



# Drought lesson plan

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The drought lesson plan provides teachers and students with an opportunity to investigate the Australian climate, water table and the impacts of drought through individual or classroom activities.

## ITEMS

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Australian Institute for  
Disaster Resilience

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# Drought lesson plan

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The drought lesson plan provides teachers and students with an opportunity to investigate the Australian climate, water table and the impacts of drought through individual or classroom activities.

## Objectives

The objectives of this lesson plan are to ensure that students are able to:

- begin to understand how a drought occurs
- develop an awareness and understanding of the effects of a drought.

## Required resources

- Students can draw on information from the internet, newspaper articles, their own life experience and other media
- 'My drought project' activity sheet.

Please note: This lesson can be modified to incorporate other Learning Areas and to meet the needs of the students and specific content taught.

## LEARNING AREAS

The learning areas for this lesson plan include:

- Geography
- History
- Humanities and Social Science
- Maths
- Science
- Health and physical education
- The Arts
- English
- Technologies.

## Get the facts

Australia is the world's driest continent. Some areas of Australia receive high amounts of rainfall, but much of it is an arid landscape. What happens if there is no rainfall? How does this affect the people and the land (emotionally, economically and their quality of life)?

Teachers can begin to discuss Australia's climate and look at a map to determine how much of Australia is made up of a type of desert. As a class you can brainstorm how this affects the population and how it impacts on drought conditions.

## Lesson steps

### My drought project

Provide students with 'My drought project' activity sheet. Students will complete this activity as an individual task.

1

#### Rainfall tracker

Students to visit the Bureau of Meteorology website ([www.bom.gov.au](http://www.bom.gov.au)) and examine the rainfall maps. They can choose to create a rainfall map for their own region or use the one in their assignment sheet to complete the required tasks.

2

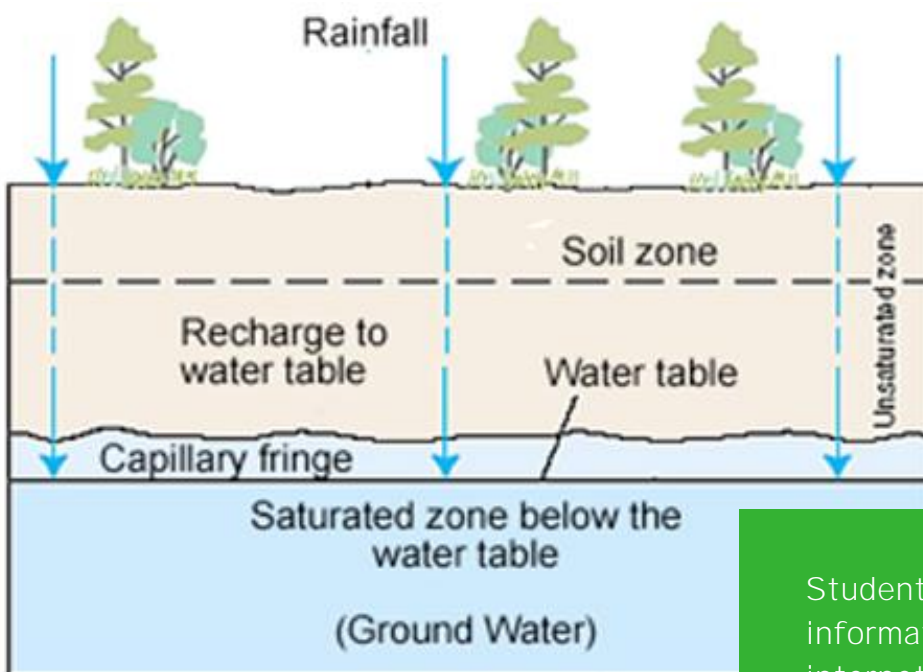
#### Wildlife at risk from drought

Students are to construct a list of the types of animals that would be affected by a drought if it occurred in the local community. They are to create a project that shows how animals would be affected; what would happen to their habitats; how their food source would be impacted; and what else could happen to the animals in a drought.

### 3

## Save some for tomorrow – how can you help save water?

Students should consider ways in which they can save water on an everyday basis. Ask them to list five ways in which they can help save water at home, in their backyard and at school.



Students can draw on information from the internet, newspaper articles, their own life experience and other media.

## Take time to investigate!

Look at the water cycle and water table and answer the following questions:  
What is the water table and where is it situated?  
How do the water levels of the water table fluctuate and why is this so?

Examine the different materials in the water at different levels (does the water deteriorate as the water level drops?). A good website which provides information and images to illustrate the workings of the water table is the Water Cycle page: <https://water.usgs.gov/edu/watercycle-kids-adv.html>

You can also discuss:

- what is meant by lowering the water table?
- why does this occur during periods of drought?
- who is affected by the lowering of the water table?

## Effects of the drought

- Who is affected by the drought?
- How are they affected (emotionally, socially, physically, mentally and economically)?
- What happens to the land/animals/people?
- Are there different stages and types of drought?
- What areas in Australia are most affected?
- Look at the global map. What parts of the earth are affected by drought? How have they been affected and how long have they been in drought for?
- Students would now have realised that there are different effects of drought. Which of the effects of drought are not associated with drought in Australia? Why is this the case?

# About droughts

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Droughts occur when there is not enough water to sustain people, plants and animals for an extended period of time. Australia's last drought started in 2003 and was known as the 'Big Dry'.

## Droughts

A drought is an unusually long period of time where there is not enough water to meet the needs of people, animals and plants. In Australia, droughts can last for many years and can affect people who live inland, on farms, in cities and in coastal areas. Droughts can continue even when there has been some rainfall. Droughts can cause food crops to fail and farm animals to die. During droughts, other disasters can also occur, such as bushfires and heatwaves.

## What causes drought?

Australia is often affected by droughts because of our geography and changeable rainfall patterns. Our continent is located in a subtropical area of the world that produces dry, sinking air that creates clear skies and little rain. For most of the country, our rainfall is very low and irregular.

Another cause of drought in Australia is from the El Niño weather pattern. When there are El Niño weather conditions, Australia becomes drier than normal and the chance of rain decreases.

## Forecasting a drought

Weather researchers watch closely for signs of an El Niño weather pattern as a way of forecasting droughts. Another tool used by weather forecasters in predicting a drought is the Southern Oscillation Index. By understanding the El Niño patterns and the Southern Oscillation Index, the weather bureau is able to predict a drought and send warnings to farmers and authorities that a drought is likely.

## Why are droughts dangerous?

When there is a drought, there is less water available for growing crops, farming animals, industry and our cities. Droughts also impact the environment by causing erosion, harming animals, causing people to pay more for food, and affecting our water supplies. Droughts are hard to predict and also hard to live with. When a drought continues for a long time, towns are at risk of running out of water and there are many areas in Australia that have water restrictions to help save water. Some areas also use water recycling, desalination plants and dig bores into the ground to get more water for their residents.



# Droughts: Be prepared

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In Australia, droughts can last for months or even years. It is important to understand how we prepare for droughts and how to manage during a drought.

Being prepared for a drought means being able to manage water, so that it lasts for longer, even when there is no rain for a long time. Preparing for a drought is a job for governments, communities and families.

## How governments prepare for droughts

Governments prepare for droughts, by:

- Building water services to move water to where it is needed most.
- Building dams and water stores, so that there is enough water for everyone.
- Recycling water and creating desalination plants.
- Making sure that water is used wisely, by applying water restrictions to homes and businesses.

## How communities prepare for droughts

Communities prepare for droughts, by:

- Carefully managing water by not filling up community swimming pools or watering sports fields.
- Planning homes and buildings that use less water.
- Making sure that water is used wisely, by applying water restrictions to homes and business.

## How families prepare for droughts

Families prepare for droughts, by:

- Making sure that water is used wisely in the home and around the garden.
- Repairing dripping taps, leaky pipes and reducing waste water.
- Installing a rainwater tank and by doing things such as having shorter showers.
- Following water restrictions.

## During a drought

During a drought, a lack of water can cause other hazards. Other drought-related hazards in Australia include heatwaves, dust storms and bushfires.

When there is a drought, farms and livestock are affected. This can make food more expensive and harder to get as there are not as many crops grown or other foods being produced. Severe drought can also create famine.

Governments provide assistance to farmers, businesses, irrigators and the community during drought.

STUDENT ASSIGNMENT

# My drought project

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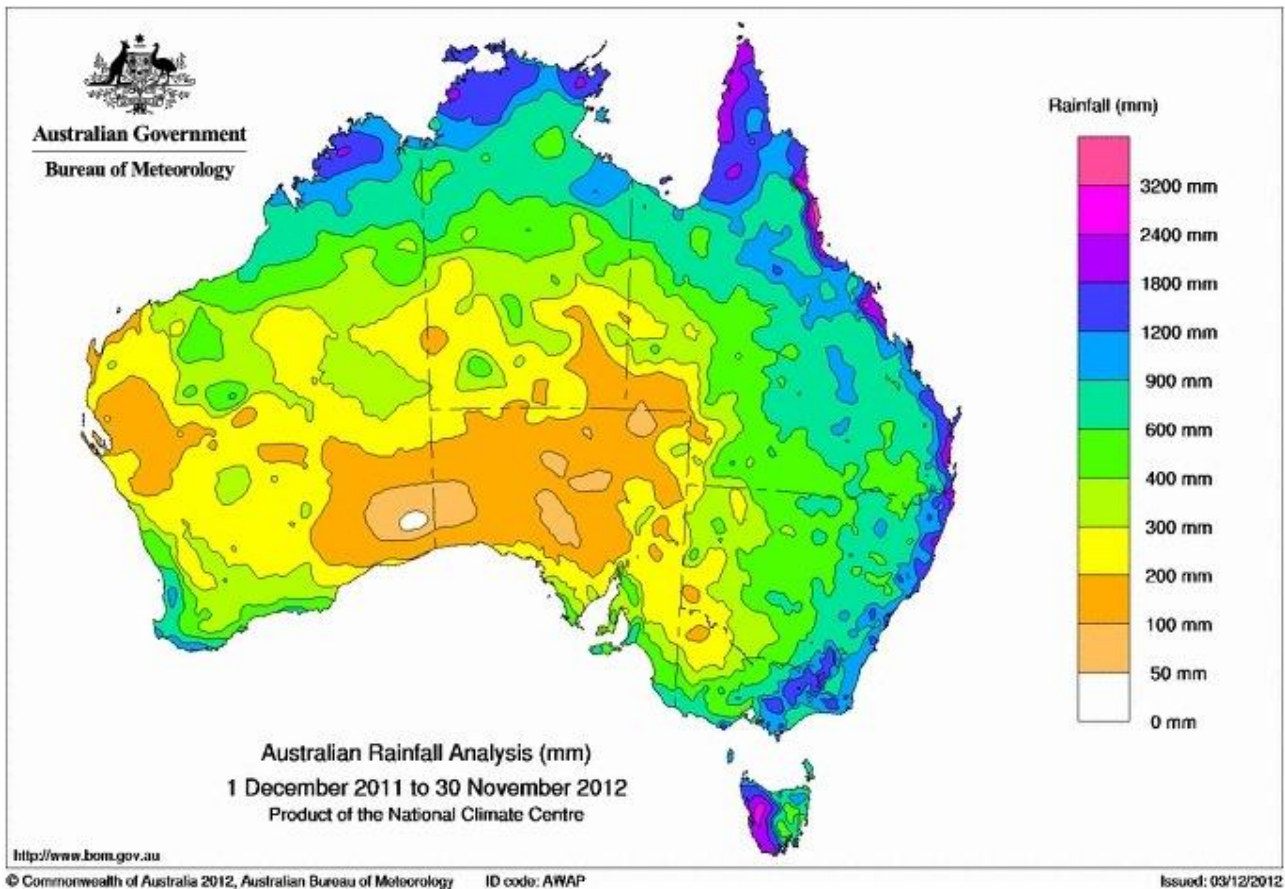
Find out more about droughts in Australia with these activities and ideas for school assignments.

1

## Rainfall tracker

You can create your own rainfall map by visiting the Bureau of Meteorology (BOM) Bureau of Meteorology (BOM) website. An example can be seen in the image below. Either use this map, or the one you have created to answer the following questions:

- Use the colour chart to see if you have had average or below average rainfall.
- Print out this map and mark the area where you live.
- Present your findings to your class and include a description of how the drought has affected your town.
- This map shows the amount of rainfall in Australia from December 2011 to November 2012.



## 2

## Wildlife at risk from drought

During a drought, waterways dry up and rivers stop flowing. This means that fish and other animals are at risk.

Your tasks:

Can you list the types of animals that would be affected by a drought if it happened in your community?

Prepare a project sheet or multimedia presentation that shows:

- The animals that would be affected by drought.
- What would happen to their habitat in times of drought.
- How the animal's food source would be affected by a lack of water.

- What else could happen to the animals in a drought.

### 3

## Save some for tomorrow – how can you help save water?

Being prepared for a drought means being able to manage water so that it lasts for longer, even when there is no rain for a long time.

Preparing for a drought is a job for everyone. List five ways of how you can help save water when you are at home, in your backyard and at school.

# Real life drought stories

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Australia has a long history of droughts. Some droughts last for a long or a short time and can cause lots of damage. Droughts affect people who live on the land, in farms and even in the city.

Weather researchers predict that droughts affect Australia about every 18 years.



That means that droughts are something that we should be prepared for.

## Droughts in Australia

Droughts affect Australia on a regular basis. Here are some other major droughts that have affected Australia:

1864 - 1866	This drought affected all States in Australia, except Tasmania.
1880 - 1886	The southern States of Australia were affected, especially along the east of the country
1895 - 1903	This was one of the most severe droughts in Australia. It caused the death of almost half of all sheep and cattle in the country.
1911 - 1916	19 million sheep and 2 million cattle died from lack of water.
1918 - 1920	Only parts of Western Australia were not affected by drought.
1939 - 1945	Nearly 30 million sheep died during this six-year drought.
1963 - 1968	This drought destroyed almost half of Australia's wheat crop and 20 million sheep.
1982 - 1983	This was an intense drought that affected many areas of Australia.
1991 - 1995	A long-term drought that affected rural producers and cost about \$5 billion to Australia.
1997 - 2009	A severe drought that afflicted south-eastern Australia and was one of the worst since first European settlement.

## Droughts around the world

Droughts happen all across the world. Drought affects countries in the northern hemisphere as well as in the southern hemisphere.

## Droughts in the northern hemisphere

Europe – areas in Italy, such as Sicily have very regular droughts.

Asia – northern China, Afghanistan and the Middle East are often affected by droughts.

Africa – drought affects African countries such as Ethiopia, Benin and Ghana.

North America – parts of Canada, Colorado, California and Idaho are often affected by drought.

## Droughts in the southern hemisphere

Australia - see Droughts in Australia, Bureau of Meteorology

<http://www.bom.gov.au/climate/drought/drought.shtml>

Africa – large areas in central and South Africa have droughts.

Pacific Islands – parts of Papua New Guinea are affected by rainfall shortages and droughts.

South America – severe droughts affect Brazil, Venezuela and Colombia.



# Related links

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## Droughts

<http://www.kidcyber.com.au/drought>

## Bureau of Meteorology - Drought

<http://www.bom.gov.au/climate/drought/>

## El Nino - La Nina animation

[http://www.bom.gov.au/lam/Students\\_Teachers/elanim/elani.shtml](http://www.bom.gov.au/lam/Students_Teachers/elanim/elani.shtml)

## Weekly Rainfall Updates

<http://www.bom.gov.au/climate/rainfall/>



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Australian Institute for Disaster Resilience

ADDRESS

370 Albert Street, East  
Melbourne VIC 3002

CONTACT

p : +61 3 9419 2388  
e : [enquiries@aidr.org.au](mailto:enquiries@aidr.org.au)

WEBSITE

[www.aidr.org.au](http://www.aidr.org.au)