

Unit 1: Te hurihanga wai | Our water cycle



Topic introduction for teachers

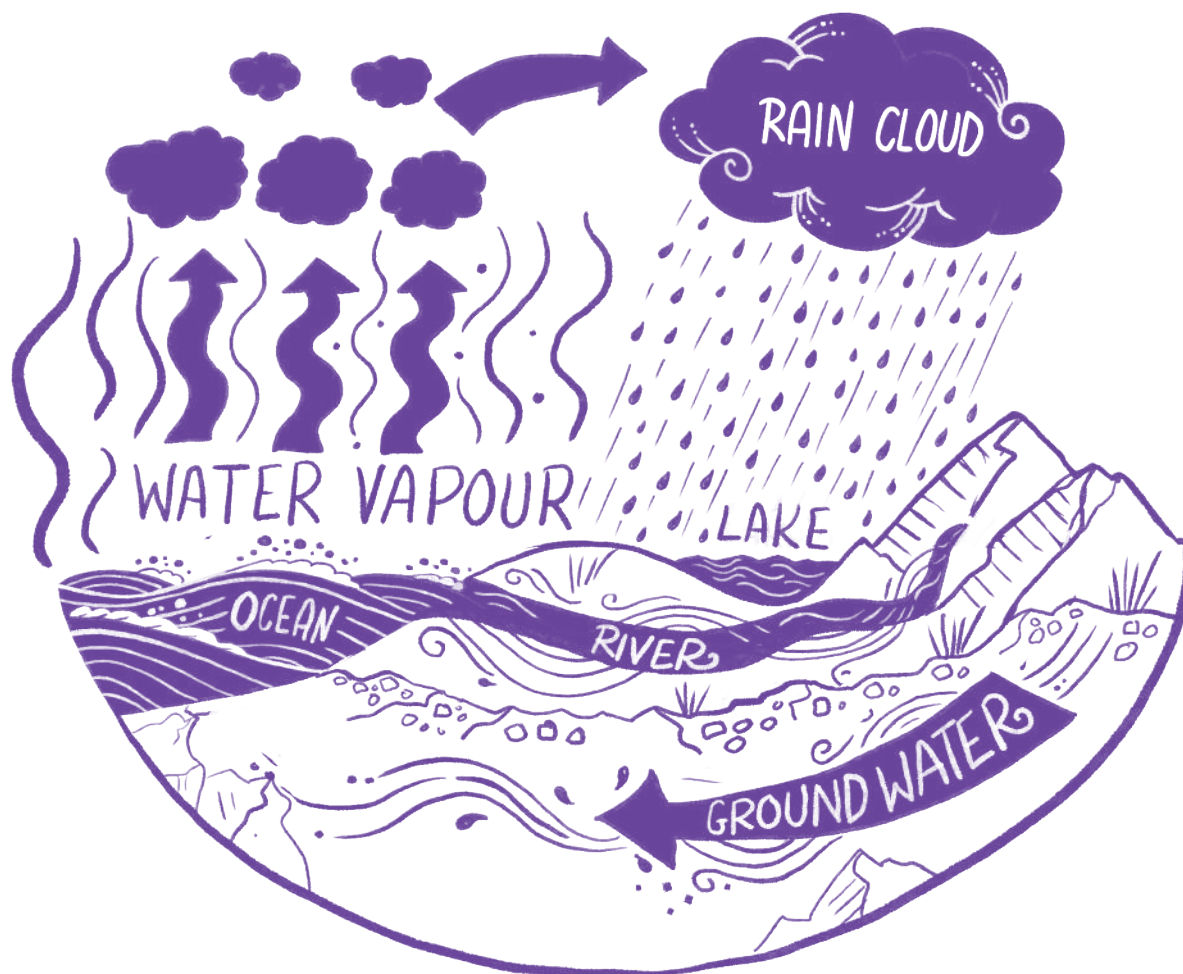
Key ideas in this topic

- Water moves in a continuous cycle from mountains to sea.
- Water is a shape-shifter, changing states throughout the cycle.
- Water brings life to everything it touches.

Background

1. What is the water cycle?

The amount of water on Earth doesn't change – it just moves around and around in a cycle. The water that's here today has been around for millions of years. This amazing process explains how the fresh, liquid water we drink is created, and how life-giving water flows through our landscape to reach plants, animals and humans in all kinds of habitats.



The water cycle is an expression of Waiaroha – the love between Ranginui (sky father) and Papatūānuku (earth mother). We can see their love as teardrops of rain falling from Ranginui and sighs of rising mist from Papatūānuku.

In a Māori worldview, the atua in the water cycle control the clouds, rain, streams, rivers, oceans and currents.



The water cycle also reminds us that water is limited and scarce.

- More than 97% of the world's water is sea water.
- 2% is frozen, polluted or somewhere we can't reach.
- Less than 1% of the world's water is available to drink.

2. Mountains to sea – I uta ki tai

Water flows through our district and our lives. Here's a summary of the journey.

Rain and snow fall high on our bush-clad maunga. Pure water trickles down the slopes of the Ruahine and Kaweka Ranges. It spills over rocks and feeds into streams and rivers, flowing from the foothills into the plains. Our three main rivers, the Ngaruroro, Tukituki and Tūtaekurī, nurture all kinds of creatures, from tiny fish to huge native eels and endangered shorebirds. We share the water with them.

Springs bubble up to feed wetlands – the precious remains of our ancient floodplains. As our water flows, it's important to know that it also seeps underground, refilling our hidden aquifer, Heretaunga Haukūnui. The aquifer filters the water naturally through gravel, sand and silt. Some of the water from aquifers bubbles up again through springs and back into rivers. Much of it moves slowly out to sea to join the water cycle again.

Finally, our wai hears the call of the sea. Fresh and saltwater mingle where our awa merge with the vast Pacific Ocean. Warmed by the sun, water vapour rises over Te Moana-nui-a-Kiwa. It condenses to form clouds and the cycle continues.



3. Water is a shape-shifter

What is water?

Water is made up of atoms; oxygen and hydrogen. A water molecule contains two hydrogen atoms and one oxygen atom. The chemical formula for water is H₂O.

The main states of water are gas, liquid and solid. It moves through all three states in the water cycle.



The gas form of water is often invisible. It's all around us! We sometimes see it as steam from a boiling kettle or as water vapour in clouds. We are most familiar with water in its liquid form – we drink it, swim or wash in it, and water our gardens with it. Water in a solid state is ice or snow. Ice is frozen water vapour, and ice is frozen liquid water.

Activities in this unit

- Walk and talk the water cycle
- Make a flake
- Colour the water cycle map
- Add words to the water cycle map
- Draw a water map or waterscape
- Water states
- Find the atua of the water cycle.

Other ideas

Before your visit to Waiaroha

- Pose an 'I wonder ...' question to the class. 'What happens to water when it gets really cold?' 'What happens to water when it rains or when the sun comes out?' 'What would happen if there was no water on Earth?' Ask the students to come up with their own 'I wonder ...' that they would like to find out about. Make a list of questions to research and answer.
- Describe how water looks, feels and sounds in its different states (liquid, solid and gas). Show examples of the different states of water. Get creative! Ask the class to come up with movements that express water in its different forms.
- Read a book or sing a song about the water cycle song with the class. [Check out this water cycle song from GoNoodle on YouTube.](#)

After your visit to Waiaroha

What did you learn at Waiaroha? These activities can be used to extend children's knowledge, share information and take action.

- **Raindrop drama.** Show what you know about the water cycle in Heretaunga by creating a group or class drama about the journey of a raindrop. Share with the school, families and community.
- **Learn about wetlands.** Find out what they are and why they are important. [Starting points include this DOC video about Waituna wetland](#) or [this one about NZ's first ever wetland bioblitz](#)
- **Learn about braided rivers.** Why are the braided rivers on the Heretaunga plains special, and what animals live there. Starting points: www.braidedrivers.org and <https://www.hbrc.govt.nz/environment/biodiversity/braided-rivers/>.