



# ENERGY, ENQUIRY AND EXPERIMENT

KS 2 Science

<p><b>Learning Objectives</b> During this Day Course pupils should learn:</p> <ul style="list-style-type: none"> <li>ü To practise scientific enquiry skills.</li> <li>ü To evaluate experimental materials and processes.</li> <li>ü To investigate ways of using renewable energy.</li> <li>ü To apply numerical and literacy skills to experiments.</li> <li>ü To understand their responsibility to maintain a sustainable environment for future generations.</li> <li>ü To recognise ways in which people can improve their environment.</li> </ul>
<p><b>Pupils will also:</b></p> <ul style="list-style-type: none"> <li>ü Learn safely in a new environment;</li> <li>ü Gain an appreciation of the environment and understand their role in caring for it.</li> </ul>

<p><b>Adult : Pupil ratios</b> For this course CEES' recommended ratio for safety is <b>1 : 8</b> Additional adults may be needed with classes where individual pupils need 1 : 1 support</p>
<p><b>Other information</b> Please see overleaf for guidance notes, including information on clothing and equipment.</p>

<p align="center"><b>Day Course Programme</b></p> <p align="center">Where 2 classes are attending the course the introductory session will be common to both. Classes will then separate and sessions A and B will be interchangeable am and pm.</p>
<p><b>Introduction:</b> On arrival a member of CEES staff will welcome your group to the Centre and describe the day's programme and the learning objectives. An introduction will briefly consider the ways in which human activities are impacting on the planet and will introduce renewable energy. A comparison will be made with energy use and environmental impacts in Victorian times.</p>
<p><b>Session A:</b> This session is based in the building and grounds of Wisbech Castle. It will focus on what pupils can do themselves to bring about a more sustainable future today whilst contrasting with energy use in Victorian times. Pupils will begin by following a past and present energy trail around the grounds. In groups, pupils will investigate the generation of heat and electricity using two types of mini solar panels. They will consider how to generate the most energy by choosing suitable places to place the panels. A hands on interactive exploration of the function of typical Victorian household artefacts will provide a contrasting view of energy use including elbow grease!</p>
<p><b>Session B:</b> Continuing to work in the Centre and its grounds, an open investigation using model wind turbines will give pupils the opportunity to discover the optimum conditions for electricity generation and look at the construction of wind turbines in detail. At the end of the session, pupils will be encouraged to write their own energy pledge for their home.</p>
<p><b>Plenary:</b> The group will reflect on their day and consider how well the learning objectives have been met.</p>
<p><b>Note:</b> The actual programme may vary depending on number and needs of pupils, length of visit and weather conditions.</p>

<p align="center"><b>Relevant extracts from CEES risk assessments</b></p> <p align="center">See also guidance notes relating to health and safety overleaf</p>	
<b>Hazard</b>	<b>Control measures</b>
Severe weather	<ul style="list-style-type: none"> <li>• CEES staff are aware of daily forecast.</li> <li>• Alternative venues or activities are substituted if weather conditions are particularly unfavourable.</li> <li>• In extreme cases, where guidance notes on clothing (see overleaf) have not been complied with pupils may be excluded from activities.</li> </ul>
Uneven ground, low branches on trees, steep slopes	<ul style="list-style-type: none"> <li>• Pupils and adults are made aware of expected standards of behaviour and, for example pupils are instructed to walk, not run, to look ahead, and to stay close to their supervisory adult.</li> </ul>
Unfamiliar surroundings	<ul style="list-style-type: none"> <li>• Adults supervise directly, for example, walking beside the group and regularly checking that the entire group is present.</li> </ul>
Using scientific equipment	<ul style="list-style-type: none"> <li>• Pupils are instructed in the safe use of equipment, for example using goggles to shield eyes when using wind turbines, taking great care not to touch lamps and fans.</li> </ul>