

# ***Climateprediction.net***

## **Geography extension exercises**

### **teacher's notes**

MJ Harris

The following geography modules have been prepared to use in conjunction with the *climateprediction.net* model.

The materials can be downloaded at  
[http://www.climateprediction.net/schools/materials\\_main.php](http://www.climateprediction.net/schools/materials_main.php)

#### **Climate Variations PowerPoint**

##### **Energy Summit exercise**

##### **Forecasting PowerPoint**

##### **Exploring Energy Resources PowerPoint**

##### **Risks and Responses to Climate Change**



# Climate variations PowerPoint

climate\_variations.pdf

This PowerPoint presentation explores the topic of **climatic variation** over **time** (millions of years down to seasonal and diurnal) and **space** (global, continental, national, regional and local).

The following links relate to the GCSE AQA Geography Specification 3031

**AO1** a. show knowledge of places, environments and themes at a **range of scales from local to global** and with a consideration of their wider context and interdependence (AO1)

## 9.6 Weather and climate are influenced by location.

Simple global distribution of climates and the effect of latitude, altitude, distance from the sea and prevailing winds.

This section is intended to provide the background to the later study of individual climates and to provide a general understanding of **variations in temperature and precipitation in different parts of the World**.

Understanding of **climate graphs**. Students should have the opportunity to construct and interpret information on climate graphs showing both temperature and rainfall.

Students should have the opportunity to **construct** and **interpret** information on climate showing both temperature and rainfall.

**UK climate** – explanation of the **patterns** of **temperature** and **precipitation**. Students should be able to explain the generalised **climate graph for the UK** but also patterns of temperature and precipitation.

Understanding of weather symbols, **synoptic charts** and **satellite images**. Students may be expected to interpret a synoptic chart and satellite photograph in order to recognise depressions, fronts, anticyclones, cloud cover and other meteorological symbols for which a key will always be provided.



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## Energy Summit exercise

**energy\_summit.pdf** and **energy\_summit\_excercise.pdf**

The PowerPoint presentation explores the topic of **energy** and **environment** and is intended as an introduction to the student exercise **energy\_summit\_excercise.pdf** and to **renewable\_energy\_worksheet.pdf**

The imaginary energy summit is to be held in Bangladesh, a country which has experienced many cyclones in recent years and, due to it being a low lying delta, is affected by rising sea levels. It has been suggested by some scientists that both the frequency of tropical cyclones and the rising sea levels may be due to climate change resulting from the burning of fossil fuels and the release of CO<sub>2</sub>.

The aim of the summit is to try to put forward a method of sustainable energy use, and to reduce the impact on the environment.

Following this each delegate (student) will present a poster indicating their country's present use of energy and their future plans.

The topic links to the GCSE, AS and A2 specifications including:

AQA: weather and climate, climatic hazards and change

Edexcel: managing hazards, natural world, physical systems

OCR: People and Environment, atmospheric systems, applied climatology, hazardous environments

The following links relate to: GCSE AQA Geography Specification 3031

**10.5 Management of resources** is crucial to **sustainable** development.

What is a resource? The reasons for the increased use of resources – overview of world **population growth**, increased wealth and technological advances. Relationship between resource use and levels of **development** and population growth.

The social, economic, environmental and political issues and consequences of **increased resource use**, especially those that are **non-renewable**. Achieving **sustainable development** through conservation, resource substitution, recycling, pollution control and the use of renewable energy.

The importance of this for **global citizenship** Case studies are not required but the general issues such as the creation of a consumer society fuelled by materialism, the problem of **pollution** and possibility of **global warming**, the search for **alternative energy** sources backed by **International** and **European directives** on **pollution controls** and the use of **renewable energy sources** etc.

One example of **renewable energy**, explanation of its location and its advantages and disadvantages. The possible **causes** and **solutions** for **global warming** as an example of pollution control. The importance of pollution control for **global citizenship**.

Students should be aware of the **conflicting nature of the evidence for and against global warming**. Causes and consequences should be treated as being possible rather than actual although all efforts to **reduce pollution** are likely to have positive side effects for the world.

An overview is required that considers the reasons for both the very **high rate of resource consumption** in **MEDCs** and the **rapidly growing** consumption in **LEDCs**.



# Forecasting PowerPoint

forecasting.pdf

This PowerPoint presentation explores the topic of forecasting in relation to  
a) **Population** and b) **Energy consumption**

The following links relate to: GCSE AQA Geography  
Specification 3031

10.1 **Population change** depends upon **birth rate, death rate and migration** and presents challenges to human populations. World population growth. Birth rate and death rate. Countries pass through different phases of population growth as shown by the **Demographic Transition Model**.

Students should be familiar with the typical exponential graph of **World population growth and the stages in the model**. Contrasts between MEDCs and LEDCs in population growth, population pyramids and stage reached in the Demographic Transition model. The contribution of MEDCs and LEDCs to World population growth should be known and linked to the appropriate stages in the Demographic Transition Model.

Population change within a country is also a product of **migration**, a result of decision making push and pull factors. The causes (voluntary and forced) and types of migration to include an example of International refugees and economic migrants. Students should appreciate the role of migration on the national and regional scale as influencing growth rate or decline.

10.5 One example of **renewable energy**, explanation of its location and its advantages and disadvantages. The possible **causes** and **solutions** for **global warming** as an example of pollution control. The importance of **pollution control for global citizenship**.

Students should be aware of the **conflicting nature of the evidence for and against global warming**. Causes and consequences should be treated as being possible rather than actual although all efforts to reduce pollution are likely to have positive side effects for the world.



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# Resources PowerPoint

energy\_resources.ppt

This PowerPoint presentation explores the topic of **resources**

The following links relate to the GCSE AQA Geography Specification 3031

**10.5 Management of resources** is crucial to **sustainable** development.

What is a **resource**? The reasons for the increased use of resources – overview of world **population growth**, increased wealth and technological advances. Relationship between **resource use** and levels of **development** and **population growth**.

The social, economic, environmental and political issues and consequences of **increased resource use**, especially those that are **non-renewable**. Achieving **sustainable development** through conservation, resource substitution, recycling, pollution control and the use of renewable energy.

The importance of this for **global citizenship** Case studies are not required but the general issues such as the creation of a consumer society fuelled by materialism, the problem of **pollution** and possibility of **global warming**, the search for **alternative energy** sources backed by **International** and **European directives** on **pollution controls** and the use of **renewable energy sources** etc.

One example of **renewable energy**, explanation of its location and its advantages and disadvantages. The possible **causes** and **solutions** for **global warming** as an example of pollution control. The importance of pollution control for global citizenship.

Students should be aware of the **conflicting nature of the evidence for and against global warming**. Causes and consequences should be treated as being possible rather than actual although all efforts to reduce pollution are likely to have positive side effects for the world.

An overview is required that considers the reasons for both the very high rate of resource **consumption** in **MEDCs** and the **rapidly growing** consumption in **LEDCs**.



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# Risks and Responses to global warming

climate\_risks.pdf

This PowerPoint presentation explores the topic of **risks** and **responses** to **global warming**.

The following links relate to the GCSE AQA Geography Specification 3031

**10.5 Management of resources** is crucial to **sustainable** development.

The social, economic, environmental and political issues and consequences of **increased resource use**, especially those that are **non-renewable**. Achieving **sustainable development** through conservation, resource substitution, recycling, pollution control and the use of renewable energy.

The importance of this for **global citizenship** Case studies are not required but the general issues such as the creation of a consumer society fuelled by materialism, the problem of **pollution** and possibility of **global warming**, the search for **alternative energy** sources backed by **International** and **European directives** on **pollution controls** and the use of **renewable energy sources** etc.

**10.6 Environmental conditions** and **hazards** contribute to differences in levels of development.

**10.3** Sample studies of **agricultural changes**. The **social, economic and environmental consequences** to be covered eg. **soil erosion** and over production in MEDCs and soil erosion, salinisation and inappropriate technology in LEDCs.

**10.4** The socio-economic, political and **environmental issues and consequences** for areas of traditional **heavy industry now in decline**, for **LEDCs** where TNCs have located and for rural urban fringes under pressure from developers of Science or Business parks. The values and attitudes of interest groups should be included.



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