



Antarctica is a weird place. It's surrounded by sea. There are no cities, forest or grass plains. Almost everything is ice. In summer it's never dark. In the middle of winter it's never light. The only people to live there all year are scientists. It is, however, the home of many amazing creatures from the world's tiniest to the world's toughest to the largest animal that has ever lived on earth.

Rationale

Students should use the text and other sources to complete the tasks in these teacher notes. They are designed to encourage students to understand and question the world in which they live.

How to use

The learning activities suggested in one Key Learning Area may also be applicable to other subject areas.

About

The Antarctica Book Living in the Freezer presents interesting information about Antarctica and the animals and plants that live there. Facts about the climate and terrain are provided in an accessible layout. Effective comparisons with the familiar encourage the reader to imagine this distant world. For example, the lowest temperature recorded is 70°C colder than in our freezers! There is general information about whales, squids, seals, birds, penguins and fish. For example, the shape of the water spout differs for each whale. There is also specific information about species, such as their predators, feeding habits and migration patterns. Pictures and scales are effective ways of conveying the size of these animals and plants, all of which have had to adapt in specific ways to suit their environment. The book emphasises how our lifestyle can impact on this land.

Themes

- Climate and terrain
- Species
- Habits and breeding
- Food and predators
- Risk of endangerment

The Antarctica Book: Living in the Freezer

By Dr Mark Norman

Teacher Notes prepared by Catherine Crowley

Readership: Lower – Upper
Primary (also of interest and
value for older students)

Class study, Independent
reading

Genre: Written and visual
overview of penguins



SOSE/HSIE

On page 2 we learn that the word 'Antarctica' means 'the opposite of the Arctic'. Construct a table like the one below to compare and contrast the Arctic and Antarctica. Use information from this book and at least one other source.

	the Arctic	Antarctica
Location		
Terrain		
Temperature		
Wildlife		
Plants		
Threats to the area		

On a map of the world label the continents. Draw symbols on Antarctica to represent the terrain and climate of the land.

On page 28 we learn that humans only discovered Antarctica 200 years ago. In the early days most came to hunt but some came to explore. Draw an exploration time line, showing the people who have sighted or landed on Antarctica.

Research one of these early explorers. Present your timeline and findings as a PowerPoint presentation.

SCIENCE

Habitat

Some of the animals in this book are migratory while some stay in Antarctica during the winter and freeze to survive. On your map of the world show the migratory patterns of animals in Antarctica. You might use arrows to show where the animals move to in winter. Record on your map any interesting facts about the animals' habitats.

Destruction

Throughout the book the author records some of the dangers that face the inhabitants of Antarctica. In groups, brainstorm what these dangers are and make a record of them. Write a local action list where you note five things that you can do in your home to reduce



these dangers. Write a global action list where you list five things countries can do to limit these dangers.

Write a letter to a conservation group asking for further ideas to add to your lists.

Food

On a poster, draw pictures of all of the animals you have read about in this book. On a separate sheet of paper, write down what every animal eats. For example, the Blue Whale eats krill and squid. Once you have written down what the animal eats, draw arrows to show this on your poster. For example, draw arrows to connect the Blue Whale to krill and squid.

As a class, discuss what would happen if the number of krill was reduced.

Size

The Antarctica is home to some of the largest animals in the world and some of the smallest. Draw a diagram showing the animals in this book in order from smallest to largest.

The author has provided the reader with the length of each animal in metres. He has also used pictures to give an indication of size. Next to each animal, make your own comparison. For example, a Blue Whale is 30 metres long. That's longer than the cricket pitch at the MCG!

The author has given, where possible, an indication of the animal's weight. Next to each animal, make your own comparison. For example, the Humpback Whale is 40 tonnes. That's the same weight as a large truck!

Interesting features

The animals and plants found in Antarctica have features that enable them to survive in a cold climate. Find an unusual feature in four of the animals or plants presented in the book. Name the feature and explain its function.

The animals listed below are mentioned in the book but are not explored in detail. Choose one and research habits, breeding, food, predators and risk of endangerment. Set out your findings in the same way as Dr Mark Norman with pictures, scales to show size, summaries and pull out boxes.



Squids and octopuses: Megaleledone (Megaleledone setebos)
Antarctica Glass Squid

Small Antarctica whales: The Arnoux's Beaked Whale
The Southern Bottle-nosed Whale
The Hourglass dolphin

Birds: The Antarctic Petrel and diving petrels

Skuas: Sheathbill

Interesting facts

Write down one fact that surprised you about each plant and animal in this book. Turn these facts into questions and use them in a game of trivia to test the rest of the class.

ENGLISH

Reading and writing

Imagine that you are one of the scientists living in a research station in Antarctica. Write a series of journal entries describing what daily life is like. The journal could include observations about the animals and plants and why it is important to protect this environment. It could also include what it is like to live in a world that is completely light or completely dark! You might also think about the difficulties of being away from friends and family.

On page 2 the author writes that Antarctica is so cold that the water vapour in breathe freezes instantly and falls to the ground as flakes of ice. Find five other interesting facts about the climate, the animals or plants in Antarctica. Use these to write a five line poem about this amazing land.

Many of the animals in this book have strange (and sometimes quite humanlike) characteristics. The Humpback Whale likes performing. The Elephant Seals inflate their noses to make loud trumpet calls. Write a narrative about what happens when a predator becomes friends with its food source. Use as many tiny details about Antarctica as you can to make your story seem real.



Book Features and Format

The Antarctica Book has many features that are important in factual texts:

- Table of Contents (note the engaging headings and factual subheadings)
 - Photographs, maps and diagrams (note the information summaries that begin on page 7. Note also the use of scale to highlight the size of animals and plants)
 - Break-out boxes (information inside a box)
 - Glossary and index
 - Further reading and websites
 - Page numbers
1. Locate each of the above features in the book.
 2. In most books headings are placed at the top of the page. How is the heading placement different in this book? Is the placement effective?
 3. What sort of information is included in the break-out boxes?
 4. Why use boxes to highlight this information?
 5. In what ways are the information summaries helpful?
 6. List some features of this book's glossary and index that make it clear and well organised.
 7. In many books, page numbers are placed at the bottom of the page. Do you think it is effective to have them at the top of the page as this book does? Why or why not?

VISUAL LITERACY

Photographs

Choose one photograph and list three things you have learnt from it.

Choose the photograph that you felt gave the most information. Explain your choice.

Choose the photograph that you felt gave the least information. Explain your choice.

What is your favourite photograph? Explain your choice.

The front cover heading uses a clever technique to draw the reader's attention to the key focus of the book. What is it?



CREATIVE ARTS

Script an interview between a whaler and a scientist living in Antarctica. Perform this for the class.

Create a model of Antarctica. This could be done on cardboard. Cotton wool could be used for the ice and blue paint or paper for the ocean. Red glitter could represent the krill swarms. Cut out pictures of the animals and glue them on.

Listen to music that has been composed with Antarctica in mind. You will find some on the website below. Do these songs remind you of the climate, terrain, animals or plants in any way? Why or why not? Find one song that you think sounds 'cold'. Explain your choice.

http://classroomantarctica.aad.gov.au/textversion/Resources_txt.html#music

On the Australian Antarctic Division of the Department of the Environment and Water resources website there are recordings of the sounds of whales communicating. You will find them on at <http://www.aad.gov.au/default.asp?casid=33152>. As you listen, write what you think the whales might be saying.

AUTHOR



Dr Mark Norman is a marine biologist and a world expert on octopuses, squids and cuttlefishes (the 'cephalopods'). He is Senior Curator of Molluscs at Museum Victoria where he undertakes marine biology research. He is also a trained teacher, an educational display designer and an experienced underwater cinematographer.

He has published extensively and his publications include 'A guide to squid, cuttlefish and octopuses of Australasia' and 'Cephalopods: a world guide'.

His book, *The Penguin Book: Birds in Suits* (published by Black Dog Books) won the 2007 Eve Pownall Award for Information Books from the Children's Book Council of Australia.

His research and projects with documentary makers including BBC, National Geographic and Discovery Channel has covered giant squid, poisonous blue-ringed octopuses, huge aggregations of southern giant cuttlefish and diving surveys of remote Indo-Pacific coral reefs.