

“Who dirtied the harbour!?”



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 film canister full of pollutants to a jar of clean water representing the ocean or harbour.

Key Concepts:

- 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.

Materials:

To set up the session:

- Clear glass or plastic wide-mouth jar.
- 17 Film Canisters
- Permanent marker pen
- Stir stick
- Substances to fill canisters up with (listed under 'setup')
- 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

RIVERS AND STREAMS
SALT MARSHES
SHELLFISH
MAORI
SETTLERS
FARMERS
HOUSES
SEWER PIPES AND SEPTIC TANKS
RUNOFF
FISHERS
BOATERS
CAMP GROUNDS
CLEANING
SUN BATHERS
FACTORIES
ROADS
PEOPLE WASHING CARS

Fill with

Sand
Dry grass
Crushed seashells
Crushed seashells
Organic garbage
Potting soil
Toilet paper
Potting soil and water
Potting soil
Nylon line
Plastic pieces
Dish detergent
Baking soda
Paper and plastic
Vinegar
Cooking oil and water and cigarette butts
Dish detergent and water

Setting the scene

Ask the students to sit in a circle and place the jar of water in the centre where everyone can see it and easily walk over to it. Distribute all the film canisters to students or 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, but when their character is mentioned they should come forward and pour the contents of their film canister 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 in bold face in the story, to help you prompt students while reading.

After each character adds their pollutants, stir the water with the stir 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.

If your area does not encompass a harbour, simply replace the word “harbour” with “estuary” or “ocean” - whatever is relevant to your area. Other aspects that change from region to region have been highlighted with brackets and “insert here” so that you can insert the appropriate term when required.

The story

“Once upon a time there was a beautiful piece of land. A large harbour and many estuaries surrounded the land, they were filled with clear ocean water and dotted with green islands”.

(Point to the jar).

“Fish lived in the water, and the land was covered with trees. Both the land and its waterways teemed with wildlife”.

Discussion:

(Wait for the group to answer each question).

- *“Would you want to swim in this harbour?”*
- *“Would you eat fish caught in this harbour?”*
- *“Would you like to go boating in this harbour?”*

*“**RIVERS AND STREAMS** ran from the land, carrying sediment and sand with them as they flowed to the ocean”.*

*“**SALT MARSHES** grew along the edges of the harbour and estuaries. Grasses form the salt marshes washed into the ocean and became food for the fish”.*

*“**SHELLFISH** grew in the shallow water, including cockles, mussels, pipis, oysters and scallops”.*

*“A small group of people lived on the land near the ocean. They called the land (Insert your districts name here) The people called themselves **MAORI (Tangata Whenua)**. The Maori fished for food and shellfish in the harbour, estuaries and ocean. They also dumped some of their garbage nearby. In fact, we still find the piles of shells they left called 'middens'.”*

Discussion:

- *“Would you want to swim in this harbour?”*
- *“Would you eat fish caught in this harbour?”*
- *“Would you like to go boating in this harbour?”*

*“After many years, **SETTLERS** from Europe came to live on the land named (Insert your districts name here). The settlers built a town much larger than the Maori villages. Some of the town garbage was dumped into the harbour, estuaries and ocean”.*

*“As the town grew, the settlers cleared native bush to provide more land on which to build. **FARMERS** cut down trees to clear their fields and allowed their stock to graze among the mangroves and salt marshes in the harbour and estuaries. Without trees and salt marshes, rain carried soil into the water”.*

Discussion:

(Answers will vary as students consider each question in light of the new substances added).

- *“Would you want to swim in this harbour?”*
- *“Would you eat fish caught in this harbour?”*
- *“Would you like to go boating in this harbour?”*

*“More and more **HOUSES** and shops were built, and the town of (Insert your districts name here) grew”.*

*“**SEWER PIPES** and **SEPTIC TANKS** were constructed to remove waste from houses and bathrooms. Sometimes broken pipes and overfull septic tanks leaked sewerage into the waterways”.*

*“Since the salt marshes had been filled in, **RUNOFF** water washed pollution from the streets directly into the waterways”.*

*“**FISHERS** found that nets made of plastic or nylon were stronger than those made of rope. Sometimes these plastic nets got lost in the water”.*

*“Fishers and other **BOATERS** sometimes threw trash overboard and emptied their boat toilets into the water”.*

Discussion:

- *“Would you want to swim in this harbour?”*
- *“Would you eat fish caught in this harbour?”*
- *“Would you like to go boating in this harbour?”*

The town of **(Insert your districts name here)** continued to grow. As tourists began to visit the coast, **CAMPGROUNDS** were developed. Campers used kitchens and laundries to wash their dishes and clothes. Sometimes, these detergents went straight into the waterways”.

“People **CLEANING** their houses poured poisonous cleansers and drain cleaners down their stormwater drains which flowed directly into the waterways”.

“Even swimmers and **SUN BATHERS** going to enjoy the beach sometimes left garbage on the beaches”.

“Many tar sealed **ROADS** were made and rain washed pollution including oil, brake lining, antifreeze, cigarette butts and rubbish directly into the stormwater drains – which lead into streams, rivers, and eventually the ocean”.

“**FACTORIES** built along the waters edge often dumped their wastes into the water”.

“**PEOPLE WASHING CARS** let the soapy water run down their driveways and down the stormwater drains”.

Discussion:

- “Would you want to swim in this harbour?”
- “Would you eat fish caught in this harbour?”
- “Would you like to go boating in this harbour?”
- “Who dirtied the water?”
- “Who is responsible for cleaning it up?”

Debrief:

- Discuss how students felt at each stage of the game
- Do students know of any of their local bodies of water that have been polluted?
- Who is responsible for monitoring pollution and taking steps to control and reduce pollution? (Regional Council)
- What is being done in your region to monitor for and control pollution?
- Talk about the different types of pollutants added. Is all pollution equally dangerous?
- Discuss actions you can take to reduce your class's polluting impact on the water. e.g. Don't let toxic substances or rubbish go down the stormwater drain, water conservation, not littering etc.
- What other steps could we take in our area to stop pollution of our waterways?

This activity has been adapted by Experiencing Marine Reserves' (EMR) from “Coasts and Us: A Teachers' Resource. The Waikato Coastline.

www.govt.nz/PageFiles/5925/waikato_coastline.pdf