

Who dirtied the water?



Task:

For students to investigate how the water quality in our rivers, harbours and oceans has deteriorated through human impacts.

This interactive story asks students to take on the roles of different historical and modern characters who have had a role in the pollution of their local waterways. As the story is read, each character in turn adds a small container full of pollutants to a bowl of clean water representing the ocean.

Learning intention:

This activity should evoke a mood. Though it contains a lot of specific information on sources of pollution, and much material for discussion, primarily it is a dramatic look at the plight of our natural waterways.

Students should develop a greater concern for local waters and an understanding that we are all partially responsible for water pollution. Solutions will require many groups working together.

Equipment:

- clear glass or plastic wide-mouth jar/bowl.
- 15 film canisters (or other small container)
- permanent marker pen
- stirring stick
- substances to fill canisters up with (listed below)
- sieve
- rubbish bag

Setup before session:

Label each film canister with the 'label' name. Setting up this activity can take some time as you need to collect the various "pollutants". Most, however, should be available in your home. Feel free to substitute problematic items. Label and fill each canister as follows:

LABEL	FILL WITH
rivers & streams	sand
salt marshes	dry grass
shellfish	crushed seashells
māori	crushed seashells
settlers	organic garbage
farmers	potting soil
houses	toilet paper
sewage	potting soil & water
run off	potting soil
fishermen	nylon line
boaters	plastic pieces
campgrounds	dishwashing detergent
factories	vinegar
roads	cooking oil, water & cigarette butts
people washing cars	dishwashing detergent & water

Instructions:

SETTING THE SCENE

Ask the students to sit in a circle and place the bowl of water in the centre where everyone can see it and easily walk over to it. Distribute all the containers to students/pairs of students, with instructions not to open the canisters. Explain that they have all become characters in the story. You will be telling the story, and when their character is mentioned they come forward and pour the contents of their container into the jar. It also helps if students tell the class what they are pouring into the water. Since some film canisters contain less toxic substitutes for the real thing, in these cases students should say what the contents stands for, i.e., "cleanser", not "baking soda".

Character names are coloured **RED** in the story below – to help you prompt students while reading. After each character adds their pollutants, stir the water with the stirring stick and continue telling the story. The story should be read slowly, allowing each character to come forward. The repeating questions form a sort of a chorus, and should be read one by one, with pauses for the group to answer.

The Story:

Once upon a time there was a beautiful country called New Zealand. Many clean rivers and streams flowed from the hills, across the land and into the sea. [point to the bowl]

Fish lived in the water, and the land was covered with trees.

Discussion:

- **Would you want to drink this water?**
- **Would you like to swim in this water?**

RIVERS AND STREAMS ran from the land, carrying a little bit of mud to the ocean. Shellfish filtered the mud out of the water.

A small group of people lived on the land. The people called themselves **MĀORI**. The people ate shellfish and fish and they dumped some of their waste nearby.

Discussion:

- **Would you want to drink this water?**
- **Would you want to swim in this water?**

After many years, lots more people (**SETTLERS**) came to live on the land. They dumped some of their rubbish in the water.

FARMERS and Woodmen cut down trees to clear land and animals like cows and sheep were allowed to graze near the rivers and streams. Wet areas of land (wetlands) were drained for growing food. Without trees and wetlands, rain washed soil into the water.

Discussion:

- **Would you want to drink this water?**
- **Would you want to swim in this water?**

More and more **HOUSES** were built and sometimes people from these houses dropped rubbish into the water.

Sometime toilet water spilt into the water (**SEWAGE**).

Because there were no trees, rain washed off the streets and washed oil and rubbish into the water (**RUN OFF**).

FISHERMEN found that nets made of nylon were stronger than those made of rope. Sometimes these nets, along with other rubbish, blew overboard or got lost in the water.

Other **BOATERS** sometimes threw rubbish overboard or emptied their boat toilets into the sea.

Discussion:

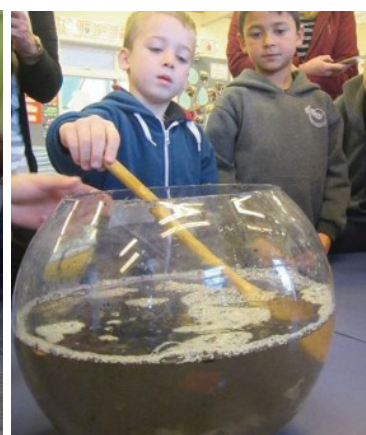
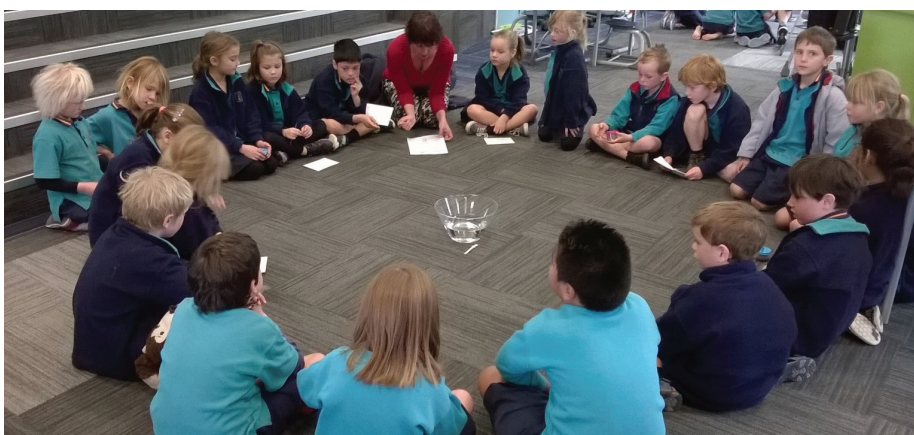
- **Would you drink this water?**
- **Would you want to swim in this water?**

People wanted to stay at the beach because it's pretty and so **CAMPGROUNDS** were built. Campers used kitchens and laundries to wash their clothes and dishes. Sometimes dirty water went straight into the water.

ROADS were built and rain washed off these hard surfaces, carrying oil, chemicals, cigarette butts and rubbish into stormwater pipes, and out to sea. **FACTORIES** were built close to the water. Sometimes, chemicals would spill from these factories into nearby water. People **WASHING CARS** let the soapy water run down the drain, which leads directly to the sea.

Discussion:

- **Would you want to drink this water?**
- **Would you want to swim in this water?**



Debrief/question ideas:

- How did you feel at the beginning of this story?
- How did you feel at the end?
- Have you ever seen pollution in the ocean or river?
- Are all 'pollutants' as bad as each other (think back to sand/shells and compare to oil/sewage)?
- What can we do to clean up the water?
- How can you help every day (not dropping litter, picking litter up and putting it in the bin, washing the car on the grass, etc.)?

Safety considerations:

Students need to be in a flat area.

Location & time:

Centre grounds or suitable area near the waterway being studied. 30 minutes.

Links to Te Whāriki:

- Encourages children to think about and discuss their impact on the rivers and their role in caring for it (Belonging Goal 1 & 2).
- Children make sense of their world by testing practical theories, which helps them think of solutions for problems (e.g., what causes pollution and how they can help)(Exploration Goal 3 & 4).
- Children hear stories relevant to current issues in their communities and others (Communication, Goal 3).
- Children work alongside each other/together as they contribute to the process and answer questions/problem solve/research and reflect (Contribution, Goal 3).

Adapted from "Coasts and Us: A Teachers' Resource. The Waikato Coastline. www.govt.nz/PageFiles/5925/waikato_coastline.pdf

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AQUATIC SCIENCE & VISUAL COMMUNICATION





“We’re going on an egg hunt” song

Learning intention:

Students learn more about ‘the Love Zone’ habitat through song and movement.
Find video of song here: <https://youtu.be/na2myBRZm-U>



Lyrics:

We’re going on an egg hunt [x2]
Gonna find ‘the Love Zone’ [x2]
We’re not scared [x2]

Uh oh, there’s a big river
Can’t go over it [x2]
Can’t go under it [x2]
Gonna have to swim it [x2]
Splash splash splash splash

We’re going on an egg hunt [x2]
Gonna find ‘the Love Zone’ [x2]
We’re not scared [x2]

Ugh, look at all that mud, so muddy
Can’t go over it [x2]
Can’t go under it [x2]
Gonna have to go through it
Squish squish squish squish

We’re going on an egg hunt [x2]
Gonna find ‘the Love Zone’ [x2]
We’re not scared [x2]

Let’s tiptoe out of ‘the Love Zone’
Step step step step

Through the long grass
Swish swish swish swish

Quickly back through the mud
Squish squish squish squish

Let’s cross the river
Splash splash splash splash

Let’s tell everyone [x2]
Found eggs in ‘the Love Zone’ [x2]
Let’s look after it [x2]
Yaaay!!

Equipment:

Lyrics and sound recording. Guitar and guitar player if available!

Safety considerations:

Students need to be in a flat area if standing and doing movements with song.

Location & time:

Centre grounds or suitable area near the waterway being studied. 20 minutes.

Student reflection:

What they learnt about habitat in ‘the Love Zone’.
Ask “would we like to go on an egg hunt?” “how? where?”

Links to Te Whāriki:

- Children learn how to move their bodies in time to music and how to carry out actions of the song, developing their motor skills (Wellbeing, Goal 1, Communication Goals 1 & 2, Exploration, Goal 2)
- Children learn to work together as they sing, listen to and respond to each other and the music (Belonging, Goal 1, Contribution, Goal 3)
- Children learn about the whitebait habitat through the enjoyment of music and actions (Wellbeing, Goal 2)
- Tamariki express themselves physically and emotionally as they learn to express themselves creatively through the music (Contribution, Goal 1, Communication Goals 1 & 4 and Exploration Goals 1, 3 & 4).
- Advocates for ‘caring for this place’ – taking care of ‘the Love Zone’ (Belonging Goal 1 & 2).



Īnanga life cycle role-play

Learning intention:

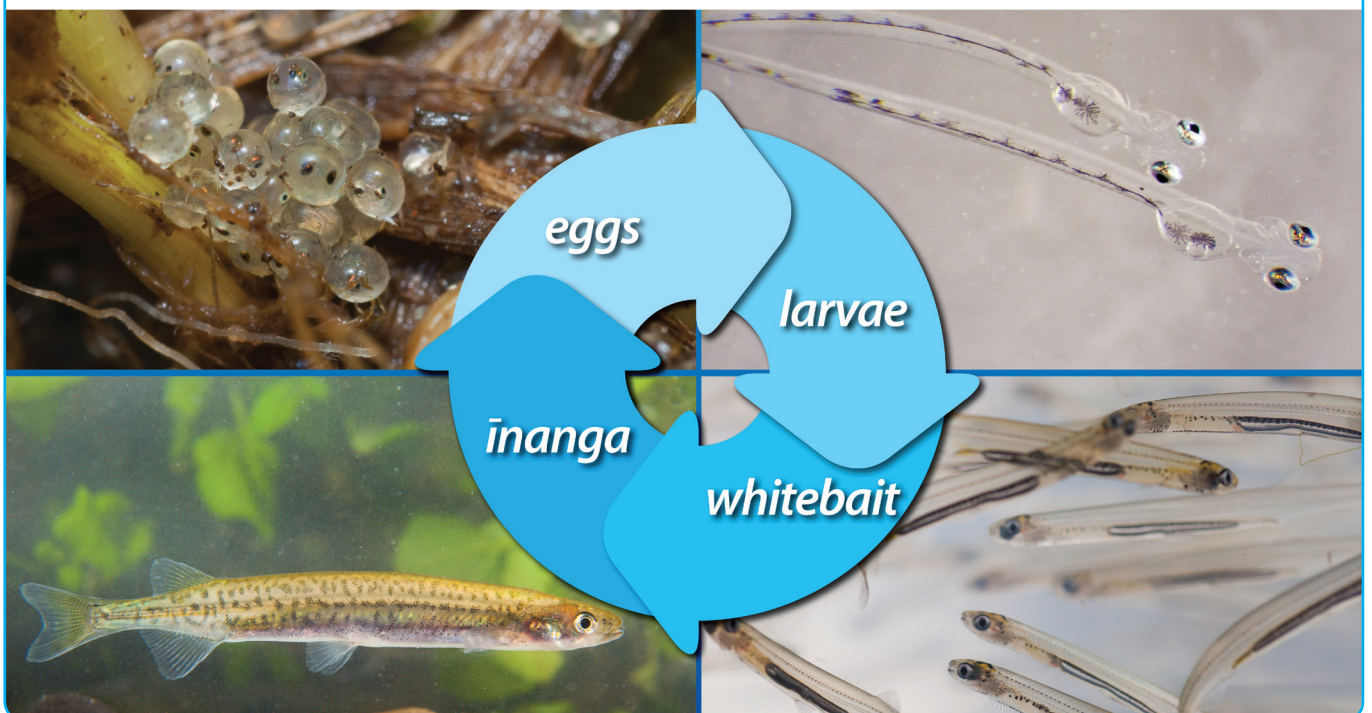
Students learn more about the Īnanga life cycle through story and movement.
Find video of activity here: <https://youtu.be/kevBI-kGBvM>

Key parts of the life cycle:

1. Start life as a little egg on the riverbank.
2. Then we hatch and get swept out to sea as a larvae with our packed lunch where we live for 6 months.
3. After 6 months we smell freshwater with our "noses" and then...
4. ...we wriggle up into the river as a whitebait.
5. We've reach 'the Party Zone' as an adult Īnanga and then...



6. Then it's time to swim back down to 'the Love Zone' where we started life as an egg.



Equipment: Lesson plan and video

Safety considerations: Students need to be in a flat area if standing and doing movements with story.

Location & time: Centre grounds or suitable area near the waterway being studied. 20 minutes.

Student processing/reflection:

- Ask “what they learnt about the īnanga life cycle?”
- Ask “would they like to try to act out the life cycle?” again with one of them leading the story?
“What questions do they have about the life cycle?”
- Print out the image of the īnanga life cycle from the PowerPoint presentation and laminate it, then cut it into the four parts of the life cycle and get students to put it back together in order.

Links to Te Whāriki:

- Children come to understand the stages of the īnanga life cycle through role-playing ‘being’ an īnanga (Contribution Goal 3, Communication, Goal 1, 2 & 4, Exploration Goal 1, 2 & 4).
- Children develop their imagination through the process of role-play (Contribution Goal 2, Communication Goal 2 & 4 and Exploration Goal 1).
- Older children can pass on this knowledge and teach younger children about the life cycle through role-play. Children can be both teacher or learner (Contribution Goals 1, 2 & 3).

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