WORKSHEET 1

Activity - What's the Chance of Rain?

In this activity you will investigate the chances of getting low, normal or high rainfall during an El Niño year.

Procedure


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 El Niño Year wheel
Sometimes, the Pacific Ocean near America warms. Normal ocean currents and winds change. The oceans to the northeast of Australia cool. El Niño is here!

Use the El Niño Year wheel. In an El Niño Year the Bureau predicts a 17%* chance of getting high rainfall (Wet); that is like saying out of 100 spins it expects 17 to be 'Wet'. There is a 33% chance of normal and 50% chance of low rainfall (Dry).

*17% is said as '17 per cent' - 'per cent' comes from the Latin language meaning 'out of 100'. So it could also be read as '17 out of 100'.

The Southern Oscillation Index (SOI)
The "SOI", or Southern Oscillation Index, is a measure that scientists use to establish whether El Niño is present and how strong it is. A negative SOI value indicates an El Niño.

The lower the value of the SOI, the stronger the El Niño event. If the SOI value is positive, it means that there was no El Niño event in that year.

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 El Niño the opposite condition prevails, taking the SOI to negative values. El Niño's influence is usually very extensive, with rainfall being affected throughout eastern Australia.

You'll find more information about El Niño at:

Questions

Answer the following questions in the spaces provided.

1. Spin the El Niño 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 100 times.
2. Add up all the D's, W's and N's and give total scores for each in the spaces provided below.
   Total D's out of 100 = …
   Total W's out of 100 = …
   Total N's out of 100 = …

3. During an El Niño Year which is most likely; high, low or normal rainfall? Which is least likely; high, low or normal rainfall? Why do you think so?

4. Compare your results with the chances that the Bureau of Meteorology expected for each condition (dry, wet, normal). Were they exactly the same, close or very different?

5. a. Spin the El Niño pie chart 10 times. Write your results as percentages, below.

   b. Compare your results to the chances that the Bureau expected. Why is there such a large difference?

**Extension Questions**

6. If you were a farmer and you knew that an El Niño event was coming. What would you do to prepare for it?

7. A typical El Niño event lasts for approximately 12 to 18 months. Strong negative values on the SOI graph tell us that it is an El Niño event. Have a look at the SOI graph: [http://www.bom.gov.au/climate/current/soi2.shtml](http://www.bom.gov.au/climate/current/soi2.shtml). When was the last El Niño event and how many months did it last for?


**Interesting facts about Australian rainfall**

The highest annual rainfall in a calendar year (Australian record 11251 mm, Bellenden Ker (Top Station), Qld, 1979).

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, Beerwah, 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).