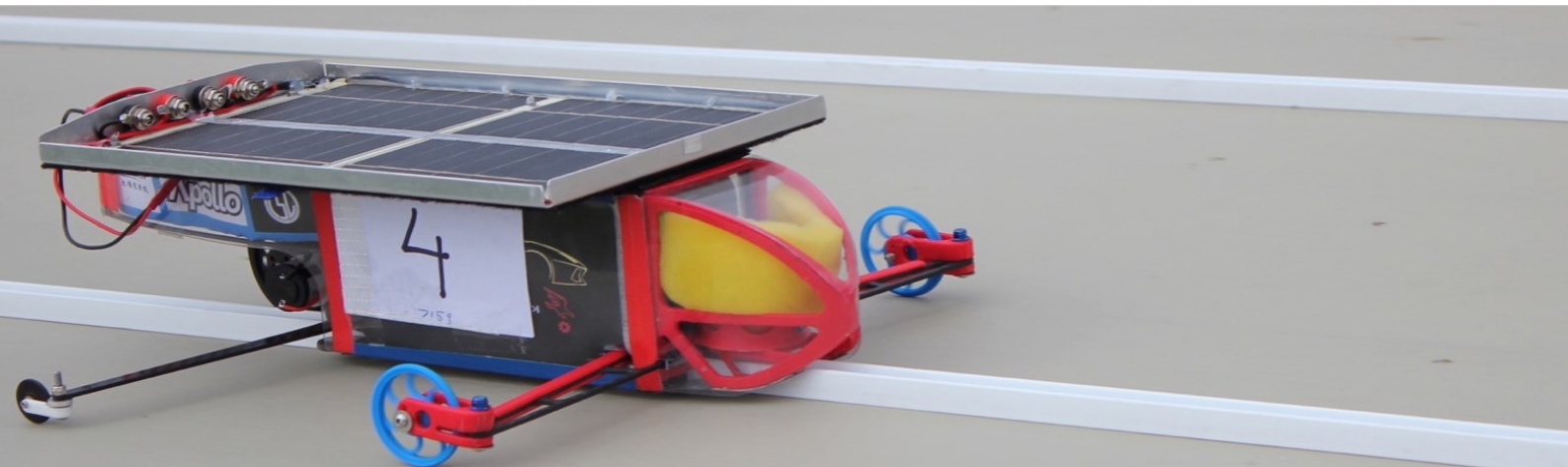




AUSTRALIAN-INTERNATIONAL
MODEL SOLAR CAR
CHALLENGE

2026 REGULATIONS



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1. INTRODUCTION

1.1. Overview

The Model Solar Car Challenge aims to deliver a hands-on educational experience in the areas of Science, Technology, Engineering and Mathematics.

The event has been designed to provide students with a practical learning experience in designing and building a solar powered vehicle, gain an understanding of the engineering processes involved and recognise the importance of renewable energy for a sustainable future.

Teacher, mentor and parent guidance is strongly encouraged but it's important that students complete all work themselves and are exposed to the full process of taking an idea from a simple sketch to a running vehicle.

1.2. Competitors

The competition is open to entries from schools, other organisations and private individuals in Australia and from overseas. Competitors must be students currently studying up to and including secondary level Year 12.

1.3. Contact and Correspondence

All correspondence should be sent directly to the AIMSC Committee at secretary@modelsolarchallenge.com.au

2. INTERPRETATION OF REGULATIONS

The nature of the event is to promote learning and encourage thinking outside the box. Everything in these regulations is open for interpretation but please check with the Committee if uncertain whether an interpretation may give an unfair advantage and be ruled against later on.

3. ENTRIES

3.1. Invitation to Compete in the AIMSC

The aim of the AIMSC is to encourage teams to compete at the highest national level. Teams may attract an invitation to the event by performing well at their state event or by direct invitation from the AIMSC. Please contact the AIMSC about receiving an invitation if you do not have a local state event to compete in.

3.2. Original Work

Each team must design and build an original model solar vehicle and not simply re-enter a car from a previous year. Commercial components or parts salvaged from a previous car may be used but the chassis and body must be original and be the work of the students alone.

Teams must answer the Knowledge Test in their own words and the Video Presentation be of their own creation.

4. COMPETITION ELEMENTS

4.1. Allocation of Points

The competition's two major trophies are awarded to the racing winner and the overall points champion. Points are allocated based on performance in the following three areas of the Challenge:

Video Presentation	30 points
Engineering Knowledge	30 points
Racing Result	40 points
Total	100 Points

4.2. Video Presentation

A key aspect of any innovative engineering endeavour is to effectively communicate what's been done and teams can score a maximum of 30 marks by submitting a 3-5 minute video presentation.

This video shall outline the management, design and build of the car, along with the engineering fundamentals, and can incorporate still images, drawings, text or animations created by the team. Teams must ensure they do not use music, graphics, animations, text, etc. that are subject to copyright and the video should cover, but is not limited to, the following topics:

- The Team - Introduce yourselves and your roles.
- Renewable Energy - How does it work? What is the impact on the automotive industry?
- Design and Build Phase - How the car was designed? How was it brought to life?
- Testing - How did you test your car? What you have learnt from it and the results.

The AIMSC will notify teams of the submission process prior to the competition with the possibility of any footage then being used for future promotional purposes unless special circumstances prevent this. Video marking is carried out as per the below guidelines:

Team intro and layout of video	5 points
Renewable Energy	5 points
Design and Engineering process	10 points
Knowledge and understanding of your project	5 points
Video Presentation	5 points
Total	30 Points

4.3. Engineering Knowledge

Each team will be required to complete a handwritten engineering knowledge test on the first day of the event. This makes up 30 Engineering Knowledge marks and will consist of approximately 5 questions based around the car and solar energy. The questions will aim to test depth of understanding in a number of areas.

4.4. Track Type and Racing Format

AIMSC races will take place across two days on a specially constructed track. This will be either a 2-lane figure 8, with a low bridge at the crossover point, or a single-lane flat oval.

A start gate is located on the downhill slope of the figure 8 track and racing typically held over a single lap of approximately 100m in length. Racing on the oval track will take place as a pursuit where cars start on opposite sides and travel in the same direction. Pursuit races may be started on the flat or a short removable downhill ramp. The racing format will be decided by the AIMSC and communicated to teams prior to the event. Round robin rounds are typically held on Day 1 and cars then ranked on their performance for the final knockout competition on Day 2. Figure 8 races may be extended from a single lap to two laps in finals.

4.5. Winning Vehicle

On a two lane track the winner shall be determined as the first to cross the finish line. In the case of a pursuit race the winner shall be the first car to catch the opponent or to complete a set number of laps. This must be achieved without interfering with the opposing car or any official equipment.

If a car comes off the track at any point during a race then the opposing car shall be deemed the winner. If both cars fail to finish then the one that has travelled farthest will be awarded the win.

After the completion of racing each team will be awarded points according to their finishing position. These points will be added to each team's total and are given as follows:

1 st – Place	40 points
2 nd – Place	38 points
3 rd – Place	36 points
4 th – Place	34 points
5 th – 8 th Place	30 points
9 th – 16 th Place	25 points
17 th + Place	15 points

If a team believes they have been mistreated, or lost due to an unfair incident or advantage for the opposing team, then they must report this to AIMSC marshals immediately after their race. The AIMSC will work together to resolve the issue and return their decision promptly. That decision will be final.

5. SCRUTINEERING

Upon arriving at the event each team must pass through Scrutineering with their vehicle. Each car will be judged according to these rules. Where a car does not meet these rules, the team will be allowed to make the necessary modifications until it complies. A car may not be allowed to race if this isn't possible.

6. SERVICING

Teams will be provided a designated work area at the event to make modifications and repairs on their car. Teachers, parents and mentors may be permitted in this area or allocated a nearby space from which they can supervise their students for safety. Adults may give guidance and advice at certain times but only students will be allowed to handle and work on their cars during the event.

Modifications of any kind are allowed during the event but must always comply with these regulations in full. Cars may be checked and re-scrutineered at any time to ensure ongoing compliance.

Hazardous substances are strictly prohibited due to Health and Safety Regulations. Any substance classed as hazardous (solvents, liquefied gases, etc.) must be approved by AIMSC personnel before being used during the competition and the team must provide the relevant MSDS.

7. CAR SPECIFICATIONS

7.1. Size Limit

The car must fit in a box, 500mm long, 150mm high and 320mm wide with the solar panel fitted in place. It must always stay within 190mm of the centre of the guide rail to ensure there's no interference with a car in the lane beside or with any timing equipment.

7.2. Source of Power

Teams must provide their own silicon solar array of no more than 400 cm² in cell area and the cell footprint fit inside a single A4 sheet of paper. Cars must only operate on the energy provided by this array during the course of a race.

7.3. Panel Testing, Power Limit and Temperature Correction

All arrays will be power tested on a lightbox and teams must supply scrutineers with a set of +ve and -ve connections that are easily attached to with a set of crocodile clips. Any panel exceeding 7W at standard test conditions (1000 W/m² irradiance, 1.5 air mass, 25°C) will have a portion of the cells masked off to reduce the power to under this limit. A non-contact thermometer will be used during power testing and a temperature correction applied using the formula:

$$P_{\text{corrected}} (W) = P_{\text{measured}} + P_{\text{measured}} \times 0.004 \times (C_{\text{measured}} - 25)$$

7.4. Solar Array Weight

Solar arrays plus any required ballast will be weighted according to the equation:

$$\text{Weight (g)} = 200 \times [P_{\text{corrected}} (W) - 4.3]$$

These must be easily removable from the car for weighing and cannot form any part of the car body, rolling chassis, driver's cabin, side panels, box, manakin or include any switches and electronic devices.

7.5. Use of Electronic Devices

Electronics of any kind are allowed however the total capacitance of all circuitry must not exceed 5mF.

7.6. ON/OFF switch

Each car must be fitted with a commercially available ON/OFF switch.

7.7. Motors

Cars may use any type of motor/s but specifications of the make and model must be made available to scrutineers.

7.8. Wheels

Wheels must be at least 2mm wide and have a radius of at least 1mm on the running surface.

7.9. Cargo

Teams must supply and their car carry a rectangular prism of minimum 2000 cm³ in volume. There are no restrictions to the dimensions of this box but it must be easily removed from the car for scrutineers to do a quick volume check. The box can be made of any material but must retain its shape at all times and cannot have any air pass through it when racing.

7.10. Side Panels

Cars must have two rigid side panel areas of at least 100mm long and 50mm high, one on each side, for attaching number stickers that can be easily seen by race marshals and spectators when racing. The curvature over this area can be no more than 20mm horizontally and 10mm vertically.

7.11. Steering

Cars must incorporate a means of steering around the track using the rectangular guide rail at the centre of each lane. This rail will be 16mm wide and 14-16mm high and track curves range from 3.5-5m in radius.

7.12. Driver

Each car must carry a driver to navigate the track. This occupant will be in the form of a 4.5" wooden manakin provided by the team. The driver must sit in a driveable, forward-facing position with a seat belt and 180° vision in the horizontal plane. A clearance of at least 5mm is required to any windscreen.

