

# KESTEVEN AND SLEAFORD HIGH SCHOOL

## Geography Scheme of Learning

### Year 7 – Term 5/Unit 5 – Extreme global concerns

#### Intent – Rationale

The intent is to instil a natural curiosity into the world's last remaining wilderness 'Antarctica' and to understand the pressures it has faced from explorers, territorial claims, scientific research and tourism. Students develop an understanding of the physical geography of the continent and its climate and an appreciation and respect for scientists who live and work there. The causes and impacts of climate change are introduced with the connection made to the risk of ice sheets melting in Antarctica and sea level rise. Students are invited to share ideas as to how this continent should be sustainably managed and strategies to reduce individual carbon footprints are explored

<b>Sequencing – what prior learning does this topic build upon?</b>	<b>Sequencing – what subsequent learning does this topic feed into?</b>
<ul style="list-style-type: none"> <li>• Knowledge of location of Antarctica (Y7 Term 1)</li> <li>• Knowledge of latitude and longitude eg. Antarctic Circle (Y7 Term 2)</li> </ul>	<ul style="list-style-type: none"> <li>• Climate change – Y10 GCSE Human/Physical causes of climate change</li> <li>• Y8 – Deforestation of tropical rainforests – carbon sinks and links to less photosynthesis</li> <li>• Carbon Cycle – Y13</li> </ul>
<b>What are the links with other subjects in the curriculum?</b>	<b>What are the links to SMSC, British Values and Careers?</b>
<ul style="list-style-type: none"> <li>• Computer studies/ IT – drawing line graphs using excel</li> <li>• Biology – animal adaptation, food webs and climate change</li> </ul>	<ul style="list-style-type: none"> <li>• SP2, SP3, M1</li> <li>• BV2</li> <li>• GB4 a) communication, h) IT and computing, i) creativity (role-play)</li> </ul>
<b>What are the opportunities for developing literacy skills and developing learner confidence and enjoyment in reading?</b>	<b>What are the opportunities for developing mathematical skills?</b>
<p>FROM THE LIBRARY  <i>Climate change debate</i>; Cara Acred-305  <i>Geography Dictionary</i>; Adam Arnell-910  <i>Perishing Pole</i>; Anita Ganeri  <i>Arctic and Antarctica</i>; Barbara Taylor-919</p>	<ul style="list-style-type: none"> <li>• Interpreting a cross-section of Antarctica (lesson 1)</li> <li>• Drawing a timeline (lesson 2)</li> <li>• Climate graph drawing using excel spreadsheets</li> <li>• Line graph drawing – number of tourists visiting Antarctica and calculating percentage increase</li> </ul>

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*Pole to Pole*; Michael Palin-910.4  
*Air Pollution: Our Impact on the Planet*; Matthew Chapman-363.7  
*Global Climate Change*; A .Dawson-363

- Climate change graph interpretation

## Geography Scheme of Learning Year 7 – Term 5

### Intent – Concepts

What knowledge will students gain and what skills will they develop as a consequence of this topic?

#### **Know**

Where is Antarctica located and what its physical characteristics are like  
Which explorers visited Antarctica  
What the climate of Antarctica is like  
What animals live in Antarctica and how they have adapted to the extreme conditions  
How global temperatures are increasing  
The impact of rising global temperatures on Antarctica ice

#### **Apply**

Knowledge about latitude and longitude to describe Antarctica's location  
Knowledge about the tilt and spin of the earth to explain Antarctica's climate and seasons  
Knowledge of excel spreadsheets to draw climate graphs of Antarctica's research stations  
Knowledge about calculating average data and range of data when comparing temperatures in Antarctica  
Knowledge of food chains and food webs to identify producers and consumers in the Antarctic food web  
Knowledge about increased emissions of Greenhouse gases to explain climate change  
Knowledge of climate change to explain iceberg calving, sea level rise, and flooding

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<p><b><u>Extend</u></b>          Analyse and compare the climate of research stations on Antarctica          Articulate ideas for reducing CO2 emissions and lowering carbon footprint          Debate reasons for and against the existence of climate change</p>	
What subject specific language will be used and developed in this topic?	What opportunities are available for assessing the progress of students?
<p>Antarctica          peninsula          tourism          exploitation          latitude          longitude          hemisphere          adaptation          research          resource          Antarctic Treaty          climate change          carbon dioxide          methane          enhanced Greenhouse Effect          emissions          fossil fuels          deforestation          glacier          ice shelf</p>	<ul style="list-style-type: none"> <li>• Homework – one x 20 minute task per week</li> <li>• End of year exam to be completed after this topic which will test knowledge and understanding of this unit as well as other topics taught this year</li> <li>• Key word knowledge and spelling test</li> </ul>

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## Intent – Concepts

Lesson title	Learning challenge	Higher level challenge	Suggested activities and resources
1. Where is Antarctica and what are its physical characteristics?	Can I describe where Antarctica is located and what it is like?	Can I describe the location of Antarctica using latitude and longitude and describe its physical characteristics?	Powerpoint 1 <a href="https://www.youtube.com/watch?v=6OdGzhtV9XI">https://www.youtube.com/watch?v=6OdGzhtV9XI</a> <a href="http://www.bbc.co.uk/learningzone/clips/what-is-under-antarctica-s-ice/14193.html">http://www.bbc.co.uk/learningzone/clips/what-is-under-antarctica-s-ice/14193.html</a> Geog. 3 Pages 98-99 for extension questions
2. What is the history of Antarctica?	Can I research and explain who the explorers were to Antarctica?	Can I compare the achievements of the Antarctica explorers?	Powerpoint 2 <a href="https://www.youtube.com/watch?v=GzeIBD0UEDg">https://www.youtube.com/watch?v=GzeIBD0UEDg</a> <a href="https://www.youtube.com/watch?v=6cTTaGEnRfl">https://www.youtube.com/watch?v=6cTTaGEnRfl</a> <a href="https://www.youtube.com/watch?v=s87KIX6owk0">https://www.youtube.com/watch?v=s87KIX6owk0</a> Geog. 3 Pages 100-101
3. What is the climate like in Antarctica and why?	Can I describe the climate of Antarctica?	Can I explain the climate of Antarctica using role-play?	Powerpoint 3 <a href="https://www.bbc.co.uk/bitesize/clips/z6vfb9g">https://www.bbc.co.uk/bitesize/clips/z6vfb9g</a> Geog. 3 Page 98
4. How does the climate vary across the continent of Antarctica and why?	Can I draw climate graphs of research stations in Antarctica using excel spreadsheets?	Can I compare the range and average temperatures of the climate of the research stations and analyse the data?	Powerpoint 4 Data analysis sheet IT room/library Worksheet showing temperature – resource C1 (only need the first page) Excel climate graphs examples
5. What is it like to live and work in Antarctica?	Can I describe what it is like to live and work in Antarctica?	Can I role-play an interview with a chef in on a research station in	Powerpoint 5 Chef audio clips <a href="https://www.youtube.com/watch?time_continue=5&amp;v=dhR-JZLtzvQ&amp;feature=emb_logo">https://www.youtube.com/watch?time_continue=5&amp;v=dhR-JZLtzvQ&amp;feature=emb_logo</a>

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		Antarctica to explain his working life?	<a href="https://halley360.antarcti.co/">https://halley360.antarcti.co/</a> Task sheet Interview with a chef Feedback sheet Interview with a chef
6.How do wildlife species adapt to survive in Antarctica?	Can I give examples of species and how they adapt?	Can I explain how wildlife species adapt to the extreme conditions in Antarctica and explain the importance of krill in the food chain?	Powerpoint 6 <a href="https://www.youtube.com/watch?v=MlBxRBfGAR0">https://www.youtube.com/watch?v=MlBxRBfGAR0</a> <a href="http://oceantoday.noaa.gov/animalsoftheice_krill/">http://oceantoday.noaa.gov/animalsoftheice_krill/</a>
<b>7. EXTRA LESSON IF TIME: What are the environmental challenges facing Antarctica?</b>	<b>Can I describe some challenges facing the wildlife in Antarctica?</b>	<b>Can I explain how climate has created more challenges for the wildlife in Antarctica?</b>	<b>Powerpoint 7</b> <b>Seven worlds, one planet documentary</b> <b>Question sheet/answer sheet for documentary</b>
8. Why is tourism becoming more popular in Antarctica?	Can I describe how the number of visitors to Antarctica is changing?	Can I give reasons to explain why the number of visitors to Antarctica is changing?	Powerpoint 8 <a href="https://www.youtube.com/watch?v=nCSzaGqyyxo">https://www.youtube.com/watch?v=nCSzaGqyyxo</a> <a href="https://vimeo.com/89591330#embed">https://vimeo.com/89591330#embed</a>
9. What are the impacts of tourism in Antarctica and how is it managed?	Can I describe the impacts of tourism on Antarctica?	Can I suggest ideas for managing the continent of Antarctica in a sustainable way?	Powerpoint 9 <a href="https://vimeo.com/159945114">https://vimeo.com/159945114</a>
10. What are the causes of climate change?	Can I describe what global warming is and how temperatures are increasing at a global scale?	Can I explain the reasons for the increase in Greenhouse gases in our atmosphere?	Powerpoint 10 <a href="https://www.youtube.com/watch?v=vitY8EgzX68">https://www.youtube.com/watch?v=vitY8EgzX68</a> Geog. 2 4 <sup>th</sup> edition. Pages 92-93

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<p>11. What are the impacts of climate change?</p>	<p>Can I describe how climate change has affected places in the world?</p>	<p>Can I explain how climate change has led to iceberg calving in Antarctica and sea level rise?</p>	<p>Powerpoint 11  <a href="https://youtu.be/OqVyRa1iuMc">youtu.be/OqVyRa1iuMc</a>  <a href="https://www.youtube.com/watch?v=AyJn7TQbzDk">https://www.youtube.com/watch?v=AyJn7TQbzDk</a>                      Geog. 2 4<sup>th</sup> edition. Pages 96-97</p>
<p>EXTRA LESSON IF TIME OR HOMEWORK TASK:                      How can we calculate our carbon footprint?</p>	<p>Can I define what 'carbon footprint' means?</p>	<p>Can I calculate my carbon footprint and suggest strategies for reducing it?</p>	<p>Powerpoint 13  <a href="https://www.youtube.com/watch?v=eCK_9TxR_q0">https://www.youtube.com/watch?v=eCK_9TxR_q0</a>  <a href="http://footprint.wwf.org.uk/">footprint.wwf.org.uk/</a></p>