

## Season Quest 4 (July): Your Mission, Should You Choose to Accept It...

### Quest Brief 4

Hello WROboticists of Singapore!

Your robots should now be able to move quickly and reliably between different points on the mat. To start scoring points, your robot must now be able to manipulate the Game Objects and move them to different points on the mat. In this Season Quest, try out different manipulator designs and develop one that is effective and reliable. The Quest varies for each age group, but the concept remains the same; attain the most number of points in the least amount of time, mimicking the format of the actual competition.

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 stopwatch on a visible computer screen
  - c. Task:
    - i. Start your robot in the start area
    - ii. The video should show your robot attempting the main component of the tasks as specified for each category
    - iii. Show us the final state of the field
    - iv. The robot should attain as much points in the shortest amount of time
3. Accompany the Post with the following caption:
  - a. Content:
    - i. **Result:** Tell us the score you obtained (refer to scoring rubrics of your category) in how long (e.g. 1 minute).
    - ii. **Manipulators:** What type of Manipulators were tried? What is your strategy for this task? What effect does each of these have on the overall performance of your robot?
    - iii. **Reflection:** What have you learnt and how could you have done better?
  - b. Hashtags: Use the Hashtags #wrosingapore26, #julyseasonquest, 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 7<sup>th</sup> August**. Late submissions will be penalised 1% per Quest Month (e.g. submitting this on 7<sup>th</sup> September will result in a score of 3% instead of 4%).
- f. The robot with the highest score and lowest time for each age group will be awarded with technical awards

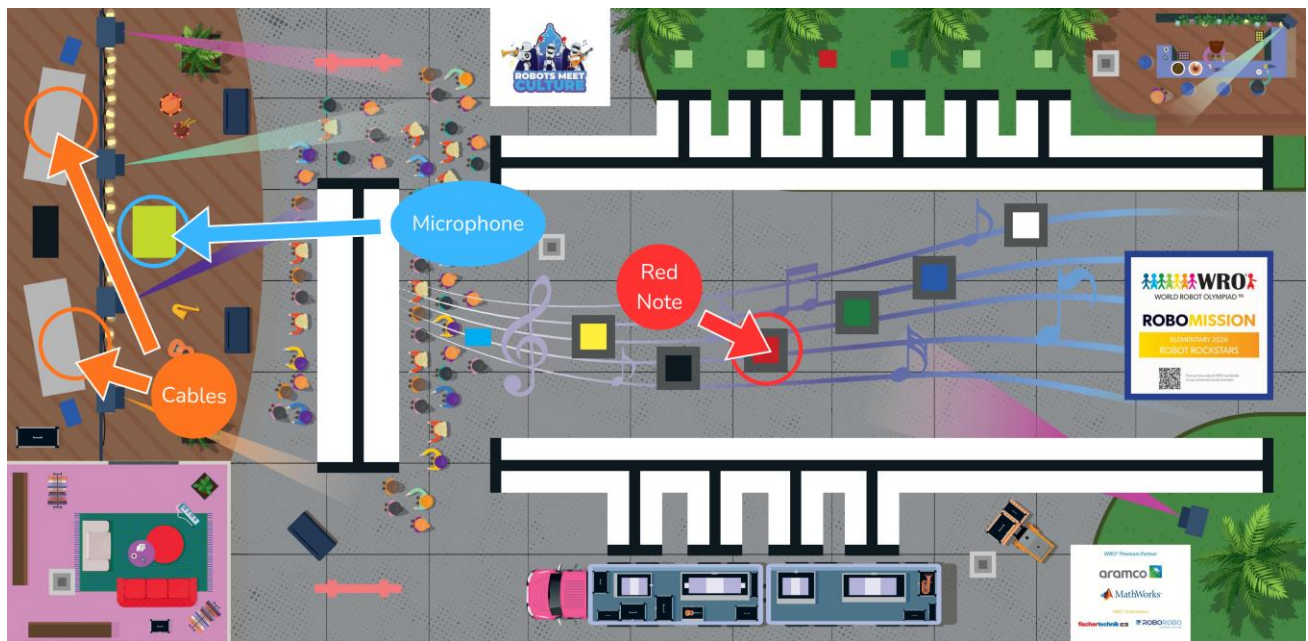
Not sure where to start? Here are some beginner guides you may find useful:

1. LEGO® MINDSTORMS® (Education) EV3
  - a. Basic: [Move Objects | MINDSTORMS EV3 Lesson Plan | LEGO® Education](#)
  - b. Geared Gripper: [Pick & Place Robot | MINDSTORMS EV3 Lesson Plan](#)
  - c. Grab and Lift: [Make a System That Picks and Places \(lego.com\)](#)
2. LEGO® Education SPIKE™ Prime or Robot Inventor
  - a. Basic: [Training Camp 2: Playing with Objects \(lego.com\)](#)
  - b. Soft Gripper and Linkages: [Super Cleanup \(lego.com\)](#)
3. Unofficial Guides
  - a. Mechanisms: [2in1 Bricking - YouTube](#)

Manipulators and End Effectors are what allow robots to [interact with their environment](#) and we hope that this Season Quest will be a good introduction to this. Follow our Instagram Account at @wro\_singapore as we will be putting up more resources for you.

*\* Industry Mentors are not Coaches or Trainers and will likely not have experience with the LEGO Platform. They may be professional Project Managers who can help your Team plan your workload, or Engineers or Scientists who can help your team explore technical concepts.*

## WRO Elementary (Primary)



**Main Component:**

1. All Props are to be built and placed in their positions (As per shown in the rules)\*
2. All props are not to be moved or damaged unless stated in the tasks
3. Start your run in the start area
4. Connect the amplifier to the 2 speakers (Fixed start positions)

**Additional Component:**

1. Set the Microphone into position
2. Place the 'Red' music note in-position

| Tasks:                                                                   | Each | Max | # | Total |
|--------------------------------------------------------------------------|------|-----|---|-------|
| <b>Main Component</b>                                                    |      |     |   |       |
| Cable is completely in the grey area and upright.                        | 15   | 30  |   |       |
| Cable is only partly in the grey area or not upright.                    | 5    |     |   |       |
| <b>Additional Component</b>                                              |      |     |   |       |
| Microphone is completely in the microphone target area* and upright.     | 10   | 10  |   |       |
| Microphone is only partly in the microphone target area* or not upright. | 5    |     |   |       |

|                                                                                                       |           |           |  |  |
|-------------------------------------------------------------------------------------------------------|-----------|-----------|--|--|
| Red note is completely in corresponding-coloured note target area (including grey border) and upright | <b>10</b> | <b>10</b> |  |  |
| Red note is partly in corresponding-coloured note target area (including grey border) or not upright  | <b>5</b>  |           |  |  |
| <b>Maximum Score</b>                                                                                  |           | <b>50</b> |  |  |
| <b>Total score in this run</b>                                                                        |           |           |  |  |
| <b>Time in Full Seconds</b>                                                                           |           |           |  |  |

**Note: Final score for this Season Quest does not count towards Preliminaries score**

\*If unable to construct certain props, build a replacement prop with the same or similar blueprint as the actual prop itself.

**WRO Junior (Secondary)**



**Main Component:**

1. All Props are to be built and placed in their positions (As per shown in the rules)\*
2. All props are not to be moved or damaged unless stated in the tasks
3. Start your run in the start area
4. Guide the Green Visitor into the excavation area (area limited by the green lines at the lower end of the field).

5. Guide the Red Visitor into the museum (area limited by the red lines at the upper end of the field).

**Additional Component:**

1. Clear the cobblestone of **all** dirt particles (10 pieces, randomised position, never stacked)

| Tasks:                                                                          | Each | Max | # | Total |
|---------------------------------------------------------------------------------|------|-----|---|-------|
| <b>Main Component</b>                                                           |      |     |   |       |
| Green/Red visitor is completely in the corresponding-coloured area and upright. | 10   | 20  |   |       |
| Green/Red visitor is partly in the corresponding-coloured area or not upright.  | 5    |     |   |       |
| <b>Additional Component</b>                                                     |      |     |   |       |
| Dirt particle(s) are not touching the cobblestone area.                         | 2    | 20  |   |       |
| <b>Maximum Score</b>                                                            |      | 40  |   |       |
| <b>Total Score in this Run</b>                                                  |      |     |   |       |
| <b>Time in Full Seconds</b>                                                     |      |     |   |       |

**Note: Final score for this Season Quest does not count towards Preliminaries score**

\*If unable to construct certain props, build a replacement prop with the same or similar blueprint as the actual prop itself

## WRO Senior (Tertiary)



### **Main Component:**

1. All Props are to be built and placed in their positions (As per shown in the rules)\*
2. All props are not to be moved or damaged unless stated in the tasks
3. Start your run in the start area
4. Return the rectangular trowel and cement bowl tools to their designated spots.

### **Additional Component:**

1. Deliver the yellow and blue cement to their target area on field

| Tasks:                                                                       | Each      | Max       | # | Total |
|------------------------------------------------------------------------------|-----------|-----------|---|-------|
| <b>Main Component</b>                                                        |           |           |   |       |
| The rectangular trowel/cement bowl is completely in the parking space*.      | <b>15</b> | <b>30</b> |   |       |
| The rectangular trowel/cement bowl is partly in the parking space*.          | <b>5</b>  |           |   |       |
| <b>Additional Component</b>                                                  |           |           |   |       |
| Cement element is completely in corresponding-coloured cement target area(s) | <b>2</b>  | <b>20</b> |   |       |

|                                |           |  |  |
|--------------------------------|-----------|--|--|
| <b>Maximum Score</b>           | <b>50</b> |  |  |
| <b>Total Score in this run</b> |           |  |  |
| <b>Time in Full Seconds</b>    |           |  |  |

**Note: Final score for this Season Quest does not count towards Preliminaries score**

\*If unable to construct certain props, build a replacement prop with the same or similar blueprint as the actual prop itself