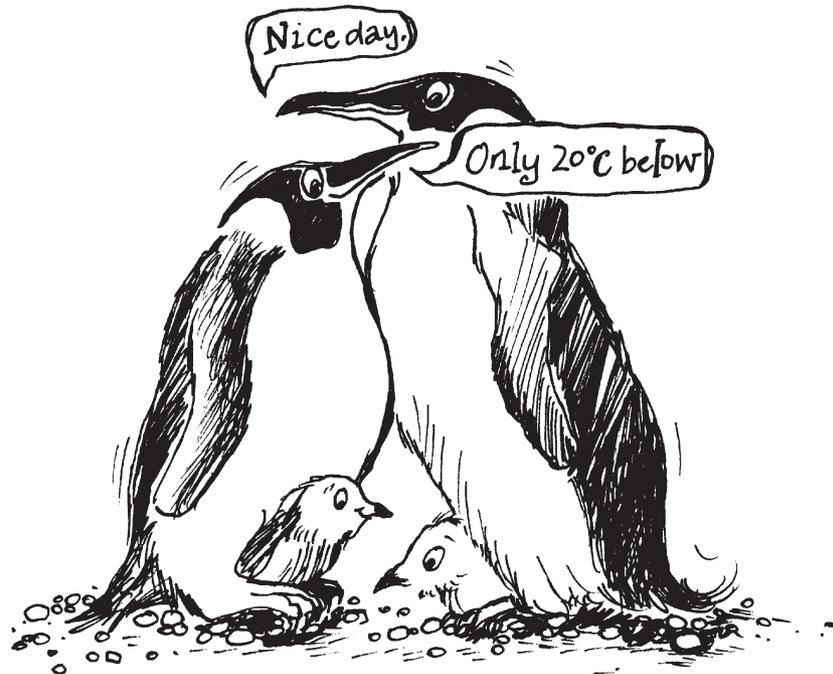




Antarctica

by **Bev Harvey** and **Sue Briggs-Pattison**

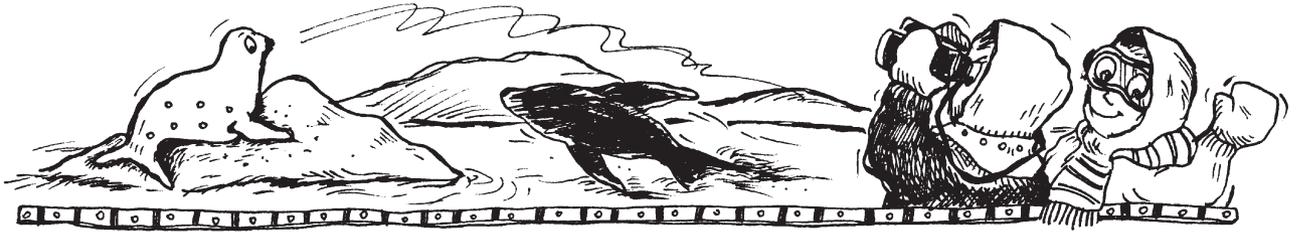


Each integrated unit contains:

- 6 pages of teaching notes in an integrated teaching sequence
- 10 practical blackline masters
- National Profile outcomes
- A useful resource list

Antarctica

by Bev Harvey and Sue Briggs-Pattison



UPPER PRIMARY

Learning Area Focus Science

Topic Antarctica is the remote, massive continent that surrounds the South Pole. This pristine continent, while harsh and inhospitable, is the backdrop to some of the most spectacular and beautiful scenery found on Earth. The rich waters that surround Antarctica have abundant food that supports incredible numbers of creatures. For many years, research scientists have lived in the harsh Antarctic conditions in order to improve our understanding of a frozen continent.

National Profile Outcomes

Students will:

- **Science 3.9** Identify current endangered species in the Antarctic region and examine strategies to conserve them.
- **Science 4.7** Identify events that affect the balance of the Antarctic food chain
- **Science 4.7** Identify living and non-living things that affect the survival of organisms in the Antarctic food chain.
- **SOSE 4.3** Portray an event, such as krill harvesting or whaling, from a particular perspective.
- **SOSE 4.6** Explain different views of individuals and groups about issues related to the care of Antarctica.
- **SOSE 4.12** Demonstrate how information is used as a resource to make and record decisions.
- **SOSE 4.14** Recognise how rules and laws were made to develop the Antarctic Treaty.
- **SOSE 4.15** Discuss economic decisions made by whalers, consumers and environmental groups.
- **English 4.9** Use writing to develop familiar ideas, describe events and present information concerning Antarctica.
- **English 4.8a** With peers, identify information needs and find resources for specific issues concerning Antarctica. (English)
- **Mathematics 4.19** Draw Antarctic animals to scale using conventional units and measuring equipment.

Resources

Factual books

- Jan Anderson, *Antarctica: The World's Biggest Desert*, Macmillan.
- Norman Barratt, *Polar Lands*, Franklin Watts.
- Meredith Hooper, *Journey to Antarctica*, Scholastic.
- June Loves, *Discovering Antarctica*, Macmillan.
- Kellie McDonald, *Antarctica: Ends of the Earth*, Reed Library.
- David Massam, *Antarctica: The Challenge*, Shortland.

Novel

- John Nicholson, *The Cruellest Place on Earth*, Allen & Unwin.

Videos

- David Attenborough, *Life in the Freezer*, BBC/ABC Video.
- Rand McNally, *Exploring Antarctica*, Golden Press Video.

CD-ROM

- Attenborough's Antarctic, BBC Multimedia.

Web sites

- Australian Antarctic Division,
<http://www.antdiv.gov.au/>
- Share the Journey,
<http://www.soweb.vic.edu.au/claypoles/index.htm>

Antarctica Teaching Notes

Tuning in

To assess students' knowledge and understanding of Antarctica ask them to write down their answers to:

- things I know about Antarctica
- things I feel about Antarctica
- what I want to find out about Antarctica
- ways I could find out about Antarctica.

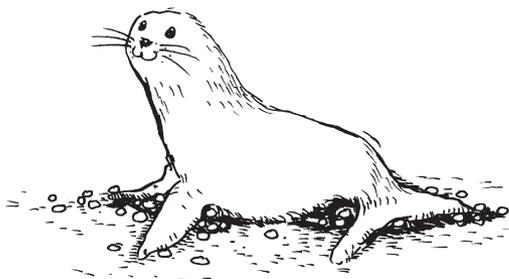
Collect and read their responses. To introduce students to the beauty of Antarctica, view some photos or a video (see Resources). Discuss the landforms, the wildlife and the conditions in Antarctica. Ask students if they understand the meaning of the word 'continent'. You might need to explain that Antarctica is one of the seven continents in the world (along with Europe, Asia, Africa, Australia, North America and South America). Based on this discussion and students' responses from the tuning-in questions, decide the direction and sequence this unit should take.

Antarctic glossary

Refer students to the glossary pages of a number of factual books. Discuss the purpose of a glossary and why it can be found in many factual books.

Ask students if they know the meanings of the terms: aurora australis, katabatic winds and whiteout. Research the terms with students and use them to begin a class Antarctic glossary. Throughout the unit encourage students to contribute words, along with definitions, to the glossary.

Give each student a copy of **BLM 1**. This word search will introduce them to words they will encounter in their research and use in their writing.



The continent of Antarctica

Have students label the map of Antarctica on **BLM 2** so they will be familiar with the place names associated with the Antarctic region.

Snow, ice, glaciers and icebergs

Antarctica has a rocky base that is covered with enormous sheets of ice and snow. The rocky base is only visible in a few coastal areas or on the larger mountain tops and ranges. The Antarctic icecap, at its deepest, is over 4,500 metres thick. The icecap moves, in the form of glaciers, from the highest parts of Antarctica to the sea. Ask students to define glaciers and to add it to the class glossary. (Glaciers are rivers of ice but they do not flow like water, they slide and creep along, pulled down by gravity.) Because of the freezing temperatures not all the snow that falls on Antarctica melts; it instead compresses and slowly turns to ice. 70% of the world's fresh water is at Antarctica in the form of ice.

Icebergs

Ask students if they know what icebergs are. How do they form? You might need to explain that huge floating ice shelves are formed when glaciers flow into the ocean. When the ice breaks off an ice shelf, it is called an iceberg. Icebergs also form when ice cliffs collapse into the sea. 88% of an iceberg is under water. As they move away from the land and further north they melt.

Allow time for students to research the different shapes of icebergs. There are:

- irregular icebergs – these are generally small because they have broken off from ice cliffs
- tabular icebergs – these are very large square, table-like shapes that have recently broken off from ice shelves
- rounded icebergs – these are formed from old icebergs that have tilted or capsized to expose undersides that have been sculptured by the water.

Come together as a class to discuss icebergs. Collect various shaped plastic containers so students can freeze their own. Encourage students to observe the way icebergs float and how their shapes change as they melt. Ask them to draw a picture of one of these shapes and to label it.

Freezing water

Sea ice forms during winter. Ask students to predict whether sea water freezes at the same temperature as freshwater and to justify their answers. (Sea water freezes at a lower temperature than freshwater.) Fill two 250 ml plastic cups with water. Label one 'fresh water'. Dissolve 25 g of salt in the other cup of water and label it 'salt water'. Place them both in the freezer. Have students check the cups every half hour and ask them to observe, feel and record what happens. Which type of water froze more quickly? Discuss the results with students. Explain that sea ice is stronger than freshwater ice as it is more elastic and so less likely to break.

Cold, colder coldest

The average temperature on Antarctic coastal areas is around -12°C . On the icecap the average is -20°C and on the highest mountains the average is -60°C . With students, contrast these temperatures with the average winter temperature where you live. Explain to students that water freezes at 0°C and that human flesh rapidly freezes at -40°C . The coldest temperature recorded in Antarctica is -89.6°C . Draw a large thermometer on a poster ranging from 40°C down to -90°C . Brainstorm and label significant temperatures, such as 37°C human body temperature, 0°C the freezing point of water, etc. Ask students to research and collect information about specific temperatures in the Antarctic to write beside the thermometer on the poster.

Divide students into groups and ask them to research and discuss some of the reasons why Antarctica has such a cold climate. Have each group appoint a spokesperson to report their findings to the class.

With students, discuss ways to demonstrate the reasons for the cold climate, for example:

- Antarctica receives less heat from the sun because the sun's rays have further to travel to the poles. The sun does not rise very high above the horizon so the rays are spread out over a wide area. At the equator the sun rises high in the sky and the sun's rays are concentrated on a small area. This could be shown by using a torch to mimic the rays of the sun. Invite a student to hold the torch level with the 'equator'.

Ask students to compare what happens to the light beam as it is pointed towards the equator and then the South Pole. More light will be concentrated on the equator whereas at the South Pole the light is spread over a larger area.

- The white ice and snow is another contributing factor to the extremely cold temperatures of Antarctica. The white ice reflects more of the sun's rays than a darker colour. To demonstrate this, obtain one piece of black paper and one piece of white paper, each 4 cm by 5 cm, and two thermometers. Fold both pieces of paper in half and tape the tops and sides. Leave a space in each to insert a thermometer. Have students place one thermometer in the black envelope and another thermometer in the white envelope. Place the envelopes in the sunlight. Ask students to observe, compare and record the changes in temperatures as the thermometers heat up.

Windy, windier, windiest

Not only is Antarctica the coldest continent in the world, it is also the windiest. Because Antarctica is dome shaped and has an extremely cold interior, the cold air from the centre flows out and accelerates down the coastal slopes of Antarctica's ice sheet. These katabatic winds reach more than 80 kilometres per hour as they collide with warmer air from the ocean. This causes severe blizzards, cloud and fog. Strong coastal gales can often reach 190 kilometres per hour and there have been reports of winds of up to 320 kilometres per hour.

Either as a whole class or in groups ask students to research the highest wind speeds ever recorded for your local area. Compare these wind speeds with the wind speeds in the Antarctica. Discuss how they compare with the speeds of walking, bicycle, car, train and aeroplanes, etc.

Set up a fan so it will blow over a tray of ice. Encourage students to stand in front of the fan and feel the cold breeze. Suggest that they wet their faces to feel even colder as the water evaporates from their skin. After ensuring students know what similes are, ask them to write similes to describe how cold the Antarctic must feel. (A simile is a figure of speech used to compare one thing to another, for example Antarctica is as cold as our freezer.)

Day or night?

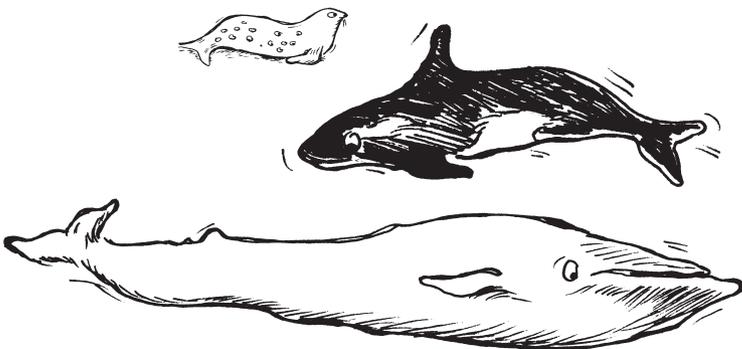
Due to the Earth's axis being tilted at 23.5 degrees, day and night is different at the poles compared to lower latitudes. The sun is above the horizon for nearly half of the year and below the horizon for the rest of the year. Summer and spring days have 24 hours of sunlight while winter and autumn days have 24 hours of darkness. To demonstrate this, shine a torch on a globe of the Earth. Have the 'Earth' orbit the 'sun' and explain to the students that during winter when Antarctica is tilted away from the sun it receives no daylight. During summer Antarctica stays in the path of the sun's rays both day and night. Ask students to complete the cloze activity in **BLM 3**.

Wildlife

Due to Antarctica's harsh climate there aren't any trees and there are only a few plants. Consequently, not many animals live in Antarctica all year round. The largest number of permanent Antarctic land animals are insects called midges. Many animals and birds visit Antarctica for the short summer but they migrate north by winter. The exceptions to this are the Weddell seals who live under the ice and the male Emperor penguins who incubate their eggs as they huddle together on the pack ice to keep warm.

Have students complete the crossword on **BLM 4** and encourage them to find out more about the wildlife of Antarctica. The answers are: (across) mammal, chick, albatross, fifteen, migrate, phytoplankton, killer, white, emperor (down) tonnes, blubber, huddle, fish, rookery, penguin, pup, krill, teeth, seal.

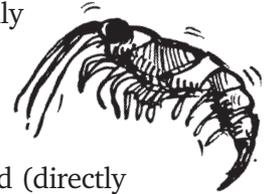
Using **BLM 5**, have students consider the relative sizes of animals that live in the Antarctic waters by drawing them to scale.



Food Chain

Antarctica's food chain is relatively simple due to the total dependence on the ocean to provide food for the Antarctic birds and mammals. Encourage students to illustrate the food chain on **BLM 6**. They might like refer to photos of the animals as they draw them. With students, discuss the interdependent nature of the food chain by asking:

- as phytoplankton thrives in the sunlight, how would the animals further up the food chain be affected if there was an unusually short Antarctic winter?
- does the harvesting of krill for food affect the food chain?
- which animals would be affected (directly and indirectly) if there was an oil spill?
- would the hunting of whales and seals in Antarctic waters upset the balance of the food chain?



Life cycles

Whales, seals, penguins and flighted birds all have set migration and reproductive behaviours that they adhere to each season. Ask students to examine one Antarctic species and draw a diagram that explains their migration and/or reproductive habits throughout the year. Have students present and explain their diagram to the class.

Counting Antarctic wildlife

The Antarctic environment contains many species of living creatures. In the past many of these species have been over-harvested and this has seriously affected the Antarctic ecosystem. Antarctic research teams collect population data of many Antarctic species to monitor any significant population changes. These population fluctuations may have natural causes or they might be a result of research, habitation and tourism. Considering population data is very important when making decisions about Antarctica's future.

Encourage students to examine the options presented on **BLM 7** for counting a large colony of penguins. With students, discuss why counting and recording Antarctic animals is important. Refer students back to the food chain and discuss whether an increase or decrease in penguin populations would upset the food chain.

Whaling

In the past, whales had been hunted so extensively in Antarctic waters that many of them are close to extinction. They were hunted for their blubber and whale-bone. Oil, extracted from the blubber, was used for making soap and candles, etc while the bone was used to stiffen clothing and to make fishing rods, whips, etc. In 1946, the International Whaling Commission was formed to try and curb the slaughter of whales. By 1994, this Commission agreed to make Antarctic waters a sanctuary for whales.

Divide students into four groups to imagine they are in the 1940s. Have them investigate the issue of whaling from the perspectives of the:

- the whalers
- the consumers of whale products
- the International Whaling Commission
- the whales.

Allow students time to research background information, encouraging them to collect facts so that they can understand a perspective other than their own. After each group has presented the perspective they have researched, invite students to express their own personal views on whaling.

Consequences

With students, brainstorm some of the different ways that humans affect Antarctica's land mass, coastline, coastal waters and seas. List these on the board. Then refer to the animals that form the Antarctic food chain (**BLM 6**). Divide students into groups of three or four and ask each group to choose a specific animal from the food chain. Call out each human effect from the list, one at a time, and ask students to respond whether their animal will be affected, either directly or indirectly. Encourage each group to justify their answers.

Exploring Antarctica

Have students complete BLMs 8 and 9. Discuss the hardships faced by the early explorers and encourage students to read further about the achievements and experiences of Antarctic explorers.

Through role play, explore the experiences of people on Antarctic expeditions. Set up a two-man tent in the classroom and ask three students to stay in there for half an hour at a time and to imagine that they have to stay in there for a day while a blizzard rages outside. Have students write a journal entry of their feelings, like the explorers did, while they are in the tent. When everyone has had a turn in the tent, discuss their feelings about being confined to a small place and the problems they could foresee happening living together in a tent for long periods while enduring the hardships of Antarctica.

Research bases

Our increased understanding of the Antarctic region has been a direct result of the cooperation of international scientists, sharing information and results from their research. Because the conditions at the South Pole are the most pristine in the world, Antarctica is an ideal environment for observation. Changes to the sensitive environment of the Antarctic can signal changes to our global environment. With students, list the conditions that research teams face and how they overcome and deal with these issues.

Using a wide variety of construction materials have students plan, design and construct an Antarctic research base that will meet all the needs of a research team living in Antarctica all year. Also consider the land transport needs and design an appropriate vehicle that can be relied upon in the freezing cold and icy conditions.



The Antarctic Treaty

Divide students into small groups and have each group research one of the following:

- territorial claims
- the International Geophysical Year
- the Antarctic Treaty
- the Madrid Protocol.

Review their findings and discuss the process that has taken place amongst the nations of the world to ensure the protection of Antarctica's environment. Ask students if they believe that Antarctica should be protected. Have them justify their answers.

Planning for writing

Using **BLM 10**, have students choose one (or both) of two writing projects. Using the scaffolds of the different text types, encourage students to thoroughly research and plan their work before they begin to write.

Tourist brochure

Antarctica has many features that attract thousands of tourists each year. Luxury cruisers travel to the Antarctic Peninsula from South America, Australia and New Zealand and tourists can also fly over Antarctica in aeroplanes.

Have students create a tourist brochure to advertise a tour to Antarctica. Ask them to consider the potential market or audience, itinerary, costs, travel tips and illustrations.



Antarctic art

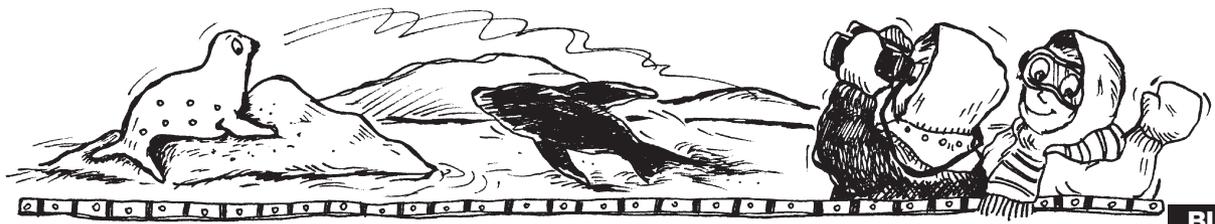
With students, view images of Antarctica and discuss the various colours, in particular the many shades of blue, that are found in Antarctic scenes. Explain that the translucent blue of glacial ice is caused by light passing through the compressed ice crystals; the longer red end of the spectrum is absorbed by the ice leaving only the blue light to escape. Encourage students to paint a scene that highlights the colours of Antarctica. Suggest that they could make various shades of blue by mixing blue with white, grey, black, green and purple. When completed, ask them to label their scenes and then display them around the room.

Individual research presentation

Discuss with students what they have learned about Antarctica throughout the unit and suggest that now they should have a better understanding of the continent. Ask students to complete the same questions from the tuning in session (see the introductory activity).

Make comparisons with their responses from the start of the unit. List what they would still like to find out about Antarctica. Add your own suggestions if you feel particular aspects have been omitted.

Encourage students to consider carefully an aspect of Antarctica that they would like to research. The presentation of their research findings to the class can take many forms, for example a model, poster, book, demonstration, drama or computer presentation. Give students time and support to research information, write reports or rehearse their presentation. As students present their research to the class, encourage question time, discussion and constructive feedback to presenters.



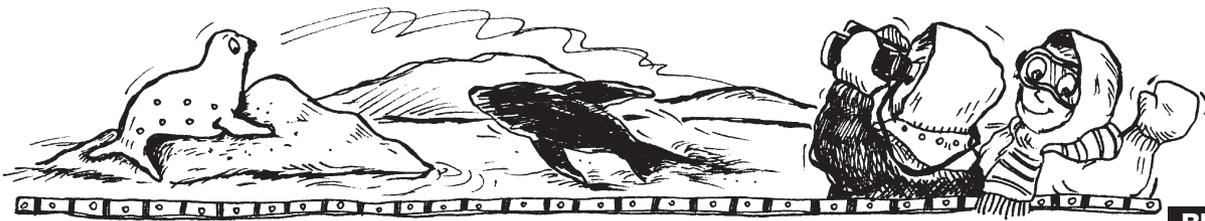
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Antarctica word search

Look in every direction to find these words:

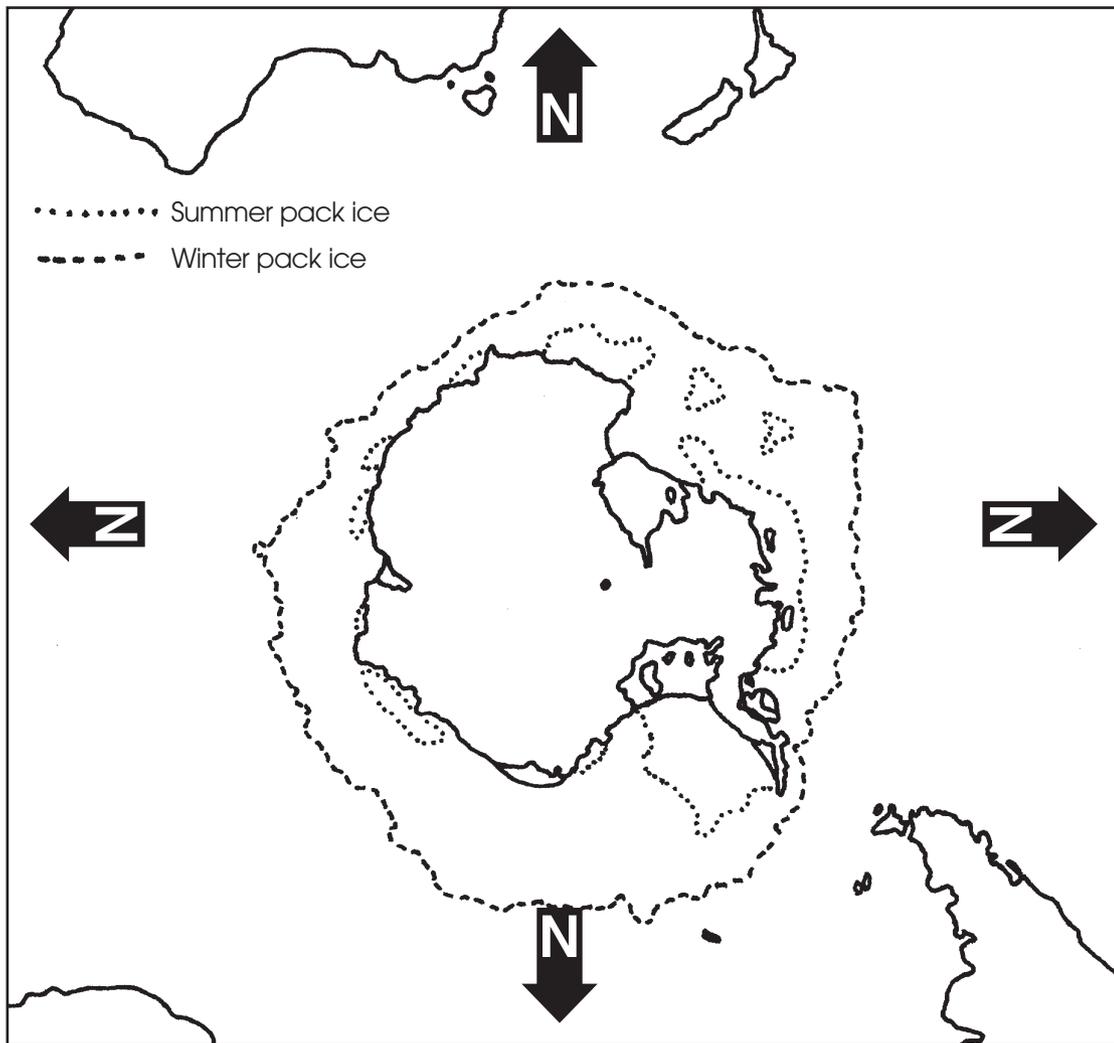
- | | | | | | |
|---------------|------------|------------|-----------|---------------|-------------|
| algae | Antarctica | atmosphere | aurora | blizzard | cold |
| crevasse | expedition | freeze | glacier | huskies | hypothermia |
| iceberg | icecap | inhabit | isolation | krill | lichen |
| meteorologist | penguin | petrel | plateau | precipitation | predator |
| remote | research | rookery | scientist | sculptured | seal |
| snowmobile | species | station | treaty | temperature | whale |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | C | B | L | I | Z | Z | A | R | D | F | J | H | U | S | K | I | E | S |
| S | N | O | W | M | O | B | I | L | E | R | O | O | K | E | R | Y | K | T |
| P | A | T | M | O | S | P | H | E | R | E | G | L | H | M | E | P | R | A |
| E | N | U | A | E | T | A | L | P | Q | C | R | E | V | A | S | S | E | T |
| C | E | S | V | R | T | P | S | C | U | L | P | T | U | R | E | D | T | I |
| I | X | W | N | I | C | E | B | E | R | G | X | R | E | L | A | H | W | O |
| E | P | R | E | D | A | T | O | R | F | R | E | E | Z | E | R | Y | B | N |
| S | E | A | H | Y | B | R | I | R | C | G | F | I | K | H | C | P | I | Z |
| C | D | J | C | N | L | E | P | C | O | L | D | C | M | D | H | O | N | P |
| I | I | T | I | E | R | L | S | E | A | L | G | A | E | S | Q | T | H | E |
| E | T | B | L | D | C | X | A | Z | W | I | O | L | V | Y | T | H | A | N |
| N | I | F | M | H | N | I | U | O | G | R | J | G | K | C | R | E | B | G |
| T | O | E | T | O | M | E | R | V | S | K | U | R | I | T | E | R | I | U |
| I | N | O | I | T | A | L | O | S | I | X | C | H | F | S | A | M | T | I |
| S | W | L | Z | B | Y | P | R | E | C | I | P | I | T | A | T | I | O | N |
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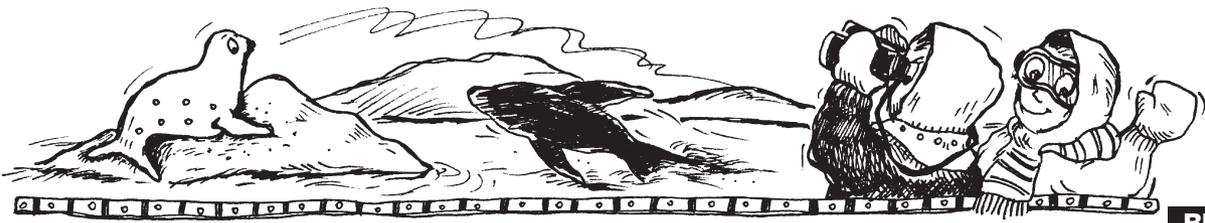
Map of Antarctica



Label the following places on the map.

- | | | |
|---------------|--------------------------|-----------------|
| Australia | Mawson (Australian Base) | Southern Ocean |
| Africa | Casey (Australian Base) | Indian Ocean |
| New Zealand | Scott (New Zealand Base) | Pacific Ocean |
| South America | Davis (Australian Base) | Atlantic Ocean |
| South Pole | Palmer (US Base) | Ross Ice Shelf |
| Mt Erebus | Commonwealth Bay | Ronne Ice Shelf |

Shade in the Transantarctic Mountains and the summer and the winter pack-ice.



Name: Date:

The polar lands

Fill in the gaps with these missing key words:

- | | | | | | |
|-----------|----------|--------|--------|-------|----------|
| coast | seas | birds | size | year | darkness |
| continent | no | Circle | North | South | Sun's |
| Ocean | summer | cold | weaker | snow | lands |
| animals | floating | Pole | | | |

The regions around the Earth's North and _____ Pole are known as the polar lands.

The North _____ is mostly ice covered sea called the Arctic _____.

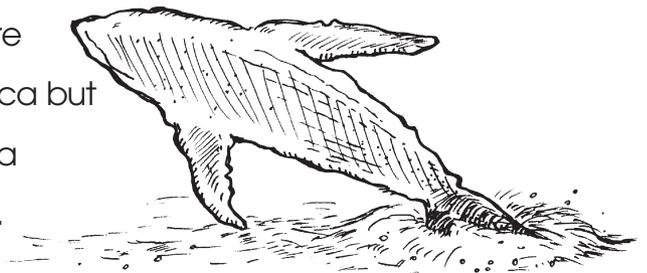
The South Pole is a frozen continent called Antarctica.

The polar lands are freezing _____ desolate places, covered in ice and _____ for all or most of the _____.

The polar _____ are always cold because the _____ rays have to travel further to the poles and are much _____ than the rays that reach the equator. Because the Earth is tilted as it revolves around the Sun, there is continuous daylight in _____, followed by continuous _____ in winter, at the _____ and South Pole.

The Antarctic _____ includes the continent of Antarctica and the surrounding _____ and oceans. 98% of the _____ is covered by snow and ice, and during winter Antarctica doubles in _____ due to the pack-ice that forms around the coast. There are many freshwater icebergs that have formed by breaking off from glaciers and ice shelves _____ in the Antarctic waters.

Antarctica has _____ indigenous people. There are few species of land _____ that live in Antarctica but there are several species of _____ and sea mammals that live along the Antarctic _____.





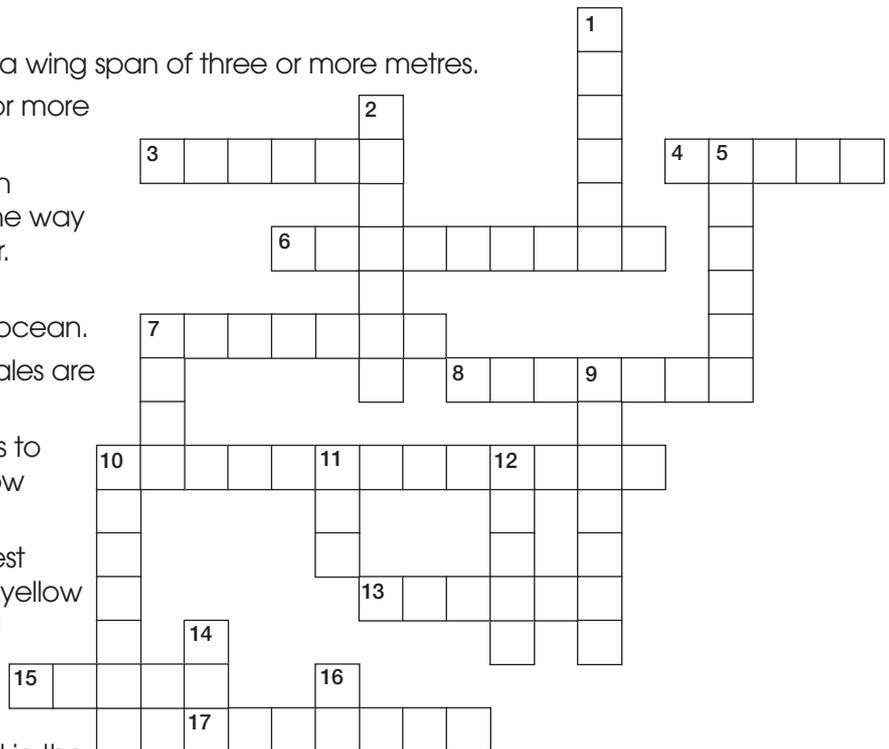
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Wildlife of Antarctica

Use the clues listed below to solve the crossword puzzle!

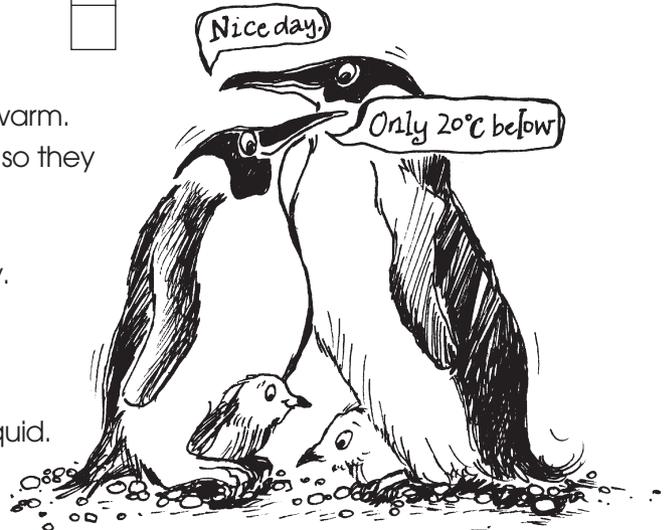
Across

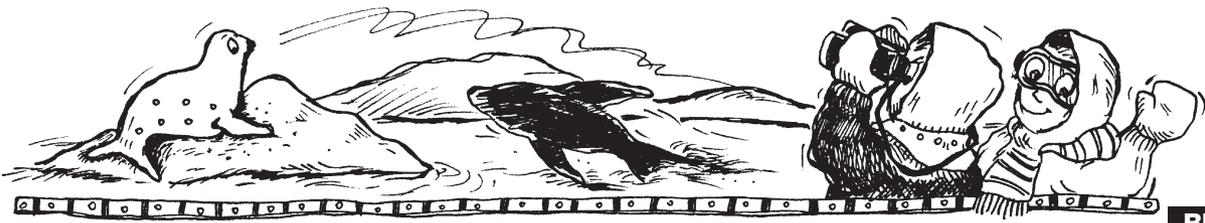
- 3 An animal that gives birth to live young and feeds on milk from its mother.
- 4 Baby penguin
- 6 The Wandering _____ has a wing span of three or more metres.
- 7 A penguin can stay underwater for more than _____ minutes.
- 8 In summer the Arctic Tern breeds in Antarctica but will _____ all the way to the Arctic for the Arctic summer.
- 10 Krill feed on _____; microscopic plants floating in the ocean.
- 13 Fish, penguins, seals and even whales are prey for the _____ Whale.
- 15 Snow Petrels have _____ feathers to camouflage them against the snow and ice.
- 17 The _____ Penguin is the largest and heaviest penguin, with bright yellow markings on their beak, head and throat.



Down

- 1 Blue Whales are the largest animal in the world, they can weigh up to 136 _____.
- 2 Whales have a layer of fat called _____ to insulate against the cold.
- 5 Penguins as well as seals _____ together to keep warm.
- 7 Many Antarctic _____ have antifreeze in their bodies so they won't freeze in the cold sea.
- 9 A large colony of penguins.
- 10 These birds can swim up to 40 km/h but they can't fly.
- 11 Baby seal.
- 12 Seals, squid, fish, toothless whales, penguins and sea birds all eat _____ from the Antarctic Ocean.
- 14 Toothed whales have sharp _____ to eat fish and squid.
- 16 During winter _____ s live under the ice and scrape holes in the ice to breathe.





Name: Date:

Drawing to scale

The Antarctic waters contain both the largest animals in the world and some very small ones. Illustrate how some Antarctic animals compare in size by drawing them to scale on a poster. Before you start, plan your poster by considering the length of the largest and smallest animals. The largest animal needs to be able to fit on the poster and the smallest animal should be big enough to see. After you have decided on the scale, calculate the length to draw each animal.

For example:

if the scale is 1 metre = 1.5 cm, then the blue whale will be $30 \times 1.5 \text{ cm} = 45 \text{ cm}$ and the krill will be $0.06 \times 1.5 = 0.09 \text{ cm}$ (nearly 1 mm).

Leopard seal 3.5 m. Scaled size = _____

Toothfish 2 m. Scaled size = _____

Adele penguin 0.7 m.
Scaled size = _____

Emperor penguin 1.2 m. Scaled size = _____

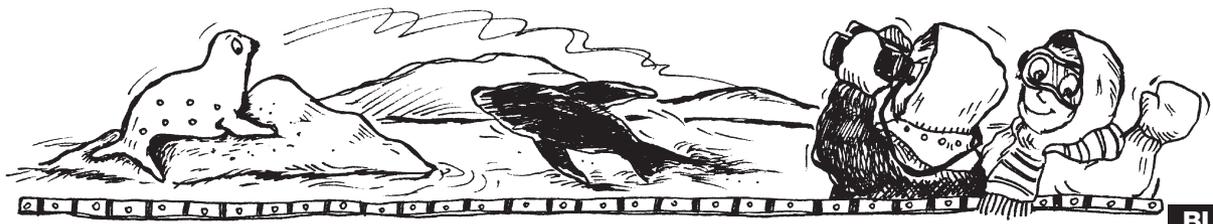
Crabeater seal 2.5 m. Scaled size = _____

Humpback whale 15 m. Scaled size = _____

Killer whale 9 m. Scaled size = _____

Blue whale 30 m. Scaled size = _____

Krill 0.06 m.
Scaled size = _____



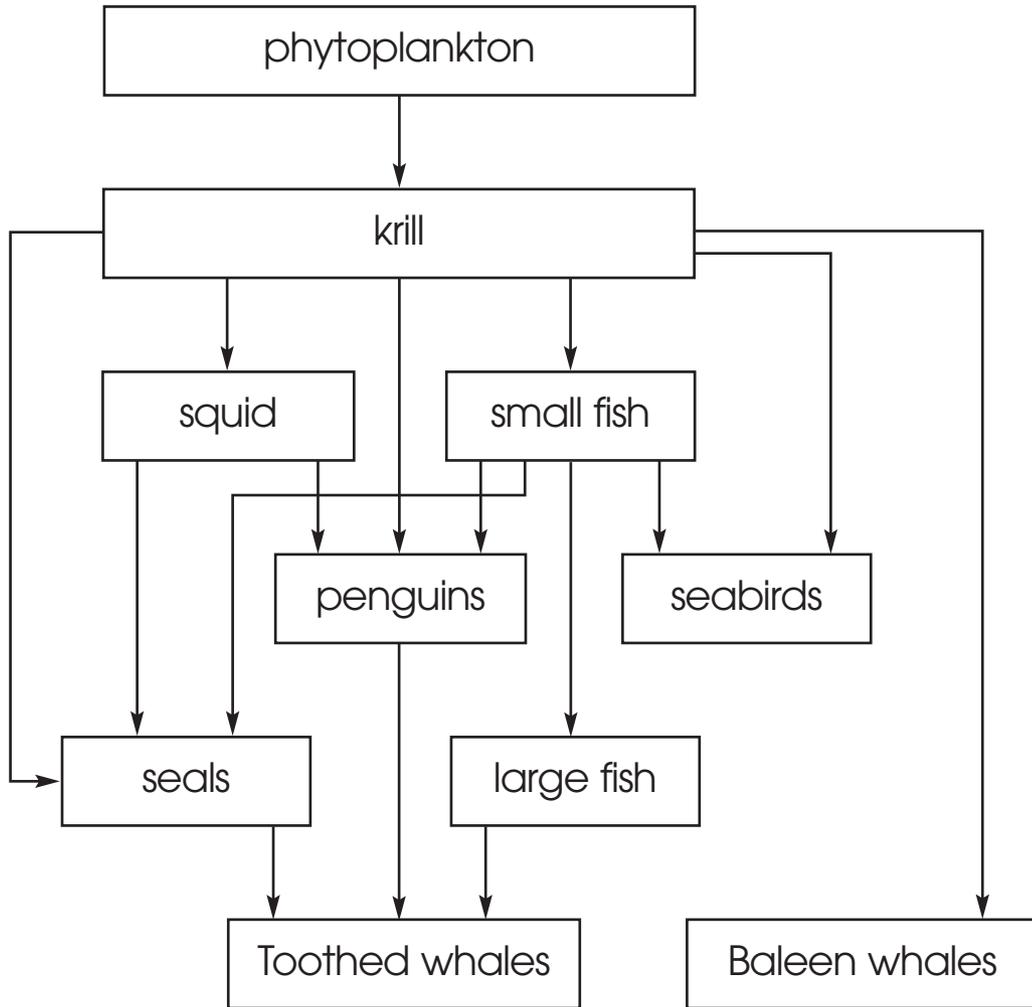
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Antarctic food chain

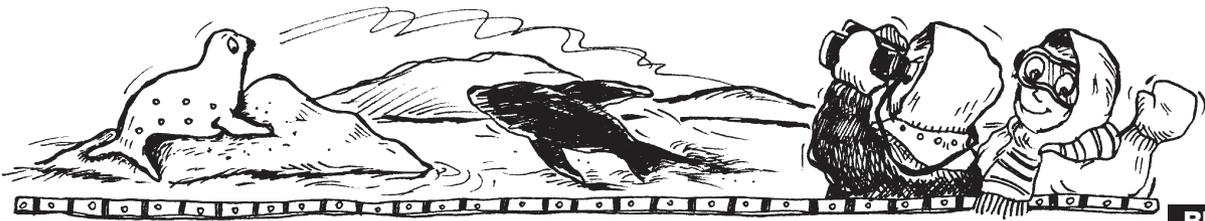
Food chains describe the sequence of plants and animals that eat each other to survive. The Antarctic food chain is very finely balanced. If any of the plants and animals are harmed or removed, all the other animals in the food chain will be affected too.

Using photos of Antarctic animals as a reference, create and illustrate your own Antarctic food chain.

Key: squid → seals squid is eaten by seals



Design and create a mobile that shows the feeding relationships between the animals of the Antarctic.



Name: Date:

Counting



Which method would you choose to count the penguins? (tick)

- Herding the penguins in small groups between two people and counting them one by one.
- Counting them one by one when standing on a high tower.
- Counting them from an aerial photograph.
- Counting the number of penguins in a huddle, then multiplying that number by the amount of similar sized huddles.

Estimated number of penguins:

Compare your amount with other students. Do you all agree?

How would you count the number of spectators in a crowd at a football match?

.....



Name: Date:

Famous Antarctic explorers

Roald Amundsen

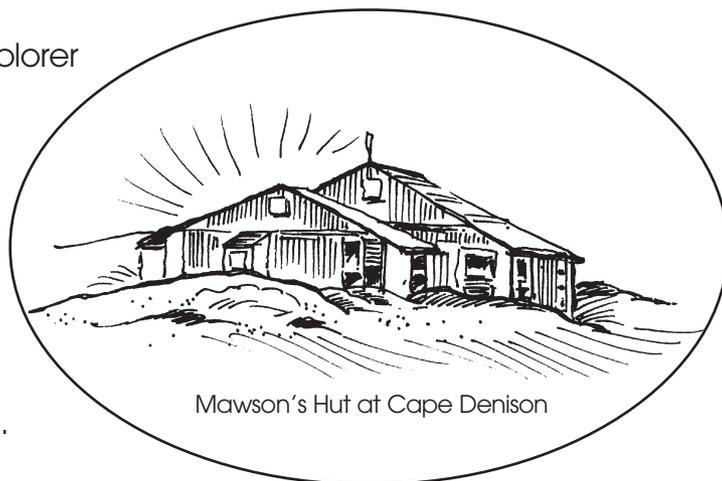
Amundsen, the Norwegian explorer, was the first person to reach the South Pole. He originally planned to be the first person to reach the North Pole but he changed his plans when Robert Peary arrived there first. Amundsen's team of five men were all excellent skiers and experienced sled dog handlers. The five men in his team used 52 dogs to pull their four ice sleds across the snow. They arrived at the South Pole on 14 December 1911, and all returned home in good health.

Captain Robert Falcon Scott

Scott, the British explorer, had hoped to be the first person to reach the South Pole. Instead he arrived there on 12 January 1912, one month after Amundsen. His team of four men travelled to the Pole on skis and on foot, hauling their own sleds. On the tragic return journey, the men faced frostbite, scurvy and a shortage of food. All five men died before they reached their base camp.

Sir Douglas Mawson

In 1912, Douglas Mawson, the Australian explorer and scientist, led a team of two other men, Ninnis and Mertz, to explore the far eastern region around Commonwealth Bay. Disaster struck when Ninnis died falling down a crevasse along with the supply sled and many of their dogs. Mertz later died of exposure. Miraculously, Mawson stumbled into camp weeks later, barely surviving the 500 km that he travelled alone.



Mawson's Hut at Cape Denison

Lieutenant Ernest Shackleton

Shackleton, the British explorer, planned to cross the Antarctic continent in 1914, but his ship, the *Endurance*, was trapped by ice for many months. When the ice crushed the ship, the crew had to leave and camp on the ice. Then they sailed to Elephant Island in the lifeboats, surviving on a diet of seal meat. Unfortunately, Elephant Island was deserted, so Shackleton and some of his crew sailed to South Georgia for help. The crew were eventually rescued.



Name: Date:

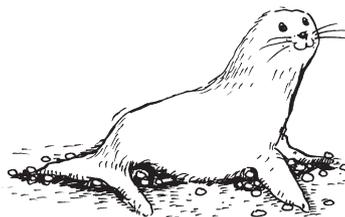
Famous Antarctic explorers continued..

1. Who was the first person to reach the South Pole?
2. Who was the first person to reach the North Pole?
3. What were the features of Amundsen's expedition that made it so successful?.....
4. What hardships did Scott and his team face on their return journey?
5. How did Mertz and Ninnis die?
6. What food did Shackleton and his crew eat to survive?
7. List the dangers that Antarctic explorers faced.
8. List the necessary equipment and supplies needed for survival during an Antarctic expedition.





Name: Date:



Writing on Antarctica

Choose one of the writing outlines. Plan your writing by jotting down the points you intend to cover under each heading. Then write your information report or exposition in full, referring to the outline as you go.

Information Report - 'Antarctica the frozen continent'

Introduction Write a short description of Antarctica in your opening statement.

.....

Series of paragraphs Describe the many features of Antarctica. Each paragraph should describe a different feature.

.....

Concluding paragraph Finish with a general statement to round off the report.

.....

Exposition - 'Ban tourism in Antarctica'

Introduction Write a statement or a question that will gain the attention of the audience.

.....

Point of view Write what you think.

.....

Background information Give some information about Antarctica to help the audience better understand the subject.

.....

Argument Support your argument with evidence, statistics, facts, examples and diagrams.

.....

Conclusion