

Cold Environments: Knowledge Organiser

Section 2: How have the plants and animals adapted to the conditions?

Section 1: The Physical Characteristics of a Cold Environment.

Climate	Permafrost / Soils
<ul style="list-style-type: none"> • Polar temperatures are very cold with winters below minus 40 degrees. • Summer temperatures are only 10 degrees but daylight can last 24 hours! • Precipitation (rain and snow) is very low. Less than 100mm a year. • Cold summers and even colder winters. 	<ul style="list-style-type: none"> • In Polar Regions large areas are covered by ice sheets and glaciers and so no soil is available. • In Tundra areas (further south) soils are permanently frozen (permafrost) but will melt on the surface in summer. • Soils are infertile with little bacterial action due the cold. They are waterlogged in summer as the ice melts.
Plants and Animals	People
<ul style="list-style-type: none"> • In Polar Regions only mosses and lichens can survive. • In Tundra areas you find low growing flowering plants such as bearberry. • Further south low bushes and small trees may grow. • Polar bears, penguins and marine animals like whales are found in Polar Regions. 	<ul style="list-style-type: none"> • Polar areas are largely uninhabited apart from research scientists. • Some indigenous people such as the Inuit survive in the Arctic. • Tundra environments support higher populations including indigenous peoples and oil and gas workers.

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Try to consider what 9 mark questions will be on your assessments.

Adaptation	How it works
Plants become dormant and stop growing in the long cold winters.	Plants 'shut down' in the winter to conserve energy and photosynthesis stops during the 24 hours of night – the sun never rises during the depths of winter.
Most plants have a short growing season of just 60 days	This means they can complete their life cycle in the very short growing season. This is possible as in summer daylight can last 24 hours.
Arctic ground squirrels hibernate for up to 8 months	Food is only available in the short growing season so slowing down their metabolism and hibernating allows them to survive.
Many animals have white coats	Arctic hares are white to make them harder for predators to spot, baby seals are born with white fur so they blend into a snow covered coastline.

Section C: Concepts in Development of the Arctic

Mineral extraction	The removal of solid mineral resources from the earth. These resources include ores, fuels such as coal or oil and precious stones.
Wilderness Area	A natural environment that has not been significantly modified by human activity. Wilderness areas are the most intact and undisturbed areas left on Earth.
Biodiversity	The variety of life in the world or a particular habitat.