



A U S T R A L I A

RoboCup Junior Victoria

Rescue Line Field Specifications

2021

Last Modified: 20 February 2021



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Introduction

Spirit

It is expected that all participants, students and mentors, will respect the aims and ideals of RoboCup Junior as set out in our mission statement. In turn, the volunteers, referees and officials will act within the spirit of the event to ensure the event is competitive, fair and most importantly fun. “It is not whether you win or lose, but how much you learn that counts.”

Sharing

It is the overall desire of RoboCup Junior events, that any technological and curricular developments will be shared with other participants after the events. Any developments including new technology and software examples may be published on the RoboCup Junior website after the event, furthering the mission of RoboCup Junior as an educational initiative. Participants are strongly encouraged to ask questions of their fellow competitors to foster a culture of curiosity and exploration in the fields of science and technology.

These Rules Apply in Victoria Only

These rules are derived from (with simplification and occasional modification) the RCJA Rescue Line Rules. This is not a separate Challenge and the modifications are designed to allow greater accessibility to the Challenge in Victoria, whilst still preparing students to participate at the RCJA Australian Open.

These rules only apply for the Victorian Regional and State Rescue events. They do not apply in other states, or at the RCJA Australian Open. Whilst some notes have been included regarding rule differences, these are not exhaustive and notes regarding the significant differences in the scope of the Rescue Field have not been included.

Notes/Advice vs. Rules

This document includes notes/advice to the competitors and mentors, plus rules that are firm. This has been done to remove ambiguity. There is a notation to indicate whether the content of this document is to be read as a note/advice or as a rule. **Notes/advice appear in green.**

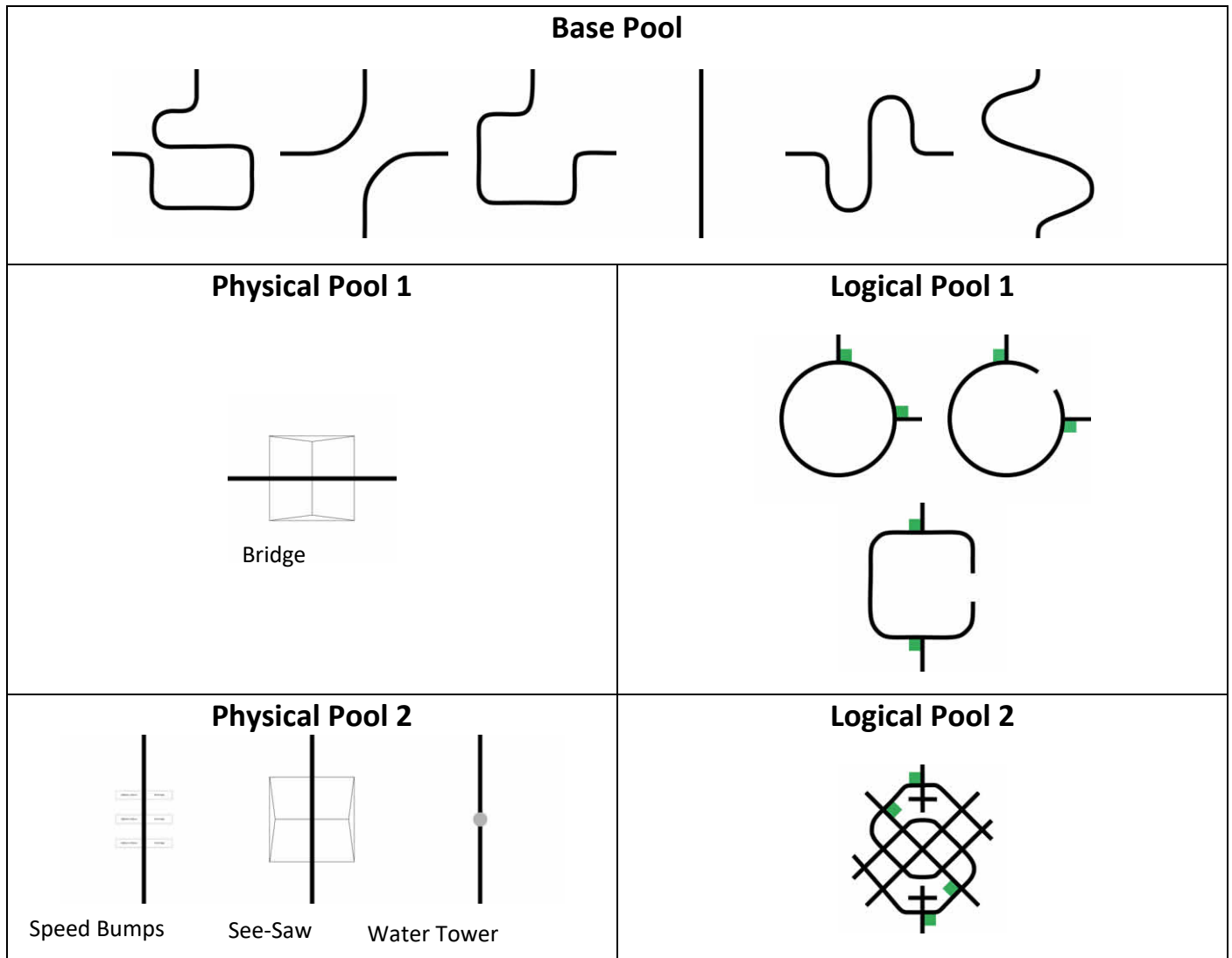
Changes

Where material, and/or hard to spot, additions are in **red**, deletions are ~~struck out~~.

All measurements have a tolerance of **5%**.

Main Field

The main field will consist of the following tiles separated into four separate pools. When designing field layouts, tiles may be duplicated or omitted.



Tiles are 594mm x 594mm and should be made of a suitably rigid material to ensure that they do not flex more than 5mm in use ('bumps' up to 5mm are acceptable).

Tiles will be printed with Black, Green, Grey and **Orange Red**. Each tile will have a white background. Colours printed on the tiles will be recognised correctly when using Lego EV3, Spike and NXT colour sensors (**when in working order and appropriately positioned on the robot**).

The width of the black line is 15mm and green turn hints are 40mm x 40mm.

All lines meet the edge of the tile halfway along its length.

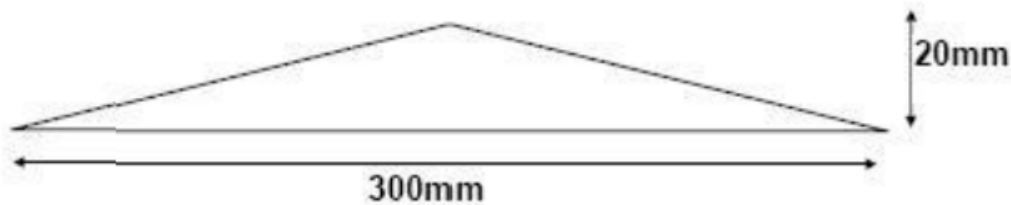
Some tiles may have 'intersection markers', which are Green, approximately 40mm x 40mm in size and indicate the side towards which the robot should turn.

There may be up to 5mm bumps between tiles, however event organisers will endeavour to minimise these where possible.

The tile surface will be smooth vinyl.

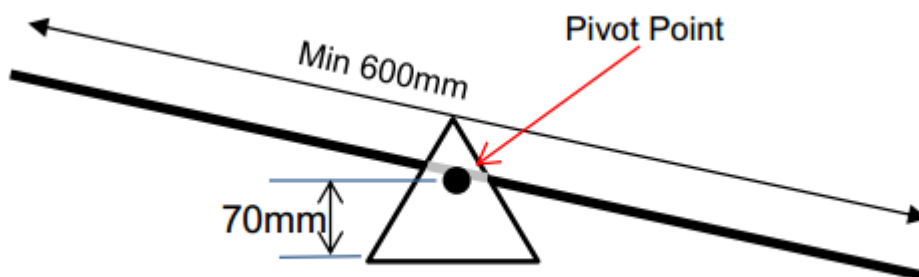
Bridge

The bridge will be constructed to the following dimensions. It should sit flat on the Bridge Tile and there should not be 'bumps' at either side of the bridge greater than 3mm.



See-Saw

The See-Saw should be constructed to the following dimensions. It should sit flat on a straight tile and there should not be 'bumps' at either side of the See-Saw greater than 3mm.



The pivot board is 600mm x (594 – 'Pivot support width' * 2) mm. The maximum height of the pivot point of the platform will be 70mm above the top surface of the field. Robots will need to be able to climb and descend both sides while following the line. The See-Saw competition surface will be of similar material to the Rescue Tiles with a standard width black line.

Sees-Saw supports will be white.

Speed Bumps

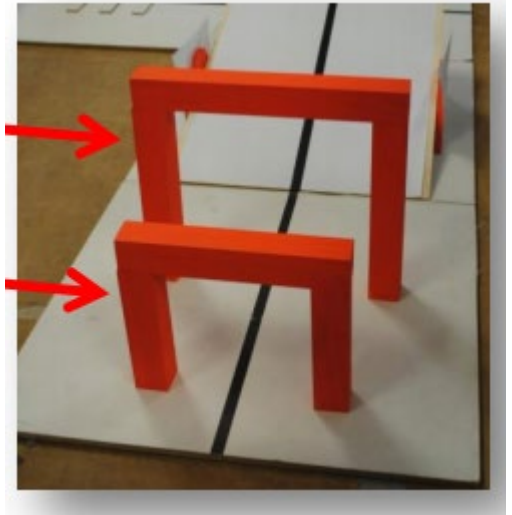
The "Speed Bumps" will consist of rectangular sections, 200mm x 30mm, white in colour, with a height of 5mm. A black line will run across the top surface of the speed bump.

Water Tower

The “Water Tower” will be a clear Kirks 1.25L bottle (**with** clear contents with label and sticky residue removed, otherwise left as per factory condition). The tower is not to be intentionally moved from its original location. When navigating the water tower, robots must regain following the line on the Water Tower tile. Should the line not be reacquired within the tile, the robot will be deemed to **have** left the line.

Doorway

The doorway will consist of three (3) pieces of solid wood 41mm x 41mm fixed together and painted in Dulux Raw Sunset. It is 270mm wide and 270mm high for Riley Rover Open Rescue and 180mm wide and 180mm high for Primary and Secondary Rescue. The doorway may be placed on a straight section of the line. The Doorway is not mounted to the tile it is sitting on.



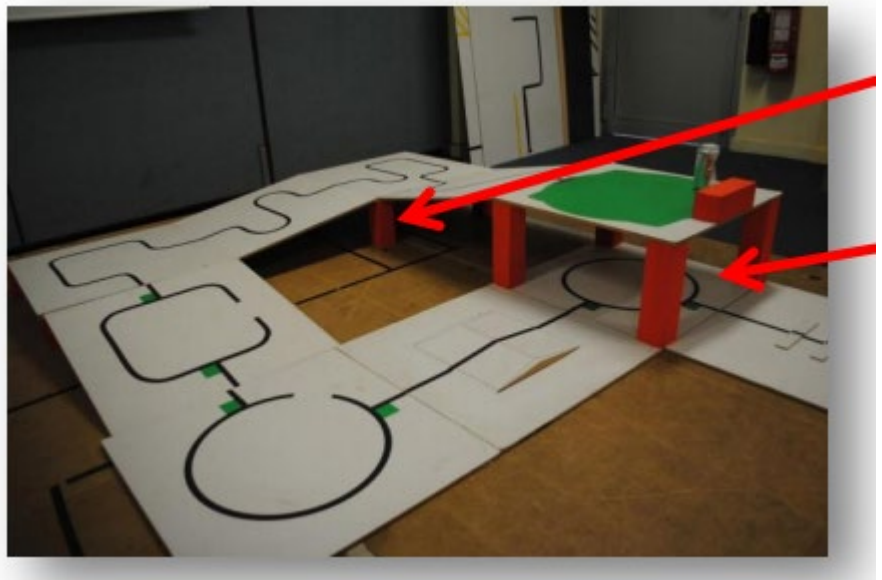
Elevator Blocks

Tiles will be used as ramps to allow the robots to ‘climb’ up to and down from the elevated tile. Ramps can increase or decrease in elevation only 90mm at a time between tiles.

Elevator blocks are to be made of 70mm x 70mm wood painted in Dulux Raw Sunset

Note: Courses may incorporate ‘Tunnels’. Robots must be designed so that they can navigate along any tile that may be placed on the base of the ‘Tunnel’. The See-Saw will not be placed under a tunnel.

Tiles may be elevated to 90, 180 or 270 mm.



City Limits Tile

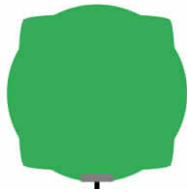
This is simply a lead in tile (straight, black, 15 mm line) that the robot is placed on prior to the first tile. Robots usually start behind the join of this tile and the first scored tile.

Chemical Spill Tile

The Chemical Spill tile is the same size as other tiles and designed as above. It will have a piece of highly reflective foil 40 mm x 15 mm in size where the black line meets the spill area.

Open Rescue only: The Rescue Tile will have a block covering the red/orange rectangle opposite the silver foil (the Evacuation Platform).

Riley Rover, Primary and Chemical Spill tile:



Open Rescue Chemical Spill tile:



Evacuation Platform (Open Rescue only)

The Chemical Spill tile will have an evacuation platform, 70 mm high, 200 mm wide and 70 mm deep located at the rear of the chemical spill. The platform will be painted in Dulux Raw Sunset. The evacuation platform may not be secured to the tile.

Rescue Capsule ~~Water Tank~~ (victim trapped on top)

The ~~Water Tank~~ Rescue Capsule (with the 'Victim' trapped inside on top referred to as the 'Victim') will be represented by a 375ml aluminium soft drink can wrapped in highly reflective aluminium foil or aluminium foil tape. ~~A Lego person may be secured on top.~~

The can will contain material such as rice bringing the weight of the Victim to 10 g. A liquid must not be used to add weight to the can.

If you would like any assistance modifying your rescue field to comply with the Victorian specifications, please contact the RCJV Rescue Coordinators.