GEOGRAPHY
Grade 11

Online material

Christopher Columbus and the discovery of the Americas

Christopher Columbus may not have been the first to 'discover' the Americas, but his intervention was by far the most important. Columbus was Italian, but financed by the Spanish Queen, Isabella. What Columbus brought to America was absorbed by the native culture. What was discovered in America helped form important parts of European culture in the Americas; for example, tomatoes were exported to Italy, and became part of Italian cultural food. Each culture had impacts on each other, helping to enhance and bring the best out of each other.

Short term impacts

Economic

The arrival of Christopher Columbus established trade between Europe and Americas (referred as the "new world"). Tradable goods such as cotton and rubber were brought from Europe to the America, and America exported spices, plants and slaves.

Through trade, plants native to America spread to grow in Europe, which has also had a lasting impact on the environment, as different plant species need to adapt towards the different types of soil and climate.

Social/cultural

The Europeans brought new technology to the Americas, things that the native Caribbean tribes have never been exposed to: ships, guns, fancy clothes and shiny trinkets. The devoted Spanish also introduced Christianity to a land of multiple gods and human sacrifice as a blessing. The people became 'more civilised' in our terms.

Spain was also able to learn more widely about native culture and art.

Columbus made friends with the natives when he needed to. He became friends with a local chieftain on Hispaniola Island called 'Guacanagari', because he needed to leave men safely behind.

The indigenous populations were often cannibalistic or practiced human sacrifice to appease their gods. These are Aztecs.

However, these good intentions were followed by many negative impacts. Firstly, the Europeans brought many deadly diseases (e.g. smallpox) to the area and this killed vulnerable natives. This occurrence was called the "great dying". In fact, within half a century of the arrival of the Europeans, many of the natives of the islands were dead.

Despite this, the inhabitants of San Salvador, the Arawak family tribes (and many other natives they encountered) were peaceful, friendly, and willing to imitate the Spaniards by making the sign of the cross. Columbus thought that they would make fine *servants*, as they tried to please the Spanish. These people were killed and enslaved. War against superior Europeans, with modern (for the time) arms lead to the terrible massacres of native inhabitants.

The Carib culture was basically cannibalistic and this was a threat to many of the native groups. They sometimes ate the bodies of enemies, as a religious practice. Queen Isabella of Spain declared that the Caribs were not Christians, so it was acceptable to make them slaves.

When the Spanish met other groups with which they had trouble, they called them 'Caribs' and this categorisation allowed the Spanish to enslave or slaughter those people with the Queen's blessing. This meant that the Carib culture completely died out and became lost.

When Columbus discovered that the people had less to trade, he turned to slavery. On their way to Europe, many of the slaves died. Queen Isabella declared that it was no longer allowed to enslave these new Spanish subjects, and many people were returned to the Americas. However, a large number of these people died on the way to, in, or on the return from Europe.

The natives were also forced to work in gold mines, ranches, or Spanish households. When gold was not found, the people were beaten or killed. During the building of the city of Santo Domingo, the natives tried to escape to the mountains but were hunted down and killed.

Many settlers from the 'old world' also died horrible deaths in the Americas from exposure, fighting amongst themselves and in shipwrecks, creating chains of unfortunate events.

Environmental
Settlers used the land in North America to grow crops, which meant that some part of the ecosystem was have been disrupted. New crops were introduced which decimated the existing flora and fauna.

Plants native to America were brought back to Europe, which meant that the seeds had to be adapted through horticultural means to grow to their best and most productive.

The Spanish also introduced domestic animals to the Americas, including cattle, sheep and goats. This not only affected the ecosystem and the food chain, but the Guajiro tribe that lived along the Caribbean coast of Columbia adopted these animals for their hunting purposes.

Goats and other European animals (such as sheep and cattle) were exported to the Americas and cultivated to such as point as today they are vast millions of each type

Political

The arrival of the ships 'Santa Maria', 'Nina' and 'Pinta' motivated people from other European countries such as France, England, Portugal and Russia to explore these areas. Thus, the first permanent European colonies in the New World were established, and this marked the beginning of the full scale invasion of the new world by the old world. These countries were contributing to the rush for resources, such as slaves or mineral wealth.

The three ships of Columbus were the Santa Maria, the Santa Clara (also called la Niña – the girl) and the Pinta (the painted)

Columbus himself was also a governor of those lands at the time. However, he was an arbitrary person who did not make a good administrator: he took everything for himself and his family, trying his best to stop the old settlers from getting back their own land. However, the arrival of the Europeans brought democracy and capitalism to the patriarchal systems which existed (e.g. rulers descended from the male line of a family).

Long term impacts

Economic

Spain became wealthy as the money they earned through trade gave them the power to work for or against other countries. They then became a great power in Europe. Ideas of manufacturing and the free-market (i.e. the system of economic where prices are determined by unrestricted competition in a capitalist system). Philosophy, medicine, science and other ideas also changed and improved the lives of many in the new world.

Social/cultural

Columbus Day is a national holiday in the United States. Children are taught about his amazing voyages, making the land of America known to the Europeans. Some places also celebrate this as a day for Italian Culture and heritage. Columbus is still widely credited and thought of as important because of how he brought the first intertwining of European and American cultures.

Spanish is a common official language in South America countries. There are local dialects, but Spanish remains the significant official language. 69% of South American countries use Spanish as their official language.

Christianity and Roman Catholic are dominant religions in South America. As native religions died away, they were replaced by European practices which have continued to be followed.

Cultural 'swapping' was not all one-way. Columbus called the Lucayan people he met "Indians". Despite having no written language, these people are credited for having contributed some words in English still used in modern day, for example, "Barbecue".

South America has provided the main “roots” for many famous food dishes of European culture. For example, cocoa for the Swiss Chocolate, tomatoes for the Italians, potatoes for the Irish and British. Seeds were imported from South America and through wide agriculture use, have come to play a fundamental part in many cooking and eating styles of European cultures.

Tomatoes (above) and potatoes (below) were carried back from the Americas where they have become staples of European diet.

As the natives continued to die out through mistreatment, conflicts and diseases, Africans were imported in vast numbers to the area to replace them as slaves for Spanish immigrants. Thus, Africans eventually became the main inhabitants of South America, while tribal groups such as the Taino became extinct. The population structure has changed.

In addition, we usually assume the ‘Americans’ are generally European-looking, but this is incorrect. Native North Americans are dark skinned – the colour of their skins was more red than brown and even today the term ‘red skin’ is used in America. The entire composition of the population has changed as a result of invasion and colonisation.

There were also exceptions, such as the San Blas people, who lived on the coral islands off Panama, observed by Columbus and other explorers who passed them by. Because they were passed by, these people and the rest of the Cuna tribe still live the way they would 500 years ago. Columbus’s personal legacy was also very dominant.

The tobacco leaf was also an import from the Americas.

To honour the first European to bring the “new world” known to the “old world”, many places are named after him. For example, Colombia, the South American country, and Colombo (this name was slightly modified to its Portuguese form), the former capital of Sri Lanka.

Environmental
The different types of ecosystem located in the Americas were discovered by the Europeans and used for scientific uses. Plant species have also adapted to grow in the different European soil and have adapted to the European climate (e.g. tomatoes in Italy).

Political
Many European countries have colonised these areas and remained long after the death of Columbus. For example, the Spanish colonies in South America lasted from 1492 (the arrival of Columbus) until 1898 - for 406 years. These colonies were lost through the Spanish-American war (Cuba and Puerto Rico) and many of these colonies revolted against their European masters. Cultural remnants still play a big part in those territories. They explain the original motivations for colonisation - trade and the conversion of indigenous religions to Christianity. The indigenous languages of Americas evolved into replacement of Spanish and original languages are lost.

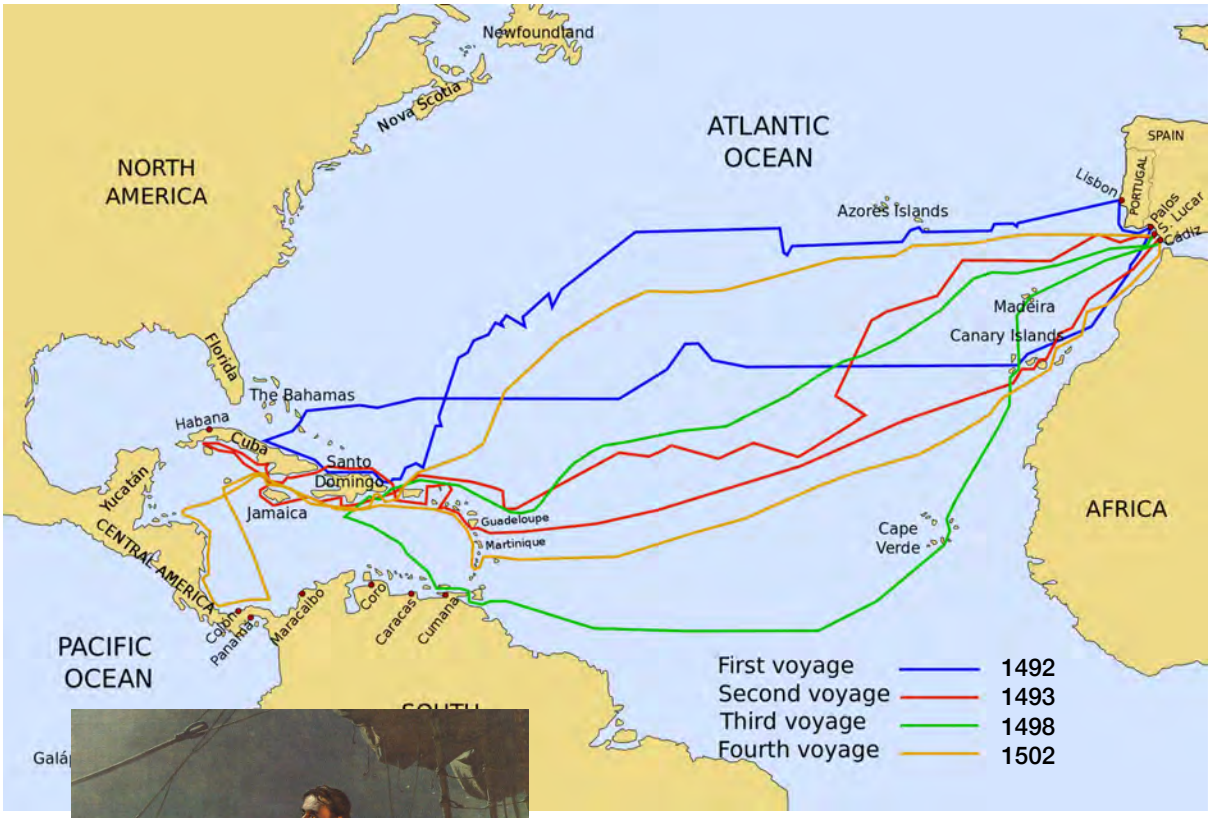
The Spanish also helped introducing writing systems to the Quechua, Nahutl and Guarani people during their colonisation. The values that Christopher Columbus and other Europeans brought and had brought are reasons for America’s current economic and political success. Some of these also included common laws, which are a legal system that is largely formed by the decisions previously made by courts and not imposed by legislatures or other government officials.

Apart from the Spanish, other European political impacts have also been evident. For example, the thirteen original Colonies of America established by the British Empire. These colonies developed their own system of self-government, and became independent States of America, finally becoming the United States of America.

They revolted in the American Revolution in 1773 and declared independence from the British Empire. Each colony had already developed its own system of self-government, which is why laws differ in most states of the USA. Americans were originally mostly independent settler farmers who owned their land and voted for their own local and provincial governments.

Geography

The voyages of Christopher Columbus



A rather heroic painting of Columbus. He died when he was 54 years old, and clearly in those days, people looked a lot older than their years.

The first settlements in California came in the mid-nineteenth century, when gold was discovered in 'them tha hills'. This led to a huge influx of prospectors from the Eastern part of the continent to the Western, and the country of California was born.


A 22-POUND GOLD NUGGET.

FOUND AT THE REED MINE IN NO. 9 LAST THURSDAY.

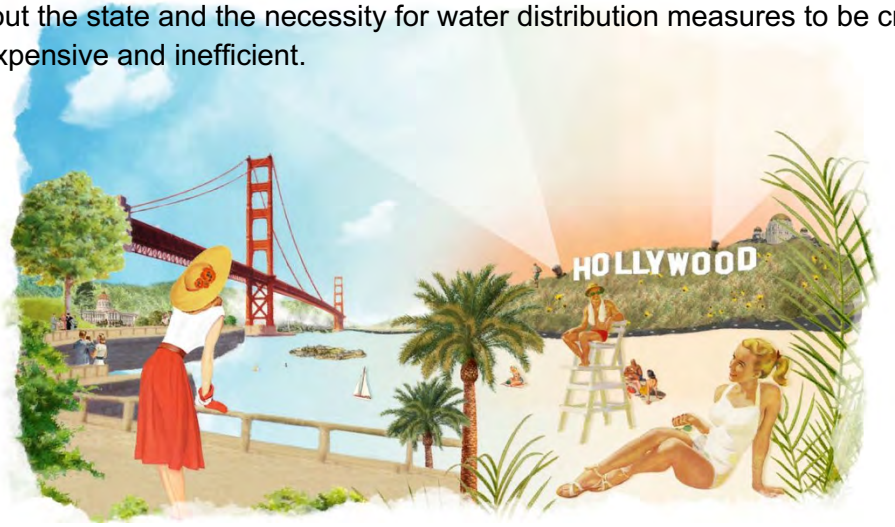
Mr. J. L. Shinn the Lucky Finder---Descriptions of the Find, and Other History of This Famous Mine.

Unfortunately the landscape of California is mostly dominated by the San Andreas fault, which is a major earth-crust fault, running almost the whole length of California. It is said that if the fault opens, the whole of California will break off and become an island. This is not actually true but it shows the extent and importance of the San Andreas fault.

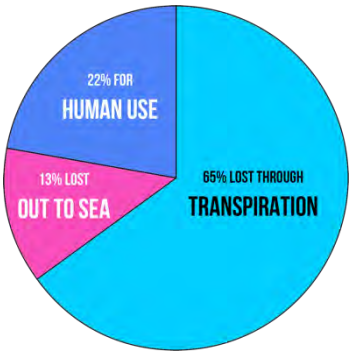
'The American Dream' is a term used to describe the fact that California, being on the pacific coast of the continent, has a generally temperate climate. This means that the temperatures are never extreme, and provide conditions which mean

activities of all sorts can take place, all year round. The activities most associated with 'The American Dream' are beach-based – such as swimming and most especially, surfing. The coast allows for large, regular waves to arrive at the beaches and those are ideal for surfing. In the 1950s, the phrase 'The American Dream' was at its most used, as the bronzed young people of California were picture surfing and relaxing on the beach. 'Surf' music (such as that by The Beach Boys, Jan & Dean etc) epitomized 'The American Dream'.

Topographically, the state of California varies between a fully temperate climate in the northern part and a drought-climate in the southern area. This makes the continuance of normal life very difficult throughout the state and the necessity for water distribution measures to be created. Such measures are expensive and inefficient.



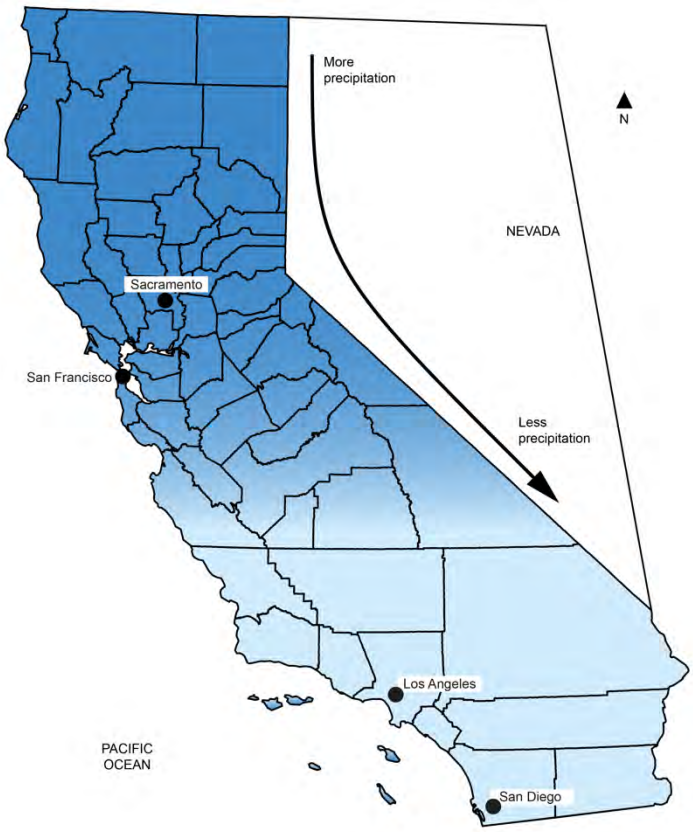
Water use in California



Water, as a finite resource, is 'precious'. As mentioned above, the southern parts of the state are quite dry, often actually in drought. The northern parts are replete with water as a resource. The diagram shows what happens to the supply of fresh water in California as a whole. Precipitation is greatest between November and March; yet there are few mechanisms in place to retain water for use during the months when rainfall is low. The result of this inaction is that there are period when fresh water can be limited even in the relatively 'wet' northern parts, and there are full droughts in the southern areas.

Spatial Imbalance

This term simply means 'iniquity between areas'. In this context, quite literally it means that some areas have sufficient water (not always a surplus or much to spare) and others do not.



This diagram shows that the main area of precipitation is towards the north of the state, and there is less towards the southern part.

The major population areas are:

Sacramento (State capital and northern population centre);
San Francisco (popular tourist destination and business centre);
Los Angeles (most famous for having Hollywood as a sub-district);
San Diego (famous for a first-class zoo).

As you can see, Los Angeles and San Diego are located in the lower part of California, which means as major population centres, they are often under drought restrictions.

Solutions
What has California as a state been doing to try to ameliorate the shortages of water within its boundaries?

- Wetlands have been drained
- Natural habitats have been altered
- Fish stocks have been depleted (reduced)

- Polluted waterways have been cleaned and laws put in place to reduce pollution
- The State and Central Valley Water Projects (SWP and CVP) provide infrastructure to bring water down from the northern areas to the southern
- The Colorado river is dammed and water is diverted using a system of pipes and aqueducts

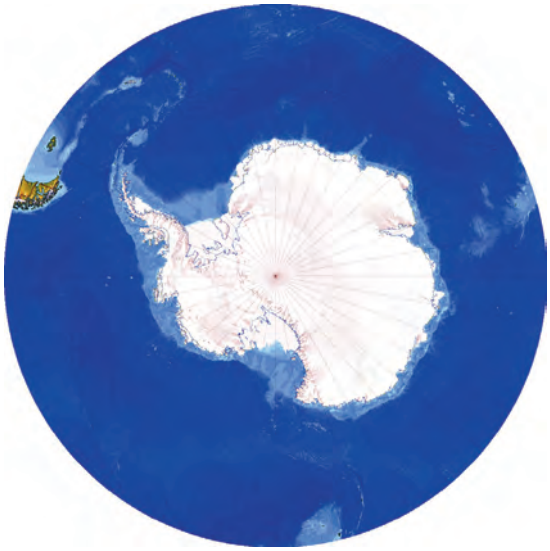
The future
Conflicts are already happening between farmers and environmentalists. Farming requires vast amounts of water, whether that is animal or crop farming, and environmentalists want to reduce the amount available to farming.

When the Colorado River was first used as a source of water for areas away from its natural course, in 1963, a finite amount of water was envisaged. Already, that amount has had to be increased by more than 20% to cater for the population and agriculture, and greater shortages are forecast for the future.

Arctic and Antarctic - Comparisons & Similarities
the North Pole and the South Pole

While the polar regions have many similarities, they are also "polar opposites" metaphorically, as well as literally, in many ways.

The Arctic centred on the North Pole: sea surrounded by land



The Antarctic centred on the South Pole: land surrounded by sea

The first obvious difference as seen clearly in the maps above is that the **Arctic** is sea surrounded by land and the **Antarctic** is land surrounded by sea. This fundamental difference is the reason for many of the other differences between the two regions.

	North Pole	**South Pole**
Where:	At sea - 700km to nearest land	Inland - 1,300km to nearest sea
Height?:	Up to 2m above sea-level	2,835m above sea-level
21st June	Midsummer, 24hr. light	Midwinter, 24hr. dark
21st December	Midwinter, 24hr. dark	Midsummer, 24hr. light
Is there a "pole"?	No - it would drift off in a few hours or less	Yes, it moves 10m a year
Temperature	+5°C to -43°C	-13.5°C to -62°C

1) The North and South Poles

The North Pole is a point in the Arctic Ocean around 700km (430 miles) north of the northern tip of Greenland, the closest land. The ocean is 4,261m (13,980 feet) deep at that point. It is permanently covered by sea ice though the sea-ice is always moving over the pole at a speed anywhere from a snails pace to a brisk walk. If you stood at the north pole, you would be anywhere from about 30-200cm (1 - 6.5 feet) above sea level.

The South Pole

The South Pole is a point on the great ice sheet of Eastern Antarctica at a height of 2,835m (9,300 feet) above sea level and around 1,300km (800 miles) from the nearest open sea, which is *The Bay of Whales*. Altitude sickness is a possibility at the south pole. The ice at that point stretches down to almost sea-level being - the ice is about 2,700m deep, and this is partly because the weight of the ice depresses the bedrock into the earth's mantle. The ice is *moving* at the south pole at a speed of about 10m per year. There is a ceremonial south pole which is repositioned every year on the first of January to allow for the fact that it has moved since the previous year.

The ceremonial South Pole

Light and dark.

At the north pole the sun is continually above the horizon, from around the March equinox to the September equinox, and reaches a high point of 23.5° at the summer solstice - around June the 21st. From September to March it is always below the horizon.

The poles have 5 months of daylight, then a month of twilight, then 5 months of night time, then a month of twilight before starting all over again.

The south pole has the opposite to this with the sun at its highest around the 21st of December.

2) Topography - the arrangement of the land and sea

The Arctic region contains a wide range of landscapes: plains, mountains, some very large significant rivers and lakes, rolling hills, huge stretches of tundra and the edge of the largest biome in the world, the Taiga.

The ice in the Arctic Ocean is largely formed from the frozen sea, and contained by the surrounding land masses. It contains a large proportion of multi-year sea-ice which is 3-4m thick with some much thicker ridges. Greenland has the largest ice cap in the Arctic (and second largest in the world, after the Antarctic ice cap). Other than this, permanent ice is quite rare and relatively small in extent. Icebergs form when the edges of the Greenland ice sheet reach the sea, most of the ice in the Arctic even in the summer is frozen sea ice.

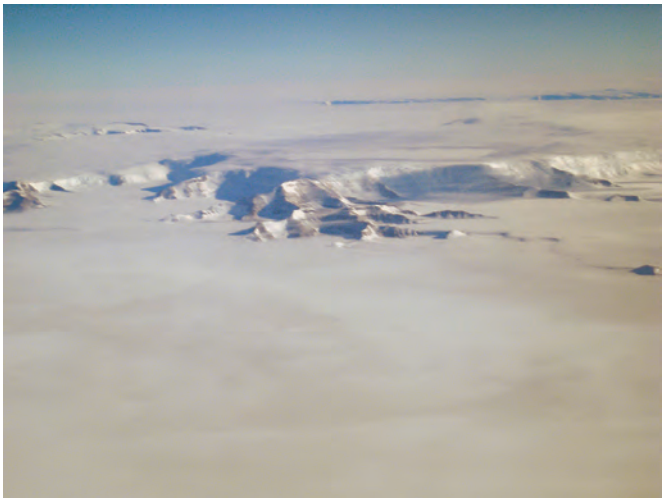
An iceberg

Antarctica is 98% covered in ice, which means that away from coastal regions (but including many coastal regions) the landscape is icy mountains, glaciers or smooth ice-sheet. There are no significant rivers and none that flow year round, lakes are small, rare and often permanently frozen over, there is very little land vegetation, and no grassland, shrubs or trees. There are small areas of tundra on the

Antarctic Peninsula and larger expanses on a number of Antarctic and sub Antarctic islands (though nothing like the huge areas found in the Arctic).

The total surface area of Antarctica approximately doubles each winter as sea-ice forms around the coasts, in the summer this ice breaks up and drifts north mainly melting as it does so, Antarctic sea-ice is therefore mainly first year ice. The great ice sheets of Antarctica calve enormous ice bergs into the sea that are measured in square miles (sometimes hundreds or thousands of them), much of the ice in Antarctic waters especially in the summer is freshwater ice from glaciers and ice sheets.

There are small areas of tundra



Mostly the landscape looks like this

3. Climate

The South Pole

The climate of both polar regions consists of long cold winters and short cool summers (or at least less cold than the winter) there is a spring and autumn but they are very short, so we say that there are only two seasons, one cold and bright, the other colder and dark.

The Arctic is not as cold as the Antarctic for two main reasons.
Firstly the effect of the sea, which doesn't fall below -2°C in temperature, which means that the whole of the arctic polar region and coastal regions are kept *relatively* warm even though the sea is covered by ice. **Secondly**, Antarctica is the highest of all the continents at an average height of 2,300m, more than twice the average height of Asia, and 3-6 times as high as the other continents. Temperature falls as altitude increases, at the rate of about 1°C per 100m.

There is also a weather effect in Antarctica wherein the weather pattern is driven round and round the continent, by *circumpolar* winds and currents which keep it over and near Antarctica, whereas the weather in the Arctic spills out southwards, and weather from the south spills up northwards into the Arctic. This means that Antarctica is colder than the Arctic because it keeps its cold to itself rather than swapping weather with nearby regions.

Each pole has different temperatures in different regions. For example, the temperature at the north pole in the winter (January) varies from about -43°C to -26°C, while the south pole in winter varies between about -62°C to -55°C. The highest temperature recorded at the north pole is +5°C (+41°F) and at the south pole it is -13.5°C (+7.7°F).

The coldest temperature ever recorded on earth was -89.2°C (-128.6°F) on July 21st 1983 at the Russian base at the Southern Geomagnetic Pole in Antarctica.

4 Plants

Plant life is Alpine in nature

The North Pole

Plant life in the Arctic is characterised largely by what grows on the tundra, a vast, low growing, treeless area of approximately 11.5M km^2 which is mainly underlain by permafrost. There are low shrubs (up to 2m tall in rare places) sedges, grasses, mosses and liverworts as well as an extensive variety of alpine type flowering plants and many lichens. There are about 1,700 species of plants that live on the tundra. The tundra can support many larger herbivores, including reindeer, musk ox, lemmings, arctic hares and squirrels. To the southern edge of the arctic, the tundra can have plant cover of 80-100%, but further north, plant coverage can be 0% or just a few hardy alpines in sheltered microclimates.

The South Pole

Plant life in the Antarctic is much less plentiful. Only about 1% of the continent is ice free, and this is located mainly along the Antarctic Peninsula, and on islands. There are some exposed rocks inland however known as nunataks where the hardiest of plants can gain a foothold. There are just two species of higher plants, a grass and a small flowering alpine, around 100 species of moss, 300-400 species of lichens and 25 species of liverworts. In very extreme conditions, algae and lichens live in tiny pore spaces inside rock.

Lichens and moss

Often where plants are found growing in Antarctica, they are sparse and irregularly spaced.

The seas

Both the Arctic and Antarctic have highly productive seas, and the production of the seas is driven by phytoplankton. Rising currents bringing nutrients upwards and long days in the summer months drive this production.

5 Animals

Polar bears - North Pole

The North Pole

The Arctic has many large land animals including reindeer, musk ox, lemmings, arctic hares, arctic terns, snowy owls, squirrels, arctic fox and polar bears. As the Arctic is a part of the land masses of Europe, North America and Asia, these animals can migrate south in the winter and return to the north in the more habitable summer months. The total number of these animals is large because the Arctic is so big. The land isn't so productive, however, so large concentrations are very rare and predators tend to have very large ranges in order to be able to get enough to eat.

Arctic fox - North Pole

There are also many kinds of large marine animals such as walrus and seals such as the bearded, harp, ringed, spotted and hooded. Narwhals and other whales are present but not as plentiful as they were in pre-whaling days.

Orca (killer whale) - North Pole

The South Pole

Belgica antarctica - the only creature native to the South Pole

The largest land animal in the Antarctic is an insect, a wingless midge, Belgica antarctica, less than 1.3cm (0.5in) long. There are no flying insects.

Millions of penguins visit Antarctica

There are however a great many animals that feed in the sea though come onto the land for part or most of their lives, these include huge numbers of adelie, chinstrap, gentoo, king, emperor, rockhopper and macaroni penguins. Fur, leopard, Weddell, elephant and crabeater seals (crabeater seals are the second most populous large mammal on the planet after man) and many other kinds of birds such as albatrosses and assorted petrels. There are places in Antarctica where the wildlife reaches incredible densities, the more so for not suffering any human hunting.

6 Human inhabitants

The North Pole

There are many indigenous peoples who live around the Arctic. There are representatives of many different groups, such as the Inuit, Chukchi, Sami, Yupik, Inupiat and others. The presence of humans is one of the biggest differences between the two poles. Typically the people who live in the far north are *nomadic* and are hunter/gatherers; mostly hunting rather than gathering, though the Sami people of Scandinavia amongst others are reindeer herders.

Eskimo (Esquimaux) inhabitants of the Arctic

The presence of people in the arctic as a result of overland access from the south has influenced the region enormously and it has been inhabited for several thousand years. There are many villages, towns and cities dotted around the Arctic; the largest is Murmansk with 325,100 inhabitants.

Murmansk (Russia)

The **permanent** arctic population - 4 million people.

The South Pole

Antarctica has never had native people. No one saw Antarctica until 1820, and the first human foot stepped ashore a year or two later. It was 1898 before people stayed ashore for a whole year. Other than temporary sealing and whaling stations in the early days, Antarctica has only been habited by scientific stations. There are no native Antarcticans (people who were born there), have always lived there and always will.

Scientific laboratory in the Antarctic

The largest habitation is the American base at McMurdo with 1,000 people in the summer, though only 250 in the winter. Over the whole of Antarctica there are around 4-5,000 summer visitors at scientific stations with about 1,000 of them remaining for the winter. They are greatly outnumbered by ships which bring 30-40,000 tourists each summer for typically 6-14 days each, though tourists are not there at all in the winter.

McMurdo Station, Antarctica

The **permanent** Antarctican population - 0
Seasonal: Summer - up to 45,000 Winter - 1,000