ROBOTICS 2022 DEMONSTRATION EVENT

SCHOOL'S HANDBOOK

MARYBOROUGH, VICTORIA
FRIDAY 18 NOV 2022

1.OVERVIEW

The Robotics Challenge is a demonstration event in 2022 and aims to provide a unique challenge for students of all ages to engage with a one-day activity in Maryborough during the Energy Breakthrough. In 2022 we will restrict teams to 4 schools with plans to open it up to all schools in 2023.

The Energy Breakthrough presents a unique opportunity for students to extend their learning experience beyond the boundaries of formal education and to explore "coding" in a creative way.

The following specifications have been framed so that the efforts and experiences of all participants are maximised, to be bound only by the constraints of safety and the spirit of healthy, but friendly competition.

● The Robotics coordinator will meet personally with all teams to explain the event.

● All enquiries regarding these specifications should be emailed to enquiries@eb.org.au

2.ENTRIES

Categories, Classes and Quotas

Category	Class	Quota
Robotics Challenge	Primary school students in Years 3, 4, 5 & 6 (2 teams) Secondary school students (2 teams)	4 teams

Team composition

● All entries are to be team entries and must consist of current school students.

● All team members must participate equally in the assessments at the event in Maryborough.

● Teams in the Robotics Challenge must have:

▪ a team of four (4) students

▪ at least half of whom must be female.

3.ASSESSMENT

Overview

The Energy Breakthrough Robotics Challenge is unique in that all teams must compete across the three areas of assessment: Obstacle Course, Dance Routine and Labyrinth.

All sections must be attempted, and points are awarded in the following sections:

1. **Obstacle Course.   (1 Sphero Bolt Robot). Max points = 10**

Teams will be supplied with an obstacle plan in this document and will build and code at school prior to the event. Teams must prepare their course according to the plan below. Teams can use any materials and will need to experiment with various surfaces to determine the most suitable. Teams can construct a border around the outer edges of the track. No other obstructions beside the 5 obstacles can be on the board. The pre-determined pathway will be made up of 10 stages (as per document) and be worth 1 point for each stage completed.

Scoring: 1 point per stage completed up to a maximum of 10. Sequence to be supplied.

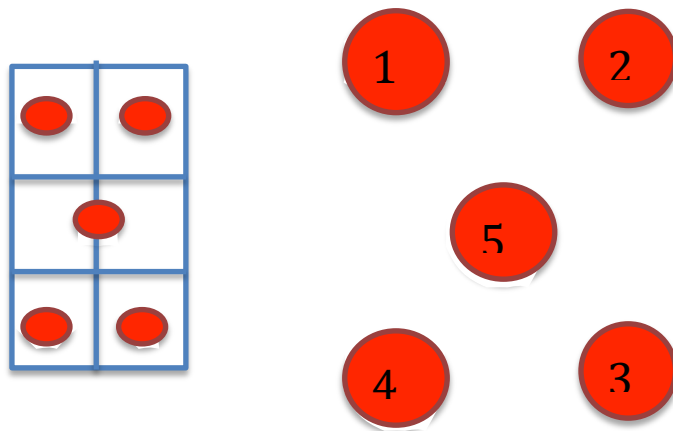Each team will have 30 minutes and can have a maximum of 3 attempts.

The teams best result will be recorded

Track is: Start beside 4 - 1 - 2 - 3 - 5 - 4 - 5 + 1 lap of 5

Equipment: 1 x Sphero Bolt Robot

1 x Baseboard approx = 1200 mm x 900 mm. (Any surface) Board to be marked as below with red dots indicating cans

5 x Baked Beans tins 300g or similar (red dots)

2. **Dance Routine. (1 Sphero Bolt Robot + 1 Sphere Mini Robot). Max points = 10**

Teams will code the 2 robots to complete a dance routine of between 2 and 3 minutes involving the 2 robots. This program will be prepared at school prior to the event but may be modified on the day. Teams will have 30 minutes and up to 3 attempts. Teams can earn up to 10 points assessed according to the rubric supplied. Teams are to supply their own music and device to play the music. Props and team members can participate in the dance routine.

The rubric will assess: * Coordination with the music

* Coordination between the 2 Robots

* Use of light sequences coordinated with the music

* The story told by the dance routine

3. **Labyrinth Max points = 10**

On the day each team will have one hour to code a path through the Labyrinth. The Labyrinth will remain hidden from the public and will consist of 10 stages using a variety of materials and demands. All teams will see the design for 5 minutes and can take notes and measurements or photos. Following this the teams have 1 hour to code their attempt. The teams can revisit the Labyrinth multiple times to measure and test. Each visit will be for a maximum of 60 seconds. On completion of the hour each team will have 2 attempts to complete the Labyrinth. Code can be modified between attempts. No adult or outside assistance can be taught or given.

Equipment: 1 x Sphero Bolt Robot

1 x tape measure

This whole event is a trial for future events, while points will be awarded and scores announced our primary aim is to investigate the future of Robotics at the Energy Breakthrough. Changes may need to be made as issues arise. Have fun !

Judging Criteria:

The judging rubric will be emailed to participating schools in Term 4.

Useful ideas

As this challenge requires students to respond in diverse and interesting ways, it is suggested that participants utilise the internet to gain insights and options as to how they might respond to the project task in the lead up to the event. Information is power.

4. SCHEDULE

Friday

Start Time	Activity	Category	Location/s
9:45AM	Robotics Challenge starts	Robotics	EB Central
10:00AM	Primary – Obstacle Course Secondary – Dance	Robotics	EB Central
11:00AM	Primary – Dance Secondary – Obstacle Course	Robotics	EB Central
12:45PM	Briefing for Labyrinth for both Primary and Secondary	Robotics	EB Central
1:00PM	Coding the Labyrinth	Robotics	EB Central
2.00PM	Labyrinth Attempts	Robotics	EB Central
2.45PM	Presentations	Robotics	EB Central
3:00PM	Robotics Challenge concludes	Robotics	EB Central