FOCUS ON CLOTHING

OBJECTS from ANTARCTICA

IDEAS FOR TEACHERS

Brilliant ideas to get your students thinking creatively about polar exploration, with links across a wide range of subjects including maths, art, geography, science and literacy.

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SCOTT POLAR RESEARCH INSTITUTE

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UNIVERSITY OF CAMBRIDGE MUSEUMS & BOTANIC GARDEN

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WHAT? WHERE? WHEN? WHO?

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GOGGLES

The wooden goggles with textile straps are an Inuit design. They were used on Captain Scott's British National Antarctic Expedition 1901–04 (also called the *Discovery* expedition, after the ship).

The metal goggles with green glass lenses were worn by Sir Ernest Shackleton on the Imperial Trans-Antarctic Expedition 1914–16 (also called the *Endurance* expedition, after the ship).

The modern ski-mask type goggles have plastic frames with foam padding, a brown plastic lens and an elastic headstrap. They were used by British Antarctic Survey staff in the 1990s.

Accession number: N: 72 – Dimensions: height: 42mm, width 135mm, depth: 40mm
Accession number: Y: 2003/1 – Dimensions: height: 38mm, width 142mm, depth: 30mm
Accession number: Y: 2009/23/4a-b – Dimensions: height: 100mm, width 180mm, depth: 75mm

DID YOU KNOW?

Goggles are used to protect the eyes from direct sunlight and from the glare of light reflected by snow and ice. Explorers experimented with different coloured lenses and goggle design to find the goggles that worked the best in the extreme conditions of the Antarctic.

MORE DETAILS ABOUT THESE OBJECTS:
Inuit Design Goggles - bit.ly/PM-N-72
Shackleton's Goggles - bit.ly/PM-Y-2003-1
British Antarctic Survey Goggles - bit.ly/Y-2009-23-4

SHORT FILM ABOUT THESE OBJECTS: www.vimeo.com/polarmuseum/clothing

DOWNLOAD HIGH RESOLUTION IMAGES: bit.ly/PM-resources

ACTIVITY IDEAS FOR THE CLASSROOM

Visit our website for a short film about this object, high resolution image and more: www.spri.cam.ac.uk/museum

BACKGROUND	ACTIVITY IDEA	RESOURCES	CURRICULUM LINKS
On early British expeditions, goggles were adapted and developed to suit needs. Ventilation was adapted, straps improved and lenses changed.	Compare the three different types of goggles. How have they been adapted and developed? Pool ideas of everyday objects that could work better. Select one, evaluate why it doesn't work perfectly. Design a better version. Maybe the object doesn't exist at the moment (this could work well as a homework activity).	Arctic goggles can be seen here: www.spri.cam.ac.uk/museum/catalogue/armc/search/?q=goggles	DESIGN TECHNOLOGY: evaluation, design
In the Antarctic it is light for 24 hours a day in summer, while in winter there is no sunlight at all.	Why are Antarctic seasons so different to ours? Locate Antarctica on a map, now compare the map to a globe. Why are they different? Activity idea at www.calacademy.org/educators/lesson-plans/kinesthetic-astronomy-longer-days-shorter-nights	Globe, world map, internet www.calacademy.org/educators/why-do-we-have-different-seasons	GEOGRAPHY: location and skills SCIENCE: earth and sun, observation
In our museum collection we have goggles with a range of different coloured lenses including green, brown, orange, yellow and pink.	Discuss why explorers might have used different coloured lenses in their goggles. Why did they need goggles? Do coloured lenses actually make any difference? Which colour/s would be best? Discuss why it would be dangerous to test using themselves and the sun. Devise and carry out a ***safe*** experiment to test different coloured lenses.	Torch, coloured filters, Antarctic goggles can be seen here: www.spri.cam.ac.uk/museum/catalogue/antc/search/?q=goggles	SCIENCE: shadows, light, reflection, direction of light, colour observation, dangers of sunlight to eyes, prediction
By applying light filters to satellite images our researchers can calculate snow and ice depths in polar areas.	Take inspiration from the work of artists who have used colour to show our world in a different way (Andy Warhol, Monet's Haystacks, Peter Doig). Using coloured lenses, look at the world differently. Draw a familiar scene or object, make three different images of it using different colours or media.	www.sciencemuseum.org.uk/educators/classroom-resources/activities/3d-shadows	ART: the work of different artists, sketchbooks,
One of Scott's men, Birdie Bowers, had pink lenses in his goggles. Bowers was renowned for being incredibly cheerful. He wrote in his diary: *Capt Scott says they make me see every thing through rose-coloured spectacles.*	Discuss what is meant by 'seeing everything through rose-coloured spectacles.' Think of some everyday difficult situations and pool ideas about how Bowers might have commented on them. Turn sentences from passive to active.	Photo of Bowers: www.spri.cam.ac.uk/picturelibrary/catalogue/article/p2005.5.1172/	LITERACY: positive language, passive/active language

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JACKET

This jacket was worn by Geoff Somers on the International Trans-Antarctic Expedition 1989–90.

It is made from Gore-Tex, a windproof and waterproof fabric, with synthetic padding. It has various flaps, drawstrings, press studs and zips to enable the amount of ventilation to be adjusted.

DID YOU KNOW?

In the early 20th century jackets worn in polar regions tended to be made from green or brown coloured fabric. Modern polar clothing is always in bright colours so that the wearer can be seen from far away.

MORE DETAILS ABOUT THE OBJECT: bit.ly/PM-Y-91-1-1-11
SHORT FILM ABOUT THIS OBJECT: www.vimeo.com/polarmuseum/clothing

DOWNLOAD A HIGH RESOLUTION IMAGE: bit.ly/PM-resources

Accession number: Y: 91/1/1/11 – Dimensions: height: 1250mm, width 1655mm

ACTIVITY IDEAS FOR THE CLASSROOM

Visit our website for a short film about this object, high resolution image and more: www.spri.cam.ac.uk/museum

BACKGROUND	ACTIVITY IDEA	RESOURCES	CURRICULUM LINKS
Antarctica is the coldest and windiest place on earth. Clothing is specifically designed for the climate.	Look carefully at the jacket. What features are there to help you cope with the extreme temperature and wind? How is it different to your coat? What other items of clothing would be worn in the Antarctic? Design a pair of trousers for wearing in the Antarctic.	Check out the weather at a British Base in the Antarctic: https://www.bas.ac.uk/polar-operations/sites-and-facilities/facility/halley/	DESIGN TECHNOLOGY: design, evaluation SCIENCE: adaptation, weather, insulation
Although the Antarctic is one of the driest places on Earth, waterproof clothing is still necessary for coastal work.	Discuss the practicalities of waterproof clothing. Using different types of fabric devise a test for waterproofing. This could be extended to repairing waterproof clothing or looking at absorption and wicking, and why this is also useful in some types of clothing. Can you repair something waterproof?	Variety of fabrics, water, containers, magnifying glasses, microscopes, measuring containers	SCIENCE: physical properties, uses of everyday materials, changes, observation, reporting, testing, predicting
When you are wearing lots of layers of clothing it can be heavy and bulky to wear. This can impede movement.	Compare examples of summer and winter clothing. How much does each weigh? Why is this important? Compare dry and wet fabric weights.	Light weight summer clothing, winter clothing, weighing scales	MATHS: weight, comparison, addition, subtraction
In the 1940s, staff at the Scott Polar Research Institute tested lots of polar clothing and reviewed it for the British Government.	Imagine that the fabric that you have been testing has been turned into an item of clothing and that you are testing that piece of clothing for the manufacturer. Write a report on that piece of clothing. Is it suitable for a polar expedition?	Compare images of clothing http://www.spri.cam.ac.uk/picturelibrary/catalogue/article/p59.61.24/	LITERACY: formal language, report writing
Badges and logos are designed for different expeditions. These are sewn onto jackets and sometimes printed on equipment too.	Search for polar expedition logos on the internet. Look carefully at the different logos and discuss what makes a good logo. Design your own logo to go on a jacket.	Internet	ART: design and make

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MITTENS

These mittens are made from wolf skin and have separate inner mittens made from leather. The mittens are joined together by a glove harness made of lampwick. They were made in Norway.

This pair of mittens belonged to Brian Roberts and were used on the British Graham Land Expedition 1934–37.

DID YOU KNOW?

These mittens were found to be very warm when worn with an additional woollen liner.

The wolf skin was not as strong as hoped, and alternate wetting and drying caused the mittens to shrink.

Expeditions took lots of lampwick with them to the Antarctic. As well as being used for the wick in lamps, it was frequently used to make and mend other objects.

MORE DETAILS ABOUT THE OBJECT: bit.ly/PM-N-120

SHORT FILM ABOUT THIS OBJECT: www.vimeo.com/polarmuseum/clothing

DOWNLOAD A HIGH RESOLUTION IMAGE: bit.ly/PM-resources

Accession number: N: 120a-b – Dimensions: each mitten length: 435mm, width 180mm

ACTIVITY IDEAS FOR THE CLASSROOM

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BACKGROUND	ACTIVITY IDEA	RESOURCES	CURRICULUM LINKS
When it is too cold to use a scientific instrument to measure things accurately, researchers sometimes have to use estimates instead.	Measure hand span, arm span and foot length. These are your units. Use these units to measure items in the classroom and school grounds. Compare the results with accurate measurements. For upper KS2 this could be linked to algebra.	Ruler, metre stick, string, trundle wheel	MATHS: measuring, standard and non-standard, algebra, addition, multiplication, division
Frostbite is a real problem in the Antarctic. Mittens are very popular as they keep the fingers close together, sharing body heat.	Test different types of insulation. Make a plastic fillable mitten: turn a ziplock bag inside out and place it inside a second ziplock bag. Fill the gap between the bags with different materials then zip the bags so the filling is secure. Test the fillings by placing each plastic mitten in a bucket of iced water and then using a thermometer to take the temperature inside each mitten.	Bucket of cold water, ice cubes, thermometers, stopwatch or timers, plastic zip lock bags, different materials such as lard, cotton wool, feathers, fabric and paper.	SCIENCE: insulation, adaptation, prediction, fair testing, recording results, observation MATHS: reading temperature, collecting data
Researchers are still investigating ways to make linings even warmer and easier to keep dry.	Based on your insulation research, trace around your hands and make a pair of mitten linings to fit your hands.	Fabric, scissors, needle and thread, paper	DESIGN TECHNOLOGY: design, make and evaluate SCIENCE: living things, circulation, blood, heart
Brian Roberts wrote his name in large capital letters inside his mittens. However, the left liner in this pair is labelled 'CROFT'.	Discuss why mittens and liners are so important in the Antarctic. Homework – make sure all your school clothes and equipment are named!	School uniform, PE kit, school equipment, www.nhs.uk/Conditions/Frostbite/Pages/Introduction.aspx	SCIENCE: living things, circulation, blood, heart Clear handwriting
Lots of research still takes place in the Antarctic. In the 1930s, Brian Roberts researched penguins and other birds.	Draw around your hand, and each time you learn something new record it on one of the fingers. Imagine that you are an explorer from the past. Draw a hand shape and fill it for them. What might they have learned?	Internet, books, www.spri.cam.ac.uk/picturelibrary/catalogue/article/p51.8.f133/	LITERACY: empathy, writing, imagination Research, assessment of ongoing project

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