



# Melting Ice

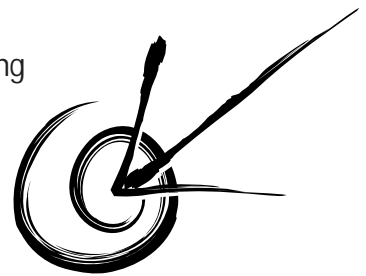
Activity courtesy of



Department of  
Environment  
& Conservation

## Lesson aims

Students will investigate and discuss the link between global warming and melting ice caps.



## Learning outcomes

As outlined in the National Profiles:

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**Studies of Society**

Resources

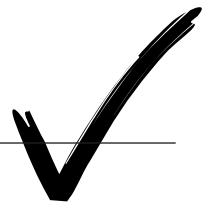
Use of resources.  
Management and enterprise.

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Natural &  
Social Systems

Natural systems.  
Economic systems.

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### Background information

The North-Eastern coast of the Antarctic Peninsular houses a series of huge ice shelves. These ice shelves rise up to 200 metres above the ocean surface. Satellite images taken of this section of Antarctica since 1995 reveal that big sections have melted and broken up over the intervening years. Scientists attribute the rate and scale of this break up of ice shelves to global warming.

The increase of greenhouse gas emissions has contributed to a rise in the earth's temperature and a result of this is melting ice caps!



### Sources & further information

#### Climate Change Education Package

Mr. Tim Grant, Green Teacher Magazine  
Toronto, Canada

*Adapted with permission from  
Green Teacher #70, Spring 2003.*

[www.greenteacher.com](http://www.greenteacher.com)

**Clean Up Australia.** Learn more about climate change.

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

**Global Education.** Investigate how melting ice contributes to sea level changes.

[www.globaleducation.edna.edu.au](http://www.globaleducation.edna.edu.au)

**Australian Antarctic Division.** A closer look at the Antarctic.

[www.aad.gov.au](http://www.aad.gov.au)

**Earth Observatory.** Lists statistics, images, articles and reports on the earth's different elements including oceans, land and the atmosphere.

<http://earthobservatory.nasa.gov/Observatory/>



### Classroom activities

#### Climate Change and Antarctica



Scientists are actively engaged in learning more about the world around them. They are guided in their explorations through a process of inquiry by posing questions, then testing and seeking answers to those questions. Inquiry is a dynamic process involving asking questions to reveal new facts.

#### Student engagement

1. Introduce the topic of Antarctica
2. Conduct a class discussion on the topic of Antarctica or break students into groups of three or four to brainstorm and discuss Antarctica.
3. Provide the students with two dated satellite images. (Download images from pages 8 & 9 of the activities PDF on this lesson plan.)

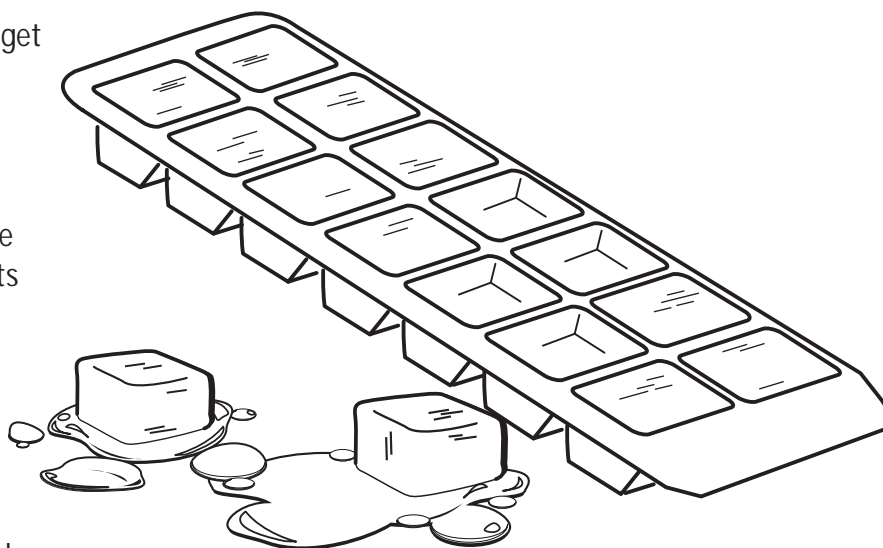
Ask them to examine them closely. What do they see? What do they think the small black "dots" are on the ice surface from the January 2002 image? (These are pools of melting water collecting on top of the shelf.) Use the teacher background notes to help the discussion.

## Melting Ice

### A suggested investigation

- Tray of ice cubes
- Digital watches/timers

One fun and simple way to get students thinking about the sheer amount of ice melting in Antarctica is to have them work in small investigating teams. Provide each group of three students with one ice cube. Ask them to investigate how long it takes the ice to melt. Some groups may wish to melt the ice by holding it in one of their hands. Others may wish to melt the ice by putting it in direct sunlight or simply by letting it melt at room temperature. Each group could measure the time taken for the cube to melt completely.



### Discussion

#### How quickly did the ice melt?

If one ice cube takes this long to melt, consider how much heat energy is needed to melt blocks of ice that are many times bigger than Rottneest Island. (That is what is happening on the Antarctica Ice Shelves.)

### Conclusion

Ask students to summarise their ideas from the lesson, either by:

1. Designing and producing an A3 poster that could be displayed in the school library for other students or
2. Writing one or two paragraphs that describe what is happening in Antarctica.

**Visit the activities link to download further education materials which focus on climate change.**

*Activities courtesy of the Western Australia Department of Environment and Conservation.*