

Story of a River

Teacher's Notes

AusVELS Domain and (Level): Science (F-6), Humanities, Geography and History (F-6) Civics and Citizenship (F-6), English (F-6), The Arts (F-6)

Equipment: Canisters/items for each class member, large clear container, two buckets

Duration: 45 minutes minimum depending on how the activity is adapted / extended

Setting: Classroom

This activity is a class activity that enables the students to understand a river system from beginning to end. It tells of the journey water takes as it moves through the system downstream to its confluence. It also tells of the differing attitudes and land management practices over time. For this activity you will need to collect some small containers filled with the contents listed below and you will need a large clear bowl or tub filled with clean tap water.

As you tell the story of the river's journey, each student role plays the situation by placing the items in the water or using the tools listed. Students should view the 'waterway' from above and the side before discussion about the impacts each item has. This activity could be done prior to *and* after the learning unit to see how their knowledge and attitudes change before and after **River Detectives** activities.

Item	Purpose	Item	Purpose
Soil	Soil erosion	Matchbox	Nest Box
Plastic plants (fish tank)	In stream vegetation	Tongs	Picking up litter
Small toy animals	Native fauna	Water	Rain
Sprigs of gum leaves	Riparian vegetation	Leaves	Autumn leaves
Yellow water / tissue	Urine / toilet paper	Plastic bag	Plastic bag
Toy fish or fish cutout	Carp	Detergent	Car washing detergent
Powder	Pesticide	Sultanas	Dog poo
Milo	Fertiliser	Plastic bottle	Plastic bottle
Grass	Grass clippings	Sand	Sand
Vegetable oil	Petrol	Nails	Building materials
Fishing line	Fishing line	Vinegar	Industrial chemicals
Food scraps	Food scraps	Salty water	Saline groundwater
Pieces of rubbish	Litter	Sprigs of vegetation	Revegetation
Small scoop / ladle	Scooping out tissue	Turbidity tube	River Detectives program

Don't forget, you will need a tub full of clean water to start with – fish tanks work well!

Also, two buckets labelled Rubbish Bin and Recycling

You may need blue tac to attach some items to the container

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This story is the journey of a very special waterway near you (*insert name*); a journey through the catchment and a journey through time. It begins many years ago in the highest part of the catchment where the rain runs off the hills and slopes and starts its long journey downstream.

In the days before European settlement, many hundreds of years ago when Aboriginal tribes lived harmoniously in the landscape, the waterway was a healthy, pristine environment. Large old hollow-bearing native trees along with flowering shrubs and grasses surrounded the waterway on both sides, extending for as far as the eye could see. Vegetation provided shelter, food and materials for the tribes who passed by. They provided shelter, food and breeding sites for native animals and protected the waterway from summer winds, scorching sunshine and soil erosion. The water was crystal clear and healthy to drink. The waterway meant life for people, plants and animals.

But with time, people settled here from all over the world. Thriving towns and farms of all sizes sprang up across the country, always sticking close to the waterway because for them too – water was life. In these early days, timber was essential for a variety of purposes; to burn for heat, cooking and industry; to build houses, furniture, fences, carts; and to sure up mine shafts where gold was hoped to be. Trees, particularly big old trees, were cut down without hesitation and wandering stock stripped shrubs and over grazed grasses. Soon the landscape resembled a moonscape. Without vegetation to hold the soil together and with stock trampling the all but bare banks, winds and rain caused erosion, washing large volumes of sediment into the waterway.

With outside toilets and no proper sewage treatment, human waste often found its way into the waterway. Before long, exotic fish species such as carp were introduced.

Waterways are remarkably resilient and over time, as settlement rates became steady and farms were developed with boundary fences, the vegetation grew back, the sediment settled and the waterway tried to recover.

In the 1900s, farming methods and life in town was changed forever with the introduction of modern things such as electricity, machines and chemicals. Now, farmers and townspeople sprayed their crops and gardens with pesticides to control bugs, applied fertiliser to help them grow, people trimmed their lawns with lawnmowers and drove their cars beside the water and used boats in the water to reach their favourite fishing spots. People flocked to the waterway for picnics, but without rubbish or recycling bins, food scraps and rubbish was left behind.

This time brought helpful advances in technology such as septic systems and sewage treatment plants. Electricity meant that heaters and ovens could be used instead of wood-fired appliances, easing the pressure on vegetation.

Floods came and went, droughts came and went and as technology advanced it also helped scientists learn about what contributes to a healthy waterway. Together with concerned landholders, volunteer groups such as Landcare sprang up around the district. They were keen to help degraded land and waterways.

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New laws also meant that fishing regulations were put in place to control recreation and better science led to less harmful pesticides.

Landcare groups put up nest boxes to replace hollows, they picked up rubbish and encouraged farmers to fence off stock from waterways and install water troughs instead.

Small towns had now grown to provincial centres with much of the land covered with hard surfaces such as asphalt roads, concrete paths and car parks and iron and tiled roofs. With plenty of rain about, no one saw the need to collect the rain that fell and ran down stormwater drains in large amounts and into the waterway.

As this rainwater washed into drains, it collected anything on the ground and washed it too. In autumn, masses of leaves from the many deciduous trees in people's gardens clogged the waterways. Stray plastic bags from supermarkets washed and blew into the waterway. People washed their cars on their driveways and detergents washed down the drain. Nearly every household owned a dog and their droppings were rarely picked up. Bottled water is the latest trend and plastic bottles find their way into waterways in their hundreds.

New housing developments, many in low areas previously known as wetlands, left sand and building materials around. Industries, required to supply jobs and goods for the townspeople, use the waterway as a waste disposal area. Large farms grow produce all year round with the help of irrigation which raises the watertable.

Nature has a way of teaching us what we need to know and soon enough, a serious drought grips the land. Over many years, the waterway dries up, gardens die and farms struggle to survive. Out of the turmoil comes a new age with a new attitude to water conservation and waterway health. People everywhere install water tanks, they plant native gardens that require less water and don't drop autumn leaves, they wash cars on vegetated surfaces and irrigation water is used more efficiently.

Everyone has been reminded that indeed, water is life and waterways are life. Council's conduct stormwater education programs, people pick up after their pets and water restrictions are put in place. A new awareness of the environment in general has swept the world and people now have alternatives to plastic bags, they recycle glass, plastic and aluminium and they treat the waterway with respect when fishing and camping.

Meanwhile, the Landcare movement is booming. Groups around the country revegetate waterways, control problem weeds and eradicate pest animals. Farmers strive for a balance between economy and environment to create the most productive farms they can and plant buffer strips for wildlife corridors and trees to halt erosion. School groups participate in the River Detectives program and in events such as Clean Up Australia Day.

Time will go on and things will always change. The waterway will continue to experience times of strife and times of great health. As long as we keep on learning from the past and looking to the future, the waterway will be O.K..

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Story of a River is a hands-on, engaging activity that will have your students enthralled and waiting excitedly for their turn to participate. Fantastic discussion can take place before, during and after this activity using some of the suggested questions below representing a range of thinking levels;

Where are the higher parts of our catchment?

What is our local waterway? What are some of its tributaries?

How did Indigenous people live in harmony with the land and waterway?

What impact would soil erosion (or any pollutant) have on aquatic life/humans/water quality?

Why have land practices changed over time?

What were the pros and cons of each period in time?

When pollutants enter the waterway, what are the knock-on effects to the ecosystem?

How can we reduce urban stormwater issues?

How is nature resilient?

What could we learn from Indigenous people?

How is waterways part of your life?

What can you do today to preserve our waterways ?

Story of a River can be adapted or extended into a dramatisation with students being part of the riparian environment (water, rock, tree, snag, hollow, native or pest animal), a pollutant (plastic bottle, soil, toxic chemicals) or a person interacting with the environment (in either a positive or negative way).