

Year 4

Lesson 6

Our Water Future

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Learning objectives

Students will be able to:

- define and understand key weather phenomena such as drought and flood
- understand the impact of climate on water supply
- develop and present a report using appropriate climate terminology.

Learning outcomes

Subject	Strand & content descriptors
Science	<p>Science understanding:</p> <ul style="list-style-type: none">• Earth's surface changes over time as a result of natural processes and human activity. (ACSSU075) <p>Science as a human endeavour</p> <ul style="list-style-type: none">• Science knowledge helps people to understand the effect of their actions. (ACSHE062) <p>Science inquiry skills</p> <ul style="list-style-type: none">• Suggest ways to plan and conduct investigations to find answers to questions. (AC SIS065)
Geography	<p>Geographical knowledge & understanding</p> <ul style="list-style-type: none">• Pressure systems and frontal processes help to explain the daily weather. <p>Geographical skills & understanding</p> <ul style="list-style-type: none">• Observing and questioning: Pose questions about place, space or environment and make some predictions about their answer.• Reflecting and responding: Reflect on what has been learned and what they could do as a result.
English	<p>Language</p> <ul style="list-style-type: none">• Text structure and organisation: Understand how texts vary in complexity and technicality depending on the approach to the topic, the purpose and the intended audience. (ACELA1490)• Expressing and developing new ideas: Incorporate new vocabulary from a range of sources into students' own texts including vocabulary encountered in research. (ACELA1498) <p>Literacy</p> <ul style="list-style-type: none">• Plan, draft and publish imaginative, informative and persuasive texts containing key information and supporting details for a widening range of audiences, demonstrating increasing control over text structures and language features. (ACELY1694)



Important questions

- What can happen when it doesn't rain for long periods?
- How can extreme climate conditions such as drought affect our lives?
- What meteorological systems influence rainfall in Queensland and Australia?
- What can we do to conserve water or secure additional water supplies?

Background information – Drought

Australia is the driest inhabited continent on earth. Although some regions receive high rainfall, large areas experience regular droughts.

A drought is a prolonged period without rain that lowers the expected water storage and flows to reservoirs, and increases demand for water. The environmental and economic impacts of droughts include vegetation loss, erosion, loss of farmland, bushfires and less water supplies.

We need to learn to live with, respect and plan for droughts because they are a natural feature of our climate. Australians are among the biggest consumers of water in the world so we need to start changing the way we view water and work together to conserve this precious resource.

Linking locally

In November 2007 record low levels in South East Queensland dams saw the introduction of stringent Level 6 water restrictions to the region.

The drought changed the way South East Queensland manages water. Low water levels in Wivenhoe, North Pine and Somerset dams triggered regional water restrictions. These dams supply approximately seventy five per cent of the water in South East Queensland.

As part of Level 6 restrictions residents had to meet a daily water consumption target of 140 litres per person per day - Target 140. Following good rain, water levels in the dams increased and restrictions were lifted in 2008 to high level restrictions and then to medium level restrictions in 2009.

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



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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.

Lesson plan – Drought

This lesson engages students in the understanding of weather conditions that can affect water supplies through the development of a presentation delivered by a weather forecaster.

Use the poster '[Our urban watercycle](#)' to reinforce water supply technologies and networks in your region. Emphasise the reliance on rainfall in providing adequate water supplies in Australia.

Using relevant songs (e.g. Stormy Weather; Have You Ever Seen the Rain), poems (My Country by Dorothy McKellar) and books identify a range of extreme weather conditions experienced in Queensland and Australia; for example droughts, floods, cyclones etc. Ask students to contribute their experiences of extreme weather events or how weather conditions affect their lives (high UV levels – sunburn; high pollen count – sneezing/asthma).

Using suitable ICT tools examine a range of weather maps, including satellite images, - ask students to suggest how particular weather conditions are identified. Collate and clarify climate related words such as, low/high pressure; atmospheric pressure; cold/warm front; humidity.

Introduce weather systems that influence rainfall on Australia's east coast, such as El Nino and La Nina phenomenon. The Climate Dogs videos provide an engaging and informative tool for this: <http://www.dpi.vic.gov.au/agriculture/farming-management/weather-climate/understanding-weather-and-climate/climatedogs>

In small groups students select one weather phenomenon (e.g. El Nino; cyclones) and develop a presentation incorporating key factors influencing the system and its potential impacts on water supplies.

Using appropriate terminology, and using graphic, visual and auditory support, students prepare and present a weather report to the class.

Resource requirements

- **Poster – 'Our urban watercycle' (see appendices or online resources)**



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- **Climate Dogs videos**
<http://www.dpi.vic.gov.au/agriculture/farming-management/weather-climate/understanding-weather-and-climate/climatedogs>

Additional activities

Student's research and present ways that water supplies could be maintained with less reliance on rainfall (e.g. desalination; recycled water; rainwater tanks)? What are the pros and cons of the various options?