AuSSI Water Use Audit – Upper Primary

Note: For the most up-to-date digital version of this resource click here.

Activity Introduction

Quick summary: In this activity students conduct an audit of water use at their school. The aim of the activity is to: use the school water meters to find out how much water your school uses in an average week and what the usage patterns are; find out where water is being used wisely at your school; find out where water is being wasted and sites of improvement; and communicate findings to the school community.

This lesson can be used when working on the Water Module of ResourceSmart AuSSI Vic Certification. By completing this lesson you will have completed the following actions:

Water Checklist Compulsory Actions:

- A1 – Have you completed an audit to assess water usage and stormwater collection around your school?
- A1 – Have you collected data on past water usage for at least two years?
- A1 – Has this data been entered as your baseline data?

Checklist data goals:

- No official data goals.

Australian Curriculum Links:

Cross curriculum priorities	Sustainability – OI.1 – The biosphere is a dynamic system providing conditions that sustain life on Earth.
General capabilities	Numeracy, Critical and creative thinking
Explicit content description	**Geography Year 5** • Collect and record relevant geographical data and information, using ethical protocols, from primary and secondary sources, for example, people, maps, plans, photographs, satellite images, statistical sources and reports (ACHGS034)

	• Present findings and ideas in a range of communication forms, for example, written, oral, graphic, tabular, visual and maps; using geographical terminology and digital technologies as appropriate (ACHGS038) • Reflect on their learning to propose individual and collective action in response to a contemporary geographical challenge and describe the expected effects of their proposal on different groups of people (ACHGS039)
	Geography Year 6 • Collect and record relevant geographical data and information, using ethical protocols, from primary and secondary sources, for example, people, maps, plans, photographs, satellite images, statistical sources and reports (ACHGS041) • Present findings and ideas in a range of communication forms, for example, written, oral, graphic, tabular, visual and maps, using geographical terminology and digital technologies as appropriate (ACHGS045) • Reflect on their learning to propose individual and collective action in response to a contemporary geographical challenge and describe the expected effects of their proposal on different groups of people (ACHGS046)

Connecting lessons: Stormwater audit - must be completed as a compulsory action.

Resources required: Map of school grounds (if no hard copy available, use Google Maps), access to school water meter, internet access, student worksheet.

Digital technology opportunities: Google Maps, desktop publishing tools, digital sharing capabilities.

Keywords: Water, audit, school, water meter, taps, fountains, toilets, watering system.

Need some more support? Visit these leading organisations:

CERES

Greening Australia

VAEE (Victorian Association for Environmental Education)

Port Phillip EcoCentre

PlanetSavers

Teacher worksheet

Teacher preparation:

Overarching learning goal:

- Students understand how to read a water meter and recognise ways to interpret meter data.
- Students recognise where their school is already using water wisely.
- Students recognise sites where water could be used more efficiently.

Teacher content information: Cast your mind back to the big drought we had from 1997 – 2009. Eight out of ten Australians were on water restrictions. Some of us even stopped watering our driveways. However, now that the rains have returned it seems that our efforts to save water have been washed away. But think about this: fresh water is the most precious resource on Earth. It is essential for the survival of all living things. Did you know that the water you drink today is the same water that the dinosaurs enjoyed? The water just keeps cycling around the Earth! Human's depend on water for drinking, eating, energy, entertainment, and transport. One could say Australian's have water on tap - but what happens if it's not available? Or if fresh water becomes polluted?

Most of our drinking water comes from rivers that feed into dams. Some comes from boreholes that drill into underground water supplies. When we take water for irrigation to grow food it cannot be used in rivers and wetlands. It's a careful balance of nature. How do we get this balance right? What is the best way to use water? Being aware of the amount of water we use is critical for the health of our environment as a whole, and that includes us humans.

View the Cool Australia Water video here: http://vimeo.com/77933478

Student and classroom organisation:

Step 1. Begin this activity by explaining to your students that the aim of conducting a water audit is to:

1. Find out how much water your school uses in an average week and what the usage patterns are;
2. Find out where water is being used wisely at your school;
3. Find out where water is being wasted and sites of improvement;
4. Communicate your findings to the school community.

Step 2. Finding out how much water your school uses

For this activity you will need to record the water meter reading first thing in the morning and last thing in the afternoon for eight days (excluding on the weekend). From this data you will be able to calculate the amount of water used during school hours and after school hours.

Record meter readings using the student worksheet.

Before you begin collecting data from the meter you will need to make sure students can read the meter. Water meters give readings in kilolitres. There are different kind of meters. The school's will probably have rotating numbers, but it could also look like clock face dials. Usually the black numbers are kilolitres and the red numbers are a decimal placements smaller than a kilolitre.

Analysing the data

Create graphs or charts that communicate the following:

- How does the water consumption differ from school time and non-school time over night and the weekends?
- What times see the most and least amounts of water being used?
- From the data can you see if the gardens/lawns/sport fields are being watered out of school hours?

Step 3. Find out where and how water is being used at your school

In this part of the audit you will be looking at where water is used at your school, including taps, water fountains, toilets, and school water systems.

Using a map of the school (if you don't have a hard copy, use Google Maps), locate all the places where you will find the taps, water fountains, toilets and watering systems. Break students into groups and divide these regions amongst the groups (you could choose to break the school grounds into sections or assign groups with either taps, toilets etc).

Ask students to visit each water point within their section and using the student worksheet, record the relevant information about each water point.

Analysing the data

Collate the data collected by groups (you may want to create a master copy or nominate a group to manage the master copy). Work as a class to find out:

- **Where water is being used wisely** - What water saving devices are already in place? Are most taps easy to use and working efficiently? Do toilets have dual-flush cisterns and flush efficiently? Are school watering systems operated in the evenings or early mornings to minimise evaporation?
- **Where water is being wasted and where the sites of improvement are** - Which taps are operating inefficiently? Which fountains and toilets are leaking? Are watering systems leaking?

Using desktop publishing tools (such as Photoshop), ask students to create a new map (either using a scanned version of the master map or Google Maps) of the school showing the water access points with details about efficiency and improvement.

Take action

Work as a class to devise a plan for communicating your findings to the school community. You may wish to:

- Include information on the school website or in the school newsletter;
- Prepare a presentation to share with the school community during assembly;
- Create signage about water saving that can be distributed throughout the school at water access points;
- Create a booklet for each classroom.

Ideas for saving water

Project	Description	Resources
Take it home	Create home waterwise booklets or brochures for the school community.	Cool Australia Water factsheet
Engage an expert	Contact a local water care groups to arrange an incursion or an excursion.	E.g. Waterwatch, Saltwatch, Coastcare.
Go back to the tap!	Plan a 'back to the tap' event to raise awareness about not buying bottled water and using refillable bottles instead.	Go tap
Collect excess water and use it wisely	Place ice cream containers under school water fountains and use excess water in the garden.	CERES

Check out the Cool Australia Water Toolbox for more resources.

Student worksheet

Thought starter: How much water do you use when flushing the toilet?

The aim of conducting this water audit is to:

1. Find out how much water your school uses in an average week and what the usage patterns are;
2. Find out where water is being used wisely at your school;
3. Find out where water is being wasted and sites of improvement; and
4. Communicate your findings to the school community.

School water meter

Record the water meter reading first thing in the morning and last thing in the afternoon for eight days (excluding on the weekend). From the data calculate the amount of water used during school hours and after school hours.

Day and time	Meter reading
Monday morning	
Monday afternoon	
Tuesday morning	
Tuesday afternoon	
Wednesday morning	
Wednesday afternoon	
Thursday morning	
Thursday afternoon	
Friday morning	
Friday afternoon	
Monday morning	

Calculate the amount of water consumed

How much water was used during the week?

Monday school time	
Monday night time	
Tuesday school time	
Tuesday night time	
Wednesday school time	
Wednesday night time	
Thursday school time	
Thursday night time	
Friday school time	
Weekend	
Total	

Answer these questions, and create graphs and charts in support of your answers (TIP - assume that a large percentage of water is used during school time in the toilets):

- How does the water consumption differ from school time and non-school time over night and the weekends?
- What times see the most and least amounts of water being used?
- From the data can you see if the gardens/lawns/sport fields are being watered out of school hours?

Tap audit

Check each tap and place a tick or asterisk (*) in the boxes that apply to each tap.

Location	Drips	Easy to turn off	Hard to turn off	Hard to turn on	Pressure needs changing	Taps need fixing

Garden/lawn/sports field watering system audit

Use a copy of the master map to locate where the school's watering systems are located The purpose of this audit is to look for evidence of too much water being used to water outdoor areas.

Garden bed location	Water has been running down gutters	Puddles after watering	Boggy patches	Type of watering system
Lawn location				
Sports field location				

Toilet and urinal audit

Check each toilet and urinal and place a tick or asterisk (*) in the boxes that apply. Be careful not to invade anyone's privacy!

Toilet location	Single flush	Dual flush	Small leak	Keeps flushing	Needs fixing

Urinal location	Automatic	Press button	Small leak	Keeps flushing	Needs fixing

Water fountain audit

Check each fountain and place a tick or asterisk (*) in the boxes that apply to each fountain.

Water fountain location	Small leak	Large leak	Pressure to high	Pressure to low	Needs fixing or adjusting

Analysing the data

Collate the data collected by groups (you may want to create a master copy or nominate a group to manage the master copy). Work as a class to find out:

- **Where water is being used wisely -** What water saving devices are already in place? Are most taps easy to use and working efficiently? Do toilets have dual-flush cisterns and flush efficiently? Are school watering systems operated in the evenings or early mornings to minimise evaporation?
- **Where water is being wasted and where the sites of improvement are -** Which taps are operating inefficiently? Which fountains and toilets are leaking? Are watering systems leaking?

Using desktop publishing tools (such as Photoshop) create a new map (either using a scanned version of the master map or Google Maps) of the school showing the water access points with details about efficiency and improvement. Use this map as the basis of a communication plan around school water conservation.