

Year 3

Lesson 2

How water gets to our houses

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Learning objectives

Students will be able to:

- understand how water reaches our homes
- recognise why water is treated before it is used
- understand how factors such as population, natural process and economics influence the development and placement of water management infrastructure.

Learning outcomes

Subject	Strand & content descriptors
Geography	<p>Geographical knowledge & understanding</p> <ul style="list-style-type: none">• Place: Places can be described by a variety of geographical features including location, population and landscape.• Place: Their own place or places are both similar and different to other places.• Space: Maps are geographical tools to locate and represent places and their relationship to other places.• Space: Natural resources are found in particular locations or environments.• Environment: Our use of natural resources and disposal of waste affects the environment.• Environment: People are able to influence the capacity of the environment to sustain life into the future. <p>Geographical inquiry & skills</p> <ul style="list-style-type: none">• Planning, collecting & evaluating: Suggest some inquiry sources and use a range of oral, graphic, written and digital information sources, including spatial technologies where appropriate.

Important questions

- How do we use water in our homes?
- Where does the water in our taps come from?
- How is water cleaned and transported to our homes and schools?
- What factors are considered when planning and building water infrastructures such as dams, treatment plants and reservoirs?
- How do people in other parts of Australia or the world use and manage their water supplies?



Background information – sources, pipes and taps

In Australia we collect our water from three main sources, groundwater, surface water and the ocean. Groundwater is rain drained underground and collected in impermeable layers. Surface water is rain drained into rivers or creeks or collected in dams and water tanks. Water from the ocean is treated by desalination. Desalination removes salts and other minerals from sea water and transform it into drinking water.

Before water can be used for drinking or washing it must be 'cleaned' at a water treatment plant through several treatment processes. Mixing alum (aluminium sulphate) with water and allowing it to settle removes mud, dirt and other particles. Sand and gravel-filled filters remove tiny particles and chlorine is added to kill bacteria.

The treated water is pumped to reservoirs for storage. Reservoirs are usually on high ground so that water can flow into underground pipes or water mains. The water in the mains flows into the house when you turn on the tap.

Linking locally

Most of the water used by Logan residents comes from various source points. These include:

- Wivenhoe Dam treated at Mt Crosby water treatment plant,
- Hinze Dam treated at Mudgeeraba and Molendina water treatment plants,
- Leslie Harrison Dam treated at the Capalaba water treatment plant,
- Stradbroke Aquifer (not treated), and
- Seawater treated at the Gold Coast Desalination Plant at Tugun.

Water from these source points are supplied to the city through 6 water supply zones. These zones supply different suburbs in Logan. Logan City uses approximately 55 megalitres per day. This will change as seasons change.

The daily water demand for the city can be met in a number of alternative ways. This water is supplied to 270,000 residents of Logan City. Treated water is stored in 28 reservoirs and delivered to households through a 2,060 kilometre network of pipes.



Lesson plan – dams, pipes and taps

Initiate a discussion on where water comes from and how it gets to our homes. Using ‘think, pair, share’ students generate ways water is used at home; how it is used at school and in other familiar places and share these with the group.

Use the poster ‘Our urban watercycle’ to expand understanding of local water supply; highlight key infrastructure such as dams; water treatment and wastewater treatment facilities. Investigate student’s knowledge of water infrastructure and how it functions; ask them if they know where these facilities are located in their region.

Using Google maps or similar programs students identify the location of key water infrastructure in their area (dams; water treatment and wastewater treatment facilities; desalination plants) and plot or label these places.

Students should consider why certain facilities were sited in particular areas; considering their proximity to population centres (waste water treatment plants) or their function in providing water resources (locating dams in suitable rainfall and catchment areas) for example.

Students use their knowledge of water infrastructure and management in the local community and investigate similar features in another place; for example inland Queensland or parts of the developing world, and compare and contrast their findings. Do people in other places get their water from the same sources? Do they treat wastewater in the same way? Do other people recycle or reuse water? How is water used for recreation in other places?

Resource requirements

- Poster – ‘Our urban watercycle’ (see appendices or online resources)
- Student self-evaluation sheet 1

Additional activities

Demonstrate how water is filtered. Prepare a water sample containing fine dirt, gravel, leaves and plastic litter. Pour some of the water through objects with varied size holes - such as a funnel, colander and fine strainer. Ask students to predict what items will be caught by the strainer. Discuss whether catching visible pollutants means that the water is clean. Observe what objects are trapped.