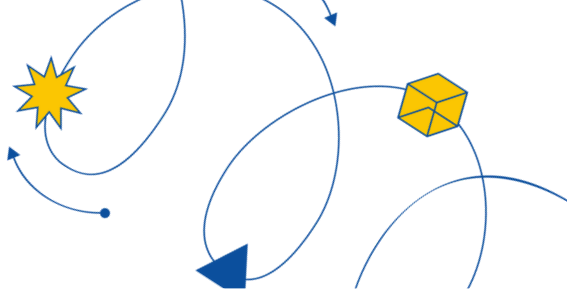


Mini Watch: Bees at Work



SCIENCE
ALIVE

Every day, plants bloom and bees buzz – but have you ever wondered what’s really happening when a bee lands on a flower? These tiny workers play a big role in helping plants grow and reproduce. This mini is perfect for sparking curiosity about pollination, plant life cycles, and the important role of insects in ecosystems.

WATCH:

1. Āta mataki (carefully watch) the video clip.
2. Ākonga use their rongo (senses) to observe and describe what they notice. Consider:
 - What objects or living things can you see in the video?
 - What parts of the flower does the bee touch?
 - Does the bee visit just one flower, or move between different ones?
 - What do you notice about how the bee moves?
 - What can you hear?
3. Ākonga share their observations (you might choose to write these down).
4. Encourage ākonga to use precise language to describe what they observe, rather than inferences or opinions, and use questioning to help them focus on the details.

DISCUSS:

Engage ākonga in scientific discussion using the following pātai (questions).

Ākonga elaborate:

1. What is the bee doing when it lands on the flower?
 - How did you come to that conclusion?
2. Do all bees in the video behave the same way?
 - What did you observe or notice?

Ākonga give evidence:

1. What might the bee be collecting? Why?
 - What evidence do you have from the video?
2. What do you think happens to the pollen the bee picks up?
 - Does that always happen? How do you know?

Ākonga think with others:

1. Do you think the bees are helping or harming the environment? Why?
 - Does everyone agree with this answer?
 - Why or why not?
2. Why do you think bees visit flowers?
 - Who can add on to this idea?

Science Alive Learning Portal

This printable supports an online resource found on the Science Alive learning portal.

Explore hundreds of interactive resources across a range of topics, all completely free.

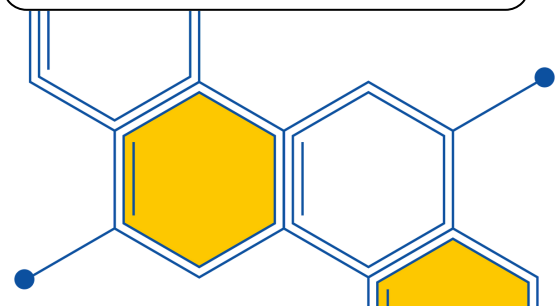
Scan the QR code to visit the lesson library:

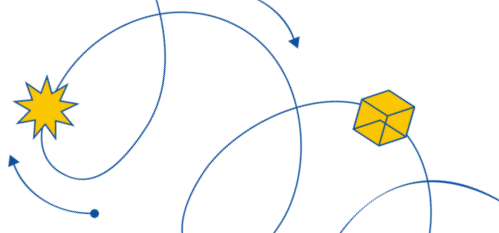


www.sciencealive.co.nz

This lesson was developed with generous support from NEX and NZASE.

www.nzase.org.nz





DISCOVER THE SCIENCE:

Bees visit flowers to collect both **nectar** (for energy and to make honey) and **pollen** (for protein and to feed their larvae).

Bees make honey by **collecting nectar** from flowers with their **proboscis (long tongue)** and storing it in their **stomach** where **enzymes** begin **breaking it down**. Back at the hive they **regurgitate it**, passing the nectar mouth-to-mouth to **reduce its water content** before storing it in **honeycomb cells**. Bees **fan the nectar** with their **wings** to evaporate more water, and once it thickens, they **seal it with wax**—preserving the honey indefinitely.

Pollination is essential for the **reproduction of flowering plants** and the **formation of seeds and fruit**. It involves the **transfer of pollen** (which contains male gametes) from the **flower's anthers** to the **stigma**, where it can fertilise the **ovule** (containing female gametes).

Pollen can be moved by **wind or animals** — especially bees, birds, and other insects. **Bees** play a **major role in pollination**, collecting nectar and pollen. As they move between flowers, **pollen sticks** to their hairy bodies and is **transferred to other flowers**. They also store pollen in special "**pollen baskets**" on their back legs, which they take back to the hive to **feed the larvae and colony**.

COMMON MISCONCEPTIONS:

Students' prior knowledge can help them connect with new ideas, but it can also lead to misconceptions if their earlier understanding is inaccurate. Below are some possible misconceptions that may arise from the images used in this mini:

"Bees visit flowers to make honey."

The Science: Bees visit flowers to collect both nectar (for energy and making honey) and pollen (for protein). The nectar is stored in the bees stomach and taken back to the hive, where it goes through a lengthy process to be turned into honey. The collected pollen is stored in the corbiculae (pollen baskets) on the back legs of the bee and is used to feed the bees larvae.

"Only bees pollinate flowers."

The Science: Bees are important pollinators, but not the only ones! Other pollinators include butterflies, flies, birds (like tūī), and even bats. Wind and water can also carry pollen in some species.



Connect: Bees at Work

LITERACY



Junior learners could draw and label what they observed in the video, focusing on the bee, the flowers, and any parts of the plant the bee touched.

Senior learners could write a persuasive paragraph on the following topic, '*Are bees pests or pals?*'. Encourage learners to discuss the process of pollination and to include evidence to support their opinion.

TECHNOLOGY



Younger tamariki may be interested in how they can encourage bees in local areas. Learn about the types of plants bees like then design a bee-friendly garden, labelling the materials and plants they would use.

Older ākonga might be curious about the process of pollination. Watch this video from Science Learning Hub on the two types of pollination and create a short video clip explaining how pollination works.

MATHEMATICS



Junior ākonga may be eager to go outside for an insect or flower hunt! Take this opportunity to follow The Garden statistics lesson, allowing learners to collect real data, sort it and graph the results.

Older ākonga could learn about calculating the area of rectangles. Using this knowledge, they could then design a bee-friendly garden using a set area (e.g. 20m²) with a mix of flowers that attract pollinators.

FUTURE FOCUS



The skills and knowledge developed in this mini could inspire learners to explore pathways beyond the classroom! If your ākonga were engaged in this activity, it could be a great opportunity to connect with experts or someone from your local community to learn more. You could also explore the skills and school subjects involved in some of the related careers listed below:

- Pollination Ecologist
- Beekeeper
- Melittologist

