

## The Energy House Kit: Integrating energy issues into the school curriculum

### Summary

The SEACS project is a cooperation project funded by Europe between local authorities in Devon, Dorset, Wiltshire and Cotes D'Armor, Brittany in France. It has developed a range of resources which can be used in schools to develop knowledge and understanding of energy issues.

### Objectives

The objectives of the SEACS project were to:

- Raise awareness of climate and energy issues
- Encourage long term behavioural changes regarding energy use.
- Learn from each other
- Test and share new or innovative methods
- Develop common tools

In order to deliver these objectives within schools, the SEACS project developed a range of curriculum resources including an Energy House kit which comprises a model house, experiment tools and lesson plans for secondary and primary schools. It was trialled and tested by several participating schools.

### Methodology

In England, the secondary school curriculum resources were developed jointly by DARE (Devon Association for Renewable Energy) and CSE (Centre for Sustainable Energy). A model house was designed and then produced by a carpenter based in North Devon. The insulation experiment kits were developed and produced by CSE.



Learning about passive solar gain with a game

French partners developed a set of lesson plans, activities and games targeted at secondary schools and the primary age range through Le Centre Permanent d'Initiatives pour l' Environnement (CPIE) du pays de Morlaix. The primary age lesson plans are also available in English to British schools.

### Curriculum resource overview

Each model house box contained two houses, one to act as a control and the other to be retrofitted with insulation and technologies.

The insulation experiment kits contain seven vessels insulated with differing materials to test the effects of heat loss. There are digital thermometers to be used in various experiments and plug in electricity monitors to ascertain the energy use of different appliances. Samples of insulation materials used commonly throughout the construction industry are included. Also included are solar panels which can be used for solar radiation experiments and can also be fitted to the model house.



Insulation experiment kit.

Lesson plans have been produced for primary and secondary age groups across a range of subject areas:



The model house

Science: Introducing energy & climate change  
 Investigating running costs  
 Investigating heat loss & insulation  
 Investigating renewable energy

Design & Technology:  
 Introducing the energy house project  
 Planning the energy house  
 Designing the features  
 Building the features  
 Presenting the house

PSHE: Understanding fuel bills  
 Understanding energy meters

Foreign languages:  
 Letter to a pen friend  
 French conversation  
 Posters & videos

Extra Curricula:  
 Organising & holding a climate related fun day  
 Energy saving art and craft ideas  
 Building practical energy demonstrations

## How were the resources used?

Each partner area saw slightly different approaches to the use of the model house, experiment kits and curriculum resources in its schools.

Some secondary schools have given one model house to two different year groups and given them the challenge of retrofitting the houses!

Although the model house, experiment kits and curriculum resources in Britain were designed to be used as a package for students aged 11-14 years old, it was soon discovered that the model house and kits were of interest to primary schools.

The insulation kits have been used alongside thermal imaging cameras in primary and secondary schools to provide a visual demonstration of heat loss.

The plug-in monitors have been used by primary school eco groups as part of their energy audits.



Eco house ideas

Primary school pupils were given the opportunity to design their own eco houses, with the best ideas being used on the model house in order to add an element of competition.



Finished eco house

## Contact for further information

All curriculum resources are freely available on the SEACS website: [www.seacs.info](http://www.seacs.info)