



LEARN
TO LOVE
NATURE

FOCUS ON
FROZEN WORLDS

PRODUCE A NEWS REPORT ON
PENGUINS OR POLAR BEARS
FROM THE FROZEN POLES

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Curriculum links

Resource sheets 1, 2 & 3

Fact files

POLAR EXPEDITION

Objectives

- To locate the polar regions on a map of the world or globe
- To develop pupils' knowledge about the Arctic and the Antarctic



A WORKSHOP FOR
KEY STAGES 1 & 2



Curriculum

Geography

Resources

- Globe or world map
- [Resource sheet 1](#) 'We're all going on a polar expedition!'

Procedure

- Discuss with young people where cold climates are found. The coldest areas are the Arctic and the Antarctic. What is the climate like in these regions?
- Where do polar bears live? (Arctic in the far north; an ocean covered with thick ice and bordered by treeless, frozen lands). Where do penguins live? (in the southern hemisphere and Antarctica in the far south; a vast, frozen continent surrounded by ocean). Find the locations on a map.
- Ask young people to imagine that they are going on a polar expedition. What will they need to survive? How will they keep warm? What will they eat? Ask them to choose the top eight things they would want to take on their expedition, using resource sheet 1.
- Discuss their ideas. You may like to suggest the following items if they haven't been mentioned: warm clothing and boots, tent and sleeping bag, food, water, a cooking stove and fuel, matches, sunglasses, map, satellite, mobile phone.



ANIMAL ADAPTATION

Objectives

- To develop an understanding of how animals in the polar regions are adapted to their surroundings

Key skills

Creativity, communication and problem solving

Curriculum

Science, English and geography

Resources

- Animal adaptation [fact files](#)
- Pens, paper
- Bucket, ice, 2 ziplock bags, a woolly glove, a disposable plastic glove and lard

Procedure

Young people will find out how penguins and polar bears are perfectly adapted to their environment through a fun research activity and a science experiment.

Discussion

- Think back to the items you planned to take on your polar expedition. Animals don't have any of this equipment so how do they survive the cold climate? **Animals have special adaptations that help them survive in their natural habitat.**

- What does adaptation mean?

Adaptations are special features or behaviours that help an animal survive in its habitat.

- How do animals adapt to their environment?

Camouflage, sharp claws, sharp beak, hibernation, migration for food, stores of fat, thick and/or waterproof fur or feathers etc

Activity

- Ask the young person to draw or stick a picture of a polar bear and a picture of a penguin on a piece of paper then label the features they think the animals have that help them to survive the harsh, cold environments they live in. These questions may prompt ideas: how do they find food? How do they get protection from the cold?
- Now read the animal adaptation fact files. Ask the young people to add any pieces of information that they missed. Is there anything surprising? Did they learn any new facts they didn't know before?

Science experiment

To consolidate learning carry out a fun science experiment using a bucket of icy water and a series of gloves to demonstrate how penguins and polar bears are suited to their icy homes.

- Fill a bucket with icy water.
- Fill one of the zip lock bags about 1/3 full of lard. Be careful not to get any on the zipper part of the bag. Turn the other bag inside out and place it carefully inside the bag with the lard so that you are able to zip the two bags together.
- Ask the young person to place their hand into the icy water with different gloves representing different animals: bare hand (humans), woolly glove (cat), disposable plastic glove (otter with waterproof fur) and ziplock bags with lard (polar bear or penguins with waterproof coat/feathers and thick layer of fat).
- Time how long they can keep their hand in the water with each glove. How cold does it feel with each glove?
- With which glove did the young person manage to keep their hand in the icy water for the longest? Which do they think is the best coat to survive in icy water in the polar regions?



CREATE A NEWS REPORT

Objectives

- To explore the impact of human activity on animals that live in the polar regions.
- To create a news report about penguins or polar bears
- To motivate young people to take action to protect the natural world

Key skills

Creativity, communication and problem solving

Curriculum

Science, English, geography and computing

Resources

- [WWF film](#) - WWF scientists in the Arctic
- Penguin and polar bear [fact files](#)
- [Film](#) - 'Penguins and polar bears'
- [Resource sheet 2](#) - mind map
- Computer, tablet or pen and paper

Procedure

Young people will find out how penguins and polar bears are impacted by human activity and will produce their own news reports on the dangers these animals face. First, show the film of a WWF scientist reporting from the Arctic.

Film: WWF scientists in the Arctic

After watching the film, ask the young people the following questions:

- What did the weather look like in the film?
- What are the main threats facing the polar bear?

The mission

Explain to young people that they are going to help WWF by producing a news report about the plight of penguins and polar bears.

- The young people choose to work on polar bears or penguins
- Using the information young people have learned so far and the WWF species fact files for information and resource sheet 2 for guidance, they produce a mind map to identify the key information they want to include in their news report.

What can we do to help?

Now watch the penguins and polar bears film to help young people think about actions we can take to protect penguins and polar bears. Use this information to complete your mind map.



Film: Penguins and Polar bears

What can we do? Save energy, use renewable energy, reduce, reuse and recycle, buy long lasting stuff to reduce waste, buy local, seasonal food which takes less energy to grow and process, and spread the word!

The news report

Using their mind map as a guide, young people produce a news report about penguins or polar bears thinking about why are they are in danger and what we can do to help.

Think about: What is the aim of a news report? What do you need to include? How do you put forward your own views, using facts? Include surprising information to engage the reader.

Get creative

Film your report as a news bulletin, design a web page or an article in a newspaper or magazine!



MY PLEDGE

Objectives

- To reinforce acquired knowledge and understanding of the impact of human activity on the environment
- To reinforce acquired knowledge and understanding of the importance of protecting the environment
- To share learning with other young people

Curriculum

Science, geography and English

Resources

- Resource sheet 3 'My pledge sheet'

Procedure

- Discuss what young people have learnt. Why are penguins and polar bears threatened? What actions can we take to help protect them?
- Using resource sheet 2, encourage young people to identify actions they can take to help save energy and reduce pollution that leads to climate change.
- Young people can share their learning by posting their news report on social media or sharing it with friends. If you do share your work, use the hashtag #LearnToLoveNature so that we see it!

Additional resource

This resource produced by WWF-UK and Templar Publishing provides activities to help introduce pupils to key aspects of the weather, the difference between weather and climate and the main causes of climate change.

MAKE IT!



Create an Arctic habitat with everything a polar bear needs to survive. Download the WWF Activity sheet to find out what you'll need and some top tips for making your habitat.

[Download activity sheet](#)



LINKS TO THE NATIONAL CURRICULUM

'Penguins and Polar Bears' encourages young people to explore the natural world, develop their understanding of sustainability issues and consider actions they can take to make a difference while meet core learning objectives for science, English, geography, computing and art.

Science

Working scientifically, Animals, Living things and their habitats, Evolution and inheritance (adaptation)

English

Spoken language, Comprehension, Composition

Geography

Locational knowledge, Human and, physical geography, Geographical skills

Computing

Effective use of technology to present information

RESOURCE SHEET 1

We're all going on a polar expedition!

Time to pack your back pack! Write down the top eight things that you want to take on your expedition.

We are going to:

We are taking :



What actions can we take to protect penguins
/ polar bears and their frozen home?

Where does it live?



What does it eat?



What dangers does it face?



How does it survive in
cold weather?

Penguin / Polar bear



TOP TIP Focus your news report on either polar bears
and the Arctic or penguins and the Antarctic.

RESOURCE SHEET 3

My pledge sheet

List five things you can do in your own life that will help save energy and reduce pollution.

1.

2.

3.

4.

5.

Buy
long-lasting
stuff!

Buy seasonal
local food

Amazing fact:

If all the ice in Antarctica melted, the oceans would rise by the height of a 20-storey building!



Adélie penguin

These flightless seabirds are perfectly adapted to life in Antarctica, the coldest place on earth.



Did you know?

Penguins can save energy by sliding along the ice on their bellies, using their wings and feet to propel themselves forwards. This is called 'tobogganing'.

Behaviour

They huddle together with their wings tight against their bodies to keep each other warm.

Colours

Perfect camouflage helping them avoid predators and sneak up on their prey.



Black feathers on their back and white feathers on their belly. The penguins blend in with the dark sea from above and the bright sunlit surface from below. The black colour also helps to keep them warm by absorbing energy from the sun.

Eyes

An additional clear eyelid to protect their eyes under water

Beak

A hooked beak to catch food and carry stones to build their nest

Wings

Short wings that act like paddles in the water to swim faster. Penguins are excellent swimmers and divers – useful skills for flightless birds!

Tongue

Velcro-like tongue to hold on to slippery food

Body shape

- Small, compact, torpedo shape to move easily under water
- A male Adélie penguin weighs up to 5 kilograms – the weight of a small dog!

Fat

A thick layer of fat to keep warm

Feathers

Waterproof oily feathers on top; soft, fluffy feathers underneath, trapping air near the skin to keep warm.

Feet

- Webbed feet for steering and braking in water
- Strong toenails to grip the ice when walking or climbing rocks to the nesting sites



Tail

Short stiff tail to help steer in water and to balance when walking on land.



ANIMAL ADAPTATION FACT FILE

Polar bear

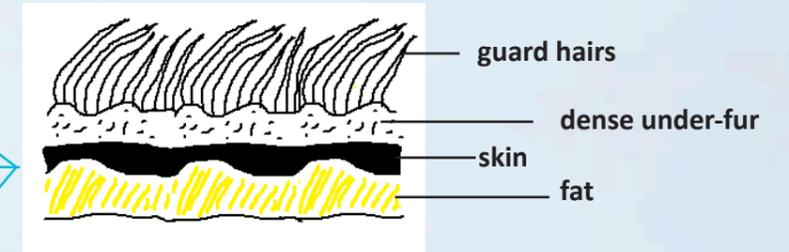
Polar bears are perfectly suited to life in the Arctic to survive freezing temperatures, biting winds and icy water.

Fur

- A thick white fur coat to trap heat and help them blend in with the snow
- Oil on their fur to shed water quickly after swimming
- Black skin underneath their fur to help soak up the sun's heat

Did you know?

Their hairs are transparent with a hollow core, like tiny drinking straws. These reflect light so the bears appear white and allow the sun's heat to warm their skin



A cross-section of Polar bear fur

Size

The biggest of all bear species!
An adult male can weigh up to 800 kilograms – the weight of a small car!

Ears and tail

Small furry ears and a short, compact tail to help retain body heat

Eyes

Super eyesight

An additional clear eyelid to protect their eyes against the glare of snow and ice

Did you know?

A polar bear can smell its prey nearly a kilometre away and up to a metre under snow!

Nose

- An incredible sense of smell to sniff out prey
- Nostrils that can close when they are under water

Fat

A thick layer of fat to keep warm

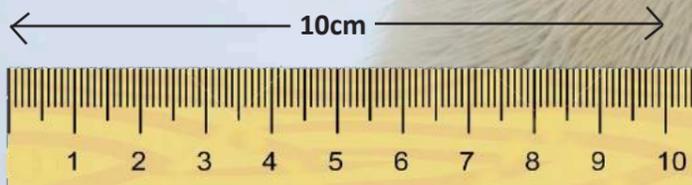
Teeth

42 super-sharp teeth to kill and eat their prey



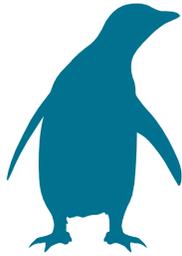
Paws

- Broad paws that spread the bear's weight as it moves over ice and snow, like snowshoes
- Stiff, thick hairs on their paws for a better grip on ice and to keep their feet warm
- Five long, curved claws to grip on slippery ice and catch their prey





ADÉLIE PENGUIN



Where I live

HOME

Adélie penguins live in Antarctica, a vast, frozen continent surrounded by ocean. They are also found on many small, surrounding islands.

Arctic



Antarctica

DESCRIPTION

Adélie penguins are one of the most common penguins in Antarctica. They have waterproof feathers and a thick layer of fat to keep them warm. They spend the winter off the coast on sea ice and return to land in the summer to breed in large groups called colonies. These groups can include thousands of penguins.

They make their nests in areas free of snow and ice and line them with stones to protect their eggs. Both parents take turns to keep the eggs warm and help to look after their chicks.

The penguins' main predator is the leopard seal, a speedy and deadly hunter. Birds like skuas also often raid the nests for eggs and chicks.



Leopard seal



Skua

FUN FACT

Adélie penguins can be cheeky and steal stones from their neighbours' nests to use for their own construction.



FOOD

Their favourite food is krill (tiny shrimps). Small fish and squid are often on the menu too. Adélie penguins can dive up to 175 metres to catch their food – that's more than three times the length of an Olympic swimming pool!



Adélie penguins diving off an iceberg



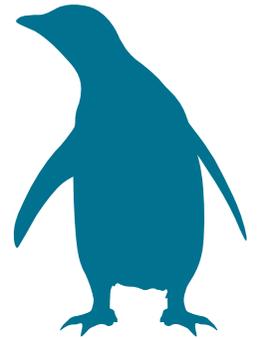
Krill



Herring

THREAT

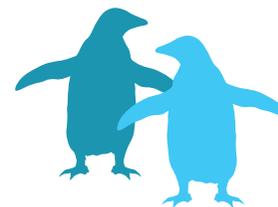
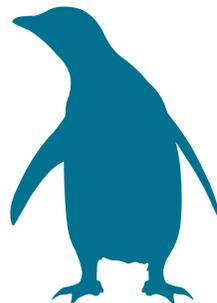
Climate change is causing the average temperature to rise around the world. As a result, sea ice in parts of Antarctica is melting, affecting the penguins' habitat. It also affects their main source of food, krill, which breed and feed under sea ice.



A colony of Adélie penguins

DID YOU KNOW?

Adélie penguins often return to the colony where they were born in order to breed.

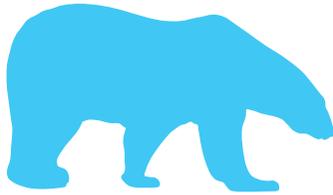


DID YOU KNOW?

When they are three weeks old, the chicks can be left on their own and they gather together to stay warm and safe while their parents go hunting for food.



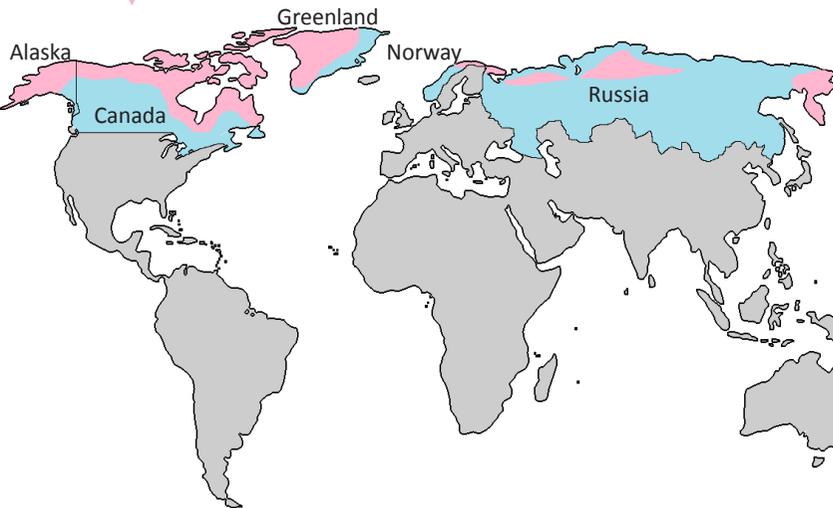
POLAR BEAR



HOME

Where
I live

Polar bears live in the Arctic, an ocean covered with thick ice and bordered by treeless, frozen lands. They can be found in five countries: Canada, the United States (Alaska), Denmark (Greenland), Russia and Norway (Svalbard islands).



DESCRIPTION

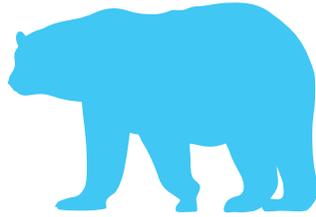
Polar bears are the largest land carnivores (or meat eaters) on the planet. They spend lots of time in the water or on sea ice, looking for food. They have a thick layer of fat and an oily fur coat to protect them from freezing weather and icy water. They can swim for hours, using their big front paws to paddle in the water and their back feet to steer.



Females dig a den in the snow to give birth, usually to two cubs. The cubs stay close to their mother for about two and a half years to learn how to survive in this harsh environment. Adult males often live alone throughout the year.

FOOD

Their favourite food is ringed and bearded seals. Polar bears can wait for hours by a hole in the ice for a plump seal to surface to breathe. Fish, seabirds, dead walrus and belugas are also on the menu, if available.



Bearded seal



Ringed seal

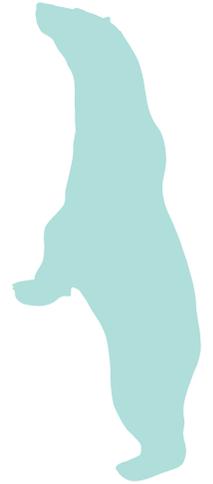


Beluga whale

THREATS

Climate change is causing the average temperature to rise around the world. As a result, sea ice in the Arctic is melting earlier in the spring and forming later each year. Polar bears depend on floating sea ice to hunt seals. Their changing habitat is forcing them to come into villages and towns to find food – not so good for people or bears!

Today it is estimated that there are only around 25,000 polar bears left in the wild!



A polar bear mother and cubs playing around an iceberg in Svalbard.

DID YOU KNOW?

Polar bears are speedy when they need to be, and can run at 40 kilometers per hour for short distances.



Polar bears don't need to drink water. They get most of the liquid they need from the animals they eat.