



CEES Day Course Information: Energy Works
 ENERGY, ENQUIRY AND EXPERIMENT –
 COLDHAM WIND FARM AND
 SUTTON BRIDGE POWER STATION
 KS 2 Science



Learning Objectives During this Day Course pupils should learn:
<ul style="list-style-type: none"> ü How electricity is generated by conventional and renewable means in a real context ü To recognise dangers associated with electricity and industrial installations ü To understand their responsibility to maintain a sustainable environment for future generations. ü To evaluate experimental materials and processes. ü To recognise ways in which people can improve their environment.
Pupils will also:
<ul style="list-style-type: none"> ü Learn safely in a new environment; ü Gain an appreciation of the environment and understand their role in caring for it.

Day Course Programme
<p>Introduction: A CEES teacher will describe the day's programme and the learning objectives before boarding the coach for the first site visit.</p>
<p>Session A: This session is based at Sutton Bridge Power Station. On arrival, the education officer will introduce the principles of electricity production and gas turbines. In two groups pupils will put on safety hats and glasses to walk the perimeter of the site to view the power station and watch a safety video. Pupils will then have the opportunity to use the hands-on displays to explore electricity production using magnets, scale models and even an exercise bike.</p>
<p>Session B: After lunch at Coldham Wind Farm's Energy Works Education Centre there will be a short introduction to the site, including safety instructions. There may be the opportunity to try some of the more specialised pieces of safety equipment used on site. After putting on safety hats and glasses, pupils will be transported by coach to the control buildings. They will then walk the short distance to turbine 5 for the best view of the wind turbines and a close up view of the turbine blades and tower. Back at the education centre pupils will view the management system used to control the wind turbines. They will then consider the optimum conditions for generating power from the wind, and the session will conclude with activities linked to the contribution that renewable energy technologies can make to tackling climate change.</p>
<p>Plenary: The group will reflect on their day and consider how well the learning objectives have been met.</p>
<p>Note: The actual programme may vary depending on number and needs of pupils, length of visit and weather conditions.</p>

Adult : Pupil ratios
<p>For this course CEES' recommended ratio for safety is 1 : 8</p> <p>For most classes 4 pre-arranged groups, each with an adult is ideal.</p> <p>Additional adults may be needed with classes where individual pupils need 1 : 1 support</p>
Other information
<p>See also separate guidance notes on safe and effective day courses.</p> <p>To comply with safety regulations on site:</p> <ul style="list-style-type: none"> - Pupils must wear long sleeved tops and trousers, and sensible shoes - The coach must stay on site in case of emergency.

Relevant extracts from CEES risk assessments	
See also separate guidance notes on safe and effective day courses	
Hazard	Control measures
Severe weather	<ul style="list-style-type: none"> • CEES staff are aware of daily forecast. • Access to the wind farm during electrical storms or wind speed > 25m/s is not permitted. • Alternative venues or activities are substituted if weather conditions are particularly unfavourable. • In extreme cases, where guidance notes on clothing (see left and separate notes) have not been complied with pupils may be excluded from activities.
Proximity to electrical system and apparatus	<ul style="list-style-type: none"> • Pupils will not have access to the inside of turbine tower or control room.
Rough ground, slopes and steps	<ul style="list-style-type: none"> • 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. • Advice given on suitable shoes prior to visit
Working farm: Farm roads and equipment, land working	<ul style="list-style-type: none"> • Coach transports pupils to buildings • The farm manager is notified of the visit and of the need to control work in proximity to pupils • Adults supervise directly, for example, walking beside the group and regularly checking that the entire group is present.