Climate Change in the Arctic

The Greenhouse Effect

The Greenhouse Effect is vital for life on Earth. The diagram below breaks down the key ideas:
1. The sun’s radiation is
2. This heats up the land and atmosphere of the Earth.
3. The radiation is then reflected by Earth.
4. Some of this reflected radiation passes through the atmosphere and back into space.
5. Greenhouse gases, such as carbon dioxide and methane trap heat within the atmosphere increasing the earth’s temperature. The amount of greenhouse gases in the atmosphere has increased due to humans burning fossil fuels. This is enhancing the greenhouse effect and heating the world further.

Impact on Animals
Climate change in the Arctic will have huge impacts upon animals in the Arctic. The interrelationship between animals in the food web having huge consequences. Polar Bears are one Arctic animal that will be impacted. The sea ice that Polar Bears use for hunting is melting. This means that bears have to find food on land rather than the abundant food sources in the sea. This has lead to many Polar bears starving across the Arctic.

Permafrost
Permafrost is any ground that remains completely frozen for at least two years. In the Northern Hemisphere, permafrost covers 25% of land. As the climate warms, the permafrost is melting which is having a huge impact upon the environment. Coastal erosion is becoming more common, ecosystems will be affected and man made infrastructure, such as bridges, pipes and roads, will be affected. To add to this, permafrost has vast reserves of carbon dioxide and methane, which are released as the ice melts. These gases will enhance the greenhouse effect can cause further heating of the planet.

People
Climate change is having a huge impact upon the lives of the 4 million people who live in the Arctic. These people rely on the ice and the environment to sustain their lives, though as the ice melts change they must adapt. Dog sleds can no longer be used for hunting.

Will the Arctic ever be the same again?

Key Terms
Arctic
The Arctic is a polar region located at the northernmost part of Earth.

Ice Age
A long period of cold temperatures which cause ice to develop at the poles.

Climate Change
A change in global or regional climate patterns caused by the increased levels of atmospheric carbon dioxide produced by the use of fossil fuels.

Geopolitics
Politics, especially international relations, as influenced by geographical factors.

Natural Resources
Materials or substances occurring in nature which can be exploited for economic gain.

Inuit
Indigenous people of northern Canada and parts of Greenland and Alaska.
Who controls the Arctic?

There are 8 countries that claim parts of the Arctic (Canada, Russia, USA, Norway, Greenland, Iceland, Finland and Sweden), and they form the Arctic Council. For many years these countries have had competing claims in the region, and recently the tension has been growing. Each country wants to secure its own access to shipping lanes and resources, and so the questions of who owns what has become more important.

Some countries argue about how far their territory extends. Disputes of where countries end and new ones begin which impacts what belongs to who. Russia has made the Arctic one of its priorities: in 2007 it sent two submarines to the seabed of the Arctic ocean to plant rust proof titanium flags to stake their claim on the Arctic.

Climate change means that one of the world’s last great unspoiled regions is under threat. It isn’t only the geography of the area that will be transformed, but also the relationships between the different countries, as each one tries to protect its own interests. But what is happening in the Arctic is a global issue: the changes here could have important consequences for the whole planet. It is in the interests of the Arctic countries to work together and not to let the race for resources destroy this once pristine wilderness.

Natural Resources

It is thought that vast quantities of natural gas and oil may lie in the Arctic—perhaps as much as 50 trillion cubic metres of natural gas and 90 billion barrels of oil. There are also large, undiscovered sources of gold, zinc, nickel and iron. An international agreement grants countries the right to the resources found within 200 miles from their shores.

Tourism in the Arctic

The Arctic is full of wildlife, pristine landscapes and culture, and has seen large growth in tourism over the past 15 years. The Arctic is an increasingly popular destination for British travellers both as passengers on cruise ships and onshore enjoying adventure tourism activities. The UK promotes safe and sustainable tourism in the fragile Arctic environment and is aware that the isolation of some parts of the Arctic combined with the harsh environment poses unique challenges to safe tourism.

Will the Arctic ever be the same again?

| Yes | No |

|  |  |

Permafrost
Political

How is the Arctic changing?
Geography of the Arctic - Homework #1

Using this map, describe the location of the Arctic?

Using the diagram, explain what the greenhouse effect is.

Using this map, describe the location of the Arctic?
### Geography of the Arctic - Homework #2

**Define these keywords...**

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<thead>
<tr>
<th>Climate Change</th>
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<tr>
<td><img src="image1.jpg" alt="Polar Bear" /></td>
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<tr>
<td><img src="image3.jpg" alt="Permafrost" /></td>
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**Use the knowledge organiser to help you complete this mind map of impacts of climate change.**

What impact is Climate Change having on the Arctic?
## Geography of the Arctic - Homework #3

<table>
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<tr>
<th>Define these keywords...</th>
<th>Use the knowledge organiser, and what we have learnt in class to help you complete this mind map thinking about 'Who controls the Arctic?'</th>
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<tbody>
<tr>
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<tr>
<td>Geopolitics</td>
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**Who controls the Arctic?**