

# HAMPSHIRE SOLAR DESIGN CHALLENGE 2012

## ASSEMBLY, CURRICULUM ACTIVITY SUPPORT GUIDES & TECHNICAL INFORMATION

© Schools & Homes Energy Education Project, January, 2012. All rights reserved.  
[www.solar-active.com](http://www.solar-active.com) and [enquiries@solar-active.com](mailto:enquiries@solar-active.com)

Email [david@solar-active.com](mailto:david@solar-active.com) to receive this document with live links. Attached is a social media card with links to communicate with Solar-active for support and guidance for teachers and students.

The solar design kit<sup>1</sup> components within the tube are primarily to design and construct a solar car. The [car assembly](#) guide and [body shell](#) curriculum activities and technical information are provided for this purpose. To access car assembly guides, body shell templates and technical information GO TO left hand corner of website and CLICK ON Technical/Educational Downloads and type in password [morephotons](http://original.solar-active.com/morephotons.htm) [http://original.solar-active.com/morephotons.htm] and [bodyshop](http://original.solar-active.com/bodyshop.htm) [http://original.solar-active.com/bodyshop.htm].

### HOW TO BUILD COMPONENTS TO IMPROVE PERFORMANCE OF THE SOLAR CAR

Components of the solar car can be modified to affect performance. Students are given the opportunity to first think about what will affect the car travelling straight and fast.

For instance, to ensure that the car goes straight and fast the front assembly - axle bearing/support supplied with the kit needs to have correct alignment when placed on the solar cell.

Contact [david@solar-active.com](mailto:david@solar-active.com) if you are interested to receive design options support documents for building alternative front assemblies and other designs to affect performance of car i.e. speed. For example we can provide you with support documents to design and **construct your own wheels i.e.** Maths for Solar Engineers - [centrefwheel.pdf](#) support document.





Push out the black reducer in the coloured plastic wheel supplied, and insert reducer into the centre of any wheel you design and construct. [Centrefwheel.pdf](#) provides a guide how to find the centre of a circle. To make a C-D wheel insert the white gear cog supplied into the centre of a CD.

<sup>1</sup> The solar car & boat resources have been designed for students to be given the opportunity to use their creative and inventive skills through a trial and error approach to learning. This approach is effective in encouraging invention while gaining knowledge and problem solving skills the application of STEM - Science, Technology, Engineering & Mathematics subjects.

# HAMPSHIRE SOLAR DESIGN CHALLENGE 2012

## ASSEMBLY, CURRICULUM ACTIVITY SUPPORT GUIDES & TECHNICAL INFORMATION

© Schools & Homes Energy Education Project, January, 2012. All rights reserved.  
[www.solar-active.com](http://www.solar-active.com) and [enquiries@solar-active.com](mailto:enquiries@solar-active.com)

	<a href="#">Front axle support construction guide</a>
	To adjust the angle of the solar cell in relation to where the sun is in the sky the <a href="#">angle adjustment construction guide</a> provides construction guide for this purpose. For example, at mid-day it is best to have the solar cell in a horizontal position.

### TECHNICAL INFORMATION ON SOLAR KIT COMPONENTS

#### FLEXIBLE SOLAR CELL

The flexible solar cell in the kit is waterproof and has the ability to generate **useful output during partial shading and under diffuse light conditions**. Output: 300mA & 3V [accurate to +/- 10%]. Support documents in how to use solar cell on [dull days](#).

How the solar cell is manufactured and works – includes OHP's for teaching <http://www.original.solar-active.com/xous.pvtec4.doc>

How the solar motor works - Two guides have been written in how the solar motor works. Contact [david@solar-active.com](mailto:david@solar-active.com) to receive these guides.

#### OTHER ACTIVITIES

Energy and Renewable Energy Resources posters: -

<http://original.solar-active.com/posters.htm> <http://original.solar-active.com/poster2.htm> and <http://original.solar-active.com/poster1.htm> and [classroom worksheet](#)