

# Year 5

## Lesson 4

### Being a Watersaver at school

#### Unit 1

[www.logan.qld.gov.au](http://www.logan.qld.gov.au)

#### Learning objectives

#### Students will be able to:

- Recognise the many ways water is used in the school.
- Plan and undertake an audit to identify water reduction opportunities.

#### Learning outcomes

Subject	Strand & content descriptors
Science	Science as human endeavour <ul style="list-style-type: none"> <li>• Scientific knowledge is used to inform personal and community decisions. (ACSHE217)</li> </ul>
Geography	Geographical knowledge & understanding <ul style="list-style-type: none"> <li>• Human activities can change environments and places over time.</li> </ul> Geographical skills & understanding <ul style="list-style-type: none"> <li>• Observing and questioning: Pose geographical questions that range in complexity and guide deep inquiry then speculate on their answers.</li> <li>• Observing and questioning: Identify a variety of information sources that will be used for inquiry, considering their validity.</li> <li>• Observing and questioning: Identify and create appropriate materials, geographical tools or equipment to collect data or observations, using formal measurements and digital and spatial technologies as appropriate. Sort information and data and look for relationships or patterns, using maps and spatial technologies as appropriate.</li> <li>• Communicating: Present findings, choosing an appropriate communication method for more than one audience using appropriate geographical tools and skills and geographical vocabulary.</li> </ul>
English	Literacy <ul style="list-style-type: none"> <li>• Plan, rehearse and deliver presentations for defined audiences and purposes incorporating accurate and sequenced content and multimodal elements. (ACELY1700)</li> <li>• Use a range of software including word processing programs with fluency to construct, edit and publish written text, and select, edit and place visual, print and audio elements. (ACELY1707)</li> </ul>



### Important questions

- Where do we use water in the school?
- What do we use it for?
- Why is it important to save water?
- Water conservation may be a combination of technological and behavioural changes.
- What sustainability measure can we use to assess our schools water management?

### Background information – saving water

70 percent of the earth's surface is covered by water. However, almost 97 percent is salt water and ice makes up two percent, with around one percent suitable for human needs. Australia is the driest habitable continent, so we need to be extra careful when we use water.

The volume of water used in schools can be significant. Schools are mini cities and need to provide the same range of water facilities as any home or hotel. Heavy use areas include ovals and toilets. Becoming a Watersaver school can help staff and students learn valuable lessons about water conservation and reduce the school's water consumption.

### Linking locally

Many of our local schools and businesses have implemented an array of water saving initiatives and are now prospering from environmental and economical benefits. An example is John Paul College.

Water conservation can be achieved by changing watering practices or through technological developments such as water timers and infrared urinals. Mulching (using organic matter such as straw or sugar cane to reduce evaporation) garden beds, improving oval irrigation and monitoring taps and bubblers can help save water.

### John Paul College

John Paul College brought water efficiency to its 35-hectare Daisy Hill campus in 2006, soon following with energy and waste efficiency initiatives. The school has already reduced water consumption by 73%, energy consumption by almost 20% and waste by 35%—by establishing:

- 10 tank farms storing up to 500,000-litres
- a pool plant that recycles backwash water and minimizes chemical use
- efficient ways of managing sports fields, grass, gardens and vegetation
- waterless urinals, low-flow showers and water-off taps
- bores, ponds and waterways that manage storm-water and provide ecosystems
- 44 solar panels generating more than 12 megawatts/ year
- retrofitting and building projects to maximise building efficiency
- water and power management software platforms that help continually measure, monitor and minimise consumption—supported by a first-of-its-kind 3D model of the campus



- 60 recycling stations that feed into four for segregation, collection and off-campus reuse
- awareness and behavior modification programs across the campus and curriculum including integrated waterwise education, a 24/7 website promoting initiatives and resources, a student environmental council, and community awareness activities fostering responsible stewardship of scarce resources.

### Lesson plan – saving water

This lesson engages students in planning and undertaking a water audit and implementing opportunities to conserve water identified in the audit. Along with specific initiatives designed to conserve water students will draw conclusions regarding the sustainability of the schools water use. Prior to the lesson acquire the schools recent water bills to provide key information such as the cost and the volume of water consumed.

As a class, students identify the major uses and users of water in the school. Ask students to predict what uses are likely to consume the most water. This information could be plotted on a pie chart or similar for comparison with audit or other data. At this stage it would be useful to identify the water sources used by the school (e.g. 'drinking' water from the mains supply; tank water; grey water).

Explain that an audit will provide information that will help to identify opportunities for the school to use less water. In simple terms water conservation can be achieved through technological means (installing flow restrictors on taps or installing dual flush toilets) or behaviour change (reusing cleaning water; watering plants in the morning not in the middle of the day).

Students should identify key practices or fixtures they want to investigate and then develop procedures to accurately collect data on water consumption. For example:

- Digital photo records or observational surveys could be used to record practices at bubblers and taps.
- Measuring the flow rate of taps or bubblers or calculating the volume of toilet cisterns or classroom sinks.
- Discussions with ground staff or facilities managers could determine if some water fixtures are left on over the weekend (such as automatic urinals); if the school has showers, are they low flow?
- With appropriate instruction and care students collate data on the number and type of toilet flushing systems in the school.
- Survey students to determine how they use water at school and if they actively try and conserve water – by using a refillable water bottle.
- Investigate how water is used in classrooms.
- Are school garden mulched? Is mains water used for irrigation? Are plants at the school thirsty or water efficient?

Information from the audit is presented to the class; students compare and categorise findings.



As a class determine a water sustainability rating for the school. The sustainability rating ranks the school on 3 aspects:

- **Water supply:** list the sources of water and the proportion (approximate) used in the school. Mains (drinking) water; tank water; grey water; recycled water; other. A higher ranking is achieved when there is less reliance on mains water (rainfall dependent sources).
- **Water management:** record the number and type of water efficient fixtures (low flow showers; flow restrictors on taps) and appliances (i.e. water efficient washing machines or dishwashers). Garden design: Are garden beds mulched; are plants thirsty or water efficient?
- **Water education and behaviour:** is information and encouragement to save water (signs; assembly presentations) regularly delivered? Are simple behaviours such as using plugs in classroom sinks and pouring suitable cleaning water onto the garden practised?

A number of initiatives are prioritised and in selected groups students develop a report for the principal and the broader school community that outlines the finding of the audit; suggested changes to conserve water and details of cost or other requirements to successful implementation.

#### **Additional activities**

Present the water conservation ideas at a school assembly or to the Principal as part of a water conservation program.

Design posters to place above sinks, bubblers and toilets to encourage water conservation.

Start a water conservation club.