

Year 5

Lesson 6

Our water future

www.logan.qld.gov.au

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 as a human endeavour</p> <ul style="list-style-type: none">• Important contributions to the advancement of science have been made from people from a range of cultures. (ACSHE082)• Scientific understandings, discoveries and inventions are used to solve problems that directly affect peoples' lives. (ACSHE082)• Scientific knowledge is used to inform personal and community decisions. (ACSHE083)
Geography	<p>Geographical knowledge & understanding</p> <ul style="list-style-type: none">• Environment: There are a variety of climates and each climate results in a distinctive type of natural vegetation and use by people.• Environment: Human activities can change environments and places over time.• Sustainability is about maintaining the capacity of the environment to support our life. <p>Geographical skills & understanding</p> <ul style="list-style-type: none">• Reflecting and responding: Reflect on what has been learned, feelings about conclusions and what should happen as a result.
English	<p>Literacy</p> <ul style="list-style-type: none">• Plan, draft and publish imaginative, informative and persuasive print and multimodal texts, choosing text structures, language features, images and sounds appropriate to purpose and audience. (ACELY1704)

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?



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 reduced 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 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 75 percent 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 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.

Lesson plan – Drought

This lesson engages students in the understanding of weather conditions that can affect water supplies through an investigation into extreme climate events.

Ask students to discuss how they would determine weather and climate conditions without broadcasted



weather forecasts.

Introducing the Bureau of Meteorology website Indigenous Weather Knowledge (www.bom.gov.au/iwk/) and other relevant materials, students are asked to undertake research to gather knowledge on indigenous explanations of weather and climate systems and how indigenous Australians adapted to Australia's climate.

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 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.

For further explanation of weather systems that influence rainfall on Australia's east coast, such as El Nino and La Nina phenomenon view the Climate Dogs videos at:

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

In small group's students research conditions that influenced recent climate events, such as the 2007 floods or the 2011 Brisbane floods. Using BOM and other sites, develop a presentation incorporating key factors, including the use of data such as rainfall and temperature, to explain the conditions that contributed to these events.

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)
- Internet access

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?

Drought: It is certain that Queensland will suffer a serious drought in the future. What strategies and initiatives could be implemented to encourage people to use less water during drought periods? How would you promote the behaviours you wished people to demonstrate?