

Teaching Resource Pack  
for KS2/KS3

# 24 Hours in Antarctica



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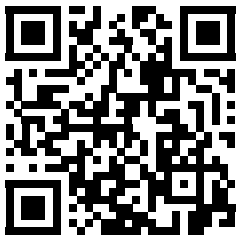


## Notes for teachers

**Suitable for:** KS2 / KS3

**Subject checklist:** Literacy / Science

The activities in this pack are based on the book *24 Hours in Antarctica*. They're designed as cross-curricular lesson activities for teachers and pupils to explore Antarctica.



Scan the QR code, or go to <https://qr.usborne.com/2ttdc> to watch an introduction to the book from author Andy Prentice.

## About the book

Join a friendly mechanic for a day working on a research base and out on the ice.

Learn about the challenges of surviving in the Antarctic, explore the incredible landscape and meet the local wildlife, as you discover all the amazing and important science that is being done down in the South Pole.





# 24 Hours in Antarctica



## CONTENTS

### Spotlight One: Antarctic Wildlife

**Objectives:** learn about the variety of wildlife in Antarctica and practise factual writing.

**Activity:** create a fact file on Antarctic wildlife.

### Spotlight Two: Glaciology (ice science) with Sam

**Objectives:** learn about polar research facilities and use scientific methods to predict outcomes in an ice melting experiment.

**Activity:** complete an ice cube melting experiment.

### Spotlight Three: Amundsen's Journey of Discovery

**Objectives:** learn about Amundsen's journey to the South Pole and write a creative first-person account of a polar expedition.

**Activity:** write a diary entry from the perspective of one of Amundsen's crew.

#### Quicklinks:

For additional activities, fun facts, and videos on Antarctic wildlife, and what it takes to live and work in Antarctica - explore our carefully selected Quicklinks here:

<https://usborne.com/quicklinks/quicklink/24-hours-in-antarctica>

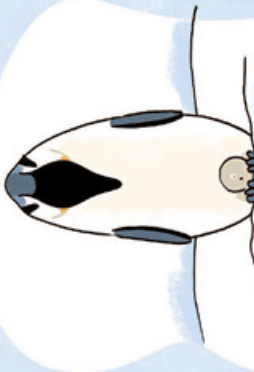
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# Spotlight One: Wildlife in Antarctica

## Emperor penguins

These penguins huddle in large groups to survive the cold, dark winters.



Each penguin tucks their egg on top of their feet so it doesn't freeze on the ice.

## Southern elephant seals

Male southern elephant seals battle ferociously for control over groups of females. They fight using their great weight and sharp teeth.



## Blue whales

These are the largest animals that ever lived on this planet - even bigger than dinosaurs!



## Skuas

Skuas nest near Rothera Station. These birds will dive at anyone who goes near their eggs, so wear a hard hat if you want to study them up close.



## Belgica Antarctica

The largest insect in Antarctica is a wingless midge. It's one of only 67 species of insects recorded in Antarctica.



## Seabird tick

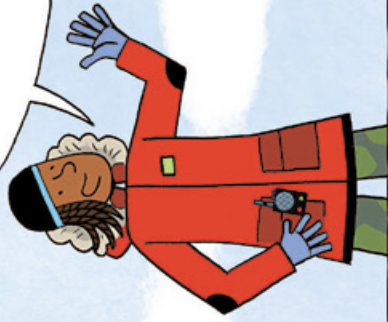
These insects feed on bird blood, but only need to eat once a year.



(Before and after meal)

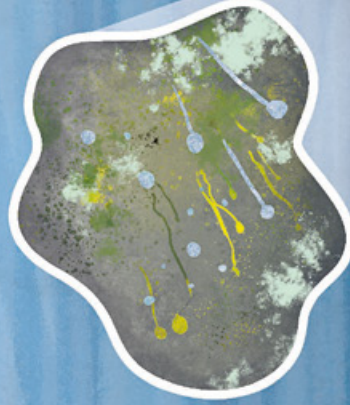
Life survives in the strangest places. In 2020, a team from Rothera drilled a deep hole in an ice shelf.

They lowered a camera to the bottom. They didn't expect to find anything alive - but they did!



## Mystery creatures?

At the deep, dark bottom of the hole, miles from any source of light or food, they discovered a rock on the seabed covered in sponges and creatures that no one had ever seen before.



900m (3,000ft)

Hi Viv! This is Alice. Please can you come to the workshop? My drill's broken!







# Spotlight Two: Glaciology (ice science) with Sam

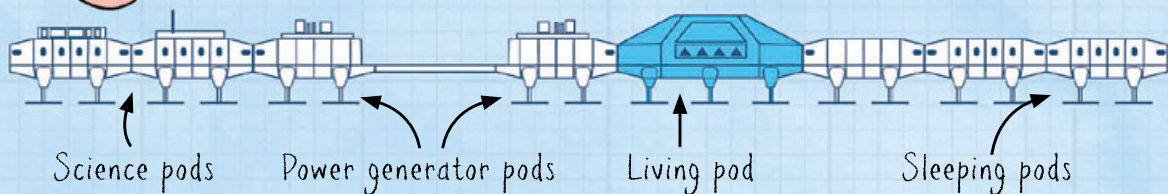
While we're having tea, let me tell you all about ice, and the research station where I worked last season.



## Halley 6

This is a state-of-the-art, British research lab constructed on a floating ice shelf in the Weddell Sea. Ice shelves form over the sea.

When the ice becomes unstable, the whole station can be taken apart and moved to a safe spot.



Up to 60 scientists can work at Halley 6 - though only 20 are there through the winter. They study the ice shelf, the weather on Earth and in space, and the ozone layer.

## Ice cores

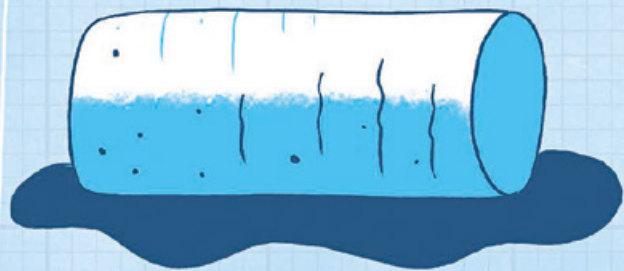
Ice sheets in Antarctica have formed in layers over many centuries. Ice sheets form over land.



Layers in the ice give us clues about the climate in the past.

Scientists drill into the ice to extract long poles known as ice cores.

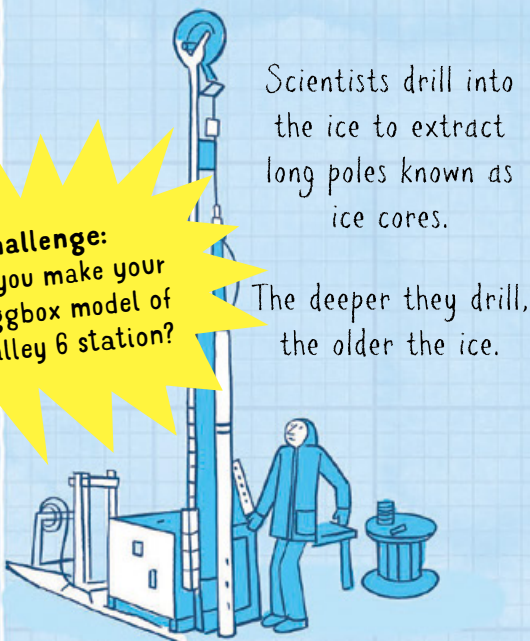
The deeper they drill, the older the ice.



Scientists compare the water, the chemicals, and the air bubbles of the different layers in each core. From this they can work out what the climate was like when the ice was first frozen.

### Challenge:

Could you make your own eggbox model of the Halley 6 station?



The oldest ice ever drilled in Antarctica was 800,000 years old.





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## Activity Two: ice cube melting experiment

Studying ice is a big part of life in Antarctica. As we saw from Sam's explanation on the last page, seeing the components of ice cores as they melt shows what the climate was like in the past.

Now is your chance to conduct your own ice experiment and see the effect of different materials on the way an ice cube melts. Follow the steps below to help you.

1. Choose which ingredient to add to the ice-cube: salt, sugar, or water.
2. Predict how long the ice will take to melt. The scientific term for this prediction is a hypothesis.
3. Time how long it takes for the ice cube to melt using your stopwatch.
4. Record how long it took in the results section for each ingredient.

Time how long it takes for the ice cube to melt without any added ingredients. In science, this is called a control. It allows scientists to compare their results more accurately.

### What you'll need:

- Four ice cubes
- Salt
- Sugar
- A cup of water
- A stopwatch/timer

| Ingredients | Prediction | Results |
|-------------|------------|---------|
| Control     |            |         |
| Salt        |            |         |
| Sugar       |            |         |
| Water       |            |         |



# Spotlight Three: Amundsen's Journey of Discovery

Amundsen's 1911 expedition –  
the first to reach the South Pole



Roald Amundsen was a  
Norwegian explorer.

19th October:  
Five men and 52 dogs  
began the journey.

It took them a month to  
cross the Ross Ice Shelf.

17th November: They reached  
the Transantarctic Mountains.  
They searched for a way  
through. Eventually they found  
a route up a steep glacier.  
It was a tough climb –  
the snow was very soft.



The explorers wore  
clothes made from  
reindeer and wolf skin.

When they reached the top of  
the glacier, they killed more  
than half the dogs for food.  
Only 18 remained for the final  
push to the Pole.

12th of December: Amundsen  
thought he saw a black speck on the  
horizon and worried that he had been  
overtaken. It turned out to be dogs'  
droppings, magnified by a mirage.



25th November: This was one of the  
toughest sections of the route, full of  
snow-masked crevasses. Amundsen  
called it "the Devil's Ballroom".



SOUTH  
POLE

14th December: Amundsen and his team raised  
the Norwegian flag at the South Pole.  
They were the first people to reach it.





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## Activity Three: write a diary entry from the perspective of one of Amundsen's crew

Imagine that you were one of the brave explorers to accompany Amundsen on his journey to the South Pole. Write a diary entry below about a day in your adventure.

**Top tips:** Think about the weather, the clothing, and the food. How would you be feeling? What do your surroundings look like?

Dear Diary,

Nov 1911



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**Thank you for using these resources!**

We hope you enjoyed your trip to Antarctica! We would love to see any work you have created, please share with us on Twitter @Usborne.

