



### INTRODUCTION

The weather is always around us, affecting our everyday lives and what we do—where we go, what we eat, what we wear.

#### *Climatology*

Climatologists also study weather but these scientists specialise in weather that occurs over long periods of time, otherwise known as climate. While we usually mean 'the weather' to refer to what occurs over a few days, climate is the term used to describe the weather that occurs over months, years, or even thousands of years. While the climate is always changing due to natural climate cycles, climatologists now have clear evidence that human activities such as deforestation and the burning of fossil fuels are causing an increase in temperatures around the world. This process is known as global warming and if it continues, it will have serious consequences including a rise in sea levels, the extinction of some species of plants and animals and severe weather events of greater intensity and frequency. There are, however, things that we can do to limit and adapt to climate change as we learn more about it.

#### *Curriculum focus*

HSIE/SOSE: Environment, Ecology

Science and technology: Earth and its surroundings

#### *Learning outcomes*

Students will be able to:

- understand what climate change is and what some of the predicted effects are.

#### **Website resources**

[www.dar.csiro.au/information/climatechange.html](http://www.dar.csiro.au/information/climatechange.html)

(CSIRO Climate Change page)

[www.greenhouse.gov.au/gwci/](http://www.greenhouse.gov.au/gwci/)

(Global Warming page, Commonwealth Department of the Environment and Heritage. Home guide to reducing greenhouse gases)

### EXTENSION ACTIVITIES

#### *Climate change and sea level rise:*

- Go on an excursion to a coastal area. Show students how to use string and spirit levels to measure 9 cm and then 88 cm above the ground (scientists estimate that the sea level will rise between 9 cm and 88 cm due to global warming by the year 2100). From this exercise, ask students to comment on the impact that these predicted sea level rises would have on the area in question. What sorts of objects would be under water? Where would the land start to rise out of the water?
- Back in the classroom, place some ice cubes in a large glass of water. Mark the water level, and ask the class to predict whether the water level will go up, down, or stay the same when the ice melts. Use the experiment to demonstrate the concept that it will not be the melting of icebergs/sea ice that raises sea levels but the melting of land-based ice and the thermal expansion of water.