

AIMSC Model Solar Boat 2020 Outline & Regulations

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OUTLINE

AIMSC Committee

The Australian-International Model Solar Challenge Committee is a voluntary body consisting primarily of members from the local state event organisations and will hereafter be referred to as the AIMSC Committee. The AIMSC Committee and volunteers will act as event officials for the duration of the AIMSC event.

Introduction

1.1. Overview

The Australian-International Model Solar Challenge provides a number of events which will help teachers to focus the education of students in the areas of Science, Technology, Engineering and Mathematics (STEM) with an emphasis on design, engineering and renewable energy.

The model solar boat races are aimed at all levels of students with two categories, Junior and Advanced.

1.2. Spirit of the competition

We ask students, teachers and parents to enter into the “Spirit of the Competition”. We hope students will learn new skills whilst being involved in fair and fun racing. The event should allow for a wide range of designs with plenty of learning and innovation.

1.3. Competitors

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

1.4. Contact and Correspondence

All correspondence should be sent directly to the AIMSC Committee at

secretary@modelsolarchallenge.com.au

And our web site is <https://www.modelsolarchallenge.com.au>

2. Interpretation of the Regulations

These regulations have been designed by the AIMSC Committee to operate in good faith. The nature of the event is to promote learning and encourage thinking outside the box, so everything 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 invitation directly from the AIMSC Committee. Please contact the AIMSC Committee if seeking an invitation but do not have a local state event to compete in.

Teams that have accepted their invitation to compete must register on the AIMSC website within 10 days of receiving their invitation.

3.2. Student's Work

Design and constructions is to be carried out by the students with input from teachers and/or parents only when required for safety and education. It is expected that parents and teachers will stand back and allow students to do the work on their boats both during construction and on the race weekend.

4. Competition Elements

4.1. Allocation of Points

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

Video Presentation	40 points
Racing Result	60 points
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Total	100 Points

4.2. Video Presentation – Communication

Research and engineering projects should be documented. Each team must document the development of their work by creating a video. The video should be no longer than 3min, submitted on a USB stick and handed in on Saturday morning at scrutineering. The best entries will receive prizes.

Videos should cover the following topics:

- The Team, introduce yourselves and your roles!
- Explain the use of solar power for minimising greenhouse gas emissions.
- How the boat was designed.
- What engineering fundamentals make the team's boat stand out.
- Any special materials or techniques that were used.
- How did you test your boat and what did you learn from testing.
- Document experiments and/or calculations and the design decisions made.
- It must not use content that is subject to copyright(eg Music). Preferably create your own content entirely.

Team intro and layout of video	5 points
Renewable Energy	5 points
Design and Engineering process	10 points
Knowledge and Understanding of your project	10 points
Video Presentation	10 points
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Total	40 Points

All Team members will need to complete a media release form at the time of registration.

4.3. Racing

Racing is explained in the regulation. The allocation of points is as follows:

1 st – Place	60 points
2 nd - Place	58 points
3 rd – Place	56 points
4 th – Place	54 points
5 th – 8 th Place	50 points
9 th – 16 th Place	40 points
17 th + Place	30 points

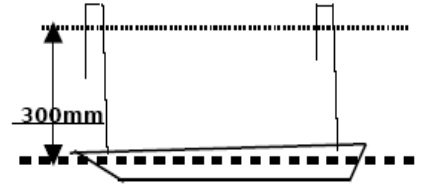
Junior Boat Regulations

Eligibility: The Junior Boat division is intended for primary school children, however, first year High school students can enter as long as the boat complies with the Junior rules and it is your first year of being in the event.

Boat Size: The boat shall be no more than 550mm long and 300mm wide.

Blunt Nose: The front of your boat should be blunt to avoid getting stuck in the 13mm holes in the starting gate mesh. If unsure about this, please ask.

Guides: A thin line will be suspended 300mm +/- 25mm above the water, to guide your boat down the pool. You will be disqualified from the current race if you are the cause of a collision with another boat.



Solar cells: The boat is to be powered by commercially available silicon photovoltaic cells of up to 350 cm² active area. Boats will not share panels. No storage devices or batteries can be used.

Switch: An ON/OFF switch is to be included in the electrical circuit.

Inspection: The solar cells must be removable to reveal the inside of the boat.

Hulls: No commercially built or vacuum formed hulls will be allowed.

Motors: The total motor cost must be under \$10.

Propulsion: Any form of propulsion can be used however it must not exceed the size requirement.

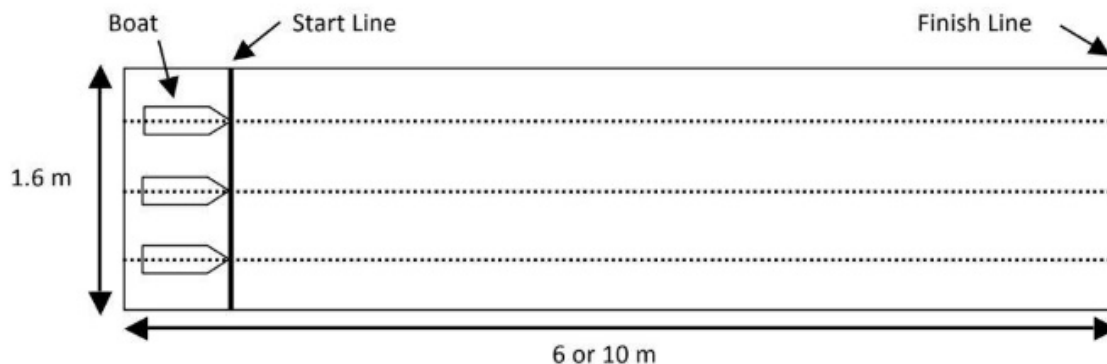
Cargo: All boats must carry a 12 cm (4.5 inch) wooden artist mannequin in a position as if it is in control of the boat. They are available from most craft shops and Officeworks. The stand need not be used. They can be constructed by the team but must be the same size and weigh a minimum of 20 grams. Prizes will be awarded for the best decorated or constructed mannequin.



Scrutineering: Prior to racing all boats need to be checked to establish if they comply with these regulations. Read these regulations carefully and make sure your boat complies. Boats will be given a race number. This number will be used to call boats to the starting line for racing. Stay alert so when your number is called we can get races started promptly.

Team Uniform: Prizes will be awarded for the best team uniforms. This is an optional competition.

Video: Students are expected to submit a video as detailed above in the outline.



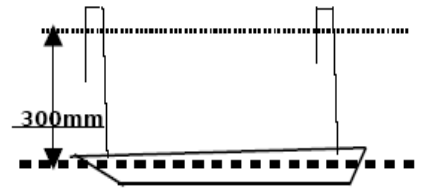
Advanced Boat Regulations

Eligibility: The Advanced Boat division is intended for primary and secondary school children.

Boat Size: The boat shall be no more than 550mm long and 300mm wide.

Blunt Nose: The front of your boat should be blunt to avoid getting stuck in the 13mm holes in the starting gate mesh. If unsure about this, please ask.

Guides: A thin line will be suspended 300mm +/- 25mm above the water, to guide your boat down the pool. You will be disqualified from the current race if you are the cause of a collision with another boat.



Solar cells: The boat is to be powered by commercially available silicon photovoltaic cells of up to 350 cm² active area. Boats will not share panels. No storage devices or batteries can be used.

Switch: An ON/OFF switch is to be included in the electrical circuit.

Inspection: The solar cells must be removable to reveal the inside of the boat.

Hulls: No commercially built hulls will be allowed.

Motors: any commercially available motor, gearbox and electronics of any kind can be used, however any storage devices such as capacitors etc. must be fully discharged at the start of the race.

Propulsion: Any form of propulsion can be used however it must not exceed the size requirement.

Cargo: All boats must carry two 12 cm (4.5 inch) wooden artist mannequin in a position as if one is in control of the boat and the other is a passenger. Mannequins are available from most craft shops and Officeworks. The stand need not be used. They can be constructed by the team but must be the same size and weigh a minimum of 20 grams. Prizes will be awarded for the best decorated or constructed mannequin.

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