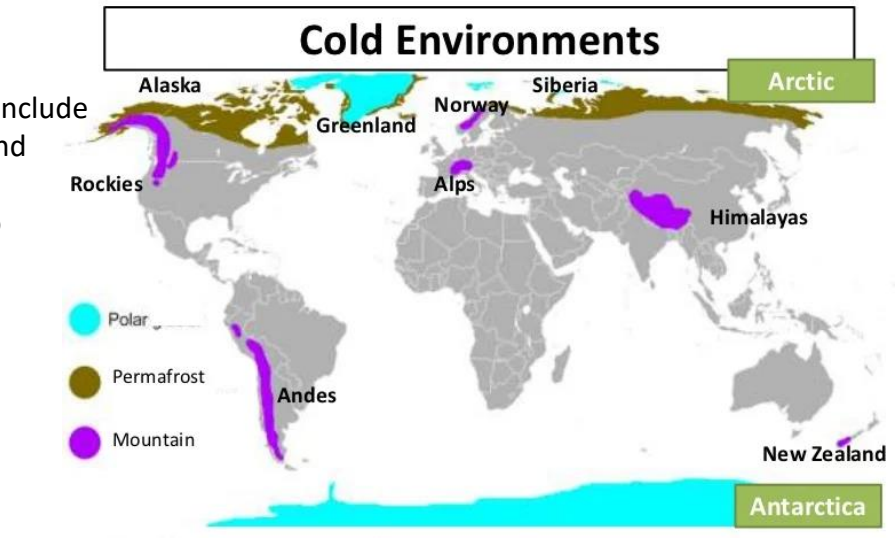


1. Cold Environments

What is the location of our cold environments?

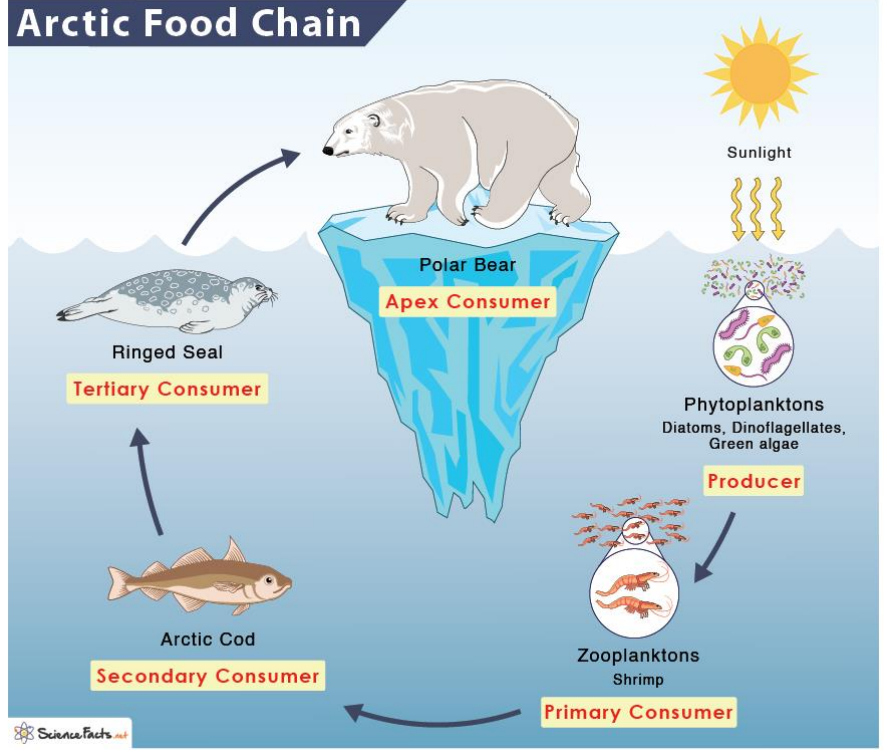
They make up 35% of our planet and are found at the north and south poles, they also include tundra biomes which are located along the northern edges of North America, Europe and Asia. Tundra is a landscape that remains frozen for 9 months of the year and only thaws during summer. High mountain ranges including the Alps, Himalayas and Andes are also classed as cold environments.

Key Terms	
Food Chain	A series of organisms each dependent on the next as a source of food.
Organism	Plants and animals
Characteristics	The human and physical features of a place.
adaption	How we evolve to suit the climate in a place
Svalbard	Norwegian owned islands in the far North
Challenge	Difficulties faced because of the characteristics of a place
Opportunity	Characteristics that humans can use
fragile	Easy to damage



How do animals adapt to life in a cold environment

Arctic Food Chain



How do animals adapt to life in the cold

Adaptations

Behavioral Adaptations

- Polar bears dig dens to protect themselves from cold winds.
- The ability to be a strong swimmer help with hunting and swimming through ice.

Physical Adaptations

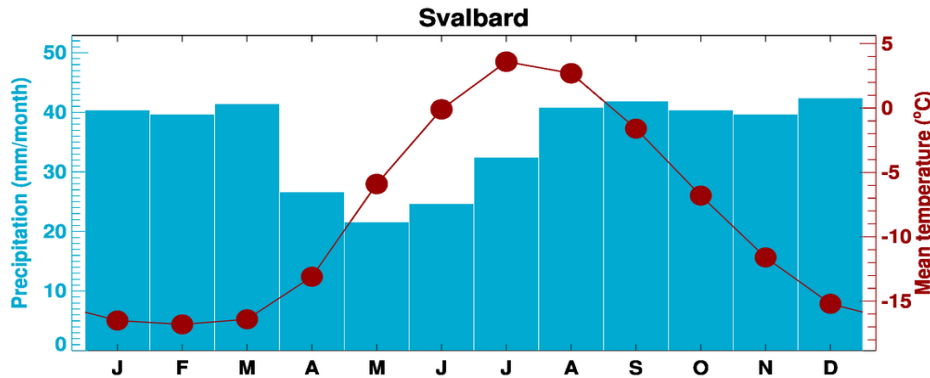
- The white fur of the polar bear helps it blend in with the snow and ice.
- The thick layer of fat under its skin helps it stay warm in such cold temperatures.
- It's small and round ears help maintain body heat and don't allow the cold water to enter the ears.



Characteristics of a cold environment

- In the centre of Antarctica temperatures never get above zero degrees Celsius which is why you only find plants and animals near the coast.
- In the Arctic temperatures remain below zero 9 months of the year so growing seasons for plants are very short and animals are migratory.

How do we overcome the challenges and survive in a cold environment?



Hypothermia and Frost bite are two major issues in cold environments.

By keeping warm and dry we can help minimize these emergencies



What Human Features are there in a cold environment like Svalbard?

The human population of the archipelago is **approx 2,640** – a full 2,370 of which live in Longyearbyen, a small coal-mining town on Spitsbergen in Svalbard. It's one of the northernmost settlements in the world. The economy of Svalbard is based on **mining, tourism, and research.**



What physical Features are there in a cold environment like Svalbard?

The cold climate gives Svalbard a distinct physical landscape and processes.

- Rock, ice and sea are the main landscape features.
- There is no tall vegetation and only lichen above 1100m.
- Svalbard is glaciated, 60% of the land is ice covered, and it has small valley glaciers as well as large outlet glaciers draining ice-caps.
- Ground is permanently frozen and impermeable nearly everywhere above 100m altitude. This is called permafrost and varies from 10m to 45m thickness.
- Only the very top layer thaws in summer enabling some plant growth. It causes problems for constructing and heating buildings and explains why some buildings and pipes are on short stilts.
- Glacial landforms include include **fjords, glacial valleys, arêtes** and **nunataks** (erosional), **outwash plains, alluvial fans and moraines** (depositional).