

An introduction to climate modelling – Notes for teachers

The *climateprediction.net* software can be used as an extension of work on global warming in Science in Years 9-11. It fits in to the Programme of Study as shown below:

At Key Stage 3:

Sc1: Scientific enquiry - Ideas and evidence in science

1) Pupils should be taught:

- a about the interplay between empirical questions, evidence and scientific explanations using historical and contemporary examples [for example, Lavoisier's work on burning, the possible causes of global warming]
- b that it is important to test explanations by using them to make predictions and by seeing if evidence matches the predictions

Sc4: Physical processes - Energy resources

- b about the Sun as the ultimate source of most of the Earth's energy resources and to relate this to how coal, oil and gas are formed

Conservation of energy

- e ways in which energy can be usefully transferred and stored
- f how energy is transferred by the movement of particles in conduction, convection and evaporation, and that energy is transferred directly by radiation .

At Key Stage 4:

Sc1: Scientific enquiry - Ideas and evidence in science

1) Pupils should be taught:

- a how scientific ideas are presented, evaluated and disseminated [for example, by publication, review by other scientists]
- c ways in which scientific work may be affected by the contexts in which it takes place [for example, social, historical, moral and spiritual] , and how these contexts may affect whether or not ideas are accepted
- d to consider the power and limitations of science in addressing industrial, social and environmental questions, including the kinds of questions science can and cannot answer, uncertainties in scientific knowledge, and the ethical issues involved.

Sc4: Physical processes: Energy resources and energy transfer

5) Pupils should be taught:

Energy transfer

- b about the efficient use of energy, the need for economical use of energy resources, and the environmental implications of generating energy

These materials could be included in Year 9 Energy module, after SATs as Sc1 work, in Year 10 Energy module or Year 11 Waves module.