

CASE STUDY

CASTLEMAINE SECONDARY COLLEGE MODEL SOLAR CAR CHALLENGE



Getting students interested in science

Building model solar cars began as a way for science teacher Phillip Scoles to get more boys interested in science and school in general. Phillip was working with units on renewable energy at Castlemaine Secondary College when he noticed that many students didn't have a clear understanding of the need for alternative renewable energy solutions. Some students were anxious about climate change reports in the media and Phillip felt one way to address these issues was to introduce the concept of a move away from fossil fuels as a source of energy and towards more sustainable ways of generating energy. Following on from this the Model Victorian Solar Vehicle Challenge became an ideal way to spark student interest and get them involved.

For the past six years, Phillip has refined his lessons to a stage where students now learn about renewable energy by building their own model solar car. As a follow on from this, students take part in the annual Victorian Model Solar Vehicle Challenge held at Scienceworks in Melbourne.

'This process not only gives students an understanding of design and engineering principles,' Phillip says, 'it also builds their teamwork skills and gives them an opportunity to explore possible career pathways in science, mechanics and engineering.'

Working in partnership

Supported through sponsorship from, and in partnership with, Central Victoria Solar City (CVSC) and the Department of Education and Early Childhood Development, Castlemaine Secondary College students have designed, built and tested their model solar cars, competed in the Victorian Model Solar Vehicle Challenge seven times and made it through to the National Model Solar Car Challenge Titles on three occasions.

Phillip works with his Year 9 students on the solar car challenge in the 'Science and Technology' subject, which runs over one semester and involves 4 x forty-six minute periods per week. Students receive a design brief and the race regulations but the rest is up to them. They work in pairs or groups of three to design and build their model solar cars using examples from previous years as a guide. Design specifications change slightly each year to ensure that each car is original.

CVSC offers free tours of their Bendigo Solar Park to students and shares a wealth of knowledge and experience about how a solar park works and the benefits to communities from local, renewable energy generation.

'Students must be able to see that what they're learning has a purpose,' Phillip says. 'A 'hands on' approach offers this real world meaning and it's the best way to engage them.'

Victorian Model Solar Vehicle Challenge

The Victorian Model Solar Vehicle Challenge provides students with a clear outline for the project. There are strict specifications and tight regulations. This lends the project a highly professional feel, which Phillip Scoles says builds a strong sense of responsibility in young participants. Students are required to explain and justify their design and manufacturing process to a panel of judges. They must also explain how solar energy works and exhibit an understanding of the role of solar energy in the reduction of greenhouse gas emissions.

The Victorian Model Solar Car Challenge is held in October each year and by September students are well and truly into the testing phase of the project. Vehicle testing is essential if students' cars are to be ready to compete on race day. A model track is set up at school for the purpose of testing the cars. Local organisations including Central Victoria Solar City, Castlemaine Rotary Club, Castlemaine Lions Club and KR Castlemaine provided financial support to build the track. Testing their cars on a real track before race day allows students to make any necessary modifications to their design and also lets them see how the cars perform in different weather conditions.

Since the project began

Phillip Scoles has seen a steady increase in the numbers of boys wanting to get involved. In 2010 he had two classes and took fourteen cars to the Victorian Titles. Many students have developed a passion for science as a result of their experience with the project. Phillip gets a real kick out of watching student participation as their interest in a future career in science, engineering, mechanics or renewable energy grows.

'Building a model solar car and representing their school at a State or National level is a once in a lifetime experience that the students won't forget.'

The partnership with Central Victoria Solar City has allowed the program to expand into the senior school and Phillip is confident that interest will continue to grow. He is proud that research associated with his engagement of students in renewable energy, may, through the school's partnership with CVSC, be used to help inform future government policy and the education curriculum.

Central Victoria Solar City is part of the Australian Government's Solar Cities Program, a partnership between all levels of government, industry, business and local communities to trial sustainable energy solutions. Central Victoria Solar City Consortium members include Bendigo and Adelaide Bank, Central Victorian Greenhouse Alliance (CVGA), Origin, Powercor and Sustainable Regional Australia, the commercial entity set up by CVGA to manage the project. This project is also supported by the Victorian Government Sustainability Fund and Sustainability Victoria.



For more details please contact:

Central Victoria Solar City

T: (03) 5479 1900

E: info@centralvictoriasolarcity.com.au

www.centralvictoriasolarcity.com.au/schools/



Australian Government
Solar Cities

