ROBOTICS 2023

SCHOOL'S HANDBOOK

Coordinator: Rob Higgins

Version 2023.01

MARYBOROUGH, VICTORIA

FRIDAY 18 NOV 2022

1. OVERVIEW

The Robotics category provides a unique challenge for students of all ages to engage with a one-day activity in Maryborough during the Energy Breakthrough.

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.

All changes are underlined in blue.

Professional Development briefings will be available at designated schools and / or sites and online during Term 2.

All enquiries regarding these specifications should be emailed to Robotics Coordinator Rob Higgins: enquiries@eb.org.au

2.ENTRIES

Categories, Classes and Quotas

Category	Class	Quota
Robotics Challenge	Primary school students in Years 3, 4, 5 & 6 Secondary school students	**Up to 12 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:

1. Obstacle Course,
2. Dance Routine, and
3. Labyrinth.

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

Obstacle Course

1 x Sphero Bolt Robot

Max points = 10

- Teams will be supplied with an obstacle plan and will build and code at school prior to the event. Teams must prepare their course according to the plan provided in Term 3.
- 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 designated 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 prior to the event.
- Each team will have 30 minutes and can have a maximum of 3 x attempts.
- The team's best result will be recorded.

Equipment: 1 x Sphero Bolt Robot

1 x Baseboard
Design Approx = 1200 mm x 900 mm.

Obstacles to be supplied by the participating.
NOTE: Details of the baseboard and obstacles will be supplied prior to the event.

Dance Routine.

2 x Sphero Robots, either Bolt or Mini.

Max points = 10

- Teams will code the two robots to complete a dance routine of between 2 and 3 minutes involving the two 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 x Robots
- Use of light sequences coordinated with the music
- The story told by the dance routine

Labyrinth

Max Points = 10

- On the day each team will have one hour to code a path through a 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, measurements and / 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 x 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

Judging Criteria:

The judging rubric will be emailed to participating schools and uploaded to the Team Manager's Hub 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. ROBOTICS SCHEDULE

WEDNESDAY 22 NOVEMBER – THURSDAY 23 NOVEMBER

No activities

FRIDAY 24 NOVEMBER

*** PLEASE NOTE THAT THIS TIMETABLE IS SUBJECT TO AMENDMENTS.**

Start Time	Activity	Category	Location/s
8:00AM	Registration and Check-In	Robotics	EB Admin Hub
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

SATURDAY 25 NOVEMBER - SUNDAY 26 NOVEMBER

No activities