta ai i te ahotakakame**

Ka whakaahuatia nei te kahikatea (ngā rau hou, ngā kākano, ngā pakiaka me te tinana) hei tauira.

Te tinana o te Kahikatea nā Cheryl Dawson, [CC BY-NC 4.0](https://creativecommons.org/licenses/by-nc/4.0/); Ngā kākano, Peter de Lange, E wātea tūmatawhānui ana; Ngā rau, nā Jane Gosden, [CC BY-NC 4.0](https://creativecommons.org/licenses/by-nc/4.0/); me ngā pakiaka, nā Annfr, [CC BY-NC 4.0](https://creativecommons.org/licenses/by-nc/4.0/). Ahunga i a [iNaturalistNZ](https://inaturalist.nz/). Kahikatea, Matt Stribey.

## Ka taea e nga tupu te whakaputu i te kūhuka hei māngaro, arā, he raupapa roa noa iho o ngā rāpoi ngota kūhuka.

## Diagram of corn as an example of a plant producing starch.

**Te ahotakakame, te māngaro me te hurihanga-ora o ngā tupu – kānga**

Ka whakaahuatia nei te kānga hei tauira o te whakaputa i te māngaro kei roto i te kākano, hei kai mā te tupu hou.

Image of [corn cob](https://commons.wikimedia.org/wiki/File:Corn_on_the_cob.jpg), Darwin Bell [CC BY 2.0](https://creativecommons.org/licenses/by/2.0/deed.en).

Ka whakaputua te māngaro e ngā tipu hei kai māna ā muri ake nei, hei kai mā ngāna uri rānei. Ka pērā hoki te kānga mā ngōna kākano, me te kūmara mā ngōna kōpura.

## Kūmara - an example of a plant storing starch within its tubers.

**Te ahotakakame, te māngaro me te hurihanga-ora o ngā tupu – kūmara**

Ka whakaahuatia nei te kūmara hei tauira o te whakaputa i te māngaro kei roto i ngā kōpura, hei kai mā te tupu hou.

## He tini hoki ngā painga o te ahotakakame ki a tātou te tangata

* Ka kaingia e tātou te māngaro hei kākano, hei hua, hei purapura rānei.
* Ka whakairotia te kōhiwi tōtara e te tohunga whakairo.
* Ka rarangatia ngā rau o te harakeke e ngā kaiwhatu.
* Ka whakaritea e tātou he rongoā mai i ngā rau o te kawakawa.
* Ka mutu, ko tā te ahotakakame he whakaputa hāora kia whai hā tonu ai te mataora, mō nāianei, ā, mō ake tonu atu.



**Ngā painga o te ahotakakame**

He tini hoki ngā painga o te ahotakakame ki a tātou te tangata.

Image acknowledgements: [Tōtara prow Tauihu, Waka taua Te Toki a Tapiri](https://www.aucklandartgallery.com/explore-art-and-ideas/artwork/5967/tauihu-waka-taua-te-toki-a-tapiri), Reverend John Kinder. Circa 1865. Auckland Art Gallery Toi o Tāmaki. Accession No 1983/22/15. Harakeke bassinet, Sue Scheele. Nō roto mai i [T*e Reo o Te Repo – The Voice of the Wetland*](https://www.landcareresearch.co.nz/publications/books/te-reo-o-te-repo). [Hāngī meal](https://www.flickr.com/photos/juliryan/6827708605/in/photolist-bpkMTT-iZBTyX-iZAWre-iZADjD-iZAwiz-iZExzf-68VaLX-65vWV3-2ewY82Q-iajywd-7QHXsh-3brkWN-nQTF6w-65rDUM-7PxdnQ-Myd9v-2btjrpg-dUeVmu-UcHumb-5Wncb-8vPbko-6FucyQ-bXzqYL-8uuczM-eSYqnM-eTaPDh-8a9nsL-o3MZo-2jBwo4Z-8a68RH-PLwTV-eTaNLs-6Fq6fR-b4TKNZ-eTaPdS-eTaPrY-b4TEPx-b4TCmT-b4Tzqk-8oEZEw-b4THnH-b5nmzX-wFk6Z-eSYpVM-eSYq9P-b4TuB6-8a68k6-b5gEXx-eSYpQ4-eSYptp/) by Juli R, [CC BY-NC-ND 2.0](https://creativecommons.org/licenses/by-nc-nd/2.0/). Kawakawa poultice, photo by Simon Waterfield, from *Connected*article: [The Science of Rongoā](https://www.sciencelearn.org.nz/resources/2822-the-science-of-rongoa). Crown Copyright.

## 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)
* [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)
* [Ngā kākano](https://www.sciencelearn.org.nz/resources/3170-nga-kakano-seeds)
* [He pūnaha whakarōpū](https://www.sciencelearn.org.nz/resources/3168-he-punaha-whakaropu-classifying-and-identifying-plants)

Kia mōhio ai koutou, he ataata reo Pākehā kē tēnei:

* [Making glucose](https://www.sciencelearn.org.nz/videos/1423-making-glucosehttps://www.sciencelearn.org.nz/videos/1423-making-glucose)

## Ngā hono

* [Rākau](https://paekupu.co.nz/word/rakau) – Paekupu
* [Ahotakakame](https://paekupu.co.nz/word/ahotakakame) – Paekupu

**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).