

Year 6

Lesson 7

Our Water Future

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Learning objectives

Students will be able to:

- Understand water management in your district
- Identify water saving technologies
- Identify water supply options
- Understand water management.

Learning outcomes

Subject	Strand & Content Descriptors
Science	Science as a Human Endeavour <ul style="list-style-type: none">• Scientific knowledge is used to inform personal and community decisions (ACSHE220)
Mathematics	Statistics and Probability <ul style="list-style-type: none">• Interpret secondary data presented in digital media and elsewhere (ACMSP148)
English	Literacy <ul style="list-style-type: none">• Participate in and contribute to discussions, clarifying and interrogating ideas, developing and supporting arguments, sharing and evaluating information, experiences and opinions (ACELY1709)• Select, navigate and read texts for a range of purposes, applying appropriate text processing strategies and interpreting structural features, for example table of contents, glossary, chapters, headings and subheadings (ACELY1712)• 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)• Use a range of software, including word processing programs, learning new functions as required to create texts (ACELY1717)

Important questions

- What water supply options may be available in the future?
- Can we find new sources of water?
- How can individuals change the way they use water in the future?
- What role can technology play in water conservation?



Background information – our Waterfuture

Australia is the driest inhabited continent on earth. Although some regions receive high rainfall, large areas experience regular droughts. Australians are among the biggest per capita consumers of water in the world. Most of the water is used in agriculture; however most homes have pools, gardens, lawns and washing machines that consume water.

A drought is a prolonged period without rain. It may result in lower than expected water storage and a higher than expected demand. The environmental and economic impacts of droughts are many and can include:

- vegetation loss and erosion
- farming decreased productivity
- crop and stock losses
- increased bushfires
- decreased water supplies
- water restrictions
- restrictions on tourist amenities
- higher water costs

As droughts are a natural part of our variable climate, it's not a case of whether, but when they will occur. Recent droughts have highlighted that water supplies are vulnerable in climate change.

The State Government's South East Queensland Water Reform was initiated to improve the delivery of water services in South East Queensland and to make this rapidly growing region drought resilient.

Seqwater undertakes long term demand modelling which allows us to manage supply more efficiently, as well as enact water conservation measures and drought response plans when needed.

The region's long term water security is managed under the [South East Queensland Water Strategy](#), which was developed using a water balance model that considers climate variability, population growth and other regional factors affecting supply and demand. The strategy is based on three key principles:

- conserving water
- being prepared
- managing water efficiently.

Pimpama Coomera Waterfuture Master Plan

Pimpama Coomera at the northern end of the Gold Coast will grow from 15,000 residents to about 120,000 by 2050. Finding new ways to provide water and wastewater services to this region is essential for a sustainable community.



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Homes in the area will use Class A+ recycled water for toilet flushing and external uses, rainwater will be used in laundries and water efficient appliances will be installed.

Benefits include reducing:

- drinking water by up to eighty four per cent
- the load on wastewater systems
- treated wastewater released into waterways
- greenhouse gas emissions
- nutrient levels of stormwater runoff.

Recycled water

Using high quality recycled water reduces the demand on the city's drinking water supplies. Recycled water has been used for the past 35 years to irrigate public open spaces, golf courses and cane fields, and for industrial uses including dust suppression on construction sites.

Options being considered for recycled water use include:

- Dual reticulation – providing highly treated recycled water to housing and commercial areas via separate purple pipeline. This water can be used for non-drinking purposes including outdoor irrigation and toilet flushing.
- Industrial – supplying recycled water via a separate pipeline directly to industrial areas for specific manufacturing and process use.
- Water supply replenishment – refers to replenishing drinking water supplies by releasing highly treated recycled water (treated to the highest standards) back into the catchment area to supplement the dam's raw water.
- Irrigation – For open space, sports ovals, recreation, cane farms, crops, tree plantations and nurseries.

Supplying water

- Traditional bulk supplies – existing water supply sources include the dams and catchment areas in your district.
- Non-traditional bulk supplies – alternative drinking water; includes desalination and groundwater.
- Source substitution – water from alternative sources, such as recycled water, greywater or rainwater tanks.
- Regional Water Grid – includes new dams, a desalination plant, extra groundwater sources and the Western Corridor Recycled Water Scheme. Regional inter-connector pipelines will allow water from new and existing water sources to be moved around the grid to coordinate the delivery of water supplies across South East Queensland.

Managing water resources



- Demand management – watersaver programs and initiatives, including rebate schemes, education and marketing to raise water conservation awareness and bring about long-term behavioural changes.
- Pressure and leakage management – reducing pressure and detecting leaks in water mains saves millions of litres per year.

Water use

- Demand – water use in South East Queensland by residents, businesses and visitors.
- Environmental flows – the release of water from dams in order to sustain ecosystems and river health.

Lesson Plan

This lesson guides students in a research project to consider the future demands on water supplies and options for supplementing traditional resources (derived from rainfall) or improving water use efficiency.

Ask students to identify what pressures may impact on water supplies in the future; these should be recorded and displayed. For example: population growth and urban expansion or ongoing drought periods.

Students are to select a key issue that will impact on water supplies or a technology or practice that can reduce pressures and produce a persuasive media report that outlines the requirement for change and how it can be achieved. (For example the use Class A+ recycled water or increased restrictions on using water outside the house)

To support their argument students undertake research to identify and present relevant data and statistics; for example current and predicted population figures; daily water consumption in the region; predicted climate change and the impact on rainfall. (Websites associated with the CSIRO, Bureau of Meteorology and SEQ Water will assist in this process)

Resource requirements

- Poster – ‘Our urban watercycle’ (see appendices or online resources)
- Pimpama Coomera Waterfuture Master Plan information – http://www.goldcoast.qld.gov.au/t_standard2.aspx?pid=10157

Additional activities

Global perspectives: research issues associated with water security and quality in other parts of the world; develop a report using the same guidelines as described above

Global perspectives: some developing countries cannot afford sophisticated water treatment systems; research low cost water treatment systems and produce a report detailing the purification process; the cost and the application and benefit of the device

- Debate the use of recycled water – ‘No way’ or ‘The right way’.