**ACTIVITY: Māori knowledge and uses of fungi quiz**

**Activity idea**

In this activity, students can test their knowledge of Māori knowledge and uses of fungi online or in a paper-based quiz. The quiz can be used as an introductory tool to gauge students’ prior knowledge, as a summative assessment or as an engaging treasure hunt to introduce students to some of the different uses and knowledge.

By the end of this activity, students should be able to:

* answer specific questions about how fungi were used for kai and rongoā
* check or revise their answers using related web resources
* identify some of New Zealand’s fungi and what they were used for.

# For teachers

## Introduction/background

Māori had extensive knowledge of fungi and multiple uses for a number of them. The uses include for kai and [rongoā](https://www.sciencelearn.org.nz/resources/185-rongoa-maori), tā moko and as a tinder to start fires. Students can complete the [online quiz](https://www.sciencelearn.org.nz/embeds/109-fungi-quiz) or the [paper-based quiz](#_For_students). The quiz covers general and specific questions about Māori uses and knowledge of fungi.

The following resources provide background information. Students can use the resources to check their answers, revise incorrect answers or extend their knowledge.

***Related resources from a Māori world view***

[Māori knowledge and use of fungi](http://www.sciencelearn.org.nz/resources/2668-maori-knowledge-and-use-of-fungi)

[Fungi as food and medicine interactive](https://www.sciencelearn.org.nz/image_maps/72-matauranga-maori-fungi-as-food-and-medicine)

***Other related fungal resources***

[Rongoā Māori](https://www.sciencelearn.org.nz/resources/185-rongoa-maori)

[Traditional uses of the vegetable caterpillar fungus](https://www.sciencelearn.org.nz/videos/767-traditional-uses-of-the-vegetable-caterpillar-fungus) – video

[Mātauranga Māori and science](https://www.sciencelearn.org.nz/resources/2545-matauranga-maori-and-science)

[Rebekah’s research on fungi](https://www.sciencelearn.org.nz/videos/766-rebekah-s-research-on-fungi) – video

***Quiz answers***

* + - 1. B
      2. A
      3. B
      4. A
      5. B
      6. C
      7. A
      8. B
      9. A
      10. B
      11. A
      12. B
      13. C
      14. C
      15. B
      16. C
      17. B
      18. B
      19. A
      20. B
      21. C

# For students

Circle the answer you think is correct.

Which kind of fungus can be used to make black pigment for tattooing?

Te pūtawa.

Āwheto.

*Cyttaria* species.

What does the āwheto feed on?

The caterpillar of two native moths.

Leaf litter.

Wood.

To see the āwheto, what should you look for, where and when?

In autumn, look for a black soot on beech trees in the beech forest.

On the forest floor in the autumn, look for a small brown stick-like structure growing up from the soil.

Look on rotting wood on the floor of the forest in spring.

How can black pigment be made from āwheto?

Lots of āwheto and hosts were collected, burned in the fire, then ground into a black powdery substance. This was mixed with bird fat to make the pigment for tattooing.

Lots of āwheto and hosts were collected and ground up with charcoal and karaka berries.

The stick-like hyphae structures were soaked in bird fat and mixed with ground mamaku bark.

Which kind of fungus can be used to store and carry fire?

Āwheto.

Pūtawa.

Te hakeke.

What does the pūtawa feed on?

Decaying wood.

Insects.

The wood of a living beech tree.

What does the pūtawa look like and where does it live?

It is shaped like a plate or shelf, and it grows outward from the trunk of a living beech tree.

It is shaped like a small umbrella and grows through the leaf litter at the foot of beech trees.

It is shaped like a plate and extends out from the logs of decaying wood on the forest floor.

How can the pūtawa be used to store and carry fire?

It is dried and soaked in bird fat and stored in gourds.

If it is set alight when dry, it smoulders for a long time and can be left until needed or carried to another place to make a new fire.

It is added to burning embers and buried until it is needed. If needed to be carried, it was then wrapped in soil within a gourd.

Which structure of the harore do we eat?

The fruitbody.

The hyphae.

The eggs prior to the fruiting stage.

Several kinds of fungi are useful for injured people for putting around what?

To wrap broken limbs.

To dress wounds.

To reduce swelling.

What is a remarkable feature of young harore fruitbodies visible only at night?

They produce a weak glow of light (bioluminescence).

An inverted cap that stores water and reflects the stars.

Luminescent hyphae.

Which type of fungus looks like a flower?

Werewere-kōkako.

Puapuatai.

Kaikākā.

The puapuatai and the matakupenga belong to which family of fungi?

*Ophiocordycepitaceae.*

The stinkhorn family.

The flower fungus family.

Why are there many Māori names known for the matakupenga fungus?

Because no one could make a decision on a single name.

It was a special fungus used in ceremonies and exchanged as a gift between visiting iwi.

It was a well known species, and to the old people, it was a sign of storms and acts of the gods.

Which fungus has a fruitbody shaped like an ear?

Te pukurau.

Te hakeke.

Cauliflower fungus.

Where does the hakeke grow?

On living mānuka trees.

On compost heaps and in leaf litter.

On dead trees in the forest.

How does the pukurau release its spores?

The ball shaped fruitbody is scented to attract birds. The birds peck at the fruitbody, releasing the spores. The bird then ends up with spores released onto it and spreads the spores when taking flight.

The ball-shaped fruitbody has a hole at the top, and when impacted by a raindrop or an animal, some spores are released to fly away on the wind. In some puffball species, the fruitbody explodes or breaks open to release its spores.

It doesn’t. The ball-shaped fruitbody rots into the leaf litter and then the spores within the rotting matter are spread on the leaf litter by the wind.

What does the fruitbody of the pekepekekiore look like?

It looks like a falling vine of beautiful white clematis flowers.

It is beautiful and white and shaped like a hanging coral or an icicle.

It is like a glowing white lace tablecloth.

How do fungi and algae grow together as lichens and why?

In a lichen, the fungus acts as a home for the cells of the alga. The algal cells make sugar by photosynthesis to feed and nourish them both.

They have a symbiotic relationship whereby the fungus supports the algae high up in the forest canopy and the algae attract insects and birds for both to feed on.

In the lichen, the fungus enables the algae to reproduce, and in return, the algae grow food for the fungus.

What is the meaning of the word kaikākā and the role played by the fungus?

Kaikākā is a fungus within a number of woods that darkens the natural wood patterns, making it highly valued for carving.

Kaikākā is the term used for tōtara wood that has been infected by a type of fungus. It causes the wood to become softer and produces a patterned effect in the wood so is valued for carving.

Kaikākā is the term for wood used in carving that becomes infected with a fungus that in turn reduces the value of the carving. It was said to be an omen of war and misfortune.

Where does the name werewere-kōkako come from?

The small hair-like hyphae that grow on the fruitbody, making it look like a barnacle.

From the colour of the fruitbodies that resemble the New Zealand $50 note that pictures the kōkako.

From the colour of the fruitbody, which is a bright blue like that of the wattles of the kōkako.