

Climate change: Ade on the frontline

Rising temperatures in Svalbard

Video summary	Before watching	While watching
<p>Ade Adepitan travels to Svalbard to see the effects of rising temperatures on a dog-sled business.</p> <p>Climate change is affecting Svalbard. Average winter temperatures have risen by more than six degrees Celsius in just 50 years - a far greater increase than most other places on the planet. Summer temperatures are also at record highs. Martin Munck's dog-sled business is already feeling the effects and he wonders if dog-sledding on Svalbard will soon be a thing of the past.</p> <p>Download/print a transcript of the video.</p>	<p>This film is set in Svalbard, a group of islands belonging to Norway, inside the Arctic Circle. You might want to ask students where Svalbard is and establish its northerly aspect. You could ask students how they think climate change is affecting people's lives here.</p> <p>You might also ask students to suggest some ways that people earn a living in these islands. These could be useful ideas to return to after watching the film and answering questions.</p> <p>Introduce key terms such as:</p> <p>Albedo: a measure of how reflective the surface of the Earth is.</p> <p>Permafrost: ground that remains frozen for at least two years in a row.</p> <p>Methane: a greenhouse gas.</p>	<p>You may wish to stop at relevant points during this short film to pose questions and check understanding, or wait until the end. Useful questions might include:</p> <ul style="list-style-type: none"> • What is this place like? • Why do you think Martin runs a dog-sledding business? Why would this be attractive to tourists? • How long has he been doing this job? • What are the extremes of temperature? Martin says that minus 30 degrees Celsius is not uncommon but that days above 20 degrees are. It used to be unusual to have one day above 20 degrees and recently there were four, he says. You might want to note the huge temperature range - about 50 degrees! That is a lot to adapt to. • What is the effect of higher temperatures on the dogs? Why is this? • You might discuss how the dogs are adapted for the extreme environment, they live outside and are used to working by running at speed which would warm them up too. You might also discuss how the dogs run best on snow cover and that with increased melt, when they are pulling sleds on ground that is naturally stony, this could hurt their feet. • How long does Martin say he thinks he has before this job is unworkable? He says about 15 years at most, but he admits he has already lost some dogs. • You could ask the students what they would do in his shoes. What options does he have?
After watching		
<p>You could check Svalbard on a map and look at aerial imagery to describe its terrain, as well as using ideas from what has been seen on the film. You might want to name some of the islands and locate the largest town, Longyearbyen. You could also ask students to research the land area and find out how many people live there.</p> <p>Svalbard has seen an average winter temperature rise of six degrees in just 50 years. You could ask students to suggest why the effects of climate change, such as increased temperature, are being felt more in the Polar Regions? This could provide a useful discussion about feedback loops as ice melts and some reflectivity (albedo) is lost, meaning that more energy can be absorbed. Warming ocean currents also help to melt the ice and as permafrost melts, potent methane is released – increasing the effect of greenhouse gases in the atmosphere.</p>		

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After watching (continued)

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You might ask the students to check the temperature statistics in Svalbard over the past decades, using climate records, and predict what the average winter temperature might be in 15 years if climate change continues at the current rate.

Students could also research to check how accurate their ideas were about the jobs and employment opportunities on Svalbard.

You could ask students to imagine that they were Martin, and write three diary entries ten years apart, and as if climate change was continuing unchecked. They could write about their current life, their life in 10 and then 20 years' time. What might Martin be doing then?

What other jobs, particularly traditional ones, are at risk for people living in the Arctic Circle because of climate change? Students could select and write about two case studies.

But it is not only humans who are affected by increasing temperatures in the Polar Regions. Ice cover and permafrost is disappearing. What is the impact of this changing landscape on the animals who usually live here, and will they be able to adapt? Students could research what is known about the changing populations of polar bears for example.

What mitigation strategies are there that we can do to halt the pace of climate change? You could ask students to identify what these are and explain how this might have beneficial impacts on places like Svalbard. Students might also identify adaptation strategies such as changing the way that people make their living.

This short film is suitable for teaching KS3 and KS4 students. It can be used alongside the other Ade Adepitan films about climate change or watched on its own. All the films build on students' understanding of climate change issues and enable them to make global connections.

This film supports the KS3 geography curriculum through work on environmental and human interactions and issues, changing climate and human activity.

At KS4 this supports work on understanding natural hazards, particularly climate change and its related impacts.

This clip could be used to support the delivery of geography to KS3 and KS4 students. Specifically, this topic appears in OCR, Edexcel, AQA, WJEC KS4/GCSE in England and Wales, CCEA GCSE in Northern Ireland and SQA National 4/5 in Scotland.

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Where next?	Links
<p>Research further into life in Svalbard. Longyearbyen is the world's most northerly settlement. Many tourists visit there every year to take a cruise around the fjords, see the wildlife and experience life in the frozen north.</p> <p>How else is climate change impacting Svalbard? What impact might this have on tourism and the wildlife that lives there.</p>	<p>Cold environments: https://www.bbc.co.uk/bitesize/guides/zp37hv4/revision/4</p> <p>Climate change and global warming: https://www.bbc.co.uk/bitesize/guides/zx234j6/revision/1</p> <p>Impacts of climate change: https://www.bbc.co.uk/bitesize/guides/zx234j6/revision/3</p>