

Year 7

Lesson 5

Drought and Floods

www.logan.qld.gov.au

Learning Objectives

Students will be able to:

- Identify the causes and consequences associated with floods and droughts
- Identify and explain key weather patterns that influence rainfall in Queensland and the eastern seaboard
- Consider the characteristics of urban environments that may contribute to flood severity

Learning outcomes

Outcomes Subject	Strand & Content Descriptors
Science	<p>Science Understanding</p> <ul style="list-style-type: none"> • Water is an important resource that cycles through the environment (ACSSU222) <p>Science as a Human Endeavour</p> <ul style="list-style-type: none"> • Science and technology contribute to finding solutions to a range of contemporary issues; these solutions may impact on other areas of society and involve ethical considerations (ACSHE120) • Science understanding influences the development of practices in areas of human activity such as industry, agriculture and marine and terrestrial resource management (ACSHE121) <p>Science Inquiry Skills</p> <ul style="list-style-type: none"> • Communicate ideas, findings and solutions to problems using scientific language and representations using digital technologies as appropriate (ACSIS133)
Geography	<p>Geographical Knowledge and Understanding</p> <ul style="list-style-type: none"> • Water is a resource that links places together as it moves through the water cycle • Water is a difficult resource to manage because it moves through the environment, is an essential but shared resource, has competing uses and is highly variable over space and time • Environmental hazards such as droughts, or storms, or floods have different causes, frequencies and distributions • There are differences and similarities in the ways that communities manage or adapt to the chosen environmental hazard <p>Geographical Skills and Inquiry</p> <ul style="list-style-type: none"> • Develop geographical texts using appropriate geographical vocabulary, concepts and geographical conventions to communicate effectively in one or more of the following forms: written, oral, visual and graphic • Select appropriate methods, including the use of ICT to display data in graphs,



	<p>tables, maps or statistics</p> <ul style="list-style-type: none"> Select key findings from an inquiry to inform decisions on how to best respond to the question, issue or problem and where appropriate, plan for action
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Important Questions

- How have droughts and floods impacted locally; what impacts did they have on students and their families?
- What are the consequences of periods of drought and flood in Australia?
- What factors influence patterns of drought and flood in Australia?

Lesson Plan

Gauge student understanding of floods and droughts.

In small groups students consider and record a definition of the terms flood and drought, they then identify and list causes of each phenomenon and a number of consequences of each. Collate, display and discuss the group work.

Using student’s personal experience of extreme rainfall or drought events develop understanding and reinforce key concepts associated with both flood and drought (varying causes of floods – e.g. flash floods, slow and rapid onset floods; impacts of rural/regional droughts on urban centres such as increasing costs or unavailability of particular foodstuffs).

Students identify the research process required to produce a case study of an historical flood or drought event; such as identifying type and scale of the event; cause or causes; social and economic impacts. Students produce a case study of the particular event incorporating a range of text and graphical tools, including maps, photographs and weather related data. The Australian Government website - <http://disastermapper.ema.edu.au> is a useful resource for this stage.

A number of the events documented in the case study will have been associated with one of the weather patterns known as El Nino or La Nina: these weather patterns have considerable influence on Australia climate particularly in relation to rainfall frequency and intensity.

Students should research the conditions that indicate an El Nino or La Nina period and develop a presentation, using appropriate terminology, to illustrate these conditions. Presentations could be developed in a number of ways, through the use of appropriate ICT or in a dramatic, collaborative format presented to their peers. The Climate Dogs animations at <http://www.dpi.vic.gov.au/agriculture/farming-management/weather-climate/understanding-weather-and-climate/climatedogs> will provide an engaging introduction to relevant weather systems.



Resource Requirements

Access to listed websites.

Additional Activities

The Next Drought: students develop a brief guide that provides advice to householders and others on ways to reduce water use; this could include consideration of practical water restrictions.

Students investigate the factors in urban environments that may contribute to the severity of flash flooding and identify behaviours and technologies that could reduce flood impacts (investigation of Water Sensitive Urban Design principles such as those associated with the Pimpama Coomera Waterfuture Masterplan would assist in this process)

Rainfall and Floods in 2011. In 2011 floods and significant rainfall events struck large parts of Queensland, including South East Queensland causing widespread damage. What were the causes of these events and what technological or other solutions have been implemented or could be implemented to reduce the severity of future events (for example levee banks surrounding towns; backflow prevention device used on the Brisbane and other rivers)?