

Climateprediction.net can play an important part in Module P2 *Radiation and life*; you may also wish to refer to it in Module P1 *The Earth in the Universe*.

### **Module P2 *Radiation and Life***

Lesson 9 The greenhouse effect

Lesson 10 The carbon cycle

Lesson 11 Changing climates? possible consequences

Lesson 12 Changing climates – time for action?

The published resources for C21 Science, available from Oxford University Press, show how scientists know about climate and CO<sub>2</sub> levels in the past. They also mention climate modelling as the best way scientists have of predicting what might happen in the future.

#### **Lesson 9 The greenhouse effect**

As an introduction to climate change, use material from climateprediction.net to discuss the film *The Day after Tomorrow*.

For class discussion or homework, use Climate\_discussion.pdf This activity considers environmental changes and how they might affect climate. It is quite hard, because the answer to many of the questions is ‘no-one knows’. It could be suitable as an extension exercise for gifted students.

#### **Lesson 11 Changing climates? possible consequences**

#### **Lesson 12 Changing climates – time for action?**

There are three activities that would fit well in Lessons 11 and 12:

- Use the introductory PowerPoint presentation to introduce the idea of climate modelling, and modelling in general.
- Use the ‘Bucket Model’ to show how a physical model can help us to think about why the Earth’s temperature is roughly stable, and why it may change.
- Use the ‘Bucket model’ Excel spreadsheet to show how a spreadsheet can solve iterative equations to make predictions.

#### **Other relevant points**

##### **Lesson 1** Taking chances with the Sun

UV and sunburn. Different countries have different cultures regarding sunburn. Will changing climates require changes of culture?

##### **Lesson 2** Sunlight and life

The effect of the atmosphere on radiation from the Sun. Contrast the successful global collaboration to solve the problem of CFCs and the ozone layer with the current political situation regarding treaties to reduce greenhouse gas emissions. (see Russia/ Kyoto discussion activity in the KS3/4 geography section)

### **Module P1 – The Earth in the Universe**

#### **Lesson 6** Geohazard strikes home

Some geohazards are weather/climate related. If our climate changes then will these become more or less likely? How can we find out? Is there anything that we can do about it?

### **Ideas about Science**

A study of *climateprediction.net* can illustrate the use of modelling to make scientific predictions. An important feature is the way the cp.net model tests itself against the Earth's past before predicting the future. This is relevant to these *Ideas about Science* sections:

- Developing explanations
- The scientific community
- Making decisions about science and technology