

# Anangu Water Wisdom

## Teacher's guide

The Well

Tap into water education





## Acknowledgement of Country

We respect and acknowledge the deep spiritual connection, knowledge and relationship Anangu and all Aboriginal and Torres Strait Islander people have to land and water. We pay our respect to Elders past and present and emerging.

## Recognition of contributors

We extend our gratitude to the stakeholders that have contributed to the development of this program. We recognise all the individuals from schools, the APY community, and Department for Education who have taken part in the co-design process. Your contribution has shaped the direction of the program.

We respect Anangu Pitjantjatjara Yankunytjatjara people as the first scientists of this land.

We appreciate the opportunity to listen to your deep cultural knowledge, learn from you, and visit sites of significance. We are excited to continue working together.

### Contact Information

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# Anangu Water Wisdom: teacher's guide

## Water in the APY Lands

The lands and waterways of the Anangu Pitjantjatjara Yankunytjatjara have supported life for many thousands of years. SA Water takes great pride in continuing to work with communities to provide safe, clean drinking water and supporting life on country.

This remote desert country is one of the most challenging places on the planet to secure a sustainable water supply. The APY Lands are in the driest region, of the driest state, in the driest inhabited continent on Earth.

Water in this region is sourced from deep underground. This groundwater replenishes at a very slow rate of less than 2mm per year. In certain areas, aquifers hold groundwater that fell as rain nearly 10 thousand years ago. Aquifers run dry if we use water faster than it can be replenished.

Despite very dry conditions, there is a lot of water wastage in the Lands. Animals turning on taps and delays in fixing leaks are unique challenges in the region. Our intention for this program is to create awareness about water services and water security, to encourage dialogue and both-ways learning, and to inspire a sense of value and protection for community resources.

Through the program, students and teachers will investigate their water network, including water treatment and distribution, connect with traditional water knowledge, and share learning with the community.

Together, let's celebrate the unique water stories of the APY Lands and work together to protect our precious water resources.

# Key program information

## Target cohort

The program is targeted to upper primary students; however, we understand the flexibility required when teaching on the APY Lands and the modules are designed to be adaptable to suit students of different ages and needs.

## Australian Curriculum

You'll find the full curriculum mapping below. Primarily, the program is aligned to Science but also has connections and opportunities for integration with Humanities and Social Sciences, English, Media and Arts and the cross-curriculum priorities of Aboriginal and Torres Strait Islander Histories and Cultures and Sustainability.

## Two-way learning

The program is intended to create a genuine platform for both ways learning and sharing knowledge. We deeply respect the knowledge that exists locally and do not attempt to prescribe Anangu learning experiences. Each module in the teacher guide includes Anangu extensions in the form of guiding questions and example activities. We encourage consultation with Aboriginal Educators and community Elders to design aligned learning experiences.

## Adaptable

We understand that each community water story is unique and each school will have access to different community resources. This program is not designed to be prescriptive. You may choose to not cover all the activities or to include additional learning; we encourage you to take the program and make it your own, tailoring it to suit your specific needs. We will support schools to take it, adapt it and run with it.

## Student agency

The program provides a real-world learning opportunity that encourages critical and creative thinking, and connection to community. The modules include guiding questions that allow students to direct their own learning and follow their curiosity.

## Teaching approach

### Discover

Explore the key elements of the local water network

Conduct science experiments

Inquire about traditional water knowledge

### Create

Capture student learning with student or teacher-directed projects

Celebrate local knowledge and stories on a shared platform

### Act

Invite others to learn about water in the APY Lands

Take action to protect precious water resources

# Working with us

SA Water is genuine in the intention to partner with schools to implement this program. The following resources will enable us to walk side by side with your school community to discover, explore, create, and share the local water story.

## Resources and videos

This teacher's guide is a detailed unit overview of the program, including four teaching modules, activities and experiments aligned to the Australian Curriculum. Other resources include worksheets, posters, and videos.

We will continue to add to program resources and value your feedback and ideas.

## In-community experiences

Engaging STEM based experiences that our team will deliver on the ground in your school community, including opportunities to connect with water experts and peek inside local water infrastructure.

## Professional development

Access to education experts to support staff in program planning and implementation. This includes an introduction session for teachers, assistance with curriculum planning and training to use a virtual reality platform.

## Access to an interactive VR platform

Schools will be provided access to a virtual reality platform (VRTY 360) to allow for the two-way sharing of knowledge. In this way, students will be able to interact with their virtual community and input their own stories, learning, and calls to action.

## Experiment kits

A kit that includes all materials to deliver engaging STEM experiments are provided to each school.

## Connection to real-world water experts and industry professionals

SA Water employs a wide range of professionals, spanning engineers, scientists, marketing, administration, trades and more. There are opportunities for schools to connect with various areas of SA Water to support the program, and for ongoing learning. If you have big ideas, we would love to support them.

# Curriculum links:

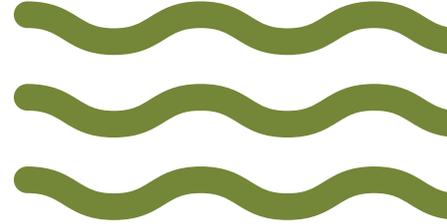
## Science

The priority in middle and upper primary science is identifying key questions of interest, investigating them in a scientific manner and taking action based on conclusions drawn.

Science has three interrelated strands:

- **Science Understanding**
- **Science as a Human Endeavour**
- **Science Inquiry Skills**

Year level	Strand	Sub-strand	Content description	Module
4	Science understanding	Earth and space sciences	Identify sources of water and describe key processes in the water cycle, including movement of water through the sky, landscape and ocean; precipitation; evaporation; and condensation ( <a href="#">AC9S4U02</a> )	1
4	Science as a human endeavour	Use and influence of science	Consider how people use scientific explanations to meet a need or solve a problem ( <a href="#">AC9S4H02</a> )	2, 3
5, 6	Science as a human endeavour	Use and influence of science	Investigate how scientific knowledge is used by individuals and communities to identify problems, consider responses and make decisions ( <a href="#">AC9S5H02</a> & <a href="#">AC9S6H02</a> )	2, 3
4, 5, 6	Science Inquiry Skills	Questioning and predicting	Pose investigable questions to identify patterns and test relationships and make reasoned predictions ( <a href="#">AC9S4I01</a> , <a href="#">AC9S5I01</a> & <a href="#">AC9S6I01</a> )	2



Year level	Strand	Sub-strand	Content description	Module
5, 6	Science Inquiry Skills	Planning and conducting	Plan and conduct repeatable investigations to answer questions, including, as appropriate, deciding the variables to be changed, measured and controlled in fair tests; describing potential risks; planning for the safe use of equipment and materials; and identifying required permissions to conduct investigations on Country/Place ( <a href="#">AC9S5I02</a> & <a href="#">AC9S6I02</a> )	2, 3
5, 6	Science Inquiry Skills	Evaluating	Compare methods and findings with those of others, recognise possible sources of error, pose questions for further investigation and select evidence to draw reasoned conclusions ( <a href="#">AC9S5I05</a> & <a href="#">AC9S6I05</a> )	4
5, 6	Science Inquiry Skills	Communicating	Write and create texts to communicate ideas and findings for specific purposes and audiences, including selection of language features, using digital tools as appropriate ( <a href="#">AC9S5I06</a> & <a href="#">AC9S6I06</a> )	1, 4



# Curriculum links:

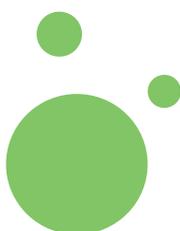
## Humanities and Social Sciences (HASS)

Humanities and Social Sciences has two interrelated strands:

- **Knowledge and Understanding:** This includes the sub-strands; history, geography, civics and citizenship and economics and business.
- **Skills:** This strand focuses on the skills required in this field to influence change.

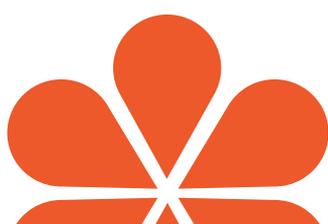
The priority in upper primary HASS is for students to draw connections between themselves, their community and the wider world.

Year level	Strand	Sub-strand	Content description	Module
4	Knowledge and understanding	Geography	The importance of environments, including natural vegetation and water sources, to people and animals in Australia and on another continent ( <a href="#">AC9HS4K05</a> )	1
4	Knowledge and understanding	Geography	Sustainable use and management of renewable and non-renewable resources, including the custodial responsibility First Nations Australians have for Country/Place ( <a href="#">AC9HS4K06</a> )	4
4	Skills	Concluding and decision making	Propose actions or responses to an issue or challenge that consider possible effects of actions ( <a href="#">AC9HS4S06</a> )	4
5	Knowledge and understanding	Geography	Explain the influence of people, including First Nations Australians and people in other countries, on the characteristics of a place ( <a href="#">AC9HS5K04</a> )	1, 2, 3, 4





Year level	Strand	Sub-strand	Content description	Module
5	Knowledge and understanding	Economics and business	Explain types of resources, including natural, human and capital, and how they satisfy needs and wants ( <a href="#">AC9HS5K08</a> )	1, 2
5, 6	Inquiry and skills	Questioning and researching	Develop questions and locate, collect and organise information and data from primary and secondary sources. ( <a href="#">AC9HS5S01</a> & <a href="#">AC9HS6S01</a> )	1, 2, 3, 4
5, 6	Inquiry and skills	Concluding and decision-making	Develop evidence-based conclusions. ( <a href="#">AC9HS5S05</a> & <a href="#">AC9HS6S05</a> ) and propose actions or responses to issues or challenges and use criteria to assess the possible effects ( <a href="#">AC9HS5S06</a> & <a href="#">AC9HS6S06</a> )	4
5, 6	Inquiry and skills	Communicating	Present descriptions and explanations, drawing ideas, findings and viewpoints from sources, and using relevant terms and conventions ( <a href="#">AC9HS5S07</a> & <a href="#">AC9HS6S07</a> )	2, 3, 4





# Curriculum links:

## Design and Technologies

Students use design thinking and technologies to generate and produce designed solutions for authentic needs and opportunities.

Content in Design and Technologies and Digital Technologies is organised under 2 related strands:

- **Knowledge and Understanding**
- **Processes and Production Skills**

Year level	Strand	Sub-strand	Content description	Module
4	Knowledge and Understanding	Technologies and society	Examine design and technologies occupations and factors including sustainability that impact on the design of products, services and environments to meet community needs ( <a href="#">AC9TDE4K01</a> )	2, 3
5, 6	Knowledge and Understanding	Technologies and society	Explain how people in design and technologies occupations consider competing factors including sustainability in the design of products, services and environments ( <a href="#">AC9TDE6K01</a> )	2, 3
5, 6	Processes and Production Skills	Generating and designing	Generate, iterate and communicate design ideas, decisions and processes using technical terms and graphical representation techniques, including using digital tools ( <a href="#">AC9TDE6P02</a> )	1, 2, 3, 4
5, 6	Processes and Production Skills	Producing and implementing	Select and use suitable materials, components, tools, equipment and techniques to safely make designed solutions ( <a href="#">AC9TDE6P03</a> )	2, 3
5, 6	Processes and Production Skills	Collaborating and managing	Develop project plans that include consideration of resources to individually and collaboratively make designed solutions ( <a href="#">AC9TDE6P05</a> )	4
5, 6	Processes and Production Skills	Evaluating	Negotiate design criteria including sustainability to evaluate design ideas, processes and solutions ( <a href="#">AC9TDE6P04</a> )	4

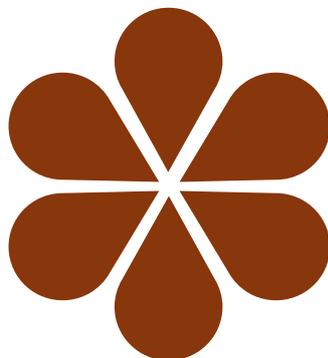
# Cross Curriculum Priorities:

## Aboriginal and Torres Strait Islander Histories and Cultures

The Australian Curriculum version 9.0 includes elaborations to help teachers to incorporate the Aboriginal and Torres Strait Islander Histories and Cultures cross-curriculum priority in the Australian Curriculum: Science.

The elaborations acknowledge that Aboriginal Peoples and Torres Strait Islander Peoples have worked scientifically for millennia and continue to contribute to contemporary science. They demonstrate how Indigenous history, culture, knowledge and understanding can be incorporated into teaching core scientific concepts.

The elaborations and accompanying teacher background information support teachers in providing a more culturally responsive curriculum experience for Aboriginal and Torres Strait Islander students resulting in increased engagement and better educational outcomes. They also provide an opportunity for teachers to engage all students in respect and recognition of the world's oldest continuous living cultures.



# Module overview

## Module one: water in my life

### Guiding question

How does water influence my life?

### Learning intentions

Students will:

- Be introduced to the unit with a brainstorm, discussion and video
- Take on the challenge to discover, create, and act to protect precious resources
- Gather data about daily water use
- Explore their personal water footprint and its impact
- Represent personal water use data in graphic forms
- Create a letter or video to introduce the program to someone in the community

### Anangu perspectives

Anangu extension questions to consider:

- Who would know about the topic of water in our community?
- Who is the best person to ask to be involved in this program?
- How do we ask the key people to be involved in the program?
- What key knowledge/ stories about water do we know about?

### Resources

[Video 1: Anangu Water Wisdom: Water in my life](#)

See, think, wonder worksheet

H2O checkup worksheet

Classroom posters

## Module two: water in my community

### Guiding question

What are the key water sites in my community?

How does water move from source to tap in my community?

### Learning intentions

Students will:

- Utilise a range of digital tools to identify key locations in the community water story
- Create a hypothesis about how water moves from source to tap in their community
- Take part in a guided tour to visit key locations in the local water story
- Develop a community water map to demonstrate key locations in the local water story
- Conduct an experiment to simulate the process of extracting groundwater

### Anangu perspectives

Anangu extension questions to consider:

- What are the important traditional water sites in the community?
- What traditional knowledge or stories exist around local water sites?
- How does access to water influence traditional life, and how has this changed over time?
- Where is water sourced if tap water is not available?
- What water vocabulary can be introduced? (e.g. water source, transport, treatment, storage, wastewater/sewage)

### Resources

[Video 2: Anangu Water Wisdom: Water in my community](#)

VR tour of the community

Aquifer and bore experiment

## Module three: healthy water

### Guiding question

How is our water stored, treated, and made safe to drink?

### Learning intentions

Students will:

- Investigate why water is stored up high in tanks and how gravity feeds water to our taps
- Conduct an experiment to simulate the gravity fed water supply
- Investigate why and how we treat water to ensure it's safe and clean
- Conduct an experiment to test different methods for filtering dirty water
- Complete a reflection on research findings

### Anangu perspectives

Anangu extension questions to consider:

- What tools and techniques have been used to make water clean and safe to drink?
- What environmental factors affect water quality?
- What tools have been used to collect and transport water?

### Resources

[Video 3: Anangu Water Wisdom: Healthy water](#)

Gravity-fed water experiment

Water filtration experiment

## Module four: water for our future

### Guiding question

How can we save water in our community?

How can I share what I've learned with the community?

### Learning intentions

Students will:

- Create a class definition of water sustainability
- Identify the key behaviours that contribute to water sustainability
- Conduct a school/community leak detective walk
- Create a social action project to teach others about the water story and promote water sustainability

### Anangu perspectives

Anangu extension questions to consider:

- What happens when a community runs out of water?
- How does water get wasted?
- How can we protect our water resources?
- What is the best way to influence others to save water?
- Are there any traditional water stories we would like to share?

### Resources

[Video 4: Anangu Water Wisdom: Water for the future](#)

Community action project

VR tour of the community

Saving water match up game

# Module one: water in my life



**Guiding question:**  
**How does water influence my life?**

## Activity I.

# Introduction to Anangu Water Wisdom

Facilitate a class discussion and brainstorm on the topic of water. You may like to use the 'water in my life' worksheet or write on the board.

Questions don't need to be answered at this stage, we are just sparking curiosity and gauging existing knowledge.

- What do we know about water?
- Who and what needs water to live?
- List examples of the ways we use water every day.
- Where is water found in the environment?
- Where does our tap water come from?
- What does SA Water do in the community?
- Do you know anyone that works with SA Water, such as a Water Services Officer?
- What about this topic are you curious about?

Watch video 1 for an introduction to SA Water and the Anangu Water Wisdom program.

**Video 1:** [Anangu Water Wisdom: Water in my life](#)

Re-visit the worksheet or board and see if you can add anything more to your brainstorm after watching the video.

Let students know the unit is made up of four parts, and by the end they will be experts on their community's water story. They will be tasked with the challenge to discover, create, and act. Are they up for the challenge?

### Discover

Explore the key elements of the local water network

Conduct science experiments

Inquire about traditional water knowledge

### Create

Capture your learning and celebrate local knowledge and stories on a virtual platform

### Act

Invite others to learn about water in the community

Take action to protect precious water resources



## Activity 2. H2O check-up

In this lesson, students will conduct an 'H2O check-up' to understand how much water is used in their daily lives. They will learn about water conservation and develop strategies to reduce water consumption. The activity will highlight the importance of sustainable water use, particularly in regions facing water scarcity.

Bring students together and ask them to predict how much water they think they would use each day. Have students record their answers.

Now, ask students about all the different ways they might use water throughout their day. Record their answers on a board, so they are visible to everyone.

### Some possible answers:

- Shower
- Bath
- Brushing teeth
- Washing hands
- Filling a water bottle
- Flushing the toilet
- Washing clothes
- Watering the garden
- Cooking

Break down some of their answers – for example, a toilet could have a half flush and a full flush. A shower might have a water saving head.

### Questions to discuss:

- Why is it important for people in the APY Lands to be aware of how much water we use?
- Which daily activity do we think uses the most water and why?
- What are some challenges people might face when trying to reduce their water use?
- What kind of technology could help us save water? Can you think of any water saving technologies already in use?

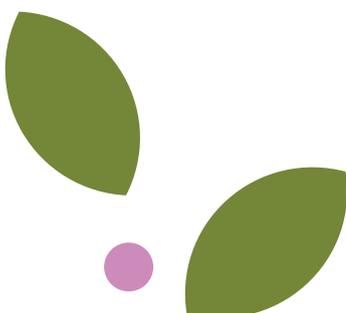
For the activity, students use the H2O check-up worksheet to audit their water usage for a day.

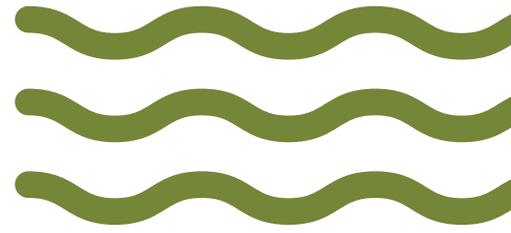
You may task students with a water audit lasting 24 hours or just complete the worksheet during school hours and estimate the additional water use at home.

After the audit is complete, tell students the average person uses about 200L of water per day. Have a discussion comparing their results.

### Here are some common water use examples and the approximate amount of water used:

Toilet full flush	6 litres
Toilet half flush	3 litres
Shower (with older shower head)	20 litres per minute
Shower (with water-efficient shower head)	9 litres per minute
Washing hands	15 litres
Washing machine load	40 to 180 litres depending on model
Tap left running	400-1000 litres per hour



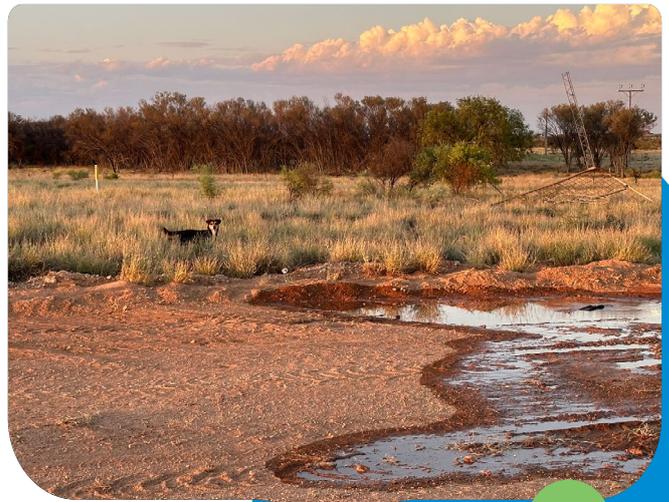


## Activity 3. Water footprint infographic

After completing the H2O check-up, students will have data about their daily water use. Have a class discussion about their findings.

- What activities used the most water over a day?
- What uses the least amount of water?
- Are there any similarities or differences between people's water use?
- Were the total litres used more or less than you expected?
- Is water being used in other ways not captured in the data? E.g. water to feed animals, a tap left running in the garden, a broken pipe on the road. If so, who is responsible for this water?

Have students create a pie chart with their water usage data, or display it in another graphic form. This data represents a 'water footprint.' You may also create footprint posters and have students illustrate their water use alongside the data.



## Activity 5. Connecting with community

Inform students that throughout this unit we will try to involve various members of the community to help with our challenge to discover, create, and act to protect our water. In this activity, we are going to contact someone in our community to tell them more about the program.

Students can work individually, in small groups or pairs.

Use the following questions to guide the activity:

- Who would we like to contact about the program?
  - E.g. someone in your family, the local Water Services Officer, someone at school, someone that works in the community such as a Police Officer or Health worker, or someone with cultural knowledge about water.
- How would we like to contact them?
  - E.g. with a written letter or video message.
- What would we like to tell them?
  - E.g. we are learning all about the local water story, examples of what we have already learnt.
- What would you like to ask them?
  - E.g. we would love them to be involved in the program; we think they may have valuable knowledge they could share.

**Note:** The above activity presents an opportunity to explicitly teach about open and closed questions.



# Module two: water in my community



**Guiding question:**  
What are the key water sites in my community? How does water move from source to tap in my community?

## Activity 1. Source to tap in my community

In this activity, students will create a hypothesis to explain their local water story. By 'water story' we are referring to the systems and processes involved in sourcing, delivering, and treating tap water.

Introduce the term 'hypothesis' and write it on the board. Invite students to guess the meaning.

'Hypothesis' definition:

- a proposed explanation for something (such as a phenomenon of unknown cause) that is tentatively assumed in order to test whether it agrees with facts that are known or can be determined
- a predicted or anticipated outcome

For example, if you planted two trees in different locations around your home and one grew quicker than the other, what might your hypothesis be to explain the difference in growth? (e.g. one plant may get more water or sunlight than the other).

Ask students to think of times they use a hypothesis in their everyday lives – can they share any examples?

Inform students they are going to create hypotheses about how water gets from a source in the environment to their taps. Invite students to write down and complete the sentences below.

Students may need some terms defined or explained first, such as:

- A 'water source' is where your water is found in the environment (before it gets into pipes or tanks).
- Water needs to be made clean and safe to drink before it reaches our taps.
  - What can happen if we drink dirty water? (We can get sick).
  - What could make water dirty? (Dirt, litter, animal poo, people swimming in it)

1. My community's main water source is...
2. My community's water is made safe to drink by...
3. My community's water moves from the water source to the tap by...

## Activity 2. Key water sites in community

This activity introduces students to the virtual platform VRTY, and allows them to explore their community with interactive 360 images. Contact our education team to gain access to your local VR tour and set up a user profile for VRTY.

Start with a discussion on the guiding questions for this module, and see what students know, assume, or wonder about. Let them know we'll be going on a virtual tour of the community and will see some important water places.

Follow your curiosity and allow students to explore the functionality of the platform, while identifying some of the important locations in the community. You may like to list the places and things they see that are related to water.

Pose the question: What places can you see that help provide water to the community?

## Activity 3. Water in our community

Watch the second video in the Anangu Water Wisdom series, which gives an overview of the water network and system of distribution.

**Video 2:** [Anangu Water Wisdom: Water in my community](#)

The final question is, how do you use water in your life? You may like to review your water usage discussed and recorded in module 1.

Invite students to discuss or write down things they learned from the video.

- What was the video about?
- What new words did you hear in the video?
- Who was in the video?
- What did you learn about our water source?
- What did you learn about pipes?
- What did you learn from local Elders?

## Activity 4. Community water tour

Following on from the video and virtual tour, support students to locate the key locations in their community's water story, such as water source (bores), treatment, transport, storage, water meters.

If possible, take the class on an excursion/ guided tour to locate each of these key locations. Document the activity with images.

We'd love to support your class with a guided tour of these sites, with SA Water experts who manage this infrastructure. Reach out to our education team to register your interest if you are planning to teach Aṅangu Water Wisdom, and we can arrange a visit to your school for site tours and supported classroom activities.

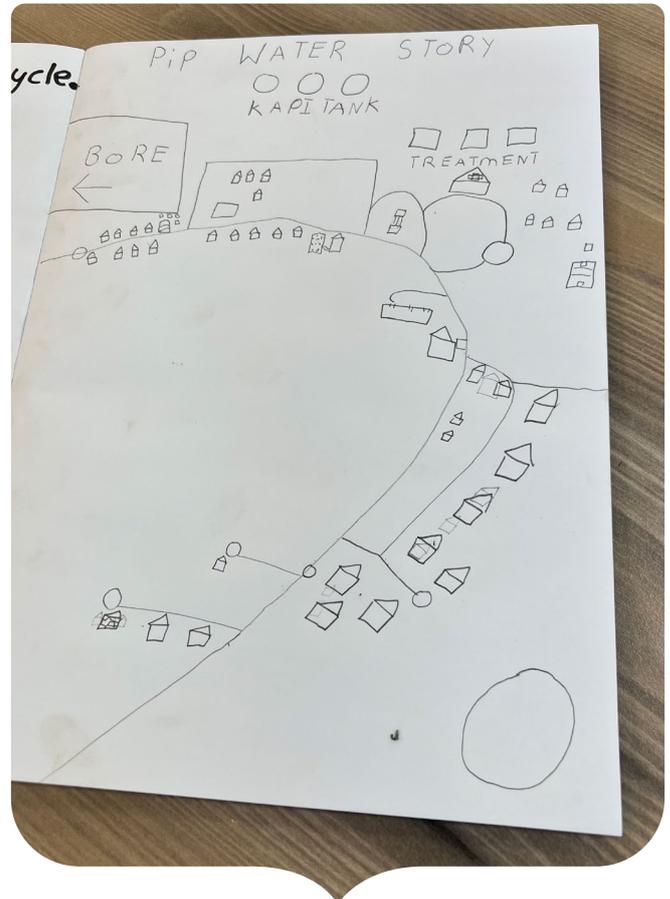


## Activity 5. Community water map

Once back in the classroom, use Google Maps or similar platform to display the key locations visited in the previous activity. Invite students to illustrate their own map to the key locations in the community water story, such as the water source (bores), treatment plant, pipes, storage tanks, and water meters and taps at home or school.

Encourage students to create a key and compass directions.

Optional: Students could include important Anangu water sites in the mapping activity.





## Activity 6. Understanding groundwater

Read and discuss the following information as a group. You may like to revisit Video 2 and focus on the animated sections that describe some of this process.

After reading and discussing the information below, you could complete the 'Groundwater in the APY Lands' vocab worksheet, and the 'Water use in the APY Lands' math worksheet. These are available to download on the Anangu Water Wisdom web page.

**Groundwater** is the main water source for the APY Lands.

When it rains, some water seeps deep underground through layers of dirt, sand and rocks. It eventually collects in the gaps between rocks and sand, and in the cracks and pores in rocks, like a sponge soaking up water. This is what we call an **aquifer**.

Aquifers can be anywhere from 10 metres to hundreds of metres underground. They recharge (fill up) at a very slow rate of less than 2mm per year, depending on rainfall and aquifer type.

It can take thousands of years for aquifers to naturally recharge, especially in places with low rainfall or high water demand.

### Discussion or writing prompts:

- How would you use your own words to describe an aquifer?
- Do aquifers re-fill quickly or slowly?
- In the APY Lands, do you think we get enough rainfall to refill our aquifers quickly?
- Do you think it's possible for an aquifer to dry out or run out of water?
- How do you think SA Water reaches water from an aquifer?

To access this water, first we have to do a lot of research to find where an aquifer might be found below the ground. We then drill a deep hole called a **bore** to reach an aquifer and pump it up to the surface.

There are approximately **63 bores** in the APY Lands operated by SA Water. They are between 10 and 80 metres deep.

Using these bores, we extract about **1.5 million litres** of water per day to use as tap water in communities across the APY Lands.

### Discussion or writing prompts:

- What do you think would happen if we use water more quickly than the aquifer can be refilled?
- What might happen in the community if an aquifer ran out of water?
- What could we do to make sure we don't run out of water?

## Activity 7.

# Build a model aquifer experiment

**Note:** our education team can support this experiment in the classroom following the community tour.

### You'll need:

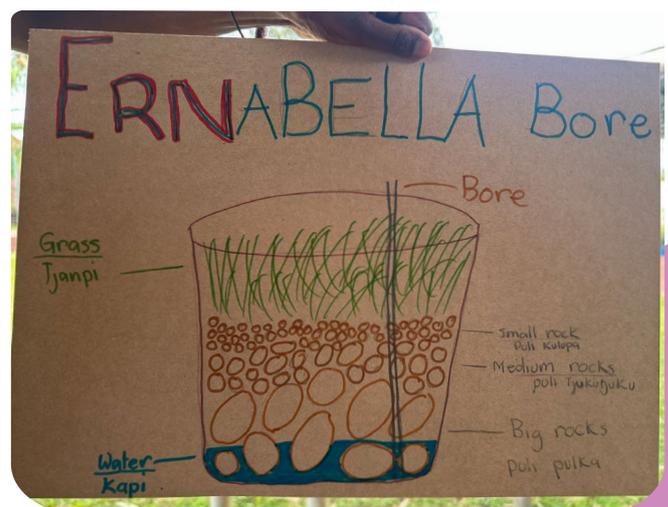
- Transparent cups
- Small, medium and large sized rocks (e.g. pebbles, aquarium stones, gravel)
- Soil/sand
- Grass clippings
- Spray nozzles – ideally with filter
- Watering can or jug of water

### Process

1. Distribute cups to students. They may choose to work individually, in pairs or small groups. This activity can get messy so you may like to do it outdoors.
2. Inform students they are going to build a model aquifer and demonstrate how SA Water accesses groundwater using a bore.
3. Invite students to collect the following in order and build their model aquifer as shown in the image below; big, medium and small rocks, soil/sand, grass clippings. Larger rocks should be at the bottom, followed by medium and small rocks, and soil and grass on the surface.
4. Insert the spray nozzle so the end is at the bottom of the cup (you may want to insert the nozzle pipe or tape it to the inside of the cup before adding the rocks).

5. Slowly pour water from the watering can into the cup. Observe how it flows through layers to collect in between rocks at the bottom. You can discuss how this is what happens when it rains, but at a much slower rate.
6. Pump the spray nozzle to bring the water to the surface.
7. Finally, have students illustrate the aquifer, including the bore, rain, and water collected at the bottom. Encourage students to label their illustration using both English and Anangu words.

**Optional:** create a short video demonstration that could be uploaded to the interactive VR platform.



# Module Three: Healthy water



## Guiding question:

How is our water stored, treated, and made safe to drink?



## Activity 1. Water storage

Refer students to the community water map or virtual tour from previous modules. Discuss the following:

- Where is our water stored before it's delivered to our taps?
- Why are the tanks kept high on hills or structures?

Water storage tanks are kept up high as the water is **gravity-fed** from the tanks to your homes and school. That means when you turn on the tap, the water is naturally flowing downhill and doesn't need to be pumped great distances. Pumping water uses more energy and is more expensive. Gravity-fed delivery also means if a house or community loses electricity, you can still turn on the tap and get fresh clean water.

- Are all water tanks the same?
- How are rainwater tanks at home or school different from the big community water storage tanks?

Big storage tanks found on SA Water compounds store water from underground. Some tanks have untreated bore water, and some have water that has already been treated and disinfected and is ready to be delivered to your taps. This water is quality tested in the Australian Water Quality Centre in Adelaide every three months. SA Water ensures water is safe, good quality, and complies with the Australian Drinking Water guidelines.

Rainwater tanks are smaller tanks found next to homes and schools. They collect water from the roof when it rains. This is a great way to save water that can be used in the garden, or to flush toilets. SA Water does not manage rainwater tanks, and this water is not disinfected or quality tested. It's important to remember this water can be affected by dirt on the roof and gutters, rust on the tank, and any holes that animals could get into.

## Activity 2. Gravity fed water experiment

**Note:** this experiment can get messy, so you may like to do it outdoors.

You'll need:

- Paper cups
- Plastic tubing and/or straws
- Masking tape
- Scissors
- Watering can or jug of water

### Process

1. To introduce the experiment, draw a diagram on the whiteboard to illustrate the location of storage tanks up high, and taps at home down low. Show how water moves from the elevated tanks, through pipes to different parts of the community.
2. Inform students they are going to create a model to demonstrate gravity fed water supply. Demonstrate how to create a simple model by placing containers at different heights and connecting the containers using the plastic tubing/straws. Highlight that the higher container represents the tanks and the lower containers are the houses and other buildings in the community.
3. Divide students into groups and allow them time to build their own model, connecting tubes to cups using masking tape. Test their pipes to see if the water flows smoothly.
  - You can test different hypotheses for how the water will flow if you move the cups closer or further apart, at a steep angle or a gradual slope. Does this change the speed or pressure of the water?

4. Once students have mastered the basic model, challenge them to create more advanced versions. For example, splitting the pipes to connect to multiple houses.
5. Finally, conduct a reflection activity. This could include an experiment report, diagram of the experiment, or a short video that could be uploaded to the interactive VR platform.





## Activity 3. Healthy water

Watch the third video in the Anangu Water Wisdom series, which gives an overview of the water treatment process – how we ensure water is clean and safe to drink.

### **Video 3:** [Anangu Water Wisdom: Healthy water](#)

Invite students to discuss or write down things they learned from the video.

- What was the video about?
  - What new words did you hear in the video?
  - How does SA Water make sure there are no germs that could make us sick in the tap water?
  - What might happen if you drink dirty water?
  - How can water be naturally filtered in the environment?
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## Activity 4. Water filter experiment

You'll need:

- 4x clean plastic bottles cut in half
- 4x different filter material (such as coffee filter paper, sand, cotton wool, paper towel, gravel)
- Dirty water
- Optional: microscope or magnifying glass

### Process

1. Remind students that the water for all communities in the APY Lands is sourced from below the ground using bores. Highlight that this water is approximately 15 metres below the ground and by the time it reaches this depth, it has gone through a natural filtration and cleaning process. You may like to step out 15 metres in the school yard to see what that distance looks like.
2. Highlight to students that when water falls as rain, it has to flow through approximately 15 metres of earth before it collects in the aquifer. The sand and rocks underground act as a filter for the water.

**Filter (definition):** A filter is something that is used to catch or remove bits of dirt or other solid material that are in a liquid or gas. A filter is like a trap that catches the solid bits as the liquid or air goes through it. An air filter cleans the air. A water filter cleans water.

3. Show students the dirty water. Pose the questions: Would you drink this? Why/why not? If you have a microscope or magnifying glass, have a close look at the dirty water.

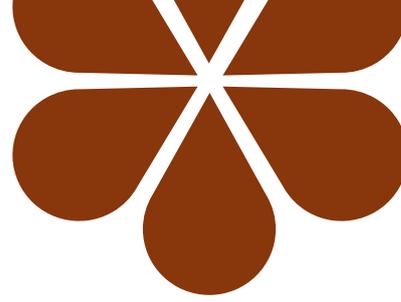
4. Show the selection of different filter materials. Ask students which materials they think would make the best filter, and which will be the worst. You may ask students to record their hypotheses
5. Build four different filters in the cut water bottles (see image). Pour a small amount of the dirty water through each of the filters and invite students to have a close look and make observations about the effectiveness of the filters. Discuss which method worked best and suggest reasons.
6. Pose the question: could we safely drink this water now? Highlight that even though water may appear clear, there may still be germs and bacteria that we can't see that can be unsafe for humans to drink.
  - Referring to the Healthy Water video, what was the last step SA Water does to ensure water is safe to drink?
7. Conduct a reflection activity. This could include a scientific experiment report, diagram of the experiment or a short video that could be uploaded to the interactive VR platform.



# Module Four: Water for our future



**Guiding question:**  
**How can we save water in our community? How  
can I share what I've learned with the community?**



## Activity I. Water sustainability

Write the term 'Water sustainability' on the board and invite students to create a definition. You may need to discuss the meaning of sustainability first.

Sustainable (definition): of or related to a method of managing or using a resource so that the resource is never used up or forever damaged.

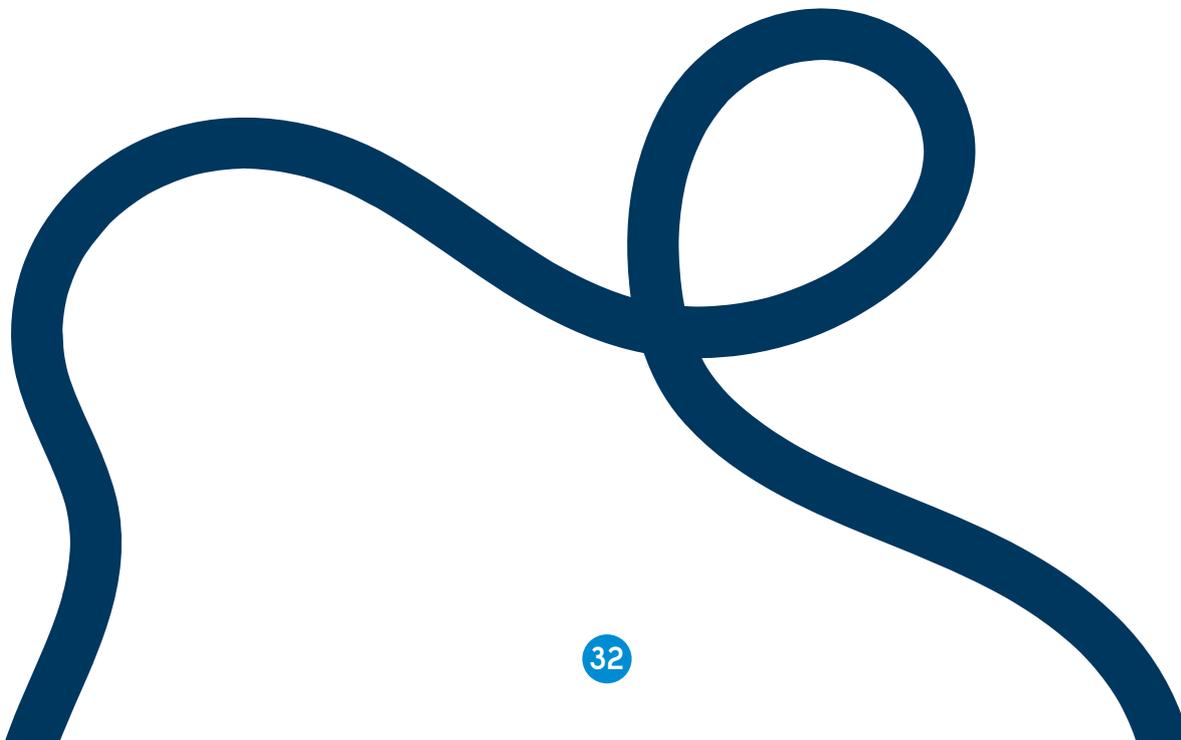
Create a class definition, such as 'Having water for our community today and into the future.'

Watch the last video in the Anangu Water Wisdom series, which explores the major areas of water use in communities, why water is important, and how we can all support water sustainability.

**Video 4:** [Anangu Water Wisdom: Water for the future](#)

Invite students to discuss or write down things they learned from the video.

- What was the video about?
- What new words did you hear in the video?
- How do you see water being wasted in the video?
- Who should you tell if you see a leaking pipe in the community?





## Activity 2.

### Act water smart

Being 'water smart' is all about using water carefully and sustainably, to ensure it's not wasted, so there is plenty of it for the community.

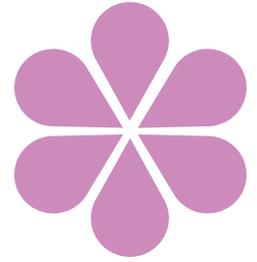
Pose the following questions:

- Where do you see water being wasted in our community/at home/at school?
- When water is wasted, how does that impact our water storage tanks and aquifers?
- What do think you could we could all do to be water smart in our community?

Create a class list. Consider the following key water saving behaviours:

- Turning taps off properly (no drips)
- Reporting leaking taps, toilets, pipes, or puddles to SA Water
- Keeping showers short
- Turning off taps while brushing teeth or soaping hands
- Not playing with taps, hoses or sprinklers – use a community pool if you can!
- Telling an adult if a toilet keeps running or won't stop refilling
- Telling an adult if the air conditioner is leaking
- Letting an adult or community leader know if they see a garden tap running with a big puddle underneath





## Activity 3. Saving water match up game

Print the saving water match up game sheet and cut the squares into individual cards. You may like to laminate them to use again. Distribute the cards, one per person. You can print multiple copies and have duplicates for a larger class.

Explain to students that half the cards have an example of water being wasted, and half the cards have a solution to that problem. They will need to find the student with the matching card and stand together.

## Activity 4. Water walk

Inform students that they are going to go on a walk around the school or community and give them a challenge.

The water walk challenge is to spot places where water is being wasted. Discuss how they might be able to spot leaks in common places, such as taps, pipes, toilets and air conditioners.

You could add a competitive element by offering a reward for leaks found, and bonus points if students stop or report the leak.

Lead the students on the school/community water walk. You may like to record your observations in photo or video form.

Conduct a reflection activity to capture learnings from the school/community water walk. You could add your leak report images or videos into the virtual community tour.



## Activity 5. Community action project

Now students have learnt all about water sustainability in our community, the social action project is their opportunity to share their knowledge and help make sure there is enough water for the community in the future. The goal is to share their learning beyond the classroom, and to encourage action.

Note: the social action project is not designed to be prescriptive. Students can be encouraged to choose a project based on their context and priorities, or teachers may provide more direction based on school priorities or abilities.

Brainstorm project ideas with the following prompts:

- How can we make a difference to water sustainability in our community?
- What are the key behaviours or people we should focus on?
- How can we teach other people about our water story, so they care about water sustainability?

### Social action project ideas

- Use the VR platform to create an interactive virtual tour of the community water story, including SA Water sites, student learning, and cultural knowledge. Share the VR tour with families and the broader community.
- Create artwork or a mural
- Create informative posters that can be displayed around the community
- Write and illustrate a picture book in both English and local language to teach younger students
- Write and record a song
- Host a water event at school and invite parents and community members to attend

Think big – don't be limited by our suggestions!

We'd love to support your project any way we can and help share your messages even further.

# The Well

Tap into water education

Visit the Anangu Water Wisdom web page for more information and resources about this program.

[SA Water - Anangu Water Wisdom](#)

You can explore more SA Water teaching resources on The Well site

[sawater.com.au/thewell](http://sawater.com.au/thewell)

Contact our education team  
[thewell@sawater.com.au](mailto:thewell@sawater.com.au)

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