

# El Niño and La Niña

## Impact on natural disasters

### Preparation

- ▶ Instruct students to read printed copies, or access online the United States National Oceans and Atmospheric Agency (NOAA) education page on El Niño:  
[http://www.pmel.noaa.gov/tao/el\\_nino/el\\_nino\\_story.html](http://www.pmel.noaa.gov/tao/el_nino/el_nino_story.html)
- ▶ Provide students with sufficient time to read the information page (reading time 15 minutes)
- ▶ Provide students with the quiz sheet
- ▶ Ask students to answer the questions below either individually or in pairs.
- ▶ Provide students with online access to the NOAA data in the classroom activity on the relationship between sea surface temperature and El Niño.
- ▶ If students wish to further their study of El Niño and La Niña teachers may provide students with online access to the NOAA data in the classroom activity on the relationship between sea surface temperature and El Niño, available via:  
<https://dataintheclassroom.noaa.gov/content/el-nino>

### Quiz questions and answers

**Q1: What does the name El Niño mean in Spanish? Provide a definition of El Niño**

A: El Niño means “the little boy” or “Christ child” in Spanish. This name was used for the tendency of the phenomenon to arrive around Christmas.

El Niño is characterised by unusually warm ocean temperatures in the Equatorial Pacific. El Niño is an oscillation of the ocean-atmosphere system in the tropical Pacific having important consequences for weather around the globe.

**Q2: What impact does El Niño have on the Americas? How is this different in Australia?**

A: During El Niño the Eastern Pacific experiences warmer than average sea surface temperatures, reducing upwelling and causing increased rainfall in the USA. In Australia we receive the opposite effect, with drought conditions

**Q3: How does La Niña differ from El Niño? What effects can we expect from La Niña on the Australian weather system?**

A: During a La Niña, the northern USA experiences colder than usual winters. In Australia La Niña is associated with higher rainfall.

**Q4: How can El Niño and La Niña influence the types of Natural disasters we face in Australia?**

A: During an El Niño event, Australia often faces drought, which can cause bushfires – a type of natural disaster.

During La Niña we experience higher rainfall which can lead to flooding events.

La Niña can also cause an increase in the amount, and strength of cyclones that Australia faces.

**Q5: How can scientists at NOAA, or in Australia at the Bureau of Meteorology, detect that an El Niño or La Niña is going to occur?**

A: Scientists can predict that El Niño or La Niña will occur due to changes in the southern oscillation index, which is associated with changes in sea surface temperature

**Q6: What impacts can the effects of El Niño or La Niña (no upwelling, high rainfall) have on world food supplies?**

A: During an El Niño in the Eastern Pacific there is reduced upwelling close to the shore – this reduces the food supply needed for fish to survive – causing a collapse in fish stocks. El Niño also is associated with drought.

**Q7: What impact do you think an El Niño or La Niña event would have on the local Cairns weather, and how do you think this will affect the wider Cairns community?**

A: During La Niña events Cairns is likely to have a wetter wet season, which could result in more flooding events.

We could also experience more cyclones during this time. This would affect the Cairns community by cutting roads from flooding, damaging agricultural crops due to flooding/cyclone damage, and damage to housing and infrastructure.

During an El Niño, Cairns is likely to experience drier weather which could result in a higher risk of bushfires. Drier dry seasons also mean that we may face water restrictions to secure the water that is available to Cairns residents.

## Curriculum links

7	Science	ACSHE120: Science as a Human Endeavour	Science and technology contribute to finding solutions to a range of contemporary issues; these solutions may involve ethical considerations
7	Science	ACSHE121: Science as a Human Endeavour; Use and influence of science	People use science understanding and skills in their occupations and these have influenced the development of practices in areas of human activity
7	Science	ACSHE223: Science as a Human Endeavour; Use & influence of science	Science knowledge can develop through collaboration and connecting ideas across the disciplines of science
7	Geography	ACHGK037: Geographical Knowledge & Understanding Unit 1: Water in the world	Classification of environmental resources and the forms that water takes as a resource
7	Geography	ACHGK038: Geographical knowledge & understanding Unit 1: Water in the world	The way that flows of water connects places as it moves through the environment and the way this affects places
7	Geography	ACHGK042: Geographical Knowledge & Understanding Unit 1: Water in the world	Causes, impacts and responses to an atmospheric or hydrological hazard
8	Science	ACSHE135: Science as a Human Endeavour; Use & influence of science	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
8	Science	ACSHE136: Science as a Human Endeavour; Use and influence of science	Science understanding influences the development of practices in areas of human activity such as industry, agriculture and marine and terrestrial resource management
8	Geography	ACHGK053: Geographical Knowledge & Understanding Unit 1: Landforms and landscapes	The causes, impacts and responses to a geomorphological hazard
9	Science	ACSSU180: Science Understanding; Earth & Space Sciences	The theory of plate tectonics explains global patterns of geological activity and continental movement
9	Geography	ACHGK063: Geographical Knowledge & Understanding; Biomes & food security	The challenges to food production, including land and water degradation, shortage of fresh water, food security and climate change, for Australia and other areas of the world
9	Science	ACHGS069: Geographical Inquiry; Skills Interpreting, analysing and concluding	Identify how geographical information systems (GIS) might be used to analyse geographical data and make predictions
9	Science	ACSHE160: Science as a Human Endeavour; Use and influence of science	People use scientific knowledge to evaluate whether they accept claims, explanations or predictions, and advances in science can affect people's lives, including generating new career opportunities

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- ▶ Open the following link and read the information regarding El Niño: <http://www.pmel.noaa.gov/tao/elnino/el-ni-no-story.html>
- ▶ Answer the questions below

Q1: What does the name El Niño mean in Spanish? Provide a definition of El Niño.

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Q6: What impacts can the effects of Niño or La Niña (no upwelling, high rainfall) have on world food supplies?

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Q7: What impact do you think an Niño or La Niña event have on the local Cairns weather, and how do you think this will affect the wider Cairns community?

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