



History 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)

History Project 1: A ship's history

Aims of the lesson: To develop an understanding of the history of Antarctica through the ships used by explorers.

Activity: There are many ways to investigate the history of polar exploration – and one of the most interesting is to look at some of the famous ships used to reach these extreme areas. The **History Project 1 folder** on the accompanying CD-ROM offers some information sheets to help with the pupils' research. They cover the ships *Endurance* and *Discovery* and offer some basic statistics on a range of polar vessels.

Ships and boats were the means by which the early explorers of Antarctica reached the continent and often over-wintered. They were very much the focus of Antarctic expeditions, which were often named after the ship that took the men, their provisions and their equipment to Antarctica. Many landmarks in Antarctica are named after these vessels. In the earliest days of Antarctic exploration, the vessels were of course sailing ships, they rarely entered pack ice, as the ships means of propulsion

was the same as that of the ice itself, so unless the ice dispersed, great difficulty could be had in extracting the ship. Later on, with the advent of the screw propeller, ships became more able to enter, manoeuvre and make progress in pack ice. In particular they could break through ice by reversing a short distance and then going forwards again, repeating several times if required to break through. The ships at the time were steam powered and this progress through ice was very heavy on coal and as Antarctica is so far away from any port and supplies, for many years Antarctic vessels were hybrids of steam power and wind. Wind was used wherever possible to conserve the coal stocks for later on in the voyage. The **History Project 1 folder** on the accompanying CD also includes a list of ideal requirements for a polar ship.

Other ideas: Ask the pupils to find out about modern-day ships. How are they different to the ones used by early explorers? What sort of supplies would the pupils take on their ship if they were going on an expedition to the South Pole

History Project 2: An exploration timeline (Key Stage 2)

Aims of the lesson: To develop an understanding of the history of exploration by looking at timelines.

Activity: Many explorers have tried to reach the North and South Poles – few have succeeded – some have perished in the attempt. By researching a timeline for exploration of the poles students' can gain an in-depth understanding of what these places are like and a better understanding of different periods of history. To help with the research for this project the **History Project 2 folder** on the accompanying CD-ROM includes a geological timeline, a detailed exploration timeline (polar) and a brief timeline for Antarctic exploration. The page

opposite offers a brief timeline for Arctic exploration (copy also located in the **History Project 2 folder** on the CD).

Ask the class to create their own polar timeline – for the North Pole or South Pole or both. Then using pictures and illustrations create a class display showing the timeline. Ask the class to include pictures that are representative of the era in which the various explorers lived.

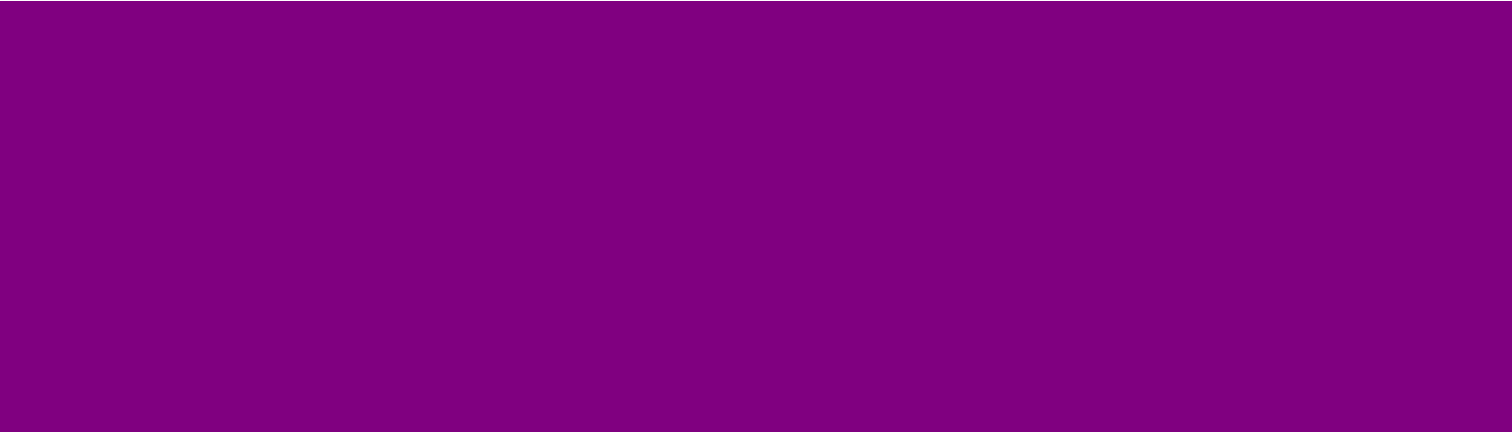
Other ideas: As an extension to the above project, the pupils could look at the different clothing worn by the various explorers through the years.



Pole to Pole

History Project 1:
A ship's history

Key Stage 2





The Endurance

- The ship that was to be renamed Endurance (originally called the Polaris) was built for tourist cruises in the Arctic by a partnership between Lars Christensen, a Norwegian ship owner and the Belgian Adrien de Gerlache, leader of the Belgian Antarctic expedition in 1897–99.
- Ernest Shackleton purchased the ship for £11,600 (225,000 Kroner). She was reckoned to be one of the strongest ships ever built for ice work. Shackleton called her the 'Endurance'.
- The Endurance sailed for Antarctica from Plymouth at noon on the 8 August 1914. Shackleton was not on board – he left from Liverpool on a mail boat the Uruguay around the 26 September to join the Endurance in Buenos Aires, from where she departed on the 26 October.
- By the 10 January 1915, land was sighted, this was the icy front of Coats Land first seen in 1902. The crew began to prepare for a landing at Vahsel Bay and there was a feeling on board that they were reaching journey's end. The next few days gave good sailing conditions with calm seas and little ice to bother the ship, on the 15 January, she made 120 miles. But, there was trouble ahead.
- On 18 January, they were some 80 miles from Vahsel Bay and pack ice closed in. A week later they were still there, the loose ice appeared to be freezing together.
- After reaching the furthest south point on the 21 February, slowly it became apparent that the ship was being taken northwards by the movements of the ice. After a maiden voyage of 12,000 miles including 1,000 of it hard won through pack ice, the ship was thwarted only 60 miles from its destination. Shackleton informed the men that they should prepare for a winter in the pack ice.
- The crew resigned themselves to their fate, Shackleton kept up the hope that once released from the pack in the spring, they would be able to sail back to Vahsel Bay and complete their goal of the Trans-Antarctic crossing.
- On the 14 July there was a noise from beneath the Endurance. Shackleton tried to pass it off as a whale, but McNeish the ship's carpenter, knew it for what it was – the movement of the ice beginning to nip. Shackleton knew that if the ship were squeezed by the ice, then she had little chance of



survival, other ice ships such as the Fram had rounded bottoms, so that they could rise up above the ice in such circumstances. Shackleton had been warned when he bought the Endurance that she would not do this.

- The ice had begun to move much faster than it had done until now and the ship was carried northwards twice as fast as previously. Ice blocks would slide over each other and be pushed up to 15 and 20 feet before breaking and landing with a thud, then again all would be quiet as the pressure was released. The Endurance had developed a list to port, beams had buckled and the rudder was damaged.
- On 1 September more pressure waves came, the ship creaked and groaned and timbers snapped, the ice had hold, she was not rising above it and it was simply her massive structure that was resisting the force of the ice. The ship also appeared twisted and out of line.
- On the 15 October the Endurance broke completely free and was floating in open water again in a narrow lead, on the 17 the pressure waves came again and the ice closed in and squeezed the hull. She was thrown over at a list of 30 degrees, slowly to right herself again.
- The ship was badly damaged and water was flooding in – almost faster than it could be pumped out again. By the morning of 25 October it became clear that the battle to save the Endurance was being lost and the men stopped pumping. More and more seams were opening.
- The crew were now on the ice floe that was increasingly on the move, starting to show signs of melting at the edges and had only themselves to look to for any chance of a return home. The wreck of the Endurance remained above the ice for some time allowing for salvage of stores. The crew were camped some miles away in a more stable area. On the 21 November at 4.50 pm they saw and heard movements as final contortions of the ice allowed the wreck to slip beneath the surface.
- On the south western side of Elephant Island at Stinker Point, is a place called Wreck Bay, where there is some wreckage from a ship. In 1998 these remains were recognized as being probable flotsam from Shackleton's Endurance.



The Discovery

- The Discovery was purchased by the Hudson's Bay Company in 1905 and converted for use as a merchant ship. She was loaned in 1916 to the British Government to rescue Shackleton's party marooned on Elephant Island, but they were rescued before she arrived.
- Used by Sea Scouts and Royal Naval Reserve from 1946–1979. Transferred to the Maritime Trust and restored to 1925 appearance, currently on open public display as a museum in Dundee since 1986.
- The ship 'Discovery' was built especially for Scott's expedition in 1901 to reach the South Pole.
- The great arctic explorer Nansen had recommended that the ship be a duplicated design of the Fram. The Ship Committee of the expedition however decided that a conventional whaling hull would be more appropriate as the ship would have to cross the ominous Southern Seas to get to Antarctica. Finding a yard to build the Discovery was not easy. She was built in Britain.
- The ship had a massively built wooden hull that was designed to withstand being frozen into the ice. The propeller and rudder could be hoisted out of the way to prevent ice damage. Iron shod bows were severely raked so that when ramming the ice they would ride up over the margin and crush the ice with deadweight. She was also at the time the first ship ever built in Britain specifically for a scientific expedition and cost £50,000 of the total budget of £92,000 for the expedition.
- On reaching Antarctica and after some initial explorations along the coast, the Discovery made its way to McMurdo sound where winter quarters were to be established. She was frozen in for the winter in the protected waters of the sound in 1902 and remained there over the next nearly two years until February 1904.
- As well as an extensive scientific programme, one aim of the expedition was to attempt to reach the South Pole. A party of Scott, Shackleton and Wilson reached 82°17'S on 31 December 1902 at which point, they turned back due to the effects of scurvy and a lack of food.
- Scott had wanted to use the Discovery again for his second expedition leaving Britain in 1910, but the admiralty had sold it to the Hudson's Bay Company some years before, and they refused to sell her back. After considering several other ships, Scott purchased the Terra Nova.



Polar vessels – statistics

Ship name	Length,Breadth, Draft, (m)	Displacement	Launched	Design purpose	Power (horse power)	Hull
L'Astrolabe		380 tonnes	1811	Naval corvette	sail only	Wooden
Terror	31.1 x 8.2 x 3.8	325 tonnes	1813	Shore bombardment	sail only (fitted with 20 hp engine later)	Wooden
Erebus	32 x 8.7 x 4.2	372 tonnes	1826	Shore bombardment	sail only (fitted with 20hp engine later)	Wooden
Nimrod	41.5 x 8.2 x 4.9	334 tonnes	1865	Sealer	60 nhp	Wooden
Aurora	50.3 x 9.3 x 5.7	380 tonnes	1876	Sealer	98 nhp	Wooden
Terra Nova	57 x 9.6 x 5.8	744 tonnes	1884	Whaler	140 nhp	Wooden
Belgica	36 x 7.6 x 4.1	336 tonnes	1884	Sealer	30 nhp	Wooden
Fram	39 x 11 x 4.8	402 tonnes	1892	Arctic expedition	220 hp	Wooden
Discovery	52.1 x 10.3 x 4.8	485 tonnes	1901	Antarctic expedition	450 nhp	Wooden
Endurance	43.9 x 7.5	300 tonnes	1912	Arctic tours	350 hp	Wooden
James Clark Ross	99 x 18.9 x 6.4	5,730 tonnes	1990	Antarctic supply and research	8,500 shp	Steel
Kapitan Khlebnikov	132.4 x 27.8 x 8.5	15,000 tonnes	1980	Icebreaker	24,200 hp	Steel
Yamal	150 x 30 x 11	23,455 tonnes	1992	Nuclear icebreaker	75,000 hp	Steel



Ideal requirements for a polar ship

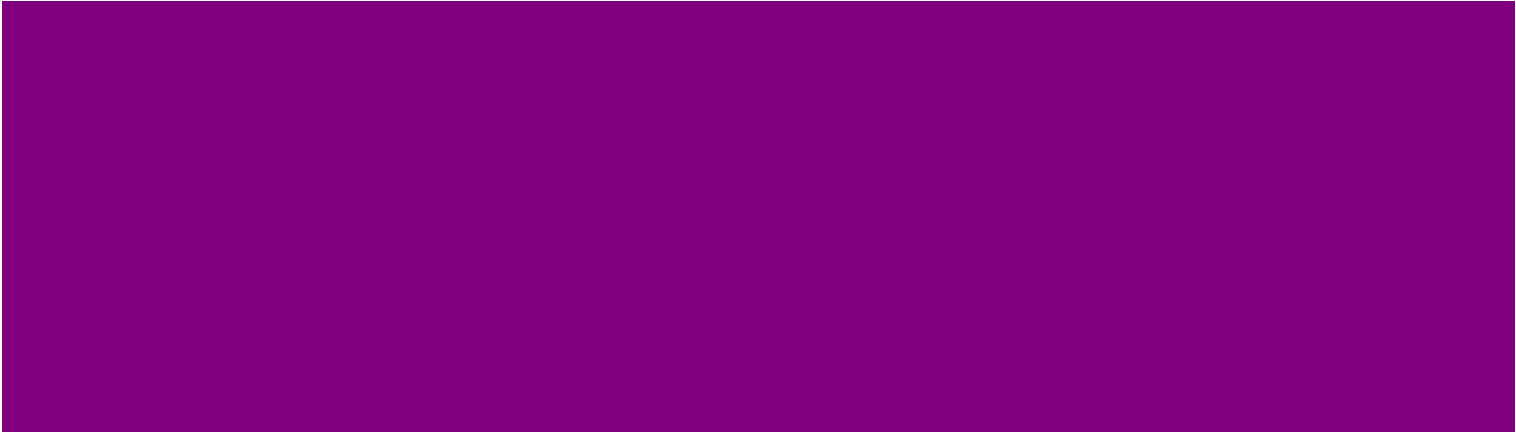
- Strong hull, to minimize damage from floating ice, to avoid being crushed by sea ice and to be able to push its way through the ice.
- Rounded hull to allow the ship to ride upwards if pushed from the sides by wind-blown pack ice.
- Reinforced bows to withstand hitting against floating pack ice. Ideally reinforced by massive structural strength and then clad in iron.
- Retractable propeller and rudder to avoid ice damage.
- Skewed bows so that when hitting pack ice the ship would ride up and over the ice breaking it with its own weight.
- Powerful engines economical with fuel for working in heavy ice.
- Well insulated on the inside to retain heat and not allow moisture to drip inwards from frozen ice and snow on the outside.
- Plenty of stowage space for scientific cargo and provisions for at least a year longer than the intended voyage - in case the ship was iced in.
- A good supply of ice anchors, long (14ft) ice saws and maybe dynamite to break a passage through winter ice to open water in the spring.
- Entertainments on board to pass the long dark winter months.



Pole to Pole

History Project 2:
An exploration timeline

Key Stage 2



Arctic exploration timeline

1926 Roald Amundsen (Norway), Lincoln Ellsworth, and Umberto Nobile fly over the North Pole.

1986 Ann Bancroft is the first woman to travel to the North Pole on foot.

1878–79 Nils Adolf Erik Nordenskjöld (Sweden) traverses the Northeast Passage in the Vega.

1909 Robert E. Peary (USA) reaches the North Pole.

1850–53 Robert McClure (Britain) traverses Northwest Passage.

1881–84 Adolphus W. Greely (USA) leads ill-fated expedition to Ellesmere Island and west coast of Greenland.

1615 William Baffin (England) explores Baffin Bay, Baffin Island.

1607–11 Henry Hudson (England) discovers Hudson Strait.

1728 Vitus Bering (Russia) explores Bering Sea, Bering Strait.

1845–47 John Franklin (Britain) and his entire expedition perish in the Canadian Arctic, seeking the Northwest Passage.

1590–97 Willem Barents (The Netherlands) discovers Svalbard (Spitsbergen); explores Novaya Zemlya, Barents Sea.

1908 Frederic A. Cook (USA) claims he reached North Pole; his story is discredited.

1819–20 William E. Parry (Britain) explores the Northwest Passage from the east to Melville Island.

1831 James C. Ross (Britain) attempts Northwest Passage from both east and west.

1893–96 Fridtjof Nansen (Norway) drifts with the ship Fram towards the Pole.

1903–6 Roald Amundsen (Norway) traverses the Northwest Passage in the Gjoa; fixes approximate location of north magnetic pole.



Antarctic exploration timeline





A geological guide to the history of Antarctica

Jurassic era, 195–136 million years ago

Antarctica had been a part of 'Gondwanaland' (an ancient super continent that was breaking up and doesn't exist any more) for about 200 million years. Gondwanaland consisting of Africa, Antarctica, Australia, India and New Zealand begins to break up. Dinosaurs rule the world and have done for nearly 30 million years. The South Atlantic is born as Gondwanaland breaks up

Cretaceous era 136– 65 million years ago

Vast forests cover Antarctica made up largely of ferns and conifers (flowering plants such as most trees that we recognize today had only just been invented). Australia and New Zealand split from Antarctica, Antarctica goes it alone. Antarctica enjoys a semi-tropical climate, continues to drift south.

Paleocene era

Antarctica develops a cool temperate climate (like the UK)

Eocene era 54– 38 million years ago

Much geological activity as the Trans Antarctic mountains are uplifted from sea level cutting across Antarctica from coast to coast.



The first large ice caps form as Antarctica settles its position over the south pole. The first penguins evolve from flying birds.

Oligocene era 38–26 million years ago

Antarctica accepts the fact that it's a loner and becomes a rugged individualist being the coldest and windiest place on earth.

Miocene era 26–7 million years ago

The whole Antarctic continent becomes covered in ice. The Antarctic convergence arises. This circumpolar upwelling of deep oceanic waters essentially isolates the southern ocean from the South Atlantic, Indian and Pacific oceans and has a great effect on keeping Antarctica cold. It also means that many sea creatures cannot migrate north or south across the convergence.

Pliocene era 7– 0 million years ago

Fossilized plant remains found from this period, imply that the ice sheets have advanced and melted many times over the ages.

About 4 million years ago, the first Hominids (human like creatures) arise. Humans didn't really appear until about 50,000 years ago (at an estimate).



A history of the exploration of Antarctica

350 BC

It was the ancient Greeks who first came up with the idea of Antarctica. They knew about the Arctic – named Arktos – The Bear, from the constellation the great bear and decided that in order to balance the world, there should be a similar cold Southern landmass that was the same but the opposite 'Ant – Arktos' – opposite The Bear. They never actually went there, it was just a lucky guess!

1773

In January, James Cook crosses the Antarctic circle and circumnavigates Antarctica, though he doesn't sight land, deposits of rock seen in icebergs showed that a southern continent exists.

1819–21

Captain Thaddeus Bellingshausen a Russian naval officer in the Vostok and Mirny circumnavigates the Antarctic, first to cross the Antarctic circle since Cook.

He made the first sighting of the continent on 27 January 1820.

For some considerable time, exactly who and when first set eyes on Antarctica were in dispute as British naval officers, William Smith and Edward Bransfield also saw Antarctica on 30 January the same year – followed by American sealer Nathaniel Palmer on 16 November.

1821

The first known landing on continental Antarctica was on 7 February 1821 by American sealer Captain John Davis, though this is not acknowledged by all historians.



1823

British whaler James Weddell discovers the sea named after him and then reaches the most southerly point. No one else manages to penetrate the Weddell sea again for 80 years.

1840's

Separate British, French and American expeditions establish the status of Antarctica as a continent after sailing along continuous coastline. In 1840, British naval officer and scientist James Clark Ross takes two ships, the Erebus and the Terror, to within 80 miles of the coast until stopped by a massive ice barrier – now called the Ross Ice Shelf. He also discovers the active volcano that he names after his ship Erebus.

1898

In March 1898, Adrien de Gerlache and the crew of the 'Belgica' become trapped in pack ice off the Antarctic Peninsula in the first scientific expedition to the continent. They become the first to survive an Antarctic winter as their ship drifts with the ice.

1902

Captain Scott, UK, leads his first Antarctic expedition to reach the South Pole, with Ernest Shackleton and Edward Wilson. They are forced to turn back two months later having reached 82 degrees south, suffering from snow blindness and scurvy.

1907–1909

Shackleton leads expedition to within 156km / 97miles of the South Pole, turns back after supplies are exhausted.

1909

January, Australian Douglas Mawson reaches the South Magnetic Pole.



1911

14 December – Norwegian Roald Amundsen leads a five man expedition that reaches the South Pole for the first time.

1912

18 January – Britain's Captain Robert Falcon Scott reaches the South Pole to discover he has been beaten by Amundsen. All of the five man team (Scott, Bowers, Evans, Oates and Wilson), are to perish on the return journey only 11 miles from supply depot. Bodies are not discovered until November.

1915

October. Shackleton returns to Antarctica in an attempt to complete the first crossing of the continent. The goal is not attained, but one of the greatest adventures of all time follows. Their ship is crushed in the sea ice and a small party sets out for South Georgia and the whaling station. The party is eventually rescued in 1917.

1928

Australian Sir George Wilkins and American Carl Benjamin Eielson are the first to fly over Antarctica around the peninsula region.

1961

Antarctic treaty comes into effect.

1997

Boerge Ousland (Norway) becomes first person to cross Antarctica unsupported. Taking 64 days from Berkner Island to Scott base towing a 180kg (400lb) sled and using skis and a sail.