



Geography Project Plans

POLE TO POLE

These project plans are designed to be used alongside the accompanying resource sheets.
(please note: a CD resource does not accompany this resource pack, all resources are provided below)

Geography Project 1: Let's get connected (Key Stages 1 and 2)

Aims of the lesson: Linking to the QCA Scheme of Work for Geography at Key Stages 1 and 2, this project looks at how we connect ourselves through communication; how we could reach the North or South Pole; and what it would be like when we got there.

Activity: The Arctic and Antarctic regions (including the North and South Poles) are two areas of the planet that truly astound and amaze. Many explorers have spent their life battling across these barren environments and many people withstand extreme cold and hardship every day of their lives in the Arctic.

Begin this activity by asking the pupils to list ways that we communicate with each other. Telephone, faxes, emails, letters, memos etc., are all ways in which we communicate. Communication at the North or South Pole is particularly problematic. The **Geography Project 1 folder** on the accompanying CD-ROM includes an Information Sheet on how researchers and scientists at the South Pole/ Antarctica and people at the North Pole/Arctic keep in contact with the rest of the world.

Leading on from communication, ask the pupils

to discuss how we get to Antarctica or the Arctic regions. Getting to the North or South Poles is a little more complicated! Discuss with the pupils where Antarctica or the Arctic regions are in relation to where they live. Ask them to locate the places on a globe and in an atlas, identify the nearest airports and mark, on a base map, the route a flight might take.

Finally ask the pupils to find out a little more about how people might get around once in the Arctic or Antarctic regions. There are no ports and harbours in Antarctica; most coastal stations have offshore anchorages, and supplies are transferred from ship to shore by small boats, barges, and helicopters. Twenty-seven stations have aircraft and helicopter landing facilities. There is more developed transportation in the Arctic, but the freezing cold conditions restrict the types of transport that can be used.

Other ideas: Once the pupils have looked at communication and transport; ask them what they think these two extreme environments are like. The **Geography Project 1 folder** includes two Information Sheets to help with this research.

Geography Project 2: Planning an expedition (Key Stages 1 and 2)

Aims of the lesson: To investigate what it is like to mount an expedition.

Activity: Exploration of new or rarely explored frontiers often requires remarkable courage, determination, and endurance. Expeditions also require planning – as they are often a matter of life or death!

Tell the pupils that they are going to explore an 'unknown' place and experience the excitement of an expedition. Expeditions are part of our daily lives. Most likely, our expeditions are more 'routine' than travelling to the South Pole, but regardless of their simplicity, daily expeditions help us discover 'new'

information. In this project, the pupils will learn how to successfully design, develop, and execute an expedition. A minimum of two or three days will be necessary to develop this activity. The **Geography Project 2 folder** on the accompanying CD-ROM offers the information needed to carry out this project.

Other ideas: The page opposite offers a photograph of a famous expedition party. Ask the pupils what they think it would be like to take part in such an expedition. Also, take photographs of the pupils carrying out their own 'expedition' and create a whole-class display or write a newsletter from the expedition.



Pole to Pole

Geography Project 1:
Let's get connected

Key Stages 1 & 2





Information sheet: Antarctic and Arctic communication

Antarctica

No humans 'live' permanently on Antarctica. However, there are many seasonally staffed research stations. Twenty-seven countries have signed the Antarctic Treaty to protect this fragile environment and they all send scientists and researchers to their stations. The total numbers of people on Antarctica varies from 4,000 in the Antarctic summer through to 1,000 in the Antarctic winter.

All these research stations have to 'communicate' with their home countries – but there are no telephone lines! So how do they keep in contact with the rest of the world? There are a range of modern communication devices that scientists and researchers use, including:

- Mobile cellular telephones
- Satellite telephones
- Radio broadcast stations at some bases
- Television broadcast stations at some bases (particularly military bases on Antarctica, which have their own television stations).
- Internet and email
- Faxes (via the Internet or satellite links)
- Letters – Antarctica has its own post office and stamps

Much of the post sent to and from Antarctica goes via Australia.

Arctic

The Arctic is home to many indigenous populations and, of course, scientists and researchers spend time at the North Pole. Because of this, communication is a little easier – but methods are similar to the ones listed above for Antarctica.



Information sheet: The Antarctic and South Pole

Introduction

Antarctica is the fifth largest of the seven continents. It is situated over the South Pole almost entirely south of latitude $66^{\circ}30'$ south (the Antarctic Circle). It is a very rough circular shape with the long arm of the Antarctic Peninsula stretching towards South America. There are two large indentations, the Ross and Weddell seas and their ice shelves. Antarctica is a desert. In the interior of the continent the average annual rainfall is only about 50 mm (about 2 inches), less than the Sahara.

How cold does it get in Antarctica?

Antarctica is the coldest, and also the windiest continent. The lowest temperature ever recorded anywhere on Earth, -89.2°C (-128.6°F) was on 21 July 1983 at the Russian base at the Southern Geomagnetic Pole. It is close to the Pole of Inaccessibility, the point on the Antarctic continent that is the furthest from any other and so the most difficult or inaccessible place to get to.

The continent is also buffeted by strong winds. A wind speed of 320 km/h (200 mph) was recorded at the French Dumont d'Urville base in July 1972. These winds are known as 'katabatic winds', when they reach the coast, they produce west-flowing ocean current known as the East Wind Drift as a result of the rotation of the Earth, which has an influence far beyond the immediate coastline.

What is the Antarctic landscape like?

Antarctica consists of two main areas. East Antarctica (Greater Antarctica), and smaller West Antarctica (Lesser Antarctica) which also has the Antarctic Peninsula. West Antarctica is an extension of the Andes mountains stretching from South America. It is thought that if the ice sheet were removed, West Antarctica would actually be a collection of islands.

More than 99 per cent of Antarctica is covered with ice, this contains about 70 percent of the world's fresh water. The thick ice cover makes it the highest of all continents, with an average elevation of about 2300 metres (about 7500 feet).

The two areas of Antarctica are separated by the Transantarctic Mountains. A range of mountains that stretches across the entire continent, large portions of



them being buried under the ice cover. If you stood on the great Antarctic ice sheet all you would see would be ice and snow. It would be far from a continuous smooth sheet though, as it is continuously moving. Glaciers, huge rivers of ice drain the interior of the continent and form ice shelves at the coasts. Where a glacier is moving, the ice cracks, breaks and is ruptured by the underlying rock and also by different streams meeting that move at different speeds. The ice sheet is therefore very dangerous in places as it is broken up by great crevasse fields with some cracks hundreds of feet deep and frequently covered by flimsy bridges formed of blown snow.

There are at least two active volcanoes in Antarctica, Mount Erebus (3794 metres/12,448 feet) is the highest and has a permanent molten lava lake. The other is on Deception Island, situated just north of the Antarctic Peninsula, a popular stop-off for tourist ships where it is possible to have a warm bath in the volcanically warmed waters while being surrounded by Antarctic ice and penguins.

What kinds of plants and animals are there in Antarctica?

Antarctica has no trees or bushes at all, vegetation is limited to about 350 species of mostly lichens, mosses, and algae. There are lush beds of such vegetation in some parts of the Antarctic Peninsula. Lichens have been discovered growing on isolated mountains within 475 km (295 miles) of the South Pole.

The largest truly Antarctic land animals therefore are invertebrates only a few of millimetres in size. These animals, mites, ticks and nematode worms tolerate the low temperatures in the winter by becoming frozen in ice under rocks and stones. They have antifreeze in their bodies and stop all motion and bodily functions while frozen, becoming active again when the ice finally warms up sufficiently to melt. These animals live largely in the Antarctic Peninsula.

The oceans surrounding the continent on the other hand are teeming with great quantities of life. Large numbers of whales feed on the rich marine life, especially krill. Six species of seals and 12 species of birds live and breed in the Antarctic. The most famous inhabitant of Antarctica has to be the penguin. A flightless bird, but excellent swimmer, penguins live on pack ice and in the oceans around Antarctica.



Geographic South Pole





Information sheet: The Arctic and North Pole

Where is the Arctic?

The Arctic is a vast, ice-covered ocean that is surrounded by tree-less, frozen land, which is often covered with snow and ice. The rigors of this harsh environment are a challenge to living, working and performing research in the Arctic. None the less, the Arctic is an ecosystem that teems with life including organisms living in the ice, fish and marine mammals living in the sea, birds, land animals such as wolves, caribou and polar bears, and human societies. In the strictest sense, the Arctic is all of the Earth north of the Arctic Circle, which is located at 66 degrees, 32 minutes North Latitude. However, there are other definitions to suit specific scientific or political interests. For instance, the U.S. Congress has decreed that all of the Bering Sea, which extends southward to about 53 degrees North Latitude, is part of the Arctic for internal U.S. planning and budgeting purposes. Others make use of the such markers as the southernmost extent of winter sea ice for oceanic boundaries of the Arctic, or the treeline for terrestrial boundaries.

Where is the North Pole?

If you think of the earth as a spinning top, then the north and south poles are the top and bottom of the top. As the earth spins we get day and night. At the North Pole, however, night occurs continuously



for half the year, and day occurs continuously for half the year depending on whether the pole is facing toward or away from the Sun.

What is it like at the North Pole?

The North Pole is in the middle of the Arctic Ocean. The Arctic Ocean is surrounded by Alaska, Canada, Greenland, and Russia. The ocean is 4000 metres deep. Although it is an ocean, it is water you can walk on. There are 2–3 metre thick ice floes floating on the water at the North Pole. In summer the temperatures are near 0 centigrade and there is light. In winter the temperature is about -30 centigrade and it is dark.

The Arctic environment is unique in many ways and offers the opportunity for a great many discoveries about how the physical and biologic environments function under the 'extreme' conditions found in the Arctic. Several species of animals are unique to the Arctic (e.g., polar bear, walrus, musk ox) and many species of birds have their summer home there.

The Arctic, unlike the Antarctic is inhabited by humans, including diverse Native communities with a longer history than many of the southerly societies. Although European-derived culture is now dominant in the Arctic, study of the Native culture is important for its preservation, and for what it can teach others about long-term human survival in the Arctic.

Pole to Pole

Geography Project 2: Planning an expedition

Key Stages 1 & 2



Mounting an expedition

Expeditions are part of our daily lives. Most likely, our expeditions are more 'routine' than traveling to the South Pole, but regardless of their simplicity, daily expeditions help us discover 'new' information. In this activity, the pupils will learn how to successfully design, develop, and execute an expedition.

Materials

- White cotton material
- Felt markers
- Paper
- Pens/pencils
- Rope
- First aid kit
- Hats, gloves
- Sunglasses, suntan lotion

Procedure

1. Divide students into small 'expedition groups'.
2. Produce a Planning Guide for the expedition (see separate document in this folder)
3. Brainstorm, as a class, possible destinations for the expeditions (e.g., the headteacher's office, the main hall, the chemistry-supply room, the athletic-equipment room, etc., or a destination outside the immediate school area).



4. Establish how much time each expedition team will have and let them plan their own expedition by following the Planning Guide for Expeditions.
5. Before or on the selected expedition day, have each team share with the class where they are going and what they hope to find. Let the expedition begin! (Make sure the proper individuals on the school staff and community have been alerted that your explorers will be entering their territory.)
6. Have each team report back to the class about their expeditions, using written, oral, or videotaped presentations.

Questions

1. Was the expedition a successful one? What makes an expedition successful?
2. Review the general planning guide for expeditions. Does it need to be modified? How did this help make the expedition run smoothly?
3. What types of people become explorers? What characteristics must they have?

To simulate the cold of the Antarctic, turn the heat off in your classroom during the coldest part of the winter. Dress appropriately for this change in weather! If you live in a warmer climate, reverse these conditions and pretend your expedition takes you to the desert.



Planning Guide for expeditions

I. Expedition destination

- A. Establish a point of departure and expected point of arrival.
- B. Generate a planned route, complete with a map.
- C. Estimate a time frame and create a timeline.

II. Expedition protocol

- A. Outline the objectives of the expedition.
- B. Determine what data will be collected and how it will be recorded
- C. List items that will be included in the final report.
- D. Discuss how to minimise anticipated risks.
- E. Before traveling to your destination, get permission from appropriate authorities.

III. Expedition organization

- A. Select a 'chief scientist' for the expedition.
- B. Assign expedition duties to all members.
- C. Design an expedition flag.
- D. Draw an expedition map.
- E. Compile an equipment list; gather the equipment.

IV. Optional planning phase

- A. Solicit financial support or arrange for donations of supplies and/or equipment.
- B. Plan budget.
- C. Arrange for publicity.
- D. Obtain sponsors.

British Antarctic Expedition



Photograph supplied by Royal Geographical Society
Photograph shows the British Antarctic Expedition 1910–1913, taken
by Herbert Ponting on 15 September 1911. Persons shown are:
Robert Falcon Scott, George Simpson, E. R. Evans and H. R. Bowers.