TOPIC 3 Polar places

About this topic

Curriculum link: Year 1, Animals, including humans; Everyday materials

SUMMARY:

In this topic, children plan an expedition to the polar regions, learning about properties of different materials, and a range of living things in the polar regions.

UNITS:

3.1: The expedition
3.2: Polar animals
3.3: Food

ACTIVITY RESOURCES:

3.1: Letter from Antarctica
3.2: A polar adventurer's diary
3.3: The polar adventurer
3.4: Is it a carnivore, herbivore or omnivore?

ONLINE RESOURCES:

Teaching slides (Powerpoint)
Interactive activity: Polar places
CPD video: Polar places
Pupil video: Polar places
Word mat: Polar places

Learning objectives

This topic covers the following learning objectives:

- Identify and name a variety of animals including fish, amphibians, reptiles, birds and mammals.
- Identify and name common animals that are carnivores, herbivores and omnivores.
- Describe and compare the structure of a variety of common animals.
- Describe the simple properties of a variety of everyday materials.
- Compare and group together a variety of everyday materials on the basis of their simple properties.

Working scientifically skills

This topic develops the following working scientifically skills:

- Ask simple questions and recognise that they can be answered in different ways.
- Perform simple tests.
- Identify and classify.
- Use their observations and ideas to suggest answers to questions.

CROSS-CURRICULAR LINKS

This topic offers the following cross-curricular opportunities:

English

- Use science-specific language.
- Using punctuation, draft and redraft sentences about what they have done in science activities.
- Make, write and send a postcard from a polar expedition.

Polar stories

- *The Snowman* – Raymond Briggs.
- *Little Polar Bear* – Hans de Beer.
- *Happy Feet* and *March of the Penguins* films.
- Re-telling and changing stories.

Numeracy and mathematics

- Temperature – use comparative language, e.g. warm, cold, hot.
- Buy and weigh food supplies for the expedition.

History

- Famous polar explorers Robert Falcon Scott, Roald Amundsen, Sir Ernest Shackleton, etc.
- Compare a modern expedition with a historic one.

Art

- Make animal masks for role play, e.g. seal, penguin, etc.
- Paint pictures of animals seen on their expedition.
- Paint with shades of white.

Geography

- Where are the polar regions? Look on globe, map and Google Earth.
- What are the similarities and differences between Arctic and Antarctic needs?
- Find out about weather, transport, housing in the polar regions.
- How animals and explorers survive in cold environments.

Design and technology

- Design and make a tent or a milk bottle igloo.
- Design and make a patchwork square for a class blanket using different fabrics.
- Design and make a polar exploration vehicle using construction materials.

Computing / ICT

- Email questions to the Research Station in Antarctica.
- Use digital cameras or video to record their polar expedition.

HEALTH AND SAFETY

In this topic, some activities require the teacher to use hot water with children.

SUBJECT KNOWLEDGE

Keeping warm

A good insulator is air and many of the materials used in clothing, particularly coats, trap air in the material as does wearing layers of clothing. Polar explorers need clothing that will keep the body warm (especially their fingers and toes), that is light and comfortable and that allows the wearer to move around easily.

Whilst insulation is a complex topic that children will work on in depth later in the primary years, this set of activities helps to develop some basic language and use early ideas about keeping warm.

Camouflage

Animals use camouflage to hide themselves from predators so they are not eaten, and also to hide from their prey so they cannot be seen by the animal they want to eat. Animals can camouflage themselves using colour, the shape of their body or behaviour. For example, a polar bear is white and therefore camouflaged against the snow.

The BAS

The British Antarctic Survey (www.bas.ac.uk) provides excellent information about living and working in Antarctica. The site explains that generally the food is the same as that eaten at home, but fresh food is limited so most is frozen, dried or tinned. People working there either eat at the Research Station or take food with them on expeditions. They are limited to what they can carry, so most food is dried so that only water is needed to create a meal.

OUTSIDE AREA

- Go on an expedition to explore the school grounds.
- Pack a rucksack. Pull a sledge. Put up a tent. Have a snack.
- Binoculars. Hand lens. Measuring tape. Camera.
- Torch. Plastic bag (for collecting things). Notebook and pencil.
- Read a map to show route of your expedition.

STEAM (SCIENCE TECHNOLOGY ENGINEERING ART AND MATHS) OPPORTUNITIES

- People who go camping, or have been on any kind of expedition.
- Outreach from local university – scientists who have worked in polar regions.
- Someone who skis or snowboards, to show children their ski clothing, etc.
- Make links with British Antarctic Survey scientists to ask questions online.

Visit

- An outdoor clothing store to find out about what is needed for a camping expedition in winter.

SCIENTIFIC VOCABULARY: POLAR PLACES

It is assumed that most children know, from their EYFS experience, words associated with the weather or hot and cold places such as *freeze*, *frozen*, *penguin* and *polar bear*, although they might not know how to write and spell them. You can download a Word mat of essential vocabulary for this topic from *My Rising Stars*.

Arctic: the Arctic is the area around the northernmost part of the Earth

Antarctic: the Antarctic is the area around the southernmost part of the Earth

carnivore: an animal that eats mostly meat, e.g. spiders, frogs, owls, polar bears, seals, whales and wolves

flexible: a material that bends easily without breaking

habitat: the place where you will normally find an animal or plant living

herbivore: an animal that eats only plants, e.g. butterflies, snails, caribou, cows, deer, elephants, guinea pigs, horses, pandas, reindeer

omnivore: an animal that eats both meat and plants, e.g. wasps, magpies, bears, dolphins, hedgehogs, humans

waterproof: does not let water through

Key words: adventurer / Antarctic / Arctic / carnivore / clothes / cold / explorer / freeze / frozen / herbivore / ice / icebergs / North Pole / omnivore / penguin / polar bear / sea lion / seal / snow / South Pole / warm / waterproof / weather / whale

PREPARE THE CLASSROOM

Area 1: Polar camp

- White sheets or white net curtains
- Tents/Igloo (igloo toy or tent with white sheet over it and blocks painted on)
- Winter clothes
- Different fabrics
- Sleeping bags
- Haversacks
- Frying pan
- Sledge
- Maps of Arctic or Antarctic
- Globe
- Antarctic and Arctic animals (pictures and soft toys)
- Fire made from logs, flames from tissue paper
- 'Polar adventurer's diary' sheet (Activity Resource 3.2)
- 'Hole in the ice' so children can fish, e.g. a bucket painted blue inside, and set under a large piece of white card with a hole in. Put paper fish with paperclips on the inside and use a magnet on a line and pole as a fishing rod or magnetic fishing rods and magnetic fish.

Area 2: Who am I? I am a scientist

- This area could become the 'Polar Research Station'. Leave a computer with links to the British Antarctic Survey, so that children can view photographs, create files with photographs of animals, icebergs, etc.
- Interactive activity – search for a drag and drop Internet activity where children place animals in either the Arctic or Antarctic.
- White laboratory coats (white shirts) for children to wear. You could limit the number of these to regulate the number of children using the area.
- Children's goggles or protective glasses to wear to help them take on the role of a scientist.
- Toy animals for sorting into where they live and what they eat (herbivore, omnivore or carnivore).
- Polar ice sometimes has animals and plants frozen in the ice, so children could make ice with different leaves, flowers or seeds frozen inside. You could leave some for children to identify using photographs or identification cards or to observe what happens when they are left. You could also include dinosaurs frozen in the ice.
- Photographs and posters of polar explorers, e.g. Roald Amundsen, Sir Ranulph Fiennes, etc.