

RGS-IBG KS3 CPD Tutorial – Climate Change

Slide 1: Introduction. Welcome to the RGS-IBG KS3 tutorial on Climate Change. The aim of this module is to provide a range of teaching ideas, information and resources that can support planning for and teaching of this topic in a KS3 context. There is an emphasis on making learning enjoyable as well as linking with the Key Concepts, Key Processes, Range, Content and Curriculum Opportunities in the Geography programme of study as well as promoting progression within the subject. It is hoped that as students learn about this topic that they will begin to understand its place in and current and future influence on the broader environmental, social and economic world.

Slide 2: Overview. Teaching about climate change can be tricky because whilst there is undoubtedly much consensus, there is still not unanimity with all scientific conclusions. The topic can therefore be controversial. There is much good and poor information -- the combination of which can easily confuse students. Because scientists are measuring phenomena in different ways often specific measures and *some* conclusions can be inconsistent. Still, there *is overwhelming* agreement *in* the scientific community that climate change is occurring and that human activity is strongly related to that change. Forging ahead with this topic requires teachers to be aware of what things are agreed on and what remains contentious and they need to be able to communicate this confidently to their students.

Slide 3: Key facts on climate change. In order to *engage* students it is *best* for them to participate in the debate. Consider having them read the Royal Society's "Guide to facts and fictions about climate change." In developing the Key Process of Geographical enquiry they should be able to identify bias, opinion and abuse of evidence in sources. Look particularly at the fourth statement, which focuses on the way that biased information may *appear* official and can then easily sew seeds of uncertainty in the minds of the public. When looking at climate change and extreme climatic events, it is important to ensure that the extent of their relationship with human activity is *clearly* understood. The *key* to a good geographical enquiry, is having students collect and collate their own data on climate change. This can also help students feel connected with the unfolding of the 'climate change' story as they progress through their study of geography and the wider school curriculum. You will find an activity on this topic as a download on the webpage.

<http://www.royalsoc.ac.uk/page.asp?id=2986>

Slide 4: Place. It is not hard to find up-to-date case studies of climate change related events. Offer opportunities that enhance students' engagement with the concepts of place and space at a range of scales by zooming into one particular case study which may have been highlighted in the news or use a GIS such as Google Earth. Websites like Oxfam, UNESCO, *An Inconvenient Truth* and Wikipedia all provide good examples of climate change events as case studies. The provenance of these website should also be discussed. Can you discuss with your students what climate change means to them and their locality? Does climate change make them worry about the future? Make the most of your local area and use local places as well as contrasting places at varying scales to ensure you are covering the topic both broadly and deeply. You might like students to do an exercise on climate change and local issues. There is a guide to finding your own local or even global climate change case study as a download.

Slide 5: Space. Climate change *in itself* reveals a spatial network of physical and human interactions. The way that solar radiation becomes trapped in the earth's atmosphere through the promulgation of greenhouse gases, impacts upon ice sheet melting, storm formation, changed rainfall patterns etc connects human action with climate. The theory that underlies the possible shutting down of the North Atlantic Drift is a good example. In short, increased temperatures may bring greater rainfall which along with ice shelf melting in Greenland may significantly increase the amount of fresh water in the North Sea. The reduced salinity in this region reduces the water's tendency to sink, which is the main driving force for the North Atlantic Drift the current that keeps the British Isles and western Europe warm. It is possible that should this occur, even though the world might be getting warmer, Western Europe might get much much colder, possibly relatively quickly. This scenario shows the implicit connectedness of human and physical processes on the planet.

Slide 6 Scale. Examining aspects of scale through climate change draws us to the relationship between the personal and the global scales. Connecting students' own buying habits with the broader plight of global energy use is a compelling way to communicate this. The demand for technology in the west, of which Playstations, iPods and PCs play a role lead to the need for energy where they are produced. Local demands become global demands and global demands have energy implications. These energy implications have the potential to have a global effect on global climate and livelihood. Adverse weather and flooding in Western countries may be driven by climate change which might be the result of the release of greenhouse gases thousands of miles away from their target market. Making links between people and their environments at different scales will help pupils understand interdependence.

Slide 7 Interdependence The economic impact of climate change is unprecedented. There is real evidence that the impact on national economies will be highly uneven, often with countries least responsible for *contributing* to

climate change being *most significantly affected*. This profile of impact is likely to have the most devastating effects on less economically developed countries (LEDCs). The International Panel on Climate Change (IPCC) publishes geographical data in the form of graphs and tables in Powerpoint format which may be used to help illustrate issues relating to climate change. Perhaps you could look with your class, at those in the world who are most responsible for climate change, and at those who are most vulnerable?

See: <http://www.ipcc.ch/present/presentations.htm>

Slide 8: Physical and human processes How will local places be affected by sea-level rise? Different scenarios can be examined. For schools close to sea-level, lower-impact scenarios of 1-5 metres will still have very significant implications. For schools further inland ((for example on inland river flood plains), the effects of more extreme sea-level rise could be considered. If there is no risk the nearest threatened settlement could be substituted. A diverse range of impacts could be investigated, using Ordnance Survey maps photographs, satellite images and local area knowledge to develop the key processes of graphicacy and visual literacy. Create an opportunity for students and make a link with a different subjects like English and look at geographical data in literature perhaps excerpts from a novel such Richard Doyle's Flood which anticipates a serious event for London and tells of a worse case scenario of inundation in the capital. Whilst this is not a scientific book it does make some predictions that may not be commonly anticipated. Look at the book's website. Perhaps you can use this map in your classroom to begin the topic and to make the potential impact of climate change real. The *Your Climate Your Life* website also has a flood risk map of London. But again students need to examine the provenance of such websites?

The web addresses may be found in the links on this page. Additionally, the GLA provides further information on flood risk in London, and other councils throughout the country do the same.

<http://www.floodlondon.com>

http://www.yourclimateyourlife.org.uk/8_location_floodplain.html

Slide 9: Environmental interaction The relationship between the physical and the human world is essential to understanding the causes and effects of climate change. To what extent can sustainable practices hope to redress the impact of climate change? Climate change is a real geographical issue for which geographers more than anyone else are best equipped to understand. Still, whilst research can inform, it takes political action and commitment to effect change. Can your class look at ways that sustainable practices can and are influencing climate change? There is an exercise on this topic in the downloads section (Exercise C)

Slide 10: Cultural understanding and diversity. Approaches to environment differ throughout the world especially where individual countries are at different stages of economic development. Local priorities therefore may be driven by the need to improve prosperity rather than any broader interest in the global ecosystem. How does an understanding of this difference help us to appreciate different approaches internationally? How can one address social responsibility in the context of global deprivation *and variations* in economic development? How might it be possible for western culture to learn from other cultures? Are other cultures naturally more sustainable than the culture in which we live? Can you discuss the implications of varied development that spring from the origins of students in your class?

Slide 11: Pulling the threads together. Having taught aspects of climate change theory and climate change events, can you *next* ask questions in the form of set homework or class discussions that allow students to draw together their experiences of the topic in order to become more adept in and confident when discussing the issues. The supporting documentation as a download can be used with students to encourage them to seek information, as independent learners, from the listed sources themselves in a more open-ended and active enquiry.