

# Tapstar School Water Audit Kit

Teacher resource book  
Years K to 6



## Acknowledgements

Tapstar Waterwise Education Program aims to give students a sound understanding of water in our environment and the need to conserve the quality of this precious resource.

Shoalhaven Water has created an education program that incorporates a 40 minute play and complimenting lessons to educate children on what happens to water as it enters drains and sinks and how our behaviour can affect the quality of water that ends up in our waterways. The teaching kit and performance was produced by Eaton Gorge Theatre Company (EGTC).

This resource has been developed to promote the water quality within NSW through educating students in stages 1 – 3 at Primary School.

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

- Carmel Krough, Shoalhaven Water, Director
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**This teachers kit is designed to be used as a complimentary program to 'The Tapstar Saves the Waterways' play to educate children in preserving water quality.**

# Introduction

## Program Overview

This School Water Audit is designed to be used as a guide to assist schools in reducing the demand of water, to help lower costs, and to be used as an educational tool for water education.

## Why do a Water Audit?

If you are concerned at how much water is being used at your school and would like to inspire your students to use water more wisely and save money for the school, a water audit can help you to achieve these goals.

Doing a water audit provides information that can be used to measure improvements in your school's water efficiency.

## Before the Water Audit

- Undertake a water conservation education program such as Shoalhaven Water's Tapstar Show.
- Read the water meter before and after school for at least a week. This information will help you work out if there are any leaks in the system. If your school is using water overnight and there are no night-users then you can reasonably assume there is a leak. Any leaks will have to be detected then fixed.
- With the water meter readings calculate the water used for each day. This will assist in identifying how much water is used at the school on an average day. Can you work out the average water consumption per person per day?
- Graphing results will help see any patterns emerging and is also a good maths activity. Using the results you can see which days use more water than others, investigate why.
- Obtain or create a site plan of the school. Identify the location of all water outlets such as toilets, sinks, bubblers, staff rooms, canteen, and indoor/outdoor taps.
- Make a school community commitment to water education and water conservation and inform the school community about the date of the water audit.
- Arrange for a teacher or student leader to assist a group of students to undertake the water audit. It may take as long as 2 hours.

# Introduction

## On the Day of the Water Audit

- Alert all staff and students that the water audit will be taking place.
- Brief the team leaders on the water audit process.
- Organise the class into water audit groups – appoint a team leader, recorder and reporter. Groups should be allocated to areas (boys toilets, girls toilets, staff toilets, canteen, staff rooms kitchens, class rooms, bubblers, outside taps etc)
- Provide students with work sheets, pencils, site plan of school grounds. Discuss locations of all water outlets.
- Discuss identification of any obvious problems such as dripping taps and running cisterns. This is when problems are identified.
- Remind students of health and safety rules.
- Each team leader reports on the results of their audit area.
- Identify areas of water wastage and develop a School Water Saving Action Plan.

## After the Water Audit

- The water audit will raise awareness of water issues and encourage students to think of ways to reduce water use and waste.
- Students will generate many ideas about ways to save water. Some ideas may not be practical while others will be simple.
- Identify and prioritise short and long term water saving targets by having students list all ideas.
- Develop a school water savings action plan.
- Inform the school community of the outcomes of the water audit.
- Establish a school protocol for reporting leaking taps and pipes.
- After a period of time review the results.

## Girls Toilet



### Inspectors Name

---

### Toilets

Number of toilets .....

Type of toilet  single flush

dual flush

Estimated volume of toilet cistern .....

Number of leaking / running toilets .....

### Hand Basins

Number of taps .....

What is the average tap flowrate? .....

Number of leaking / dripping taps .....





## Inspectors Name

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### Toilets

Number of toilets .....

Type of toilet  single flush

dual flush

Estimated volume of toilet cistern .....

Number of leaking / running toilets .....

### Urinals

Number of urinals .....

Type of urinal  pull chain

motion censor

continuous flush

Estimated volume of urinal cistern .....

Number of leaking / running urinals .....

### Hand Basins

Number of taps .....

What is the average tap flowrate? .....

Number of leaking / dripping taps .....

## Staff Amenities



### Inspectors Name

---

#### Toilets / Urinals

Number of toilets .....

Type of toilet  single flush

dual flush

Estimated volume of toilet cistern .....

Number of leaking / running toilets .....

Number of urinals .....

Type of urinal  pull chain

motion censor

continuous flush

Estimated volume of urinal cistern .....

Number of leaking / running urinals .....

#### Hand Basins / Kitchenette / Showers

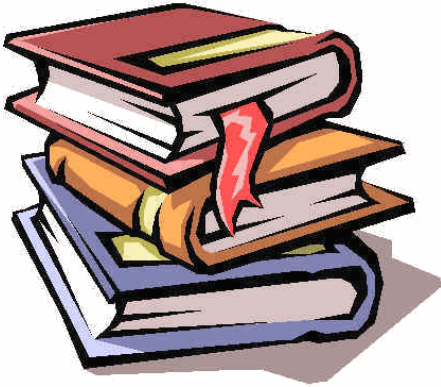
Number of taps .....

Number of showers .....

What is the average tap flowrate? .....

Number of leaking / dripping taps .....





### Inspectors Name

---

#### Toilets

Number of toilets .....

Type of toilet  single flush

dual flush

Estimated volume of toilet cistern .....

Number of leaking / running toilets .....

#### Urinals

Number of urinals .....

Type of urinal  pull chain

motion sensor

continuous flush

Estimated volume of urinal cistern .....

Number of leaking / running urinals .....

#### Hand Basins / Kitchenette

Number of taps .....

What is the average tap flowrate? .....

Number of leaking / dripping taps .....

## Canteen, Hall & Gym



### Inspectors Name

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#### Toilets

Number of toilets .....

Type of toilet  single flush

dual flush

Estimated volume of toilet cistern .....

Number of leaking / running toilets .....

#### Urinals

Number of urinals .....

Type of urinal  pull chain

motion sensor

continuous flush

Estimated volume of urinal cistern .....

Number of leaking / running urinals .....

#### Hand Basins / Kitchenette / Showers

Number of taps .....

Number of showers .....

What is the average tap flowrate? .....

Number of leaking / dripping taps .....

# Bubblers & Disabled Toilets



## Inspectors Name

---

### Bubblers

Number of bubblers .....

Type of bubbler:

- |                          |               |                          |       |
|--------------------------|---------------|--------------------------|-------|
| <input type="checkbox"/> | spring loaded | <input type="checkbox"/> | tap   |
| <input type="checkbox"/> | push button   | <input type="checkbox"/> | lever |
| <input type="checkbox"/> | other .....   |                          |       |

### Disabled Toilets

Number of toilets .....

Type of toilet  single flush  
 dual flush

Estimated volume of toilet cistern .....

Number of leaking / running toilets .....

### Hand Basins / Kitchenette

Number of taps .....

What is the average tap flowrate? .....

Number of leaking / dripping taps .....

# Outdoor Taps, Irrigation & Cleaning



## Inspectors Name

---

### Outdoor Taps

Number of taps .....

Number of leaking/dripping taps .....

Are any taps vandalised or damaged? .....

### Irrigation

(Perhaps talk to the school gardener)

Number of garden beds/oval with irrigation .....

Type of irrigation  above ground

below ground

Days per week irrigation used: (circle)

S    M    T    W    T    F    S

Time irrigation in use: ..... minutes

Number of times per week .....

### Cleaning of Hard Surfaces

(paved or concreted areas and windows)

Areas that get hosed down .....

What is the average tap flowrate? .....

Number of leaking / dripping taps .....

# Water Audit Summary

Toilets	Number	Leaking, Broken or Running
Girls/Boys/Staff		
Urinals - Boys/Staff		
Disability		
Gymnasium		
Canteen		
Other		
<b>Total</b>		

Taps: Handbasins/Sinks	Number	Leaking, Broken or Running
Girls Toilet		
Boys Toilet		
Staffroom & Offices		
Disabled Toilet		
Classrooms		
Other		
<b>Total</b>		

Taps: Cleaning & Grounds	Number	Leaking, Broken or Running
Girls Toilet		
Boys Toilet		
Staff Toilet		
Disabled Toilet		
Canteen		
Grounds		
Other		
<b>Total</b>		

# Water Audit Summary

## Showers

Girls Toilet  
Boys Toilet  
Staff  
Disability  
Other

Number

Leaking, Broken or Running

## Total

## Bubblers

Girls Toilet  
Boys Toilet  
Staffroom & Offices  
Disabled Toilet  
Playground  
Other

Number

Leaking, Broken or Running

## Total

## Other

Dishwasher  
Hot Water Urn  
Water Cooler  
Rainwater Tank  
Sprinkler System  
Irrigation System  
Other

Number

Leaking, Broken or Running

## Total

## Being Waterwise at School



### Ways to Save Water at your School

- Report all leaking taps, bubblers and toilets
- Use the half flush toilet button when you can
- Use a bucket when washing paint brushes
- Turn all taps and bubblers off after using them
- Have water monitors
- Follow the School "Water Action Plan"

### Be a Water Saving School

- Install aerators on spring loaded taps
- Install dual flush toilets and motion sensor urinals
- Install water efficient shower heads
- Fix all leaks quickly
- Use a broom or blower vac when cleaning outside areas
- Mulch garden areas and plant Australian Native Plants
- Use tap timers or a controlled water irrigation system
- Install rainwater tanks

- Respect others and speak quietly
- Wash your hands after visiting the toilet area
- Keep your clothes dry
- Empty buckets or jugs of water onto a garden or grassed area
- Use equipment such as stopwatch and tape measure carefully
- **DO NOT TOUCH HOT WATER TAPS**





As a group or class activity you can develop a Water Action Plan.

We will save water by:

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

Reasons for your choices

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### Issue

Problem \_\_\_\_\_

---

Action to be taken \_\_\_\_\_

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### Goal

Who is responsible? \_\_\_\_\_

---

### Strategy

Cost \_\_\_\_\_

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Develop a school awareness program.

Perhaps have a competition to design posters to go up in water use areas.

eg



Consider an education campaign that will need some imaginative strategy:

Helping  
kindergarten  
children turn off  
taps

Creating water  
monitors to check  
that taps and  
bubblers have been  
turned off

Have messages  
printed near taps  
or drains eg the  
drain is just for rain

Involve the students  
in painting murals  
on the water tanks  
with water saving  
messages and  
designs

Ongoing water education and water conservation strategies could include:

- Integrate water education and water conservation across all classes.
- Undertake a school water audit annually.
- Review and update your school water savings action plan annually.
- Communicate and celebrate water saving achievements.
- Integrate water saving strategies and outcomes into school policies.
- Share your ideas and achievements with other schools and the wider community.
- Discuss water conservation and messages regularly at school assemblies.

# How to Measure Flowrates

It is worth measuring flow rates to show that some taps use more water than others but it is not necessary to measure every tap.

One tap in each area is usually sufficient.

You will need:

- Clip boards
- Buckets and/or one litre jugs
- Stop watches
- Tape measure or ruler
- Disposable gloves

Use a measuring cylinder or jug and a stop watch or watch with a second hand.

Turn the tap on fully and put the jug under the tap for 5 seconds.

Turn the tap off.

Measure the volume (in millilitres) and multiply by 12 to give millilitres per minute.



# Support Material

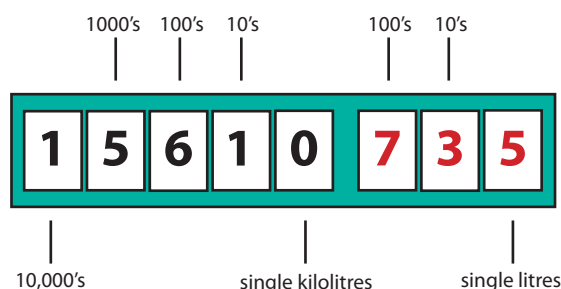
## How to Read your Water Meter

Use the school water meter/s to measure how much water is used over a one week period. If your school has more than one meter add the results together to get the total.

Make up a class roster of students who will read the meter just before school starts and ends each day.

You should try to keep times about the same each day.

Your water meter dial will look something like this.



Read the **red** figures only!

1000 litres is equal to 1 kilolitre

Complete the daily water use results table below

	Monday	Tuesday	Wednesday	Thursday	Friday
<b>2nd Reading</b> (School finish) Time:					
<b>1st Reading</b> (School start) Time:					
<b>Daily Water Use</b> (2nd reading minus the 1st reading)					

Weekly Water Usage

Friday Afternoon Reading

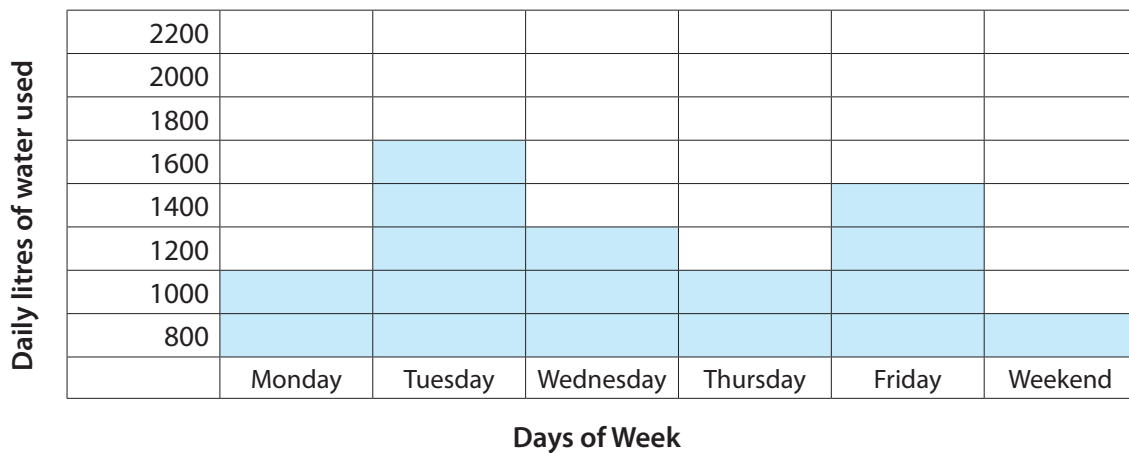
Monday Morning Reading

Weekend Use

## Complete chart to determine high water use days

To assist the children in determining the schools water usage it may be worthwhile to chart your results.

Please see the below example



The objective here would be to determine why Tuesday and Friday are high water usage days and why there is water being used over the weekend when there is no one at the school.

### Class activities / discussion could include:

- Checking for leaks and how much water is wasted from this.
- High water usage days - where is the water being used and can the process be improved?



Shoalhaven Water  
Bridge Road, Nowra NSW 2541

Telephone: 02 4429 3214  
Email: [water@shoalhaven.nsw.gov.au](mailto:water@shoalhaven.nsw.gov.au)  
Web: [www.shoalwater.nsw.gov.au](http://www.shoalwater.nsw.gov.au)

