

Stay: The Last Dog in Antarctica

Jesse Blackadder

Book Summary

Based on the life of Stay who was smuggled to Antarctica in 1991 and is still having adventures there today!

Themes

Loyalty
Belonging
Responsibilities
Place
Disability
Betrayal
Pranking
Society and how it Functions
Power Relationships

Curriculum areas and key learning outcomes

Stay is an excellent resource for Year 4 onwards and could be used for the following subjects:

- SOSE/HSIE
- English
- Literacy and Language
- Science
- Mathematics

It could also be used to achieve the following learning outcomes:

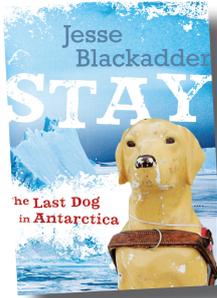
- ACELT 1613, 1620
- ACELA 1469
- ACSSU 073, 094

Appropriate ages:

8-12

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Notes By Michael Armiger

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Themes

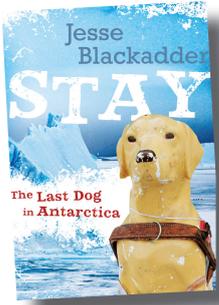
- Loyalty • Belonging • Responsibilities
- Place • Disability • Betrayal • Pranking
- Society and how it Functions
- Power Relationships

Activities

Bibliography

About the Author of the Notes

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Introduction

Stay: The Last Dog in Antarctica is based on the true adventures of a Collection Dog, like one of many seen near shops across the country. In this case though, the ironically named 'Stay' is not only telepathic — able to hear the thoughts of humans and other dogs— she also longs for adventure. Stay is conscious of the important work she does collecting money for the Guide Dogs but this Labrador imagines a more interesting life and simply one where she belongs to a family the way that other dogs do.

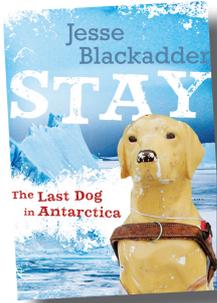
One night, Stay is dog-napped from outside a store in Hobart and smuggled on board the *Aurora Australis* by Chills, a researcher about to embark on a study of penguins in Antarctica. Initially she is apprehensive about Chills' motivations in stealing her, but she also believes she may have brought the situation about by wishing for a change of life.

Stay's arrival in Antarctica coincides with the imminent departure of the resident huskies due to the signing of an environmental agreement. She quickly becomes a celebrity not only among the crew of the ship but to all those working on stations in Antarctica. She is so highly prized, that others try to steal her themselves. She is badly damaged in a scuffle and one of her legs is destroyed. A wooden leg needs to be carved for her at Davis Station, but the repair will take some time and so Chills and Stay are separated.

During their time apart Stay has several adventures (or 'jollies' as they're known locally). She is taken to different stations aboard light aircraft, a helicopter and a sled. She does get to meet huskies, though their leader, Blackie, takes a dislike to her and bites the ropes holding her to the sled, causing Stay to fall and become lost in a crevasse. She is rescued when she sends a mental message to another husky, who helps the humans recover her.

Stay is reunited with Chills again before they are meant to board the *Aurora Australis* for the return trip to Hobart but she is dog-napped again, this time by Chill's friend Kaboom, allowing her to remain in Antarctica. Stay has now become so much a part of the lives and culture of the people living in Antarctica that she realises that it is where she belongs. Not only is it more exciting than being chained up outside a supermarket, but Kaboom and the characters who man the stations have become the family that she once longed to part of.

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About the Author

Stay: The last Dog in Antarctica is Jesse Blackadder's fourth novel and her first children's book. Jesse was awarded the Antarctic Art Fellowship 2011-12 and travelled to Antarctica where she met the real 'Stay' on which this book is based. The effect that this extraordinary continent had on Jesse is evident in the book and her ability to depict the language and camaraderie of the unique characters that work there reflect her skills as an award winning author. Jesse lives in Byron Bay, NSW and is completing a Doctorate in Creative Arts through the University of Western Sydney.

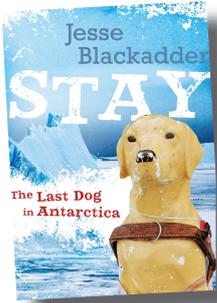
Author Inspiration

Jesse says:

'I travelled south on an Australian Antarctic Arts Fellowship in late 2011 researching my historical fiction novel *Chasing the Light*, based on the true story of the first women to reach Antarctica.

I was lucky enough to meet Stay when a scientist called Laser Dave dognapped her and brought the Guide Dog on their three-day field trip in the surrounds of Davis Station in Australian Antarctic Territory. During that time I found out enough about Stay to realise she was a true Antarctic legend, and the idea for *Stay: The Last Dog in Antarctica* was born. Drawing on media reports and various biographies, as well as tall tales and rumours, I pieced together some of Stay's history and imagined the rest.'

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Notes on Themes and Curriculum Topics

English

Anthropomorphism

Interestingly the book does not simply invest an inanimate object with human characteristics but uses the traits that we associate with Labradors to provide the fundamental elements of Stay's character. This allows the themes of **loyalty** and the perception of **betrayal** to be explored in the book. **[Please see the reading and discussion questions below for quotes and text references on these and other themes.]**

Stay communicates with both humans and dogs telepathically though with a key difference. Being a dog she can have a conversational exchange with other dogs but mostly is only able to send thoughts to humans. The one exception is an exchange with Kaboom late in the book as their relationship grows. (p199)

Stay talks to other dogs

With Jet the Guide Dog about humans and how to influence them (p 19)

Blackie is critical of Stay (pp 118, 120, 134)

Blackie bites through Stay's ropes (p 140)

With Blackie and Cocoa about leaving Antarctica (p 164)

With Blackie about taking care of Chills (pp 189-190)

Stay communicates her feelings telepathically to humans

Stay tries to direct Chills actions (p 52) and Ranga's actions (p 35)

Stay thinks Chills is stealing (p 56)

Stay thinks about Chills reading her thoughts (p 97)

Trying to be found (p 168)

Missing Kaboom (p 188)

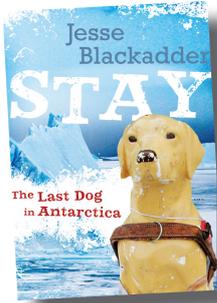
Talking to Kaboom about her feelings for Chills (p 199)

Suspense and Plot Device

Stay is made of fibreglass and therefore has no control of her own movements. If humans want to take her somewhere she has no ability to stop them, apart from trying to communicate with them telepathically. There are several instances where she is taken and hidden or is confused by the actions or language of those around her. Stay has to wait until things are explained to her or revealed in overheard conversations.

By withholding key pieces of information, suspense is created. This is particularly the case when Stay believes that Chills is stealing money that has been raised for the Guide Dogs. (p 56) As Stay learns crucial information, so the reader learns. This plot device is used in 'journey' tales, such as *Gulliver's Travels*, *East of the Sun and West of the Moon*, *The Quest for the Holy Grail* and many others. When Stay is hidden in a bag with no idea where she is or why, the reader asks the questions and wonders what will happen to her next. (pp 7, 35, 57, 151).

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Self-fulfilling Prophecy

From the beginning Stay wishes for adventure and imagines herself flying to the docks and smelling the sea air. Later she rationalises that she wasn't dognapped by Chills. She had looked him in the eyes and wished for an adventure. This allows us to believe Stay has control of her own destiny and negates a moral judgment about Chills stealing Stay (from the disabled after all).

Stay wishes for adventure (p 4)

Stay is not dognapped, justifies being taken (p 34)

Stay wishes to stay in Antarctica (p 196)

Informal Language

Often we see a transition to more informal language as relationships develop, but in this situation there is an immediate absence of formality.

'This is Stay,' she said. 'Stay, this is Laser.'
'A nickname already?' Laser asked.

'Laser's pretty good: you should be happy. One guy last year had to live with "Scumbag" all winter and one of the girls got "Slumpy".'

(p 23)

Discussion Point: Why are the characters in Stay so informal with each other, even when they have only just met? When is it okay to be informal and when is it not?

Activity: Write a letter to your best friend telling them about what you did on the weekend but do not use a salutation at the beginning. Pass the letter to another person who then adds a formal salutation, *Dear Prime Minister*, or *To Queen Elizabeth II*, for example.

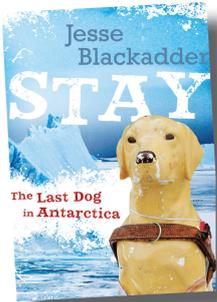
Themes

Loyalty

Stay's perspective is that of an outsider. She is not quite a dog, yet she can communicate with dogs. She seeks adventure, yet is not able to control her own movements. Though her ability to influence the outcomes that affect her may seem limited, her personality is not passive and certainly not inanimate.

In terms of how she relates to others, Stay must judge them by their words and actions, and compare their behaviour to what she believes is acceptable and that serve her interest. For Stay these are conscious decisions. This is the strength of the **classic anthropomorphic fable**, by illustrating the choices that we make as a result of our natures or ambitions. From personal relationships to our football teams and cultural backgrounds,

we can often take for granted the sense of belonging that we gain from our groups; what loyalty we owe in return and how we display that loyalty. Our strongest feelings are often provoked when we feel that our loyalty has been betrayed.



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She hardened her heart. She wouldn't let herself feel close to him, not again.

(p 64)

She wanted to howl. How could they treat her like this?

(p 104)

Belonging

Stay's early contact with real dogs had been very positive. Jet, the guide dog had been accepting of her and spoke of her in terms of being a real dog.

But you're a Labrador! Don't you know what that means?

(p 19)

But despite her looking forward to meeting other dogs, when she finally does meet huskies in the Antarctic, she is treated with suspicion.

'I don't believe you're a dog. You smell wrong'

(p 119)

They seem to be more preoccupied with the differences that separate them rather than the similarities that connect them. Stay is hurt when Blackie, the leader of the huskies, excludes her from contact with the pack and is humiliated when he urinates on her (p 121). After suffering such a rebuke, Stay longs for the support of Chills, the person who has been most consistent in supporting her.

Discussion: What does it mean to belong? You might feel a part of a school, a sports team, a family or any other kind of group. What do you have to do to be part of that group? Are there any special rules that you have to follow, clothes you have to wear, jobs that you have to do as part of your responsibilities to that group?

Activity: Watch the Pixar short film *Dug's Special Mission*. Discuss how Dug wanted to show loyalty to his pack but instead he was tricked by them. How could Dug have been able to tell that the other dogs were not being honest? Write a list of pack rules that dogs should obey. They don't have to be democratic rules since dog packs usually have one leader. How might this compare to rules humans have?

Activity: Create a display of the covers which students create.

The dog/owner bond between Chills and Stay establishes itself quickly.

She could feel Chills's ankle against her back and she was glad he was close by.

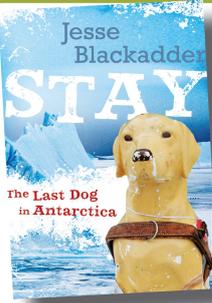
(p 8)

No one had given her a name before, everyone just called her Girl. And no one had ever asked her to stay with them.

(p 15)

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Discussion Points: Can pets really form relationships with humans? Do they feel emotions the same way we do? Are they able to communicate aspects of their personality? Does your household pet have a special relationship with a particular person? Why? Do they owe us loyalty just because we feed them?

Activity: Imagine that your pet suddenly developed the power of speech. Write the transcript of an interview between you and a pet that reveals some aspect of their personality or something unexpected about how they feel.

Activity: Imagine you are a journalist that is sent to interview the first talking dog. Are they really man's best friend or are they only in it for the biscuits? For additional inspiration read *Diary of a Wombat* by Jackie French and Bruce Whatley then write the diary of your pet or some other animal. What do they do when you are out?

Responsibilities

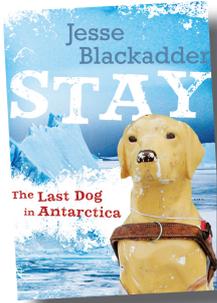
Stay is enjoying her adventure but she is aware that her first loyalty should be to the Guide Dogs. Stay wasn't doing her job raising money for their training. What would happen to the blind people who were waiting for Guide Dogs? (p34)

Discussion Point: What are responsibilities? Do students have jobs at home that have to be done before playtime? What would happen if students didn't do what they knew was expected? How do you balance responsibilities if you owe loyalty to more than one group?

Activity: Write a list of all the people and groups that you have a responsibility to. Name the individuals as well as group names, such as your school, friends, teachers, football clubs, community, country, etc. How would you list them in an order of how strong that bond of loyalty is? How do you show your loyalty to those people and groups?

Activity: Draw a mind-map of those relationships that you feel an obligation or loyalty to with a picture of you in the centre. Images of those you have a strong loyalty are closest and those that are weaker are further away.

Activity: Roll-play a situation where your loyalty is tested. It may be between doing something you want to do and something you think you ought to do. Perhaps you need to choose between two friends have both invited you to different events on the same day. You barrack for a team but your favourite player plays for another team. You are a sports person offered a great deal to join another club. How would you resolve it? Are loyalties something that can be compromised?



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Place

Like any dog, Stay wanted to have a bit of a sniff around and discover the world. Unfortunately, being made of fibreglass made opportunities for exploration limited. She had only managed to find out a little about the world by watching TV when she was chained up outside an electronics store (p 2), which is not as good as having actual adventure yourself.

Where you come from can influence the kind of person that you are. Where you decide to live can also say a lot about how you define yourself. The journey that Stay makes from being stuck outside a store in Hobart to an adventuring animal in the Antarctic is a world of difference and one that has a great effect on Stay. When Stay eventually decides that she was meant to remain in Antarctica...

She felt herself smiling. Not a smile that anyone could see, but a great big smile right inside her, a smile that didn't go away as the Twin Otter flew above the snow and ice and she saw mountains and glaciers rising up in front of them.

(p 202)

It is this choice of being in another place that is the great empowering moment for Stay. By making it that choice she has overcome her disability. She is no longer limited by her inability to move freely but can embark on a new life of adventure.

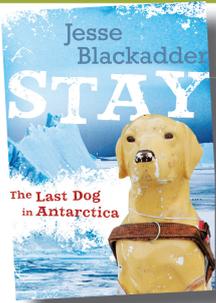
Disability

Guide Dogs went everywhere with their owners, he'd told her. They went all sorts of places where no other dogs were allowed — on the bus, in restaurants, to the movies, to school: anywhere their owners needed to be. Other dogs were often left at home by themselves all day, Jet had said.

Guide Dogs never were. (p 107)

Discussion Points: The kind of things that guide dogs get to do rely on the jobs that their owners do. What might stop someone with a disability doing a job they wanted to do? Would that be fair and if not, how could it be made fairer? Remember not only should we people to help overcome their disabilities but it is illegal to discriminate against people with a disability. Would you say that Stay was disabled?

Activity: Draw an anti-discrimination poster showing people doing all kinds of different jobs and activities. They could be climbing mountains, playing music, cooking, running, teaching, anything and everything!



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Betrayal

When Stay believes that she has been stolen simply for the cash donations that she holds, she becomes angry and disillusioned with Chills.

She felt Chills snatch it and stuff it into the sack.
With all her might she tried to send a thought to
him. Don't you steal that money!

(p 56)

Discussion Point: Should Stay have shown more loyalty to Chills? Have you ever accused someone who was actually innocent? Did you rush to a conclusion that was not the truth? How did you resolve it? Did you have to apologise and did that person accept your apology?

Activity: Imagine you have to sit next to someone in a class that you have sometimes argued with. When your favourite eraser goes missing you tell the teacher you think that the person next to you stole it. They deny it but you are not convinced. Later you find that the missing item was in your jacket the whole time. You tell your parents and they ask you to write a letter to the person that you accused saying how sorry you are and ask that the person forgive you.

Activity: How would it feel to be wrongly accused? Some of us have been wrongly accused at some stage but it is not a nice feeling. (Remind students that this happens

less if they have a reputation for honesty.)

Imagine you are the person who is wrongly accused from the activity above. Write an exposition in your defence, saying why you should be believed. (You could mention the lack of evidence or witnesses.)

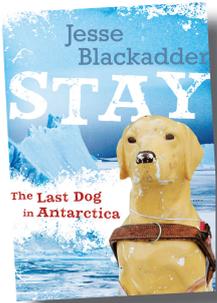
Pranking

The actions of those who steal Stay are not malicious. They reflect the irreverent attitude and larrikin sense of humour that Australians are widely known for. The characters in the story are strong-willed individuals with a sense of fun, stuck in a remote and challenging environment where they spend a lot of time indoors.

Discussion Point: Why do people prank? Is it something that just kids do? There are lots of examples of TV shows where adults prank each other.

Activity: If you were to prank someone who would it be? How would you know how they would react? If you thought that a prank was going wrong would you do something about it? Has it gone too far if someone gets hurt? Make two lists, pranks that you might be funny and ones that go too far. What is the difference between them? This YouTube clip is from the 1960's Candid Camera show in which a young girl forgets a phone message.

www.youtube.com/watch?v=sGyTbzjIUEg



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Society and how it Functions

Stay's adventure reveals the difficult conditions that confront those who work in this extreme setting and gives an insight into the amount of support that is required to keep them there. Antarctica could be a microcosm given the varied roles that are necessary for it to function properly.

Discussion Point: What occupations are necessary for survival and what are more about convenience or luxury?

Activity: Make a list of those that are important in our society and those that are important in Antarctica. You could compare this to the list of occupations listed in the Classroom Antarctica website.

Power Relationships

Most of the people in the story speak to each other very informally. It might reflect the egalitarian nature of Australian society. There are two exceptions. The Ship's Captain (Boss) and Blackie. Why is this? Why do only these characters give orders and why do others carry them out? Examine these examples;

'Cookie! Bring the dog up to the Bridge after dinner.
That's an order.'
'Sure thing, Boss,' Cookie called out from the kitchen.
(p 46)

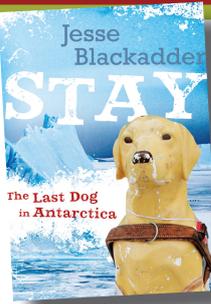
Blackie glared at the huskies. 'You're all forbidden from talking to this thing. She's no dog and she's to be ignored! (p 120)

Discussion Point: Compare the difference between Chills and how he does not follow the instructions of the ship's captain and how students follow a school captain, a teacher or a principal's instructions.

Activity: Draw a line of people who might feel that they could tell you what to do. You could include members of your family, police, fire officers, governments. Don't worry if you are low on a very long list, this is the same for everyone.

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The Sun in Antarctica

Stay describes how the crew at Davis Station have 'big eye'. The sun did not set for six weeks, they couldn't get to sleep and become irritable with each other. (p 97)

Watch this truly beautiful video of the Winter from Davis Station

www.youtube.com/watch?v=P6qks5_DZis

Or this video on the continual sun of summer

<http://www.youtube.com/watch?NR=1&v=fei0G-Umbxo&feature=endscreen>

Discussion Point: Discuss the effect of the sun on our moods. How are we different in the summer and winter months?

Activity: Create a model of how the sunlight strikes the Earth that illustrates how the sun does not set or rise for six week periods.

Activity: Design a New Icebreaker

The Australian Government has called for suggestions on replacing the 23-year-old *Aurora Australis* with a new ship. The current icebreaker has a crew of 25 and can berth 116 passengers. It has a helipad, hangars to hold three helicopters and laboratories for meteorology, oceanography and biology. It can hold 1000m³ of fuel and 1700m³ of cargo. The challenge is to design the vessel to replace *Aurora Australis*. Start by asking students to list the features to be included in their design. Could they tell the difference between what is necessary and what is just a good idea? The list should be able to justify the improvements. When this is complete, students could draw their plan, it may include a cross-section plan of the ship.

Students could do a presentation to the class as if presenting to a panel from the Ministry of Environment (costs, construction timeframe, ease of use, longevity of design and fuel efficiency. Which capabilities of the design would appeal to them and why? An icebreaker could cost hundreds of millions of dollars to build, so it had better be worth it!

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

Can you find the following words?

ADELIE **FIBREGLASS**
HUSKIES **NEPTUNE**
STOWAWAY **BLACKADDER**
HAGGLUNDS **MAWSON**
DAVIS **LABRADOR**

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Word Definitions

Define the following words. Are they people, places, machines or something else?
This activity promotes the scanning of pages to locate specific information.

Mawson	p 82
Kaboom	p 9
Nuts	p 103
LQ	p 65
Squirrel	p 104
Davis	p 13
SAR	p 127
VID	p 110

Activity: Acronyms

SAR is an **acronym** for the term **Search and Rescue** (p 127).

Acronyms are used for lots of activities that happen in school. What does **NAPLAN** stand for? (National Assessment Program Literacy and Numeracy)

What about **PSSA**? (Primary School Sports Association).

What other acronyms do students use and what new acronyms could they invent? How about these examples: **TFLM** (Time For Lunch Miss)

CWPS (Can We Play Sport?)

OOMM (Oh, Oh, Miss, Miss! - used with an arm raised to answer a question)

Whereas some teachers might be familiar with:

MIDHAP (Miss, I Don't Have A Pencil),

WOFL (Who's On First Lunch?) or;

VLAI (Very Long Assembly Item)

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Code Activity

Nuts calls the Davis base to inform them of his travels

'VLZ-Davis, this is Alpha-Foxtrot-Oscar,' Nuts said. The radio crackled into life.

'Alpha-Foxtrot-Oscar, this is VLZ-Davis, reading you loud and clear.'

(p 106)

His calls are based on a **phonetic alphabet** which was developed so that people could tell the difference between letters such as B, C, D and E even when radio reception was poor.

Below is a chart listing all the names used in the phonetic alphabet. What call sign would give yourself, your teacher, your class or your school? For the whole lesson could you and the teacher use call signs to identify yourself in class?

A	Alpha	N	November
B	Bravo	O	Oscar
C	Charlie	P	Papa
D	Delta	Q	Quebec
E	Echo	R	Romeo
F	Foxtrot	S	Sierra
G	Golf	T	Tango
H	Hotel	U	Uniform
I	India	V	Victor
J	Juliet	W	Whiskey
K	Kilo	X	X-ray
L	Lima	Y	Yankee
M	Mike	Z	Zulu

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Jigsaw Research and Learning Activities

These questions and activities can be used as a jigsaw learning exercise where the class is divided into several groups; each one has a particular topic to research. They will need to research these answers, so computer access is required. Each group needs to find information about one of the following topics:

Exploration History
Climate Extremes
Land Mass
Environment
Antarctic Fauna.

The group sheets have specific questions for an aspect about Antarctica but they also contain some information that can be used by one other group. For example the **Climate** sheet contains some information for the **Land Mass Group**, while the **Environment** sheet holds information for the **History** group. All groups should co-operate with each other in order to answer their discussion questions.

Antarctica - Exploration History Group Sheet

Name a continent that is so remote and desolate that it holds no permanent human life. You guessed it, Antarctica!

To tackle a place this inhospitable you have to be brave and determined. Explorers of this wilderness also had to be well prepared and have lots of luck.

The belief in the existence of a Southern Land had been around since the second century. The Spaniard Gabriel de Castilla is said to be the first person to have seen snow-capped mountains beyond 64° South in 1603 AD. Several attempts to reach the Antarctic reached the pack ice but Captain James Cook was the first to cross 60° South, the Antarctic circle. The first documented landing in the Antarctic mainland was not made until 1853 by the American sealer, Mercator Cooper. After the magnetic North Pole was located in 1831, explorers turned their attention to the South Magnetic Pole.

Discussion questions:

- Who was the first person to reach the South Pole and why is the second person to reach the pole equally as famous?
- List some of the differences between these two explorers and the way that they prepared for their exploration.
- The Antarctic explorers considered that they had the best equipment and technology available. List what equipment that you might use to explore the Antarctic today and next to it list of what was available to the explorers in 1911.

Fauna Note:

Between 300 to 600 minke whales are killed each year by Japanese fishing trawlers who claim to be taking the whales for scientific research. However the meat is taken to Japan and sold for food. Japan is an island nation with a strong cultural tradition of fishing and eating fish. Japan is also Australia's second largest trading partner. Recent estimates of minke populations are approximately 880,000. Should we not worry about a few whales when there are plenty or should we try to push Japan to stop all whaling? Can you still do scientific research if you have a little taste too?

Antarctica - Climate Extremes Group Sheet

The Antarctic is one of the most inhospitable places on Earth. It is very cold and very hard to reach. Very strong winds that circle the globe from 40° to 60° South, which can create fierce storms and hurricanes. Sailors used to call these winds the 'roaring forties' and the 'furious fifties'. Also, pack ice can close in around a ship so that it can't move. This is called besetment. In 1915, Ernest Shackleton's ship 'Endurance' became trapped in pack ice that cracked the hull, leaving them stranded. In 1986 the same thing happened to the Southern Quest. Most ships that sail into the Antarctic are specially made to cope with pack ice. They reverse and charge up onto the ice, breaking it apart with their weight. In 1985, Nella Dan was unable break through and was beset for 48 days.

Discussion questions:

- What is the lowest and highest temperature recorded in Antarctica?
- What is the highest wind speed recorded in Antarctica?
- What is the average rainfall in Antarctica? Give a brief explanation why this is.
- Why is the risk of fire particularly important in Antarctica?
- What kinds of machines are used to travel around Antarctica? What are some of the features that allow them to work there? Draw diagrams of their features. Why are they painted in bright colours?

Land Mass Note

In winter, sea ice develops around Antarctica and can reach as far as 55° South. As sea ice is white it reflects sunlight and does not absorb as much heat. However if global warming reduces the amount of sea ice, a larger area of the sea will be exposed to the warmth of the sun. This creates a cycle where every year less sea ice is formed and the temperature of the sea gradually rises. If a lot of sea ice were to melt, it would have a serious effect on low-lying Pacific Islands such as Micronesia and the Marshall Islands.

Antarctica - Land Mass Group Sheet

Antarctica is a very large continent, larger than Australia, larger than North America. It formed part of Gondwana, the supercontinent that included South America, Africa, India, Australia and New Zealand that broke apart 180 million years ago. So much snow and ice falls that the continent is the highest on Earth. Antarctica is home to the largest glacier on Earth, the Lambert Glacier. Glaciers are formed by ice and snow falling in the interior of the continent, this builds up and eventually their weight forces them downhill towards the coastline. The Antarctic continent is shared by a number of countries that have research stations there. They have agreed that Antarctica is to be a natural reserve. No exploration of mineral resources is allowed and research conducted there is shared openly.

Discussion questions:

- Mount Vinson is the highest mountain in Antarctica at 4892 metres tall. What is the highest point in Australia?
- How big is the Lambert Glacier and how fast is it moving? Why does the bottom of a glacier move faster than the top?
- Draw a map of Antarctica, include the names of the main geographical features and the location of Australia's research stations.
- Overlay a map of Antarctica on a map of Australia or North America to compare their size.

Climate Note

Antarctica experiences 24 hours of daylight when tilted towards the sun and 24 hours of darkness when tilted away from the Sun. This lasts for several weeks in both summer and winter. The further south you are, the more this effect is felt. At the South Pole for example, you would experience several months of complete darkness in winter and months of daylight in summer. The same effect occurs at the North Pole. The average maximum temperature at Mawson Station in January is 2.5°C while in August it is -15.5° C.

Antarctica - Environment Group Sheet

The Antarctic is a special place because it has seen relatively little human activity. People have only really been arriving there for the last 100 years. It is so untouched we can clearly see some effects of human behaviour. People once went to Antarctica to harvest seals skins and they were hunted almost to the point of extinction. Since then we have protections in place to protect seals.

We don't even have to be in Antarctica to affect the environment. Some chemicals that we used were causing a hole in the ozone layer. The hole appeared over Antarctica because of the special weather conditions there. The ozone layer is important as it protects us from solar radiation. As a result, all governments agreed to stop using the chemicals called CFCs (chlorofluorocarbons). We are also aware of the effort that we need to make in Antarctica to clean up after ourselves, the rubbish tips from our previous visits, the way we generate power and reducing the amount of waste that we produce.

Discussion Questions:

- Why are we more aware now about the animals that live in Antarctica and why do scientists go there to study them?
- How do researchers measure the ozone layer in Antarctica? What is it made of?
- When was the hole in the ozone layer found and how long did the ban on CFCs take?
- Why does the Madrid protocol ban introduced species apart from humans. What is an introduced species and why are they considered so harmful? Can you give an example of species introduced to Australia?
- We burn things to make power, for heating and we make waste. What are some of the things that we have to be aware of if we are to limit the effect of our presence in Antarctica?

History Note

Robert F Scott led two expeditions to the Antarctic. Using a combination of horses, dogs and motor sleds, his group of five men reached the South Pole on January 17, 1912. There he found a note left by Roald Edmundsen just 33 days earlier. He and the others all perished on the return journey from cold and starvation. One of the men, Owen, famously left the tent with the words 'I'm just going outside and may be some time', and was never seen again.

Antarctica - Fauna Group Sheet

Small ocean creatures called krill thrive at about 40° S, where the cold waters of the Antarctic meet the warmer waters further north. The krill are a food source for penguins, seals, even whales. If you were to weigh all the humans and all the krill in the world, the amount could be about the same. Though the krill are usually found in large schools, they could be anywhere in an area of 30 million square kilometres. For comparison Australia is about 8 million square kilometres. Biologists count krill and other species to understand how the different species in the food chain rely on each other.

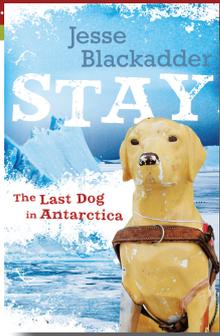
Several bird species migrate. They travel from the Northern Hemisphere to the Antarctic, even as far as the Arctic, from breeding to feeding grounds every year. We know that some diseases can be passed from one species to another. Have you heard of bird flu? It is a disease that chickens and ducks can pass on to humans. If migratory birds passed a disease to species in the Antarctic there could be serious problems. Living in the Antarctic is hard enough but imagine a penguin with the flu!

Discussion Questions:

- What would happen if there was a shortage of krill? How might that happen and what could be done about it?
- Research the different animals that are dependent of krill as a source of food. Draw a food chain that depicts those relationships.
- Pick an animal that lives in the Antarctic and find out how they survive the extreme cold. What physical and what behavioural differences account for their survival?

Environment Note

Antarctica is the windiest continent in the world. The days on end cold dense air from the interior rushes down the ice sheet to the coast reaching speeds of 120 km/h. These are called 'katabatic' winds. Katabatic winds are common across the world, but they are more ferocious in Antarctica than any other place.



Stay: The Last Dog in Antarctica

Jesse Blackadder

www.harpercollins.com.au

www.teachershub.com.au

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Books

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 Lewis, N and Lynch, PJ, *East o' the Sun, West o' the Moon*, Walker Books, 1992
 Llewellyn, Sam, *Abbot Dagger's Academy and the Quest for the Holy Grail*, Puffin Books, 2008
 Swift, Jonathan, *Gulliver's Travels*, Collins Classics, 2010

Film

- Dug's Special Mission*, Dir. del Carmen, Ronnie, Pixar Animation Studios, 2009

Websites

The Australian Antarctic Division (AAD) has several excellent websites. **Classroom Antarctica** is well pitched for primary students and provides many suitable topics for more detailed study, such as exploration, geology, nature and many more.

<http://classroom.antarctica.gov.au/>

The AAD also have a very comprehensive site aimed at older students which contains more information on living and working, environmental management, science, international law and treaties.

<http://www.antarctica.gov.au/?casid=24>

Several questions in the jigsaw learning activities below come from the Classroom Antarctica website and these are rephrased or placed in worksheet format for ease of use in the classroom.

<http://www.discoveringantarctica.org.uk/>

The Royal Geographical Society and the **British Antarctic Survey** have a website which explores aspects of life on Antarctica.

They also have a new mobile survey base called **Halley VI**. This video includes an interview with the architect and some of the construction problems they encountered.

<http://www.bbc.co.uk/news/world-21344320>

Pranking

<http://www.youtube.com/watch?v=sGyTbzjIUEg>

Sun in Antarctica

http://www.youtube.com/watch?v=P6qks5_DZis

<http://www.youtube.com/watch?NR=1&v=fei0G-Umbxo&feature=endscreen>

About the Author of these Notes

Michael Armiger has been a teacher, musician, account manager and kitchen hand. His music career saw him perform and record with some of Australia's best known songwriters through the 1980's, he completed a communications degree in the 90's and worked in the printing industry in the '00's. Michael completed his Master of Teaching (Primary) degree at the University of Western Sydney. He teaches in Sydney's inner western suburbs where he lives with his wife and their three children.