

# Year 6

## 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:

- Understand how to read a water meter.
- Understand a smart meter.
- Develop skills in gathering and analysing data.

#### Learning outcomes

Subject	Strand & Content Descriptors
Science	Science as a Human Endeavour <ul style="list-style-type: none"><li>• Scientific knowledge is used to inform personal and community decisions (ACSHE220)</li></ul>
Mathematics	Measurement and Geometry <ul style="list-style-type: none"><li>• Convert between common metric units of length, mass and capacity (ACMMG136)</li><li>• Connect volume and capacity and their units of capacity (ACMMG138)</li></ul>
English	Literacy <ul style="list-style-type: none"><li>• Participate in and contribute to discussions, clarifying and interrogating ideas, developing and supporting arguments, sharing and evaluating information, experiences and opinions (ACELY1709)</li><li>• Plan, draft and publish imaginative, informative and persuasive texts, choosing and experimenting with text structures, language features, images and digital resources appropriate to purpose and audience (ACELY1714)</li></ul>

#### Important questions

- How does a water meter work?
- What is a smart meter and how does it work?
- What is a kilolitre? What is a mega litre?
- Why do we have a user-pays system for water use?

#### Background information – school water audit

##### Part 1 – water meters

Water meters are similar to gauges on petrol pumps. They are simple measurement devices that record how much water is entering your school from the water supply system.

As water moves through the water meter it turns a turbine (wheel) that is connected to a numerical readout indicating the amount of water used. As water is used in large amounts the unit of measurement for water meters is in kilolitres.

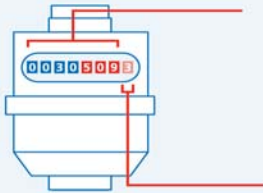
1 kilolitre = 1000 litres  
 1 megalitre = 1,000,000 litres

**Activity sheet 10 'Reading a water meter'** will show you how to read your water meter.

**Teacher reference: How to read a water meter**

### How to read your water meter

Your water meter is normally located at the front of your property.  
**Black numbers represent kilolitres and are used for billing.**  
 The red numbers on your water meter represent litres. To calculate your daily water use, please follow the instructions below.




**Numbers only meter**

- Day one, record all numbers that you see here. Note the time of day.
- Day two, repeat step 1. Conduct this reading at the same time as you did reading on day one.
- Subtract the numbers recorded on day one from day two. This is your household's daily water usage.

Please note, if there are four red digits on the water meter, the last digit (on the far right) is a tenth of a litre. In these instances, do not record the last red digit.

**or**



**Numbers and clock meter**

- Day one, record all numbers that you see here. Secondly, record numbers found here. Record the first three red dial numbers in a clockwise direction, that is, right to left. Note the time of day.
- Day two, repeat step one. Conduct this reading at the same time as you did reading on day one.
- Subtract the numbers recorded on day one from day two. This is your household's daily water usage.

Both steps should provide you with a number similar to the diagram example 00305093.

**Day one:** Record numbers from your water meter as per instructions above.

\_\_\_\_\_ L

**Day two:** At the same time as day one, record numbers from your water meter as per instructions above.

\_\_\_\_\_ L

Subtract the number found on day one from the number found on day two.

Day two reading \_\_\_\_\_ L - Day one reading \_\_\_\_\_ L =

**This is your household's daily water usage.**

\_\_\_\_\_ L



## Smart meters

A smart meter attaches to a regular water meter and records consumption via a pulse (a pulse clicks over every ten litres consumed). This continuous electronic reading is communicated back to the property owner via a PC and allows for two-way communication between the meter and the central system.

Seeing consumption on line in real time enables you to:

- understand where, when, how and why water is used, providing facts rather than guesswork
- identify and address leaks as soon as they occur
- actively manage water consumption.

## Lesson plan – school water audit

### Part 1 – water meters

Discuss the purpose of a water meter.

Use **Activity sheet 10 'Reading a water meter'** and discuss the major features, what the figures are showing and define terms such as: litre, kilolitre and mega litre.

Examining a water bill will demonstrate how figures from the meter are displayed and how costs for water are calculated. Some bills may also show comparisons in water use over time.

Use **Activity sheet 14 'Water meter data sheet'** to record a reading. Return to the meter the next day, preferably at the same time, and record the next reading.

Continue reading the meter for at least four weeks. Determine total use on a daily and weekly basis.

Discuss reasons for changes in water use; which may be influenced by multiple factors, including weather conditions and activities in the school.

Gather information on the school population and determine the per capita daily use of water. Calculate future consumption and present an estimate of kilolitres used per term or year.

Plot the figures and present in an appropriate chart or graph form.

Recording water use during the weekend will provide valuable data, indicating whether there are leaks or if other people are using the school's water.

**Important safety note: Reading water meters - Please exercise caution when removing water meter covers. They are homes for spiders and sometimes snakes. Ensure gloves are used by anyone involved in meter reading. Adult supervision is advised.**



### Resource requirements

- Activity sheet 10 'Reading a water meter'
- Activity sheet 14 'Water meter data sheet'

### Additional activities

Ask the students to use **Activity sheet 14 'Water meter data sheet'** to record water use at home. Plot and present this data in comparative form to determine per capita and average domestic water use.