Lesson 2: Investigate: What is present? (Part I)

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TE MĀRA A TĀNE

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Overview:

Lesson Number:	2 of 5
Key Competencies:	**Thinking**; Using language, symbols, and texts; Managing self; **Relating to others; Participating and contributing**.
Unit/Topic:	**Primary focus: Science** **Secondary focus: Technology**
Te Reo/Tikanga Māori:	Names of animals in Māori. Pre- European Māori world view.
Values:	Excellence; **Innovation, inquiry,** curiosity; **Diversity**; Equity; **Community and participation**; **Ecological sustainability**; Integrity; Respect.
Science Strand:	**Nature of Science** **Living World**
Level:	3
Achievement Objectives: **Nature of Science:**	*Students will:* **Understanding about science**: • Identify ways in which scientists work together and provide evidence to support their ideas.
Achievement Objectives: **Living World:**	*Students will:* **Ecology:** • Explain how living things are suited to their particular habitat and how they respond to environmental changes, both natural and human-induced.
Technology Strand:	**Nature of Technology**
Level:	2
Achievement Objectives: **Nature of technology:**	*Students will:* **Characteristics of Technology:** • Understand that technology both reflects and changes society and the

	environment and increases people's capability.
Lesson Objective:	Students will be able to investigate and construct a technological outcome which will enable them to record patterns in their community.

Resources in Folder:

- "Comparison of Domestic Rodents" resource.
- "What Made These Tracks?" resource to aid in identifying tracks from introduced predators and native species.
- A tracking tunnel template to provide instructions for making corflute tracking tunnels.
- "Victoria University Transect Lines" resource as an example of marking where traps are set.

Classroom Resources:

- iPads/tablets with pre-installed apps (iNaturalist).
- Vocabulary list – English and Māori (see He Tikanga lesson).
- Corflute (lightweight material that can be used to construct tracking tunnels, may be available free through your local real estate agent who may be able to supply old 'Open Home' signage to recycle).
- Ink pads for each student. Pre-inked tracking cards are available for purchase from Gotcha Traps (http://gotchatraps.co.nz/ordering/), or you can make your own using water, food colouring and a sponge or tissue. https://kcc.org.nz/portfolio/make-a-tracking-tunnel/ outlines how you can make your own tracking tunnels and inkpads.
- Tracking tunnel prints (printed off from iNaturalist, from the 'Identifying Tracks resource in lesson).
- Duct tape or any strong adhesive.
- Example of a map of Victoria University trap lines marked on the site (in folder).

Resources Online:

- Example of a class who has used iNaturalist to log their conservation efforts: http://iNaturalist.org/observations/stteresasroom6
- Example of backyard mammal observations from a Lincoln University group: https://www.inaturalist.org/projects/ecol202-backyard-mammal-tracking

(Both the above links show some of the prints from tracking tunnels)

- Online tool to help decipher clues and identify the presence of pest animals: http://www.pestdetective.org.nz/
- A guide on how to read prints from tracking tunnels, including footprints of common species: https://www.landcareresearch.co.nz/__data/assets/pdf_file/0005/127472/22_How-to-read-prints-from-tracking-tunnels.pdf
- Information on introduced predators and why they are a major threat to New Zealand's native species: https://www.doc.govt.nz/nature/pests-and-threats/animal-pests/
- Instructions on how to make a tracking tunnel: https://kcc.org.nz/portfolio/make-a-tracking-tunnel/
- Information on tracking tunnels and what they are used for: https://predatorfreenz.org/get-involved/backyard-trapping/tracking-tunnels/
- https://predatorfreenz.org/toolkits/community-groups-2/useful-resources/beginners-guide-predator-control/chew-cards/ for instructions on how to use chew cards as another tracking tool.
- https://www.naturespace.org.nz/sites/default/files/u4/82817287-Chew-Card-Landcare-Protocol-Feb-2012.pdf provides instructions on how to create your own chew cards.
- https://predatorfreenz.org/chewcards is another resource providing instructions on how to create your own chew cards.

Resources to Set Up:

- iNaturalist log-on.
- Set up a spreadsheet to log the information about your prints and other relevant details (see the Victoria University Trapping Results resource in the Numbers and Patterns folder for an example of how you can set up your spreadsheet).
- Bird's eye map (print off from Google Maps NZ) of your school for each student. One large class map on a board.
- Decide where in your school grounds the tracking tunnels and/or chew cards will go. Mark these on a map of the school (see Victoria University Transect Lines resource in this Lesson Two folder as an example).
- Cut corflute to size (dimensions for tracking tunnels in this Lesson Two resource folder).

Lesson Structure:

Introduction and overview:

To start the session, revisit the A3 posters or presentations the students made in their groups. Highlight the positive aspects of these endemic species and how unique they are.

The main component of this session is 'to investigate which species we have present in our school'. Have a discussion with your students about how they could do this.

Introduce the investigation tool that they will be using throughout the programme. Show them an example of a tracking tunnel, either one that you have physically from your local conservation group, DOC office or local council, or you can use the online resources attached above.

Alongside tracking tunnels, it is possible to use chew cards. These can either be purchased or made, and are an innovative way to detect the presence of introduced predators such as rats, mice, stoats, possums and hedgehogs. However, if you decide to make chew cards, be mindful of allergies as the most common way of baiting these cards is with peanut butter. See the links above to find out more.

If you wish, you can give your students the opportunity to design their own tracking tunnel after discussion about its purpose and design requirements (see instructions for a tracking tunnel design in this Lesson Two resource folder).

Explain that they will be in charge of gathering the evidence about what species are present in your school. As your students are citizen scientists they will need to record as much detail as possible.

Define what an introduced predator species is. If you wish, you can also talk about plants, and how they can also act as invasive pests. It is important to understand New Zealand's unique ecological context, the reasons we need to make Aotearoa predator free and the crucial role children play in this vision. Make sure children know about predator free fundamentals outlined in this section https://predatorfreenz.org/get-involved/kids-schools-2/

Explain that they are not 'bad' animals, simply the wrong species in the wrong place that cause harm to our native New Zealand species.

Demonstrate, using role play, how the tracking tunnel works. Ask questions such as:

- What shall we use as bait?
- How, where and what do we record if we find something?
- What do you think we may find?
- Is everything we find going to be an introduced predator? Why not?
- What are the limitations of this tool?

Theme and content:

Each student will receive a map of the school. As a class, get students to label important/main sites in the school. This will help them to orientate themselves.
Ask them to use a felt pen or marker and mark on the map the number and placement of the tracking tunnels and/or chew cards you are using. Ask them the following questions:

- If we bunch them together what will happen?
- Should we place them out in the open or in sheltered spots?

After your students have marked their proposed sites for the tracking tools on their school map, they will take a pre-cut tracking tunnel and write their name on it. They can also name their inkpads and if relevant, their chew cards.

Note: If deciding on possible sites is too hard for your class, you can get your students to design and decorate their own tracking tunnel. If you choose this option simply provide them with a map with the locations of where you want the tracking tunnels placed.

Wrap:

Although you will not be placing the tracking tunnels and/or chew cards out with the class today, it is important that the class as a whole decides where their tracking tools will be placed. Look at the large class map together and have a discussion about where you will site the relevant tracking tools.

Make sure students' hand in their proposal for the tracking tunnel grid of the school. It is important you have the final class plan mapped out and ready to go before the tunnels are put in place.

Prior to the third session:

You will need to place the tracking tunnels and/or chew cards out in their designated areas the day before the third session. Talk to the students about the timing of the placement. (This is often best done at the end of the school day).

For the first tracking session it is suggested that peanut butter be used. (Ensure allergies are taken into consideration.) You may want to get a few students to inform other classes in your school of what they are doing. Ask them not touch the tracking tunnels as they head home that day or the following morning.

Points for Next Session:

Evaluation:

Points to Improve: