

WORKSHEET 3

Activity - What's the Chance of Rain?

In this activity you will investigate the chances of getting low, normal or high rainfall during a La Niña year and analyse the Southern Oscillation Index.

Procedure

Work in pairs. Visit the following location on the internet:

http://www.bom.gov.au/lam/Students_Teachers/climprob/rainprbsec.shtml to access the interactive spinning pie charts.

Or cut out the pie chart given below and make a spinning top with it. Push a toothpick through its centre and then follow the instructions below and answer the following questions in the spaces provided below.

Background

The La Niña Year wheel

Use the La Niña Year wheel found at

http://www.bom.gov.au/lam/Students_Teachers/climprob/rainprbsec.shtml. In a La Niña Year the Bureau predicts a 17% chance of getting low rainfall (Dry); that is like saying out of 100 spins it expects 17 to be 'Dry'. There is a 33% chance of normal and 50% chance of high rainfall (Wet).

The Southern Oscillation Index (SOI)

The "SOI", or Southern Oscillation Index, is a measure that scientists use to establish whether La Niña or El Niño are present and how strong they are. A strong negative SOI value indicates an El Niño and a strong positive SOI value indicates a La Niña.

The Southern Oscillation Index (SOI) is determined by the difference in barometric pressure between Tahiti and Darwin.

Pressure fluctuates between the two locations, normally being higher in Tahiti than in Darwin. During a La Niña episode this condition prevails, taking the SOI to strong positive values. See the links given in the questions below for more information about the SOI.

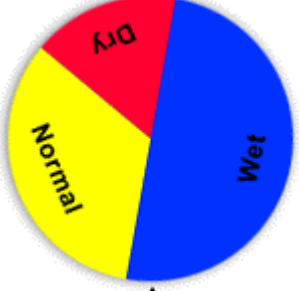
You'll find more information about La Niña at:

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

Questions

Answer the following questions in the spaces provided.

1. Spin the La Niña Year wheel and record the condition (Dry, Wet or Normal) that stops above the pointer. For each spin enter the result as a letter (D, W or N) in the table given below. Simply write one letter after the other, for example DDDNNWD etc. Do this 50 times.

	<p>Rainfall during a La Niña Year</p>	<p>Enter results here.</p>
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2. Add up all the D's, W's and N's and give total scores for each in the spaces provided below. Turn the scores into percentages.

Total D's out of 50 = ... as a percentage it is

Total W's out of 50 = ... as a percentage it is

Total N's out of 50 = ... as a percentage it is

3. Compare your actual results with the probabilities given by the Bureau (see the information found at the following web page: http://www.bom.gov.au/lam/Students_Teachers/climprob/rainprbsec.shtml). Were your results close, the same or way off?
4. Look at Question 1 above. How could you alter the task so that your results for Question 2 were more accurate and easier to work with?

5. The Colours Pie Chart given below is divided into four equal sections. What is the probability of each of the colours landing on the pointer? Give your answer for each as a percentage in the spaces provided below.

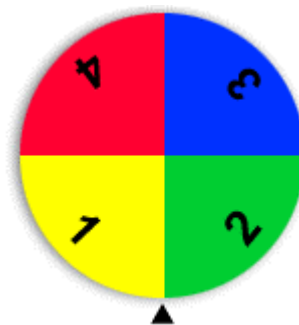
The chance of Red landing on the pointer is

The chance of Blue landing on the pointer is

The chance of Green landing on the pointer is

The chance of Yellow landing on the pointer is

Colours Pie Chart



6. Look at the SOI graph: <http://www.bom.gov.au/climate/current/soi2.shtml>. What does it tell us about the current climatic condition we are experiencing?

7. A typical La Niña event lasts for approximately 12 to 18 months. Strong positive values on the SOI graph tell us that it is a La Niña event. Have a look at the SOI graph: <http://www.bom.gov.au/climate/current/soi2.shtml>. When was the last La Niña

event and how many months or years did it last for?

8. The SOI graph (<http://www.bom.gov.au/climate/current/soi2.shtml>) and the SOI monthly values (<http://www.bom.gov.au/climate/current/soihtm1.shtml>) present the same information in different ways. Which did you find easier to use? How could either of them be improved?

9. If you were to record the results of 30 spins of the La Niña pie chart what results would you expect to get? Use the space below for your answer.

I expect to get a score ofWet,Dry andNormal out of 30 spins.

10. Spin the La Niña pie chart and record your results in the spaces given below.

I actually got a score of Wet,Dry and Normal after spinning the pie chart 30 times.

11. Compare your results for Questions 9 & 10 above. Explain any differences you noticed. Why did you get different results?

12. Look at the SOI graph: <http://www.bom.gov.au/climate/current/soi2.shtml>. If you were you were a farmer, what might you think about in terms of water needs, given the current climatic event that is affecting us?

Interesting facts about Australian rainfall

The highest annual rainfall in a calendar year (Australian record 11852 mm, Bellenden Ker (Top Station), Qld, 1999).

The highest monthly rainfall total (Australian record 5387 mm, Bellenden Ker (Top Station) Qld, Jan 1979).

The highest daily rainfall total (Australian record 907 mm, Crohamhurst, Qld, 3 Feb 1893).

The highest number of rain days in a calendar year (Australian record 314 days, Waratah PO, Tas, 1955).

The highest annual mean rainfall (at places with 30 years or more of record) (Australian record 4466 mm at Babinda, Qld).

The highest annual mean rainfall (at places with less than 30 but more than 20 years of record) (Australian record 7629 mm at Bellenden Ker (Top Station), Qld).

The lowest annual mean rainfall (at places with 30 years or more record) (Australian record 105 mm, Troudanina, SA).