

## The Solar Car Challenge

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### Abstract

This paper describes how London South Bank University (LSBU) and the London Engineering Project (LEP) set up the Solar Car Challenge, a 12-week project, in order to engage young people in science, technology, engineering and mathematics (STEM).

### Background

The LEP has been set up to engage young people in STEM with a particular emphasis on engineering. At the point of writing, the LEP has been running for four years in schools in South and East London. The project has introduced innovative activities in primary and secondary schools, with the aim of improving the eventual uptake of engineering and science subjects in higher education.

One of the activities that the LEP offers to schools is the Solar Car Challenge; this was introduced in 2008 and has run during the Spring/Summer term since then. In 2010, due to the continuing success of the project the LEP received some funding from Aspire.

### Origins of the project

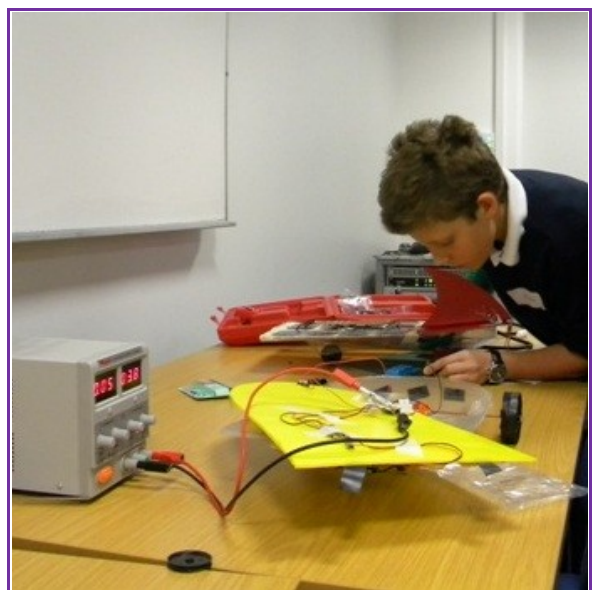
Dr. Deborah Andrews and Robin Jones, academics from the Department of Engineering and Design at LSBU, approached the LEP about running a solar car themed activity. Students studying on the BSc Product Design at LSBU complete a similar project in their first year and the academics suggested that a modified version could be run with Year 8 and 9 students. The LEP worked alongside many members of the Department of Engineering and Design to develop the Solar Car Challenge and make it suitable for its students.

### The Solar Car Challenge process

The project is offered to between two and four teams in LEP schools (teams usually consist of five students), in 2010 this was expanded to schools in the Aspire region. The project runs for around 12 weeks.

At the beginning of the project teachers are given packs which contain parts for the solar cars and instructions, vacuum-formed bodies for the car and a splicing kit. Work on the project is usually completed during after-school science and engineering clubs. Although pupils follow a set of basic instructions to make their cars they are encouraged to customise and adapt their model to make it faster and aesthetically unique.

Each team is assigned a 'solar car mentor'; mentors are LEP Ambassadors (students studying within the Faculty of Engineering, Science and the Built Environment at LSBU) who receive a top-up training session on how to build the car and information on how to guide students through the project.



The students meet their mentors at their first solar car session where, as well as introducing the project, mentors get to know their teams. All students receive a profile sheet which provides details on their mentor's course, their thoughts on engineering, what they want to do after they finish their course and their hobbies. Mentors visit teams every week or every other week, depending on how much support teams require, they guide, assist and motivate pupils as they build their models.

During the final stages of the Solar Car Challenge the teams are invited to LSBU to meet academics, technicians and LEP ambassadors and get further support with the construction of their cars, they also get to test their models on a section of the solar car track.

The LEP team have worked closely with the British Science Association to offer all students that participate in the project a 'Bronze CREST Award', pupils keep a log book throughout the project and make a poster which is displayed at the final event – this helps them to achieve their award.



The Solar Car Challenge Final is a one-day event; it usually takes place in mid-June on a Saturday. All of the teams come together at an outdoor site at LSBU, teachers and parents are also invited. At the start of the day pupils can bring their cars along to the 'Solar Car Surgery', where they make final tweaks to their models. They go on to compete against each other in the Solar Car Rally – along a 104ft track. In the afternoon students are treated to lunch and entertainment (which is usually in the form of a short engineering and science themed demonstration). Finally, the winning teams (First, Second and Third and best poster) are awarded prizes.



### **The LEP approach**

The LEP aims to engage girls in engineering and always aim to have an equal representation of male and female participants at events. The fieldworkers ask teachers to encourage girls to get involved with the Solar Car Challenge.

The LEP also aims to provide a range of roles for pupils, they try to ensure that solar car mentors come from a range of backgrounds and that at least 50% are female. Fieldworkers also aim to match all-female teams with female mentors.

### **References**

For more information on the London Engineering Project, please visit:

[www.thelep.org.uk](http://www.thelep.org.uk)