

Tapstar

Where does water come from?

**Education
Program**

**Teacher resource book
Stage Three**



Contents

Introduction	3
Outcomes	4
Lesson 1 - Where does water come from?	5
Lesson 2 - Imagine a world without taps	6
Lesson 3 - How much water do you use?	7
<i>Additional Activities:</i>	
Investigate your water supply	8
Conduct a school water audit	9
Experiment - measure water	10
Class Usage Table	11

Introduction

The Tapstar Waterwise Education Program was established in 2002 and has continued to fill an important gap in water awareness and education. Tapstar and his best friend Dripette are water conservation hero's and here in the Shoalhaven are well recognised within the community.

Shoalhaven Water, with the support of Eaton Gorge Theatre Company have produced fun performances which offer an excellent lead into the activities included in this kit. The Tapstar performances have been designed to view in the classroom prior to undertaking the lesson plans in this kit.

The lesson plans within have been constructed for primary school teachers to assist students achieve outcomes from the current NESA resources.

The benefits of this education program will be the conservation of our precious drinking water and the protection of our environment. It will also enhance the image of schools as they are seen to be environmentally conscious and aware of sound water conservation outcomes and will ensure the active and informed participation of the community in creating a sustainable future.

For more information on how to access the performances email us at:

water@shoalhaven.nsw.gov.au

Acknowledgements

The contribution of those listed below was highly valued and is gratefully acknowledged:

- Robert Horner, Shoalhaven Water, Executive Officer
- Brenden Logue, Shoalhaven Water, Business and Support Manager
- Michelle Murden, Shoalhaven Water, Education and Marketing Officer
- Maggie Bridgford, Educational Consultant
- Ian McColm, Eaton Gorge Theatre Company
- Juliet Scrine, Eaton Gorge Theatre Company

Stage 3

Outcomes

Outcomes		Indicators
GE3-1	Compares and contrasts influences on the management of places and environments GE3-3	<ul style="list-style-type: none"> Investigate how people influence places Describe who organises and manages places eg. local and state governments
ST3 -1WS-S	Plans and conducts scientific investigations to answer testable questions, and collects and summarises data to communicate conclusions	<ul style="list-style-type: none"> Test predictions by gathering data and use evidence to develop explanations of events and phenomena Investigate how people address considerations, including sustainability, in the design of environments for current and future use Plan and apply the elements of scientific investigations to answer problems
ST3 -1WS-S	Plans and uses materials, tools and equipment to develop solutions for a need or opportunity	
MA3-2WM	Selects and applies appropriate problem-solving strategies, including the use of digital technologies, in undertaking investigations	
MA3-11MG	Selects and uses the appropriate unit to estimate, measure and calculate volumes and capacities, and converts between units of capacity	<ul style="list-style-type: none"> Select and use appropriate units to measure the capacities of a variety of containers Convert between millilitres and litres Collect categorical or numerical data through observation
MA3-18SP	Uses appropriate methods to collect data and constructs, interprets and evaluates data displays	
EN3-3A	Uses an integrated range of skills, strategies and knowledge to read, view and comprehend a wide range of texts in different media and technologies	
DRAS3.3	Devises, acts and rehearses drama for performance to an audience	<ul style="list-style-type: none"> Manipulate artefacts, sound effects and unscripted material to develop and transform the meaning created through role, place and situation

Assessment:

Teacher observes and notes student contributions to discussions, responsiveness in tasks and their engagement in the content being explored.

Lesson 1

Where does water come from?

Introduction

Brainstorm:

Discuss students' prior knowledge on water and create a whole class mind map e.g. where it comes from, why it's important, water cycle, colour.

Body

Watch Tapstar video

Discuss brainstorm again, seeing if more information needs to be added. Rewatch as necessary.

In groups, students use the Tapstar website and video visuals to create a diagram of how water gets to our taps, including dot points on each step of the process. (Catchments, Water Treatment, Pumping Stations, Reservoirs, Your house)

Conclusion

Students presents their diagrams to the class.
Each student describes one thing they have learnt about how water gets to their taps.

Extension Activities

- Students perform a short skit on how water gets from the catchments to their house, using movement and voice to embody the water on its journey.
- Students research what happens at each step of the water treatment process, as found on the Tapstar website. Students copy information into their book.

Resources

IWB
Computers or iPads
Butchers paper or A3 paper for each group
Pencils, Textas, crayons
<https://tapstar.shoalwater.nsw.gov.au>
Science or HSIE Book

Evaluation

Lesson 2

Imagine a world without taps

Introduction

Rewatch Tapstar video and discuss what was learnt in previous lesson.

Body

Can you imagine a world without taps?

Conduct an audit of tap use by the class. As a class, determine what taps would be used for during the week e.g. washing hands, filling drink bottles, going to the toilet, washing art supplies, watering plants.

In a table, organise what the class come up with and place a tally mark next to each one as they're used.

At the end of the week students copy the table into their Science/HSIE book. Students answer the following questions in their books

- What were taps used for the most?
- Did the amount taps used throughout a week surprise you? Why or why not?
- What do you think the classroom would look, smell and feel like if there were no taps?

Early Finishers: Draw a picture of what the classroom would look, smell and feel like without taps.

Conclusion

Ask students to share their answers to the questions. What are other ways we use water every day? Remind students that it would be difficult to do all the things we do with water each day, and that it is essential for life.

Resources

IWB
Computers or iPads
Butchers paper or A3 paper for each group
Pencils, Textas, crayons
<https://tapstar.shoalwater.nsw.gov.au>
Science or HSIE Book

Evaluation

Lesson 3

How much water do you use?

Introduction

Rewatch Tapstar video and discuss what was learnt in previous lessons. Discuss Water Restrictions - What happens in the Shoalhaven when water flows are low in the Shoalhaven River?

Body

Discuss what students do to limit water waste at home e.g. turning off the tap when brushing their teeth, collecting rain water to use in the garden, timing showers etc. As a class, or in small groups, students will look at how much water they use whilst washing their hands.

Either put a plug in the sink or place a bucket underneath the tap. One student will wash their hands in the sink for the recommended 20 seconds. Afterwards, using 1L measuring jugs, measuring out how much water was used.

Ask how the students would limit the amount of water used and wasted e.g. fill a small basin and wash hands in that, collect the water to use on plants.

Repeat the activity throughout the week when washing paintbrushes, filling up drink bottles, wetting sponges for clean-up.

Conclusion

Remind students that it is important to wash and use water; however, they should be aware of how much they use throughout the day. Reiterate how they can make small changes to help preserve water.

Extension Activities

Students place a clear measuring cup under a dripping tap and time how long it takes to fill it up. Students then calculate how many millilitres and litres would be wasted in an hour. Students share their findings with the class.

Resources

Plugs for the sink
1L measuring jug/s
Large bucket/s
Science or HSIE Book

Evaluation

Additional Activity

Investigate your water supply system

Ask:

- Where does our water supply come from? (Danjera, Bamarang and Porters Creek)
- Where does our wastewater and stormwater go?
- What affects our water supply?

In pairs or individually:

- Learn about your water supply. Write down interesting and key facts about the Shoalhaven Catchment.
- Find out how water gets to your taps and other aspects of the water supply system.
- Research your local water supply website to find out about your local stormwater and wastewater networks.
- Use your local council or water supply website to find information on local water management strategies and projects.

Resources

Computers or iPads

Shoalhaven Catchment:

<https://www.watarnsw.com.au/water-quality/catchment/sub-catchment/shoalhaven>

Water Supply System

<https://www.watarnsw.com.au/water-quality/education/learn/water-supply-system>

Local Water Supply

<https://shoalwater.nsw.gov.au/about-us/our-systems-operations>

Additional Activity

Conduct a school water audit

As a class, survey your school water use by conducting a water audit.

- As a class, view the Unity Water YouTube video on how to read your water meter (2:06min). Learn more about checking for hidden water leaks on the Unity Water site.
- As a class, view the Sydney Water water audit video (YouTube 6:34min) to understand the aim and procedure of conducting a water audit.
- Download Shoalhaven Water's School Water Audit Booklet
- Undertake the tasks in the water audit procedure and recording document.
- Survey and record responses from students and school, canteen and cleaning staff to find out who uses water in the school, how it is used and their opinions on water usage.

Resources

Unity Water - how to check for leaks

<https://www.unitywater.com/residential/manage-your-water-usage/checking-for-leaks>

Sydney Water - how to do a water audit

<https://www.sydneywater.com.au/SW/education/programs-resources/Highschool/water-audit/index.htm>

Shoalhaven Water - water audit booklet

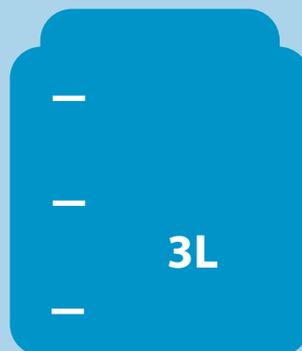
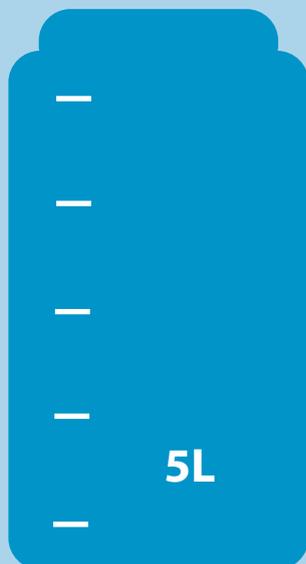
<https://doc.shoalhaven.nsw.gov.au/displaydoc.aspx?record=D16/397708>

Water Audit Procedure

https://docs.google.com/document/d/119qnYOFA_hfhTT8EfJxc-MZ6C_h_KlxPsSKiOB4R-Z4/template/preview

Additional Activity

CAN YOU OBTAIN EXACTLY 4L?



You have a 5 and a 3 litre water container, each container has no markings except for that which gives you it's total volume. You also have a running tap. You must use the containers and the tap in such a way as to exactly measure out 4 litres of water. **How is this done?**

Answer: https://www.youtube.com/watch?v=58fz9_MYVCA

Once solved, have students try to calculate how much water they would have thrown away. Can they do it in a more efficient way?

Additional Activity

CLASS USAGE TABLE

Tap Usage	Tally

Email: council@shoalhaven.nsw.gov.au

Bridge Road, Nowra (02) 4429 3111

Deering Street, Ulladulla (02) 4429 8999

All communication should be addressed to

The Chief Executive Officer:

PO Box 42, Nowra NSW 2541

DX 5323 Nowra NSW

Fax: (02) 4422 1816

shoalhaven.nsw.gov.au     

Shoalhaven Council's
Water Utility
WATER