

Season Quest 3 (May): Ctrl + Alt + Culture

Quest Brief 3

Hello Team Singapore!

Now that you have a moving robot, the next step to WRO success is to manoeuvre your robot around the field and the various elements. In this Season Quest, program your robot to move from one checkpoint to another in the most optimal and efficient route you can find. Push your robot as fast as it can while still ensuring reliability across the minute.

1. Use the same Instagram account that you have set up for your team for the previous Season Quests.
2. Put up an Instagram Post in the Reel format of up to 60 seconds showcasing the following:
 - a. A robot that complies with WRO 2026 RoboMission General Rules Section 5 regarding Material & Regulations
 - b. A clock (e.g. [Current Local Time in Singapore, Singapore \(timeanddate.com\)](https://timeanddate.com)) on a visible computer screen
 - c. Task:
 - i. Starting from the starting base and facing any direction before the video begins.
 - ii. The video should show your moving to both checkpoints in no order before returning to checkpoint 0 (i.e. 0 to 1 to 2 to 0 / 0 to 2 to 1 to 0). This is known as a lap. Refer to Pages 3-5 for the checkpoints for each category.
 - iii. The robot should complete as many laps as possible within 60 seconds.
3. Accompany the Post with the following caption:
 - a. Content:
 - i. **Result:** Tell us how many laps you have managed to complete (e.g. 1 lap + 2 checkpoints).
 - ii. **Platform:** Tell us the Hardware and Software platform (e.g. Robot Inventor with Pybricks) you have chosen to use and why you chose it (we understand if it was the only one available to you). Do also name 1 feature that you feel may give you an edge in completing the Mission.
 - iii. **Strategy (Route):** What did you do to make the route from the different points more efficient? Did you use sensors to help you? How were the sensors used to help? What algorithms or programming techniques were used?
 - iv. **Reflection:** What have you learnt and how could you have done better?
 - b. Hashtags: Use the Hashtags #wrosingapore26, #mayseasonquest, and #AimForTheStars so that we (and others) can find you easily. Feel free to use other appropriate Hashtags to boost the visibility of your Team.
 - c. Tags: Tag us at @wro_singapore and @spacefacultyasia. If your Robotics Club or school has an Instagram Account, feel free to tag them too. If you are looking for specific Companies or Organisations to sponsor or mentor your team, it will be a good

opportunity to catch their attention by tagging them as well. Together, we can connect our Robotics community, learn from each other, and have fun together through the WRO experience.

4. Submission:

- a. Put up the Post on Instagram
- b. Fill up the following table and [submit via this link](#).
- c. For teachers who are submitting their teams' posts in bulk, please kindly use the link above as well.
- d. Successful Submission for this Season Quest entails fulfilling the criteria set out above while following the general guidelines posed in the General Brief. In doing so, your team will be awarded *4% of the Qualifying Score*.
- e. **Submission is to be done by 7th July**. Late submissions will be penalised 1% per Quest Month (e.g. submitting this on 9th August will result in a score of 2% instead of 4%).

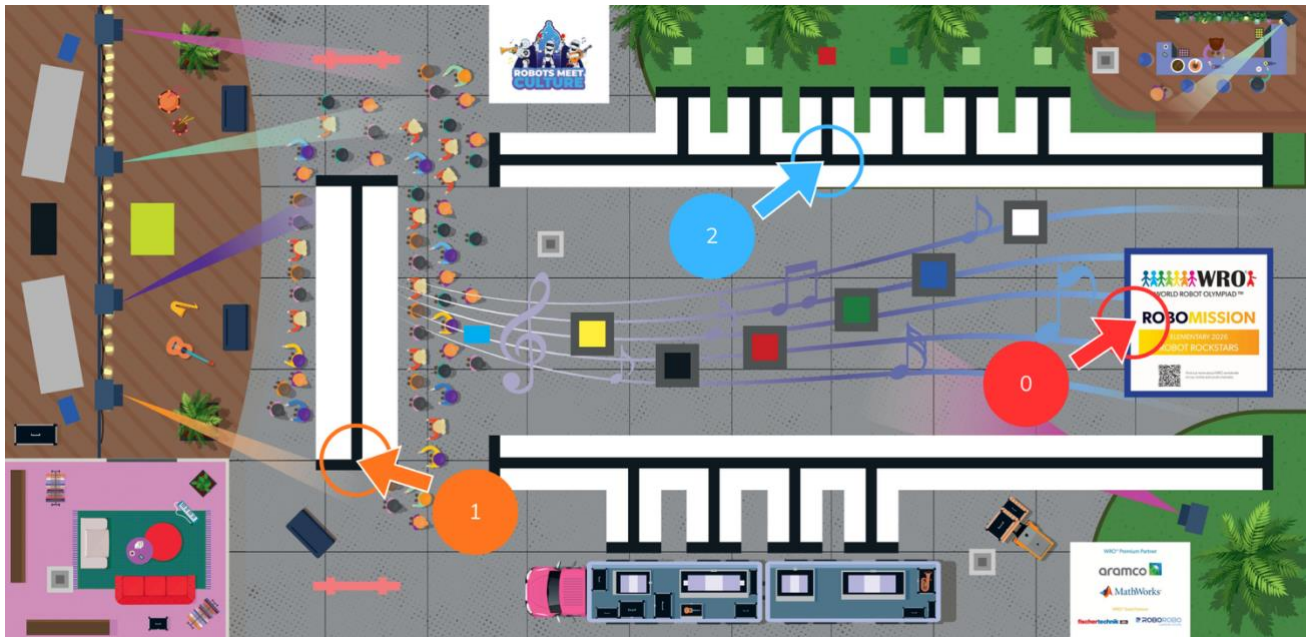
Not sure where to start? Here are some beginner guides you may find useful:

1. LEGO® MINDSTORMS® (Education) EV3
 - a. Lesson Plans: [Colors & Lines | MINDSTORMS EV3 Lesson Plan | LEGO® Education](#)
2. LEGO® Education SPIKE™ Prime or Robot Inventor
 - a. Lesson Plans: [Training Camp 3: Reacting to Lines \(lego.com\)](#)
3. Unofficial Guides
 - a. Basic Line Follower
 - i. EV3-G: [BasicLineFollower \(ev3lessons.com\)](#)
 - ii. EV3 Classroom: [scratch-BasicLineFollower.pdf \(ev3lessons.com\)](#)
 - iii. NXT: [BasicLineFollowerNXT \(ev3lessons.com\)](#)
 - iv. SPIKE or Robot Inventor (Word Blocks): [LineFollower.pdf \(primelessons.org\)](#)
 - v. SPIKE or Robot Inventor (Python): [PROGRAM management \(primelessons.org\)](#)
 - b. Proportional Line Follower
 - i. EV3-G: [ProportionalLineFollower \(ev3lessons.com\)](#)
 - ii. EV3 Classroom: [scratch-ProportionalLineFollower.pdf \(ev3lessons.com\)](#)
 - iii. SPIKE or Robot Inventor (Word Blocks): [ProportionalLineFollower.pdf \(primelessons.org\)](#)
 - iv. SPIKE or Robot Inventor (Python): [BEGINNER PROGRAMMING LESSON \(primelessons.org\)](#)
 - c. PID Line Follower
 - i. EV3-G: [PID \(ev3lessons.com\)](#)
 - ii. EV3 Classroom: [scratch-PID.pdf \(ev3lessons.com\)](#)
 - iii. SPIKE or Robot Inventor (Word Blocks): [PIDLineFollower.pdf \(primelessons.org\)](#)
 - iv. SPIKE or Robot Inventor (Python): [BEGINNER PROGRAMMING LESSON \(primelessons.org\)](#)
4. Theory
 - a. [Controlling Self Driving Cars - YouTube](#)

All the best for this Season Quest! Line Following is just one simple application of Control Theory. Control algorithms described above such as bang-bang control and PID control, are also just 2 of many. [Check out](#) how control theory enables devices like drones which are becoming increasingly commonplace! Additionally, follow our Instagram Account at @wro_singapore as we will be putting up more resources for you.

5. Checkpoints:

WRO Elementary (Primary)

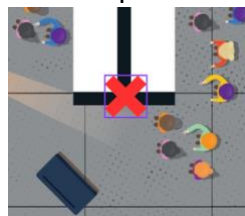


1. Amplifier with speakers, instruments, and clef are to be built and placed in their positions. (As per shown in the rules)
2. Amplifier with speakers, instruments, and clef are not to be damaged or moved.
3. Start the run with your robot fully in the start area.
4. The checkpoints are considered crossed when the robot goes over them fully. These are the features of the mat that marks the checkpoints:

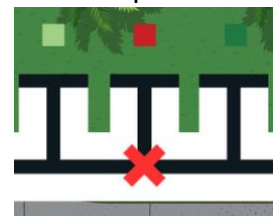
Checkpoint 0:



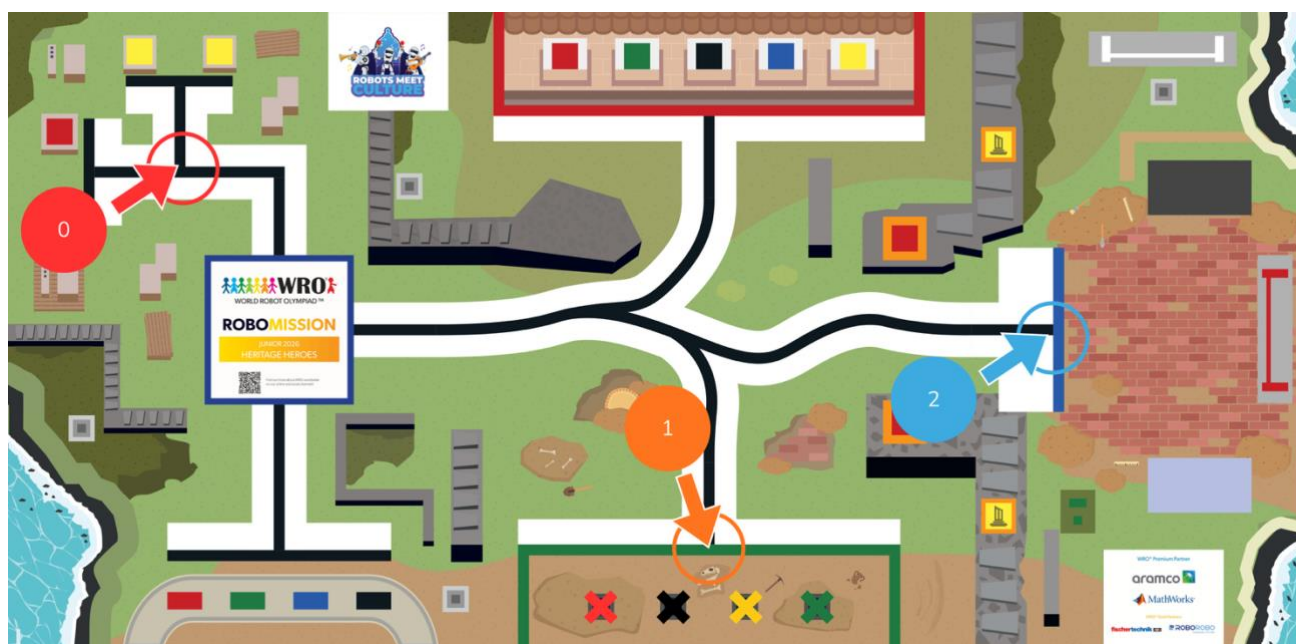
Checkpoint 1:



Checkpoint 2:



WRO Junior (Secondary)



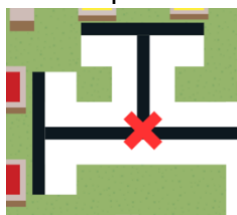
SPRINT Awards will be awarded to both the top performing teams without props and with props for this Season Quest of the RoboMission Junior Category.

With Props:

1. Barriers and Artefacts are to be built and placed in their positions. (As per shown in the rules)
 - a. Artefacts represented by the crosses are to follow the randomisation shown in the image above
2. Barriers and Artefacts are not to be damaged or moved.
3. Start the run with your robot fully in the start area.

The checkpoints are considered crossed when the robot goes over them fully. These are the features of the mat that marks the checkpoints:

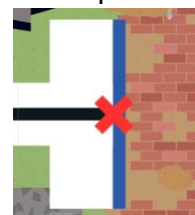
Checkpoint 0:



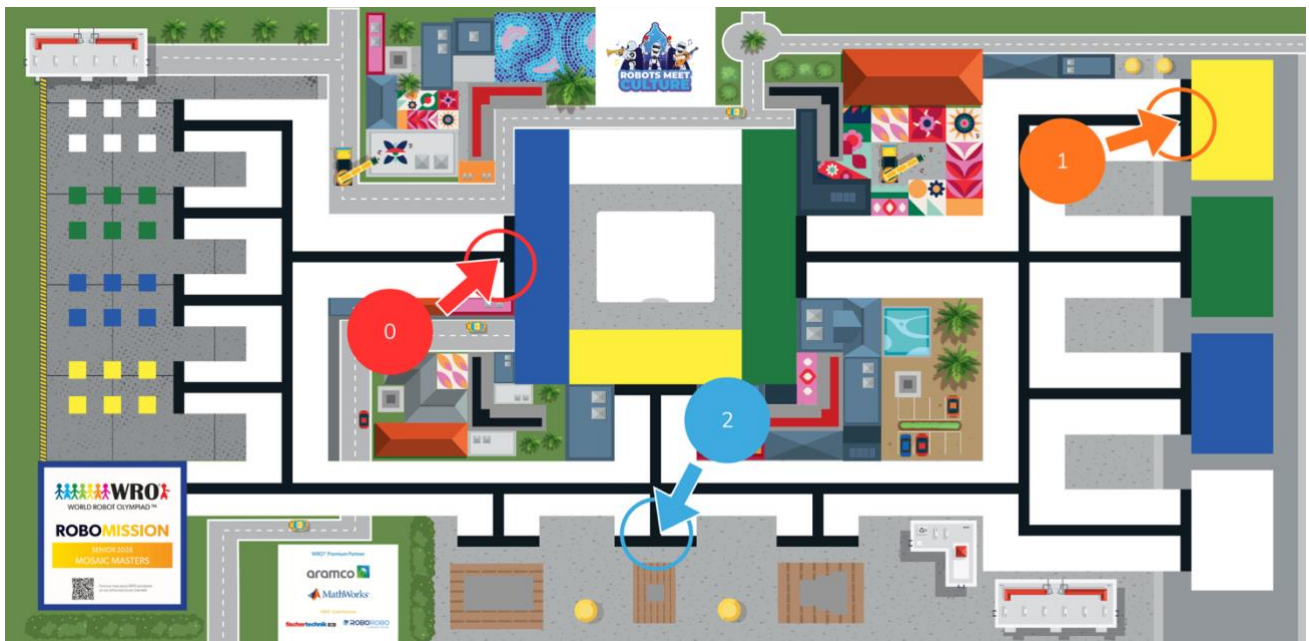
Checkpoint 1:



Checkpoint 2:



WRO Senior (Tertiary)



1. Barriers are to be built and placed in their positions. (As per shown in the rules)
2. Barriers are not to be damaged or moved.
3. Start the run with your robot fully in the start area.
4. The checkpoints are considered crossed when the robot goes over them fully. These are the features of the mat that mark the checkpoints:

