

### INTRO

This solar boat race is aimed at all levels and has two categories, Junior and Advanced. It also provides for a National category, which leads into a National competition. There is a wide range of designs you can create and so the event provides lots of fun with plenty of learning and innovation.

### SPIRIT OF THE COMPETITION

We ask students to enter the "Spirit of the Competition". We hope students will learn new skills and be prepared to be involved in fair and fun racing. We are encouraging ideas but not dollars. The National category however is a little more serious.

### THE AIM

The aim of the challenge is to encourage exploration of solar energy through design and construction of working models powered by the sun using solar cells. The objective is to develop a boat that will most effectively travel along the water usually guided by a thin line suspended about the water to cover the distance of 10 meters in the shortest possible time. Two boats will race against each other with the winners moving on to determine an overall winner.

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.

### REGULATIONS

These regulations do not cover the National category. You will need to see the National web site for the open rules. [www.modelsolarchallenge.com.au/regulations](http://www.modelsolarchallenge.com.au/regulations)

#### Boat Size

The Maximum length of the boat, including any front or rear projections shall be 550mm. The minimum width of the boat will be 120mm while the maximum width shall not exceed 300mm. The front of the boat should be blunted off to avoid getting caught in the starting gate mesh, which has holes of approx. 13mm square.

#### Guides

Your boat must get to the other end without colliding with the other boat in the race. Most students use wire guides as per the diagram below however you can choose to use whatever method you like however if you collide with the other boat you will be disqualified from that race.

A thin line will be suspended 300mm +/- 25mm above the water, which you can use to guide your boat.



# Boats - 10m pond

## Rules and regulations

### **Solar cells**

The boat is to be powered by solar cells up to a maximum of 350sq cm of active photovoltaic cells in area. Only commercially available silicon photovoltaic cells are allowed. No storage devices or batteries can be used. An ON/OFF switch should also be included in the circuit.

The solar cells must be able to be removed to reveal the inside of the boat and then secured firmly again.

### **Hulls**

No commercially built hulls will be allowed.

### **Motors**

Junior category the motor must be under \$10 in value.

Advanced category can use any commercially available motor

### **Cargo**

This year all boats will be required to carry a 12cm wood artist mannequin or they can be constructed by the team to the same size. The mannequins are available in most craft shops. The mannequin/driver will need to be carried in a position as if it is in control of the boat.

Here is a link to an example

<https://www.amazon.com/4-1-Inch-Wood-Artists-Manikin/dp/B001LMUO7U>

For Advanced boats they will also need to carry a standard tennis ball, which can easily be removed at any time.

### **Propulsion**

There is no restriction on the number or size of under water propellers

There is no restriction on the number or size of paddle wheels

There is no restriction on the number or size of air propellers

The use of oars for propulsion is permitted HOWEVER

The whole boat including propulsion system must not exceed the Boat Size.

# Boats - 10m pond

## Rules and regulations

### **Categories**

At a state level we will have two categories, Junior and Advanced. The type of motor you use will set your category and the following will also apply.

Primary school students can elect to enter either category.

First year High school students can enter Junior as long as the motor used is under \$10 and it is your first year of being in the event. All other High School students will be allocated to enter Advanced. Any student can also enter the National category as well.

Depending on the interest we can also hold a third race category called National. The National Category is available to any student but you will need to run by the National Rules. Please notify me 4 weeks prior to our event if you wish to be in this division.

### **SCRUTINEERING**

Prior to racing all boats need to be checked to establish if they comply with these rules. It is important that you read these rules carefully and take special note of all regulations listed above. You may need to fill out a registration form but this will be handed out on the day or emailed to you prior to the day. You will also need to sign a Statement of Work, which acknowledges the team has done most of the work with only minimal input from others.

Boats will be checked and then given a race number. This number will then be used to call Boats to the start line for racing. You will need to be alert so when your number is called we can get races started.

### **The Race**

There will be a start line and the finish will be when the boat touches the end of the pond. This year we will have a start gate thanks to John Barlow from Melbourne. Boats will be set up on the guideline and positioned behind the start gate.

You will have the opportunity to test your boat behind the start gate and then cover the panel to stop the motor. The starter will then ask you to uncover the solar panel and your boat should then push against the start gate.

The starter will call out "ready" "set" "GO" on the go the start gate will be dropped. First boat to touch the end of the pond or the boat which travels the longest distance along the guideline will win the race. Your boat will need to withstand the impact of crashing into the end of the pond.

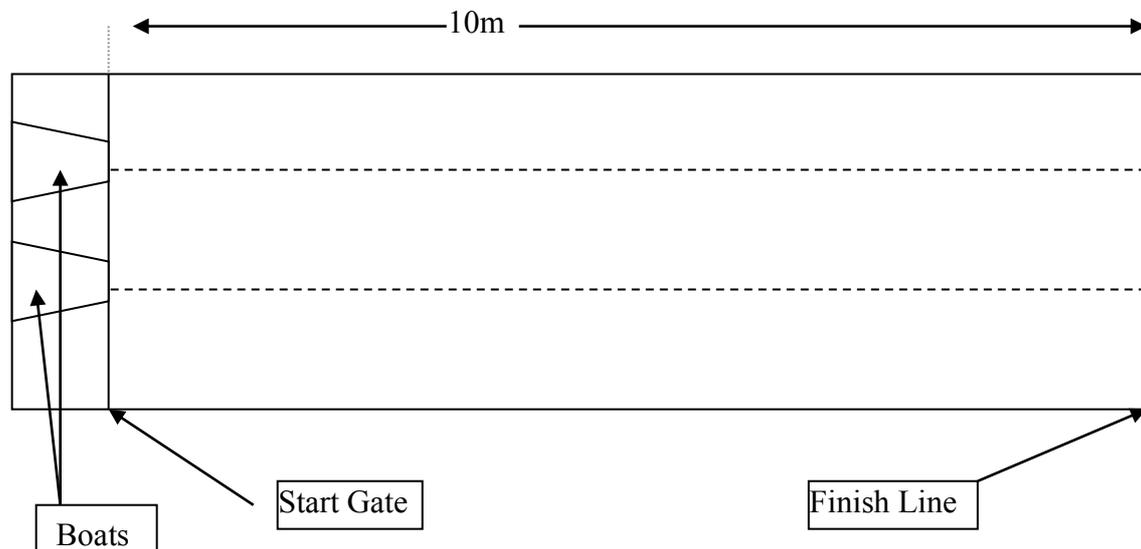
An alternative starting procedure is to hold the boat with the motor running and on the starters "Go" release the boat.

The starting procedure will be decided on the day.

# Boats - 10m pond

## Rules and regulations

### Layout of the Boat Pond



This is a great event with lots of fun. The imagination of student to build boats is always fantastic. Also the challenge to build a fast boat involves many aspects and it will test your problem solving skills.

If you have any questions or are unsure of any aspect please contact me before the day so we do not have troubles on the day.

Thanks.

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