

Year 7 – Cold Environment, Knowledge Organiser

KS3 GEOGRAPHY KNOWLEDGE COLD ENVIRONMENTS

Cold environments are the coldest places on Earth.

Characteristics of a cold environment



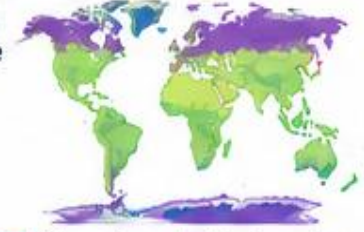
- Typically temperatures below freezing.
- The ground can be covered in ice or frozen.
- Some plants grow, but they are not in abundance.



Where are cold environments found?

Polar and tundra environments are found at the top and bottom of the world. These are where Earth's largest glaciers are found, known as 'ice sheets' or 'continental ice sheets'.

Smaller glaciers are found high up in mountains, where it is very cold. These are called 'alpine glaciers'.



■ Polar regions ■ Tundra regions

A glacier is...

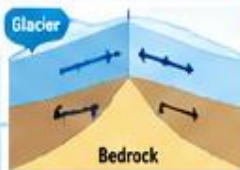
A glacier is a large mass of ice that flows across the land. Glaciers are made up of layers of snowfall over hundreds of years. Whilst glaciers are usually found in the coldest places across the world, we actually find glaciers on every continent.



Physical Processes

Plucking (erosion)

When large parts of bedrock become frozen to the base of the glacier and as the glacier moves, the bedrock moves with it.



Abrasion (erosion)

When large parts of bedrock attached to the glacier rub against the bedrock wearing it away. This causes scratches (striations) on the rock.



Freeze-thaw weathering

When water freezes, expands and thaws, causing the rock to break.



Transportation

When the glacier carries away the material it has eroded.



Deposition

When material the glacier has been carrying is 'dropped off'.



Glacial till

As the ice melts, the 'load' or material it is carrying, falls to the ground. This is made up of rocks, stone, sand and clay.



Meltwater

The water from the melting ice feeds into a river or a lake. This is called meltwater.

Landforms of Erosion

Corrie



- Three steep sides
- Flat, open front

Snow gathers in a hollow on the side of a mountain. The snow accumulates and builds up. The weight of the glacier increases and moves down slope, gouging and deepening the hollow to eventually fill with water (called a tarn), snow or ice.

Arête & Pyramidal Peak



- An arête is a knife like edge.
- A pyramidal peak is a pointed peak.

An arête is formed when two corries form back-to-back. A pyramidal peak is formed when three corries form back-to-back. The backwalls erode to create a narrow knife-like ridge (arête).

U-Shaped Valley



- U-shape
- Flat bottom

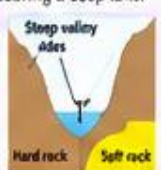
Glaciers move down a V-shaped valley, eroding the sides and bottom by plucking and abrasion. This creates giving a U-shaped valley.

Ribbon Lake

- A long, narrow deep lake



Ice erodes more quickly. The softer rock retreats, leaving a deep lake.



Identifying Glacial Landscapes on an OS Map

In every country, there are areas of flat land and mountains. The slope of the land is shown as a gradient. A steep gradient shows steep slopes and mountains.

- Contour lines are lines on a map that join points of equal height (brown lines on an OS map).
- If contour lines are close together – this means the land is steep.
- If contour lines are far apart – this means there is a gentle slope.
- The numbers show the height of the land in metres and the direction of slope.



Avalanches

An avalanche is a sudden and fast flow of snow sliding down a mountain. It can travel very fast and cause damage. It is a major hazard to people living in or visiting these areas.

Types of avalanche:

- Powder – fine, fast moving snow (like a cloud).
- Slab – a large slab of snow that slides over the ground.



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THE LAKE DISTRICT

The Lake District is an example of a glaciated landscape in the UK.

- Around 20,000 years ago it was covered in ice.
- It is in the north of England.
- It is now a National Park.

The Lake District

A National Park is:

- ✓ A protected area/location.
- ✓ Has people and laws that make sure nature and wildlife are protected.
- ✓ Protected so people can enjoy it without destroying it.
- ✓ There are 15 national parks in the UK.

Economic Opportunities in the Lake District

An economic opportunity refers to opportunities to make money and create jobs in an area.



Tourism

- In 2018, 19.38 million tourists visited the Lake District.
- Tourism is the main source of income.
- Tourism has been popular since the 18th century. In fact poets and writers such as Wordsworth and Beatrix Potter were inspired by the area.

How tourism creates opportunities

- Tourists need somewhere to stay.
- People spend money in restaurants and leisure activities.
- This creates jobs (hotels, restaurants, guides, activity centres).
- More money for the local area.

Quarrying



- Slate is the type of rock used.
- Slate can be used for roofing and walkways.
- One slate mine is the Honister Slate Mine.
- The quarry provides jobs for local people.
- Slate can also be sold to other people/companies.
- This means more money for the local area.

Farming

- Farming is a core part of the economy.
- 2,500 people are employed in farming.
- The area is good for sheep and beef.
- The lower glacial landscape, where thicker soils are found, are used for crop farming.



Antarctica – A Cold Environment



- Antarctica is a continent (5th largest).
- Surrounded by the Southern Ocean.
- The South Pole (90°S) is in Antarctica.
- It is a cold desert – very little precipitation (rain or snow).
- Only has two seasons: 6 months daylight (summer) and 6 months darkness (winter).
- It has no native people.
- The southern part has an 'ice sheet' many kilometres thick.

Climate

Antarctica has a polar climate.

- Average temperature: -10°C to -40°C.
- Strong katabatic winds (cold air flows down).
- The coastline is one of the windiest places in the world.



Animals in Antarctica



- Emperor penguin – largest penguin. Adapted by having flippers, a layer of fat and feathers to stay warm.
- Weddell seal – streamlined shape to pass easily through the water. A thick layer of blubber helps keep warm.

The Nenets People



- The Nenets are indigenous people from Siberia (northern Russia).
- They live on the Yamal Peninsula.
- Reindeer are important for food, clothing and income.
- Reindeer provide meat, milk, skins and can be sold to make money.

Antarctica's Challenges



- Climate change is causing temperatures to increase (melting ice and loss of habitats).
- Antarctica has many resources (copper, gold, fossil fuels) – a cause for conflict.
- Tourism is increasing, which can damage the environment.
- No single country owns Antarctica.
- There is a treaty to keep it for peace and science – countries must not develop land, mine or dispose of radioactive waste.