



Water

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Topic 4: Water treatment

Introduction

In Topic 4, students will explore the water treatment process relevant to your community. They will participate in testing a water sample and learn that whilst water may look clean, it can still be dirty, and then learn about the water treatment methods used to clean water and make it suitable to drink

Topic 4 is delivered in two parts, each of which may take several lessons to complete.

Please note: The water treatment process varies between communities. The steps and information in this lesson are deliberately broad.

To find out how your water is treated, and tailor the lesson to your context, check your community in the Water in your community section of this website or visit the 'What's in your water?' section of the SA Water website www.sawater.com.au and enter your postcode.

Topic 4 is part of six topics that can be taught individually or together to form a complete unit of work. Visit the 'For educators' section of the website to access the other topics.

Learning outcomes

- Students will recognise that water quality cannot always be determined by sight and/or smell and that not all water is safe for drinking.
- Students will provide a basic explanation of the water treatment process (general or in their community).
- Students will logically sequence events to explain a process.
- Students will work in a group to create a presentation.



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Resources

Part 1

- Water samples collected from around the school or community
- Jars or containers to hold water samples
- Water testing kit (these are available online or from hardware stores). If you require help finding one contact KESAB *environmental solutions* - admin@kesab.asn.au
- 'What's in the water?' online books (these are available in the 'Interactives' section of the website)

Part 2

- SA Water website www.sawater.com.au, specifically the 'What's in your water?' section www.sawater.com.au/community-and-environment/water-quality/in-your-area-whats-in-your-water and the water quality video series www.sawater.com.au/education-and-community/education/the-well/teaching-resources
- 'Bore-to-tap' online books (these are available in the 'Interactives' section of the website)
- 'The water treatment process' fact sheet
- Computers with internet access
- 'Bore-to-tap sequence 1 (with reverse osmosis)' activity sheet
- 'Bore-to-tap sequence 2 (UV treatment only)' activity sheet.

(The Bore-to-tap sequence sheets are suitable for communities who have a local treatment shed, not for those who access their water through a mains pipeline.)



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Lesson steps

Part 1

Briefly discuss what students know about water, or have learned so far from participating in other topics: how they use it, where they can access it, how it is collected after it rains.

Introduce the idea of water quality. View one of the 'What's in the water?' online books (available in the 'Interactives' section of the website).

Please note: the 'What's in the water?' online books were created for the Amata and Mimili communities, and include the information in English and local language, but they may be suitable for your community (particularly pages 1 to 7).

How can students tell if water is clean enough to drink? Explain that even if water looks clean, it may not be. Collect several water samples from around the school/community. If possible, collect the samples from different sources (e.g. taps, puddles, buckets, creeks, hoses etc.). Make sure you label each sample.

Ask students to use their senses (sight and smell) to determine how clean they think the water is.

Use a water testing kit to test for pH level, turbidity and salinity. These terms will need to be discussed and defined before and during testing.

Discuss the results.

Teacher notes: Testing the pH level of the water tells us how acidic or alkaline the water is. This cannot be determined by looking at the water. Although water may look clean, it could still contain chemicals which cause it to have a high or low pH level.

Turbidity refers to how dirty the water is. Sometimes water can look unclean, but it is not turbid.

Salinity refers to the salt levels in the water. Again, we can't see the salt, so testing helps us to identify the quality of the water.

After the testing is finished, ask students to make a conclusion about the cleanliness of the water.



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Part 2

Explain to students that in order to make sure we have safe, clean water to drink, our water must go through a treatment process. In this part of the topic, students will explore the process that is used for water in your community.

To find the applicable water information, visit your community's page in the 'Water in your community' section of the website. You can also visit the 'What's in your water?' section of the SA Water site, type in your postcode and access more information about your water (the URL is in the resources list).

Discuss the information on '**The water treatment process**' fact sheet. If your community has a local treatment shed and the water is treated with UV treatment, reverse osmosis, or a combination of those, you can also use the 'Bore-to-tap' online books (available in the 'Interactives' section) during this topic.

Once you have located the information about the treatment process, discuss the steps with students. Collect a sample of clean drinking water, refer back to the results of the water testing and compare an untreated sample with the treated sample.

Once students are familiar with the treatment method they work in small groups to create their own presentation to explain the process. This could be a flow chart, an oral presentation, a visual artwork, an animation etc.

For those communities who have a local treatment shed (particularly communities on the APY Lands), students can complete the applicable '**Bore-to-tap sequence**' activity sheet.

Finally, as a class, discuss which water sources provide clean water in your community. Which water is safe to drink and which is not.

You may wish to create a map to identify the location/s of safe drinking water in your community.

Teacher note: If you have a local water holding tank or treatment shed, a representative from KESAB *environmental solutions* or SA Water may be able to organise a visit to that location.

Contact KESAB for more information admin@kesab.com.au