

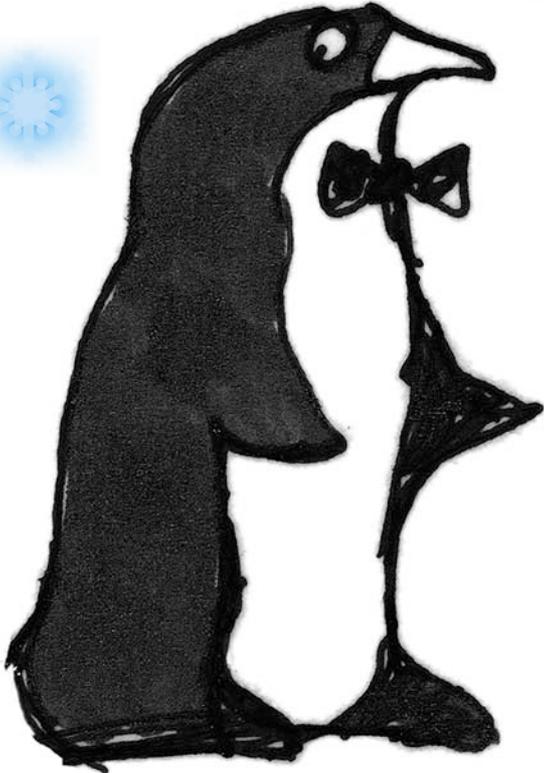
The Yippittee!

for kids who are crazy about conservation!



Bumper Edition! Issue 9 February 2012

Freezing



Brrrr.... it's a bit chilly down here, and that's not because it's the winter either. In fact your winter is summer for us penguins here at the South Pole, or Antarctica or as some people call it, although to be honest it's freezing here all year round, with temperatures plummeting to minus 49 degrees centigrade! I've heard that on the opposite side of the world, the north pole or Arctic is very cold too. You'll find plenty of animals living at both poles, like Arctic polar bears and wolves, but we penguins never meet them – we stick to the south!

As these are the coldest places on the planet, we're tough cookies to be able to live here. Mind you, I wouldn't want it to be any other way – we're all built for survival in these places. In fact I'm a bit worried because temperatures are rising and the ice is melting. There are other threats to our survival as well. I hope that you'll help to protect us for the future. Enjoy this chilling read... while you're doing that I'm going tobogganing!

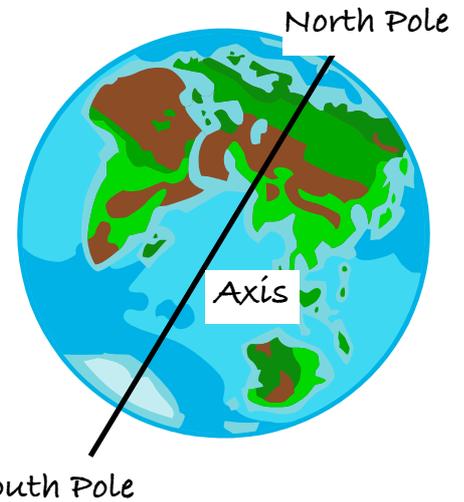
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Where are the poles?

The poles are at the north and south ends of the world. Imagine the earth is an apple with a big stick going through the core. The poles are at either end of the stick. The earth spins or "rotates" on this stick or "axis".

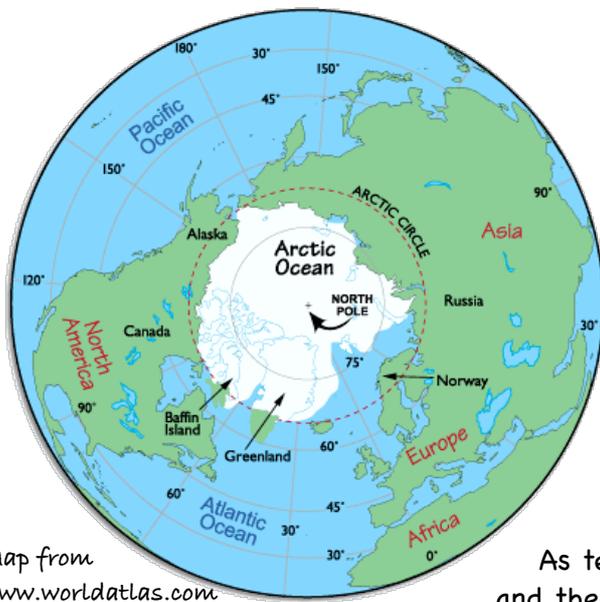


Did you know.... over one third of our planet is frozen! The polar ice caps hold nearly 80% of the world's fresh water.

The Arctic

The **Arctic circle** is an imaginary line which goes in a circle, at the top of the **Northern Hemisphere** (the Northern part of the world). Anything inside the circle is called "the Arctic".

Within the Arctic circle lies the **Arctic Ocean**, the smallest ocean in the world. Most of it is frozen and the ice can be 3 metres thick! Its here you'll find the **North Pole**. The Arctic ocean is surrounded by land, including parts of Russia, Alaska (USA), Greenland and Scandinavia.



Map from www.worldatlas.com

As temperatures drop during the winter, even more **ocean freezes** and the ice reaches to land in places. In the springtime, the sea ice starts to thaw and an area the size of Australia disappears! Some melts into gushing rivers whilst huge blocks of ice break off and float away as icebergs.

The land in the Arctic circle is called the **tundra**. Here the ground is frozen all the time and is called **permafrost**. This is an important habitat for the creatures of the Arctic.

Antarctica

Antarctica is one of the world's six **continents**, a huge area of land, 58 times the size of the UK, almost completely covered in ice! In some places the ice is almost 5km thick and is so heavy it has even squashed the land! As well as flat plains, there are mountains and even a volcano! 2% of the continent has no ice, just bare rock.

Surrounding Antarctica is the **Southern Ocean**. In winter it gets so cold that about one third of the Southern Ocean also freezes making Antarctica double in size! This is called the "**pack ice**". There are also permanent ice shelves which are attached to the land including the Ross Ice shelf, which is half the size of France!



Map from www.worldatlas.com

What's the weather like?

On average **Antarctica** is minus 49 degrees centigrade - five times colder than a freezer! "Average" means that sometimes it can be warmer and sometimes it can be colder, anything between minus 30 to minus 60 degrees, but the coldest temperature ever recorded was minus 89 degrees centigrade!

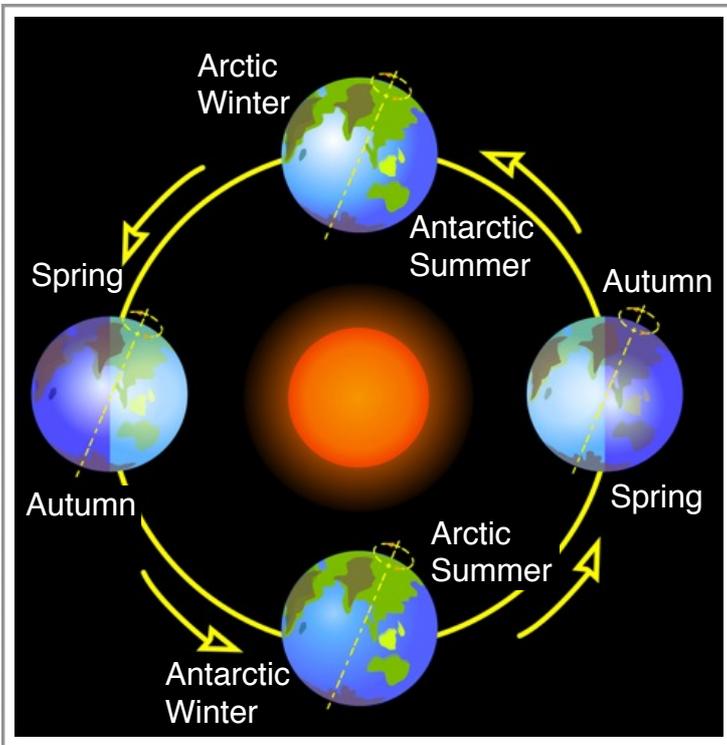
The **Arctic** is much warmer. It can be a comfortable zero degrees centigrade in the summer but goes as low as minus 30 degrees in the winter. Both places can get extremely windy, making it feel much much colder than it really is.

The Antarctic is in the **Southern Hemisphere** so whatever the season is in the north, it will be the opposite in the south. When ice melts in the Arctic summer, it's winter in the south.

Did you know...

Antarctic is a desert? Deserts are not just places with lots of sand and camels roaming around! A desert is any place that gets less than 250mm of rain or snow during a year. It hardly ever snows in Antarctica and is in fact the driest place on earth!

Seasons of the sun



The earth spins on its **axis**, tilting to one side. When a place faces the sun, it is day. When it spins away from the sun it is night. It takes **24 hours** for the earth to complete one full rotation of day and night.

Over a **year**, the earth also slowly moves around the sun. During the wintertime the earth is **tilted away** from the sun. During the summer the earth is **tilted towards** the sun. When its tilted towards the sun, there are more hours of the sunlight. That is why the days are shorter in winter and longer in the summer.

When it's winter in the north or south poles they are faced away from the sun and are in **complete darkness** day and night. In Antarctica it is dark for six months of the year! Summer in those places is the opposite; they are constantly in the sun and it will be light even in the middle of the night!

Why are the poles so cold?

Firstly, the sun's rays have to **travel further** through the **atmosphere** to get to the poles, so by the time they get there, they're not as strong.

Secondly, the earth is round and has a **curved surface**. When the sun's rays reach the poles, the curve spreads them out over a wider area than in other parts of the world. This makes them weaker, and not as warm!

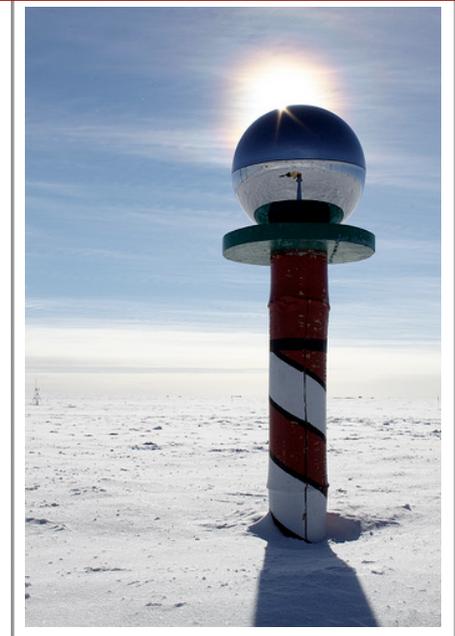
Thirdly, **white reflects light**. As the poles are covered in lots of white ice, a lot of sunlight is reflected back into the atmosphere, before it has chance to heat anything up. This is called the **albedo effect**.

Race to the South Pole - Amundsen Wins!

One hundred years ago Norwegians were celebrating, after finally receiving news that their hero, **Roald Amundsen** had made history as the first man to reach the South Pole! He arrived at the pole on December 14th 1911 beating his competitor,

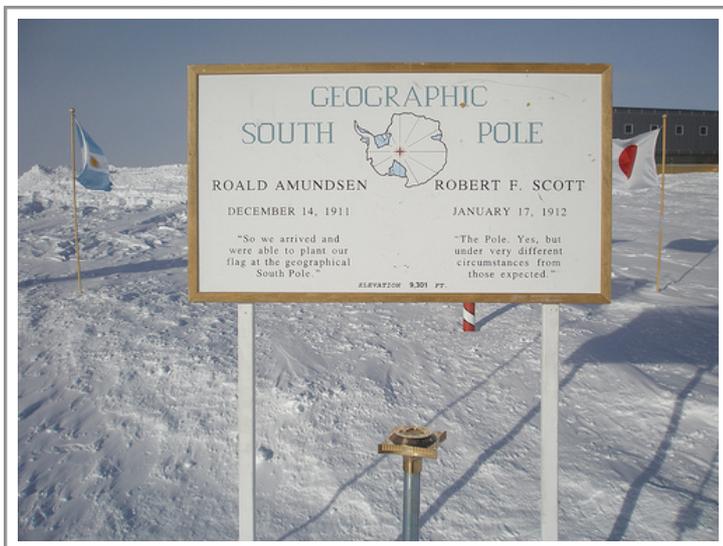
Britain's **Captain Robert Falcon Scott**.

Scott and his team also reached the South Pole, but not until the 17th January 1912. Disappointed, they began their arduous return journey, but sadly never made it back. Scott's diary, found in his tent alongside the men's dead bodies revealed that storms and blizzards had stopped them from moving on. Stuck in their tents, the exhausted men ran out of food and became so weak that they couldn't continue any more.



Eli Duke CC BY-SA 2.0

The South Pole



Alan Light CC BY 2.0

Two North Poles?

Believe it or not, there are two north poles! One is **magnetic north** and the other is **true north**. True north is the geographic north pole and is the northernmost point of the earth's surface at the top of the earth's axis. It is in the Arctic Ocean, usually covered in sea ice.

Magnetic north is the way a compass points and shows us the centre of the earth's magnetic field. It is also in the Arctic, but to confuse us even more, magnetic north is always moving! It moves 25 miles (40km) each year and since it was discovered in 1831, has moved hundreds of miles to where it is now!

In Antarctica, there is also a geographical South pole and a magnetic South Pole.

This magnetism is used by birds like a compass to know which direction to go in when they migrate.

First to reach the North pole?

In 1909, **Robert Peary**, **Matthew Henson** and four Inuit people claimed to have reached the north pole. No-one knows if they really did though - some suspect they missed it by a few miles.

Did you know....
When you're standing at the North pole, every direction is south of you!



Alejandra Bravo * CC BY 2.0



It is a cold dark Arctic night, and you are standing, watching the sky very carefully. Suddenly, the darkness is filled with colour - bands of green, swirls of pink and flickers of purple light. This is **Aurora borealis** or the **northern lights**, nature's very own light show.

The Light Fantastic!

A light show with a difference, coming soon to a sky near you..... if you happen to live near the Arctic or Antarctica!



It's what happens when electrical particles from the sun mix with gases in our atmosphere. The northern lights can be seen in places around the Arctic circle such as Norway and Alaska, but they can move to new locations depending on where the earth's magnetic field happens to be and on the activity of the sun (if it's putting extra particles into the air).



At the opposite pole in Antarctica there are the **Southern lights** or **Aurora Australis** which can also be seen in Australia, where it is also a lot warmer!

Guess what?... When people first saw the aurora, they didn't understand what it was, so they came up with legends to explain them, one imagining that they were the souls of animals dancing in the sky!



How many words can you make from the letters in Aurora Borealis?

Here's a couple to start you off..... list, roar, real.....

Who are the Inuit?

The Inuit are people who have lived in the **Arctic tundra** for thousands of years. There are over two million Inuit people who belong to different tribes in different countries, with their own languages. "Inuit" means "the people" in the **Inuktitut** language. Traditionally they use what they can find around them to survive, mainly animals, for everything! Although their lives have changed a lot in modern times, they still keep some of their traditions. No-one lives permanently in the Antarctic - it's too cold, although many scientists and explorers still visit.

Names The Inuit are made up of many different tribes in different parts of the world. There are the **Sami** in Scandinavia, the **Nenets** and **Chukchi** in Russia and in Alaska there are the **Yupik**, **Cup'ik** and **Inupiat**. In Russia the people herd reindeer, using their meat and skins for food, clothing and shelter. The Inuit of Canada and Alaska do not herd reindeer, but instead hunt wild reindeer, called caribou.

Diet Inuit people mainly **hunt** and go **fishing** for their food, since it is too cold to grow plants! They hunt seals, walruses and even whales which can provide enough food for their whole village and can last for weeks.



Homes In the past, the Inuit would move where they lived to be near the animals they wanted to hunt. Without any wood, the Inuit made **igloos** out of snow to live in during the winter and in the summer they lived in **tents** made out of animal skins and bones. Now they live in houses made from materials which have been brought in from other places. In their homes they have electricity, for lighting, television and radios with programmes often broadcast in their native languages.

Travel To travel from place to place, the Inuit use **sledges** made out of animal skin and bone, pulled by strong **husky dogs**. Nowadays they sometimes use motorised sledges too. **Kayaks** are also used for hunting and larger boats called "**umiaq**" for transporting people.

Clothing Clothes can be made from the skins of animals such as seal **skins** and from **fur**. Traditional coats are called "parkas" with furry rimmed hoods to stop the wearer's breath from freezing on their faces.

Hunting – good or bad?

The Inuit are allowed to hunt a small number of whales and other protected species such as walruses. Why? The reason is because they have always hunted in a **sustainable** way only taking what they need and leaving plenty behind.

This is unlike the time when hundreds of whales were killed by outsiders, only to sell and make money; something which has put many whale species in danger of **extinction** in the past and commercial whale hunting is still banned.

Still mixing up your north's with your souths, your penguins with your polar bears? Has your brain frozen? Never fear, here's a quick summary for you!



The Arctic

Name

The Antarctic

North Pole

Where?

South Pole

Ocean surrounded by land
(the Arctic Ocean).

What?

Land surrounded by ocean
(the Southern Ocean).

Between 0 and minus 30

Temperature

Average minus 49 degrees

Winter

Season in January

Summer

Polar bears

Wildlife

Penguins



The Inuit

People

Scientists (occasionally)

Robert Peary
(from the USA)
and team
1911

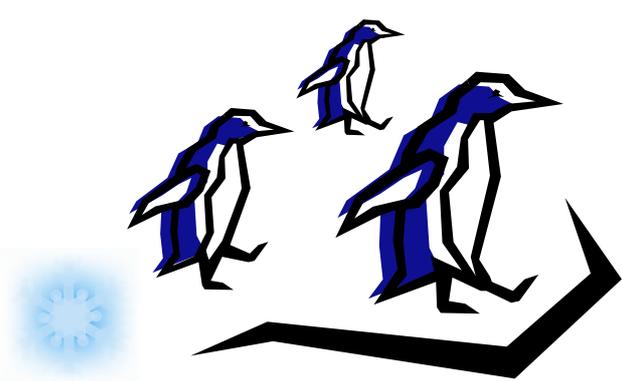
First to arrive at the
pole

Roald Amundsen
(from Norway)
and team
1909

Aurora borealis
(northern lights)

Light show

Aurora Australis
(southern lights)



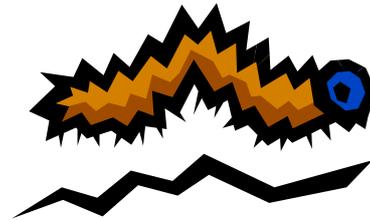
Arctic Animals

Many animals live in the Arctic circle, either on the ice, in the water or on the frozen land called the tundra. They have plenty of ways of surviving the freezing temperatures. Sometimes it's the way their bodies are made, sometimes it's what they do.

Camouflage - when an animal blends in with its surroundings. This helps predators (hunters) to sneak up on their prey and the hunted to hide!

Migration - creatures move further north when the weather warms up in the spring and summer! As soon as the ice starts to return, they move south to a warmer place.

The Woolly Bear Caterpillar



Most moth caterpillars eat some plants, spin a cocoon and turn into a moth, all within a matter of weeks. But life is harsh in the Arctic. Once the ice has melted in the spring, the woolly bear caterpillar hatches and eats as many plants as it can before the ice returns. Time is so short that it can't eat enough food to grow big enough to change into a moth. So it hides under a rock and waits for the next year when the weather warms up to eat some more.

The woolly bear caterpillar has a woolly coat, but even with that the caterpillar still freezes. It becomes so cold that its heart stops beating and it stops breathing - it dies. Yet every spring when the ice thaws, miraculously the caterpillar's body warms up, its heart begins beating and it springs back to life. The woolly bear caterpillar is the first insect to appear each spring. It eats more plants and grows some more until the ice returns! It does this for fourteen years! The finally when it has reached its full size it wakes, eats, spins a cocoon and finally turns into a moth!

Arctic Tern

Also known as the "sea swallow" this Arctic tern has a lot of energy! There aren't many creatures or even people who have seen both the Arctic and Antarctic. But this little bird travels thousands of miles every year, 22,000 miles to be precise and can do just that. They spend their summers as far north as Greenland or Iceland, in the Arctic circle, although some of them prefer to stay in slightly warmer places, such as the north of Scotland, where they lay their



eggs before heading back towards Antarctica. Six months later, they will arrive!

How do they find their way? They don't have maps or "sat nav" to tell them

which way to go. Instead they follow the coastline of north-west Europe and Africa. They feed on coastal fish and sand eels in particular. Their v-shaped wings help them to be aerodynamic! Considering they can live up to 29 years, they must clock up a few miles over that time!

Did you know...

the Arctic tern sees more daylight than any other creature on earth, because it is always heading in the direction of summer.

Remember, if summer ends in the northern hemisphere, it is just beginning in the southern hemisphere.

The Arctic Tundra

The **Arctic tundra** is land within the Arctic circle where there are no trees and most of the year the ground is covered in thick snow. Temperatures are an average minus six to minus twelve. As the weather warms during the spring and summer there is a short burst of life when flowers bloom. Suddenly it becomes a hive of activity as animals visit to make the most of the food available.



Spring in the tundra

Permafrost is a layer of frozen mud and dead plants which goes deep under the ground. In some places it is frozen all year whilst in others the top surface of it melts in the summer making lots of bogs and lakes which are brilliant for attracting insects and migrating birds which go to feed on them.

Caribou – a great migration

Caribou look like reindeer but they are really the reindeer's wild cousins! They can be found in the Arctic tundra of Greenland, Alaska, Canada and Russia. Every spring time around 3 million caribou embark on a great migration, travelling up to 800 miles north across the **tundra**, traversing rivers, lakes and wetlands which stand in their way. These are the calving grounds where they give birth. There the caribou feed up on the flourishing grasses and plants before they get covered once more in snow and ice. During these times they can eat 5kg of food a day!



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Survival Skills:

- * Their **hooves** are wide like **snow shoes** to stop them from sinking into the snow and act like **paddles** when they swim.
- * They are **strong swimmers** and are capable of crossing wide rushing, freezing cold rivers.
- * Their **hairs** trap air which insulates them against the cold and helps them to float in the water.

Did you know.....
caribou's feet click!
Perhaps this is so that they
don't lose each other in
misty weather!

Did you know.....
caribou are the only deer where both
the males and females have antlers!
They shed them (they fall off) each
year and grow new ones.

- * Their **calves** are able to stand only a few minutes after they are born and can run 90 minutes later, enabling them to keep up with the rest of the herd on its journey if they haven't already arrived!

- * During the **winter**, caribou head south to sheltered evergreen forests where they survive by eating tiny lichens and mosses which they search for on the trees and under the snow. The underside of their **hooves** are **hollow** with sharp edges to help them scoop away the snow.

Did you know....
lichens grow so slowly,
it takes between 80 and 150
years to grow enough for a
herd of caribou to eat!

Polar Bears

Survival Skills

- * **Thick fur** traps air and keeps it warm.
- * **Hairy paw pads** help them to grip on the ice.
- * **White/yellowish fur** acts as camouflage.
- * Slightly **webbed feet** for swimming – they are excellent swimmers and need to be to go from one ice floe to another.
- * **Small ears** keep them warm.
- * Strong **sense of smell** to detect where seals are.

Ringed seals are a polar bear's favourite food. Ringed seals mammals and have to come up to the surface to breathe through holes in the ice which they make. A polar bear may wait beside one of these holes until the seal comes to the surface and swipe them with their huge paws. Young seals are often left on the ice, while their parents go hunting for fish. Its **white fur** helps it to blend in with the ice around it so it can't be seen. But with a polar bear's keen sense of smell, it can still be found. They stalk their prey before making a final dash towards it. However, only one in ten polar bear hunts are successful, so even they can have a hard time finding food.



Arctic Wolves

Hunting in **packs**, arctic wolves can bring down animals much bigger than themselves such as caribou and musk ox (like really big cows!) as well as hunting smaller prey like hares and lemmings. Musk ox are **herbivores** (plant eaters) and as they migrate south in the winter, looking for plants to eat they are often followed by hungry wolves.

Due to the large size of their prey, wolves must work as a team. If they try to attack on their own, they would easily be injured. So they prowl around the herd, trying to make the oxen panic and run so they can separate a young or weak animal from the rest of the herd.

Did you know....

the name "Arctic" means bear. It comes from a Greek word, even though the Greeks had never been anywhere near the poles and had never seen a wild polar bear! Actually they didn't know what was there but named the area after "the Great Bear", a group of stars which shone over the north pole and looked like a bear. "Antarctica" means "opposite" the bear.

Arctic Fox

These clever creatures hunt for lemmings and voles that hide under the snow, seal pups and the left overs from a polar bear's meal. They **store food** in the summer in their dens, buried in the snow or in rock crevices and mark it with their scent to find again in the winter when food is in short supply. Their brown fur turns white in the winter acting as **camouflage**. Their small ears help them to conserve heat and their hairy feet keep them warm!

Atlantic Walrus

Both male and female walruses have **tusks** which grow about a metre long. They are used for fighting, to keep open breathing holes in the ice and to haul themselves up out of the water. Also, the longer a walrus' tusks are, the more important it is within the group. Their **wrinkly skin** is very tough and helps to protect them from battles between the bulls (males).

Did you know....

When a walrus has died, you can tell how old it is by the number of rings inside its tusks, like the rings in a tree!



NOAA Photo Library CC BY 2.0

A walrus' moustache of **whiskers** helps it to hunt in the dark depths of the ocean for shellfish, snails, crabs and worms. A layer of thick blubber helps to keep it warm in the icy waters. In the 18th and 19th centuries, walruses were hunted for their tusks, oil, skin and meat, so much so that they became endangered and disappeared from some areas.

Beluga Whale

"Beluga" means "white one" in Russian, although they are born grey or brown.

They have no **dorsal fin** - this is the fin which usually runs along the whale's back. Without it, they can swim easily underneath the ice sheets.

They gather in **pods** of up to 25 whales and in the winter when the sea freezes over again, they migrate south to warmer waters, joining up with other pods, so that there can be hundreds, or even thousands of them together!

Beluga whales are sometimes called "**sea canaries**" because of the songs and sounds they make, clicking and whistling to communicate with other whales in their pod. They are so loud, they can even be heard above the water.



Hafiz Issadeen CC BY 2.0

Narwhal

A narwhal is a type of whale that looks like a unicorn! The male has two teeth, one of which grows into a long **tusk** which can reach 2.5 metres long. No-one really knows what it's for but it could be used to find food, as a weapon, for defense or simply to show off. In the spring they head north towards the melting Arctic sea ice to hunt.

Some Inuit people hunt a small number of narwhals for food. There aren't many fruits and vegetables for people to eat in the Arctic, but luckily narwhals are packed full of **vitamin C**, like oranges!



dreamstime.com

Antarctica – A Protected Wilderness!

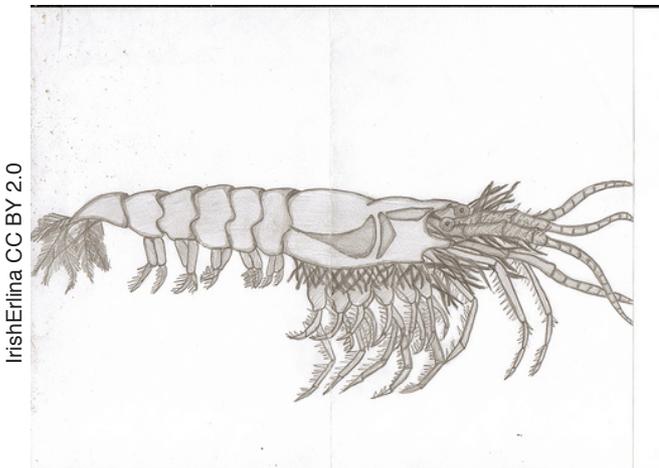
Antarctica is such a special place that it has been given special protection. The **ANTARCTIC TREATY** was signed in 1959 when twelve countries agreed to leave Antarctica as it is, as a place of peace where scientists can carry out research and tourists may visit. Special care is taken to ensure no-one does any damage. It does not belong to any one nation. All plants and animals in Antarctica are protected too, so they may not be collected or hunted.

Creatures of the Antarctic

Most Antarctic creatures live in or near the sea. A tiny part of the continent has no ice, just bare rock, allowing some hardy species of plant and animal to survive which wouldn't otherwise. Antarctic creatures are not afraid of humans, so you can get quite close to them, if you dare!

Krill

Krill are the life source of the Antarctic ocean. They are a kind of “**zoo-plankton**” - tiny shrimp-like creatures measuring 6cm long, which eat microscopic plants called “**phyto-plankton**” that float in the water. Many Antarctic creatures eat krill from small fish to penguins, seals, birds and even gigantic whales! They group together in **swarms** made up of as many as two million krill! Sometimes there are so many, they can be seen from space! **Baleen whales** have giant filters in their mouths to help them sift out the krill from the water. In the feeding season, a blue whale can eat about four million krill every day! In fact, “krill” is a Norwegian word meaning “whale food”! Krill are also found in the Arctic ocean.



IrishErlina CC BY 2.0

Antarctic Fish

Antarctic and Arctic fish possess a kind of “**antifreeze**”. This stops their bodies from freezing in sub-zero temperatures! The **ice fish** is particularly unusual because it doesn't even have blood to carry oxygen around in its body.

Wandering Albatross

The wandering albatross holds the world record for having the biggest **wingspan** of any bird, measuring up to 3.5 metres from the tip of one wing to the other - why not measure it to see how wide that is?! It takes 13 months for their chicks to **fledge** (leave the nest). They spend weeks learning to fly, but once they do, they don't go back to land for another five years! Sometimes they are accidentally caught on long fishing lines, intended to catch Patagonian toothfish.



Crab eater seals

They just love eating.....krill - not crabs!
They sieve these tiny shrimps out of the water. They are nocturnal, doing most of their exploring and hunting at night. They live on the "pack ice". There are more crab eater seals in the world than any other kind of seal. Their main predators are leopard seals and killer whales!



Killer Whales

Killer whales, also known as orcas, are found in oceans all over the world, including the Arctic, but are mainly found in the Southern Ocean around Antarctica, where they can find plenty of food such as seals, penguins, jelly fish, squid, krill and even other whales! Killer whales are "toothed" whales with 40 to 48 teeth. They are great hunters, like wolves in a pack, working together in a group called a "pod" to bring down their prey. They talk to each other using clicks and other sounds and have a great sense of hearing.

Sometimes whales will bring their heads out of the water to see what's there.

This is called "spy-hopping"!



Kat Kellner CC BY 2.0

Southern Elephant Seals

These hefty seals are named after the "trunk" which the bull (male) has. He is a heavy guy weighing around 3,700kg, between 8 to 10 times more than the females! Elephant seals are deep divers, able to hold their breath for up to 2 hours, while they look for deep water squid. If they get tired they can even sleep underwater! They have thick skin, fur and blubber to keep them warm. Sometimes they gather on shore in groups called pods which stink because of their bad breath!



Jim Bahn CC BY 2.0

Penguins

There are seventeen different species of penguin in the world! However, only seven species can be found in Antarctica. The **Adelie**, **Emperor**, **Chinstrap**, **Gentoo**, all breed on the continent and **King**, **Macaroni** and **Rockhopper** penguins live and breed on nearby islands.

Survival Skills

- * Penguins' bodies are **streamlined** so they can twist and turn quickly in the water chasing their prey. They keep their head hunched into their shoulders when they swim and press their feet close against their tail, using it as a rudder to help them steer. The fastest can swim up to 25 miles an hour!
- * Penguins can't fly, but underwater their **wings** work like paddles and they almost look like they are flying!
- * Their solid and dense **bones** help them to dive. Otherwise they'd keep bouncing back to the surface!
- * Penguins can **see clearly underwater** helping them to catch fish.
- * **Overlapping feathers** make the penguins wind and waterproof! A layer of "down" (fluff) underneath helps to trap the air which keeps the penguin warm, as well as a layer of fat. Penguins also keep warm in the water by keeping moving! Their dark feathers also absorb heat from the sun.
- * Smaller species of penguin leap out of the water to breathe air and dive back in. Known as **porpoising** this means that when they come to the surface for air, they don't have to slow down. They can also leap out of the water onto land or ice to escape a hungry predator.
- * **Diving** Most species don't stay underwater for more than a minute at a time and don't dive too deep. Emperor penguins are the exception because their prey live at greater depths, normally diving for between 3- 10 minutes but some dives last 20 minutes! They are the deepest diving birds in the world able to reach depths of 565 metres!
- * **Sneezing Salt....** well sort of....penguins can drink sea water, but too much salty water is not good for them. Fortunately they have special glands in their bills which get rid of the salt in droplets which they shake off.



Liam Quinn CC-BY-SA 2.0

Chinstrap penguins porpoising

Penguin predators

Watch out for those **leopard seals** and **killer whales**! Leopard seals often lie in wait under ice ledges, ready to catch the first brave penguins to jump into the water! On land or ice, penguins have no predators, although seabirds such as **skuas** try and eat their eggs! People used to kill penguins as well, for meat and to make oil from their fat.

Thankfully that doesn't happen any more!



Chad Rosenthal CC BY 2.0

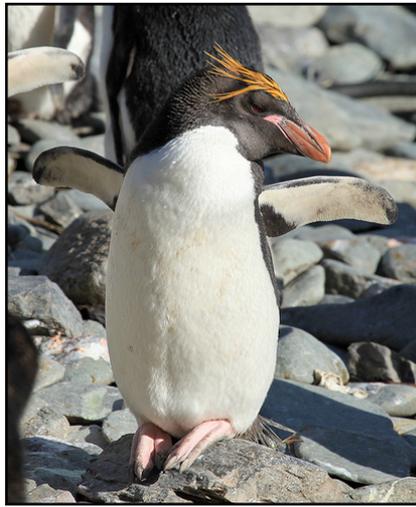
Leopard seal

Gentoo and **Adelie Penguins** breed on the rocky Antarctic coastline and make their nests out of small stones. Adelies have been caught stealing a rock or two from another penguin's nest!



Liam Quinn CC BY-SA 2.0

Gentoo penguin



Liam Quinn CC BY-SA 2.0

Macaroni penguin

"We get our name "**Macaroni**" not because we like cheesy pasta but because of our flamboyant orange crest of feathers. This reminded early English explorers of the hats worn by young men at the time - called "macaronis" which also had feathers sticking out of them."

Emperor Penguins: "We are very sociable and like to live with our friends. Our colonies can have anything from 500 to 20,000 pairs of penguins. We huddle up in groups to keep warm and take it in turns to be on the chilly outside or in the middle."

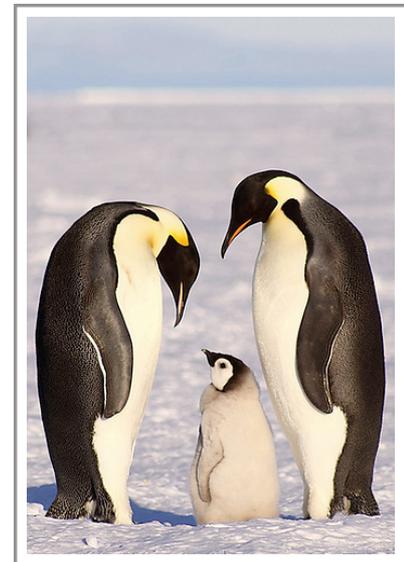
King & Emperor Penguins don't build nests. Instead the male balances the egg on his feet, covering it with his "pouch" to keep it warm. Outside temperatures are minus forty degrees centigrade! During this time, while the female is away for up to 2 months looking for food, he doesn't eat anything!



Angell Williams CC BY 2.0

Adelie penguins going for a swim!

Once the chicks have hatched, they live together in a rookery, a bit like a creche. This helps to keep them warm and keeps them safe from sea birds which will attack them while their parents are away looking for food. The parents can find their chick again among all the others by its distinctive call.



Anne Froehlich CC BY-ND 2.0

Once she has laid her eggs, a female **Emperor Penguin** walks fifty miles across the ice, back to the sea to find food. When she returns 2 months later, the mother regurgitates some fish for the chick to eat. Amazingly, by the time the chick is ready to go for its first swim, it is spring time and the ice has melted away. This means that instead of walking 50 miles, the young penguins are very close to the sea and can just waddle over and jump in!



SA 2.0

Gentoo nesting colony

Poles Under Threat

Something strange is happening at the poles, something which is affecting people and animals all over the world – temperatures are rising and the ice is beginning to melt! This is making survival much harder for the creatures that are used to the freezing conditions. It means that in the winter when the sea freezes around the poles, less of it is frozen, it isn't frozen for as long and it isn't as thick as it should be either. It also melts more quickly.



Global Warming

We call the rising temperatures around the world "global warming". A lot of this is caused by pollution, which comes from our cars and from power stations that make electricity. They put a gas called carbon dioxide into the air which goes into the atmosphere (the space around our planet) and makes a kind of blanket which is trapping more heat from the sun and is warming the earth. We sometimes call carbon dioxide a "greenhouse gas" because it traps the heat from the sun in the same way as a greenhouse does. In only 30 years time, the sea ice in the Arctic could almost be completely gone in the summer time.

Polar bears

need the ice in the winter to hunt for seals! Even though they can live on

land and survive for long periods without any food, the shorter the ice is there, the shorter their hunting time. This means that many polar bears are already underweight and starving. They can swim long distances, up to 60 miles to find food, but can be so exhausted at the end that they



U. S. Geological Survey CC BY 2.0

Newcomers

Arctic winters are getting shorter so different plants and animals that prefer this warmer weather are finding it easier to survive there and are moving north. Creatures which would not normally be seen in the Arctic tundra are starting to appear. This is beginning to upset the natural balance of nature. Red foxes have been spotted, which are now competing with the Arctic fox for food and territory.

Krill

If there is less sea ice, it makes it harder for krill to survive because they eat algae, a kind of plant which grows underneath the sea ice. Without the krill, so many of the other Antarctic creatures would find it extremely difficult to survive. Krill also do an important job of carrying carbon from the surface of the ocean to its depths. This is like removing the carbon dioxide that comes from 35 million cars every year!

Inuit

The Inuit are also finding travel across the ice to hunt more challenging, as big cracks in the ice open up, where they never did before.

Migration

Animals are getting confused about when is the right time to migrate and are mis-timing

their journeys. If spring arrives early, by the time caribou herds reach their feeding grounds, many of the plants will be past their best. Sometimes warmer temperatures make rain fall instead of snow. If the rain water freezes on the ground the caribou can't scoop it away like snow; they can't break through the ice to get to the lichens. Warmer weather also allows more insects to survive and pester the caribou, preventing them from foraging.



Bruce McKay CC BY-SA 2.0

A Warning

Temperatures at the pole are rising more quickly than in other parts of the world. They are a warning sign that we must do what we can to reduce the amount of "greenhouse gases" we put into the atmosphere to stop global warming from getting any worse.



A Domino Effect

Ice is white and reflects the light and heat from the sun back into space - the albedo effect. When the ice melts into water, the water is much darker and absorbs the heat. This then causes more warming and more melting.

Permafrost - not so permanent!

In the Arctic tundra, the permanently frozen ground is beginning to thaw. In some places this is allowing a gas to escape from underneath the ground. This gas is called methane and it is also a greenhouse gas which makes global warming worse. People living on the permafrost are finding their houses are starting to sink as it thaws!

Searching for Oil

As more of the Arctic melts, it means that more ships can get to places they couldn't get to before and explore under the sea bed to look for oil and gas. Drilling for oil would damage the habitats there and an accidental oil spill would be a massive environmental disaster!

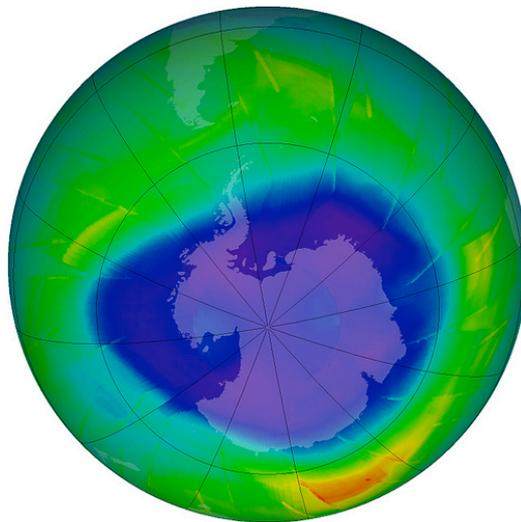
Litter floats in the oceans and gets washed up onto the beaches. Animals can mistake it for food and eat it or can get tangled up in bits of fishing line and nets. Even the chemicals from small pieces of plastic have been found in polar bear's bodies. Why? Because they eat seals which have eaten by fish which have eaten small pieces of plastic. The chemicals get passed along the food chain.

The Hole in the Ozone Layer

What is it? The ozone layer is a thin layer of ozone gas found in our atmosphere which surrounds our planet and absorbs ultraviolet (UV) light from the sun. This is different to the "blanket" layer that causes global warming!

What does it do? Ultraviolet light is the kind of light that gives you a sun tan. The ozone layer acts a bit like sun cream, protecting us from the sun's harmful rays so we're less likely to get burnt. In 1985 a "hole" was discovered in the ozone layer above Antarctica. Actually it wasn't so much a hole, but it had got thinner. The "hole" can move around but is usually near the South Pole. There has also been a thinning of the ozone over the Arctic.

How did it happen? This was caused by pollutants from things such as deodorant sprays, polystyrene dishes, fridges and air conditioning units which used to contain chemicals called CFCs and others. Once they got into the atmosphere these CFCs wore away a hole in the protective ozone layer.



What does this mean?

Too much UV light can cause skin cancer in humans. The UV light can harm and reduce the number of phytoplankton, tiny plants that float in the water, which are essential for krill to eat and for all other life forms in Antarctica to survive. Creatures such as Antarctic ice fish can be damaged by the UV light as their bodies have no protection against it.

What Now?

In 1987, the **Montreal Protocol** was set up and has since been signed by 196 nations who have agreed to reduce their use of CFCs and other ozone depleting chemicals. Although these chemicals are now banned in many parts of the world, they are still in use in some places and take many decades to disappear, so they can continue to do damage for a long time. However, the good news is that if we keep on reducing these pollutants, it is hoped that the hole could heal itself sometime between 2050 and 2070.

What Am I?

Link these clues to the creature they belong to.

- | | |
|---|---------------------|
| 1. I am a bird which travels the world. | narwhal |
| 2. I am like a unicorn in the sea. | Inuit |
| 3 I am also called an orca. | caribou |
| 4. We are people who live in the Arctic. | emperor |
| 5. We have the biggest wing span in the world! | krill |
| 6. We shovel snow with our hooves. | walrus |
| 7. I am type of penguin which balances an egg on my feet! | polar bear |
| 8. I have two teeth, each a metre long! | killer whale |
| 9. I have webbed feet for swimming in the Arctic Ocean. | wandering albatross |
| 10. I'm a tiny but essential food source in the Southern Ocean. | Arctic tern |

Arctic or Antarctic?

These creatures have got a bit lost. Can you draw lines to link them to their correct home. A few can be found in both places.

- Narwhal
- Killer whale
- Wandering albatross
- Penguin
- Polar bear
- Ringed seal
- Leopard seal
- Walrus
- Elephant seal
- Arctic tern
- Caribou
- Skua
- Arctic wolf
- Krill

Arctic



Antarctic





Can you find all the words
hidden in the grid?



m	t	f	a	r	o	r	u	a	o	p	t	f	b	n	e
l	a	l	b	a	t	r	o	s	s	n	l	l	i	r	k
w	n	g	s	u	y	w	b	h	u	x	i	u	a	e	i
p	t	a	n	c	g	q	i	h	v	r	g	h	b	n	r
o	a	d	r	e	i	j	r	l	c	n	v	c	u	n	m
l	r	k	e	w	t	t	a	n	e	h	a	i	h	s	y
a	c	u	n	d	h	i	c	p	d	s	t	g	v	e	d
r	t	g	o	u	k	a	c	r	e	a	f	u	s	a	t
b	i	r	d	s	j	h	l	v	a	d	n	c	o	l	l
e	c	a	m	o	u	f	l	a	g	e	o	m	e	s	l
a	r	c	b	s	c	o	g	t	z	s	r	m	f	q	n
r	m	t	k	s	w	z	i	o	b	e	t	b	s	o	p
p	f	i	v	p	r	t	r	o	a	r	h	g	r	a	x
x	e	h	n	b	k	f	t	i	e	t	a	r	g	i	m
s	p	e	r	m	a	f	r	o	s	t	i	h	u	v	o

Aurora

Albatross

Antarctic

Arctic

Birds

Camouflage

Caribou

Cod

Desert

Fox

Frozen

Hare

Hunt

Huskies

Inuit

Krill

Magnetic

Melt

Migrate

Narwhal

North

Orca

Penguin

Permafrost

Polar bear

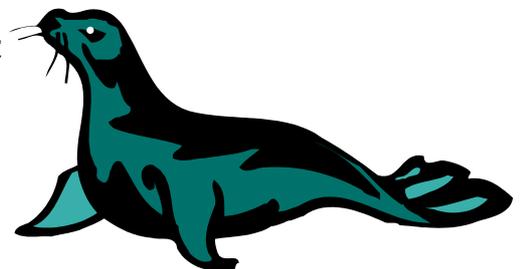
Seals

South

Survival

Tundra

Wolves



Crazy About Conservation!

We'd love to show some of your letters, jokes, poems, stories or pictures so if you have any then please write to us or e-mail them. We'd also love to hear your ideas for future editions of Yippittee – please, let us know!!

Crazy about Conservation! YPTE, Suite 29, Yeovil Innovation Centre, Barracks Close, Copse Road, Yeovil, Somerset, BA22 8RN or e-mail it to us at... info@ypte.org.uk



You're joking!

What do you call a big white bear with a hole in his middle?
A polo bear.

What do polar bears have for lunch?
Ice burgers.

What did the ocean say to the penguin?
Nothing, it just waved!

What do you call a penguin in the Sahara desert?
Lost.

What do you call an Arctic cow?
An Eski-moo!

Answers

What Am I?

1. Arctic tern
2. Narwhal
3. Killer Whale
4. Inuit
5. Wandering Albatross
6. Emperor
7. Caribou
8. Walrus
9. Polar bear
10. Krill

Arctic or Antarctic?

- Arctic
Narwhal
Polar bear
Ringed Seal
Walrus
Caribou
Arctic Wolf
Antarctic
Wandering Albatross
Penguin
Leopard seal
Elephant seal
Skua
Both
Killer whale
Arctic tern
Krill

How many words can you make using the letters from "Antarctica"?
Write in and let us know!

Websites

- www.coolantarctica.com
www.antarctica.ac.uk/about_antarctica/
www.seaworld.org
www.enchantedlearning.com
<http://library.thinkquest.org/3500/>
<http://animals.nationalgeographic.com>