Every drop counts

Stage 1 lesson plans

Exploring how we use and save water every day

Sydney WATER

Stage 1 – Every drop counts

Aim
To help students identify water as one of Earth's resources and develop understanding of how we use and care for it every day. The suggested learning sequence will:

- explore the importance of water for everyday activities
- identify and describe how we use water, one of Earth's resources, in a variety of ways
- develop, using a water audit, observational skills to understand water use at home and school
- build value for water in their lives and that every drop counts.

Time:
~225 mins

Key inquiry questions

- What do we use water for?
- Where do we use water?
- How can we save water?

Syllabus outcomes

English
EN1-10C- Thinks imaginatively and creatively about familiar topics, ideas and texts when responding to and composing texts
EN1-11D - Responds to and composes a range of texts about familiar aspects of the world and their own experiences

Mathematics
MA1-17SP - Gathers and organises data, displays data in lists, tables and picture graphs, and interprets the results
MA1-3WM - Supports conclusions by explaining or demonstrating how answers were obtained

Geography
GE1-1 - Describes features of places and the connections people have with places.
GE1-2 - Identifies ways in which people interact with and care for places.

Science
ST1-1WS-S - Observes, questions and collects data to communicate and compare ideas
ST1-4LW-S - Describes observable features of living things and their environments

Background information

We all need and use water in our daily lives for drinking, cooking, washing, cleaning, keeping cool, watering gardens and recreational and cultural activities. Water is one of Earth's natural resources and it's in the things we use and buy every day.

Living in Greater Sydney, we're used to water always being there. Every day nearly 5 million people turn a tap and it's there.

We use a lot of water, about 200 liters a person a day, but what would life be like if we had limited water or no water? Water is a finite resource.

We live on the driest continent in the world and, as the climate changes, sometimes in Sydney we have enough water and sometimes we don't.

Up to 70% of water used in schools is lost through leaks. One drop from a leaking bubbler wastes 7,000 litres of water every year. By exploring how we use water and identifying water loss in schools and at home, students recognise why and how we should care for water.

This shapes values and attitudes for water and helps students actively care and make choices to support sustainable practices for our natural resource.

Syllabus skills

English

- develop knowledge, understanding and skills in order to: communicate through speaking, listening, reading, writing, viewing and representing
- express themselves and their relationships with others and their world

Mathematics

- estimate the number of units and explain the estimation strategy
- solve problems involving addition or subtraction by using number sentences

Geography

	• develop skills to acquire, process and communicate geographical information **Science** • develop and apply skills in scientific inquiry through the process of working scientifically

Teaching and learning	**Resources**
Lesson 1: How we use water (90 min) **Inquiry question:** What do we use water for? Explore how we use water and its importance in our everyday lives. Discover how water is one of Earth's natural resources and identify things we make and use with water. **Activity 1: Wondering about water** (10 min) **Preparation:** Download lessons, worksheets and PowerPoint. Using a wonder wall and the ***Every drop counts PowerPoint*** get students thinking, questioning and sharing to understand their level of knowledge and interests. Ask students have you ever wondered... • do we all use water every day? • what do we use it for? • do we use water to make or grow things? • do we use a little or a lot? Is it important to save water? Either the teacher or students record statements and questions on cards and place on the wonder wall. Throughout the lessons, encourage students to reflect, ask questions and look for questions that have been answered. Use a word wall to capture any new vocabulary. **Activity 2: Do we use water every day?** (25 min) 1. Using the **PowerPoint**, and ***How do we use water? IWB resource*** **(water timeline)** discuss how and when we use water in a typical day. Prompt students to think about which activity they did first. Is more water used at certain times of the day and why? 2. Using the ***My water timeline worksheet*** ask students to create their own timeline. Working in pairs compare their timelines. Did they do the same activities and the same or different times? What was the most frequent activity? Would activities change depending on the season? 3. As a class reflect and discuss. • How important is water to our daily lives? • What would happen if there was no or little water for each activity? • Which activities would be the most important? Why? • Do you think you used a lot of water or a little over the whole day?	**Sydney Water resources** *Primary school resources* *Wondering about water* *Module 6 Every drop counts* • *Every drop counts lesson plans* • *Every drop counts PowerPoint* • *Every drop counts worksheets* – *Water timeline* – *Think, pair, share* • *How do we use water? Interactive whiteboard (IWB) resource* **Other resources** • Sesame Street: The Water Song video (1:27) • What's your water footprint? • ABC How much water does your life cost? Quiz • Connected waters (UNSW National water footprints) **Materials** • Scissors • Poster paper • Blank cards • Sticky tack or tape • Markers **Vocabulary** Earth, resource, natural resource, business, agriculture, technology, medical, manufacture, resource,

- Would you use more or less water if the weather was different that day (winter versus summer)? Why?

Activity 3: How do we use water? (25 min)

1. Using the **PowerPoint** discuss how all homes are different but have water available in similar ways. Explore water use in each room. Alternatively, use a doll house to stimulate this discussion.
2. Mind map the question *how do we use* water? using the ***How do we use water? IWB resource***. Alternatively, use a whiteboard and refer to the **Discussion notes.**
3. Using the ***How do we use water? IWB resource*** compare water use at home and school. Alternatively, create two columns with the headings home and school and list or draw water uses and compare. Ask students to consider if we use water in different or the same ways at home and at school?

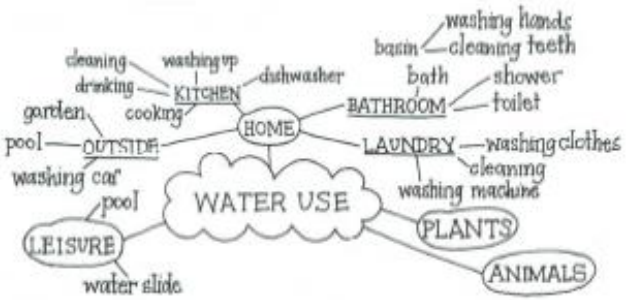
Activity 4: Does water help us do things and make things? (30 min)

1. Using the PowerPoint discuss how water is one of Earth's natural and precious resources. Explore how we use water in a variety of ways. Consider how water is used to make energy, food, clothes and the things we buy. Water is used in many industries like agriculture, manufacturing, construction, technology, medicine and everyday living.
2. Mind map the variety of ways water is used and jobs that use water. Watch the Sesame Street: The Water Song video and visit What's your water footprint? for more ideas.
3. Using the ***Think, pair, share*** worksheet consider what life would be like with limited water, or if we ran out of water. Ask students to:
   - list or draw three things that we could not use, buy or do as a job
   - compare their list with a partner. What is similar or different?
   - volunteer to share findings with the class
   - are there choices could we make to support sustainable use of water?

agriculture, industry, business, technology, medical, reservoir, urban water cycle, heading, timeline, appliances, devices.

Discussion notes

Example of a mind mapping exercise to build water use knowledge.



Homework

In preparation for Lesson 2, ask students to colour the ***Water in your home colouring sheet*** and think about:

- which rooms have water and which don't?
- what activities in the home use water?

what appliances (devices) are used to get the water?

Sydney Water resources

- *Every drop counts worksheets*
  - *Water in your home colouring sheet*

Lesson 2: Every drop counts (45 min)

Inquiry question: How can we save water?

Explore how we can use resources like water wisely and how water efficient behaviours contribute to sustainability.

Activity 1: How can we save water? (45 min)

1. Using the **PowerPoint** as a prompt, discuss why we should care about saving water. Should we be careful with how much we use? Should we ensure there's enough water for everybody and the environment? Ask students to consider what can they do every day to reduce water use. What if we need to share water with more people and nature?
2. Watch the ***Water in your home*** video and visit the Water use and conservation webpage for water savings hints and tips. Using the ***Think pair share*** worksheet, ask students to share their favourite water savings ideas with a partner.
3. Using the ***My water savings plan***, ask students to develop a plan to save water. Choose their favourite water savings idea and record how they will implement it and encourage their family to save water too.

Optional

Watch the additional short videos and ask students to colour the ***Save water colouring sheet.***

Sydney Water resources

- *Every drop counts PowerPoint*
- Water in your home video (3.34)
- Water use & conservation water savings hints and tips
- *Every drop counts worksheets*
  - *Think pair share*
  - *My water savings plan*
  - *Save water colouring sheet*

Additional short videos

- Watering Your Garden
- Do a full washing machine load
- 4 minute shower
- Water uses water in your home

Vocabulary

Water efficient, saving water, wasting water, tap, water device, water wise, water conservation, population, continent, environment, nature.

Lesson 3: School mini water audit (90 mins)

Inquiry question: How can we save water?

Develop observational skills to investigate, identify and report leaks to reduce water waste and improve school water efficiency. Students will apply skills and understanding by making illustrations informed by their findings.

Activity 1: How can we save water at school? (30 min)

This activity is a mini audit designed to investigate leaks and broken water devices at school. For extension or Stage 3 students try this Water audit.

Preparation: Get a copy of the school map and identify designated areas or zones for each group to investigate.

Optional: Before the day of the water audit, invite cleaning, maintenance staff or school manager to talk about how water is used and any problems they are aware of.

1. Using the **PowerPoint**, discuss how a water audit is an investigation to understand where water is used and identify leaks or broken water devices. This is a great way to help your school save water and money!

Sydney Water resources

- *Every drop counts PowerPoint*
- *Every drop counts worksheets*
  - *School mini water audit*
- *Water use & conservation*
- *10 easy ways to save water at school*

Extension or Stage 3 students

- *Water audit*

Materials

- 1x large school map
- Multiple school maps used during the audit
- Crayons/coloured pencils
- Clipboards

Introduce and discuss:

- how the investigation checks different indoor and outdoor devices and collects data from them
- common water devices, like taps and toilets, and how they can sometimes be broken or leak– this wastes water
- how schools can save water by checking and fixing leaks.

2. Ask students (volunteers or in groups) to identify and mark on the school map:
    - their classroom, the playground, the hall and the office.
    - the toilets, classroom sinks and bubblers/drinking stations
    - the canteen, and teachers' lunchrooms
    - the outside taps in the gardens and the playground
3. Using the **PowerPoint** show the class how to fill in the ***School mini water audit*****.** Students can colour tally or number the boxes depending on skill level.

Activity 2: Conduct a mini water audit (60 min)

Safety: Students are to be supervised at all times. The audit can be conducted one group at a time or all at once, if extra supervision is available. Remind students that they should only enter their usual toilet block (data for other toilets can be shared later). Data from staff areas will be collected for them.

1. Assign a zone and a scribe for each group. Provide a clipboard, coloured pencil, school map and ***School mini water audit*** form. Students, with a supervisor, conduct the audit and complete the worksheet, return to class and prepare to share their data.
2. Ask a representative from each group to share their findings. Tally the results and consider if there are a lot of leaks/breaks, a few or none. Brainstorm what could be done with their findings? What should happen? Who should know? How should they communicate their findings? Why should they communicate their findings? Do they have any recommendations on what should be done?
3. There's lots of ways to share their findings. Students can share a report, make a presentation or a video, give a speech or hold a meeting. Ask students to think about what their message is and how they can get people to take notice of it. A presentation can outline:
    - why it's important to conduct a water audit
    - how they collected the data (method)
    - the data and how they interpreted it (what does the data tell them)
    - recommendations.

Invite the maintenance staff, officer manager or principal to listen to their presentations as they showcase their findings.

4. Are there other water saving solutions? Brainstorm other actions that to improve water conservation at school. Ask students to design a poster showcasing their ideas. Place each poster at strategic locations around the school to raise awareness.

- Poster paper

Discussion notes

A school water audit offers the opportunity for students to make observations, measurements, record data, share and compare, reflect, report or present findings and recommend solutions and actions to be taken.

It helps students:

- understand the reasons why we need to conserve water (including money, environment, and resource conservation)
- identify areas on school grounds where water is used and/or wasted
- produce a list of actions that can be taken to improve water conservation at school and at home.

A water device is an appliance or fixture that delivers water. It could be a washing machine or a tap.

Vocabulary

Water device, water usage, leaking taps, observe, audit, investigate, record, data, collect, tally, collate, method, recommendations, raise awareness.

Homework **Home water audit** Students can extend their water wise leaning by completing the ***Home water audit.*** The audit helps students check for leaks and breaks and learn how they use water in their homes. Students can come to their own conclusions about their water use and make decisions on how to save water.	**Sydney Water resources** • *Every drop counts worksheets* – *Home water audit*
Extension Activity: Drip drip drip practical investigation Students investigate how much water is wasted when at tap is left dripping for set time periods. Students are introduced to the concept of a fair test using a scientific framework. Students predict, observe, measure and record data.	**Sydney Water resource** • Drip drip drip investigation • Plan an investigation
Summative task: What I learned about water (15 min) • Direct students to write or draw their answer to one of the inquiry questions on a ***water droplet template***. • Droplets can be attached to a ribbon or string and hung from the ceiling, wall, or across the room. • The water droplets can be used towards assessment.	**Sydney Water resources** • *Every drop counts worksheets* – *Water droplets template*
Reflection (10 min) Revisit the wonder wall and reflect on concepts covered in the lesson. Allow students time to share with each other and compare thoughts and questions. As a group, look for questions that have been answered and adjust on the wonder wall. Either the teacher or students record new statements and questions and place on the wall.	
Teacher reflection/evaluation Consider what worked, what didn't and changes for future delivery.	