

“EXPLORER” CHALLENGE – WRO SA 2019 – “Please note Brick build on the last page”

1.0 - “EXPLORER” is based on the WRO Elementary table challenge with simplified tasks and a platform for multiple attempts to keep improving your score.

1.1 - This challenge is to cater for beginners who would also like to participate but are not yet ready for WRO.

1.1.1 – The Gauteng Explorer Competitions may happen on the Friday afternoon before WRO Gauteng Provincial due to number of entries (same venue)

1.2 - It is also a great challenge to use for Inter School Competitions.

1.3 – Explorer Elementary and Junior are run on the PVC roll up printed mats.

2.0 - Have a look at the Challenge and then decide if you think you can do it.

2.1 - There will be an “Explorer” category at all the Provincial competitions and qualifiers will get the opportunity to participate at the National Competition TBC.

2.2 - The challenge has been designed on the WRO Elementary competition mat – Smart Passenger Transport

3.0 - Participants are only allowed to compete in the Robot Explorer Categories **Elementary and Junior once per age group** at WRO SA Provincial and National level.

** A participant may participate in Junior once after having done Explorer in Elementary the previous year.

They then need to move onto WRO Regular or Open Category.

3.1 - The age groups will be Elementary 7 – 12 years and Junior 13 -15 years in the year of the competition (No Senior)

3.2 - Team size will be 2 participants.

4.0 - Registration on the WROSA website www.wrosa.co.za Please note that there is no International Explorer platform, SA only.

4.1 - The entry fees will be the same as WRO.

4.2 - This competition will run for 3 hours at provincial/national.

5.0 - As with WRO, the challenge has been released for you to practice and prepare but the differences are:

5.1 - You arrive with a Standard prebuilt NXT or EV3 driving base as per building instruction booklet in the storage box.

(Any other driving base needs to be approved by email with danie@handsontech.co.za)

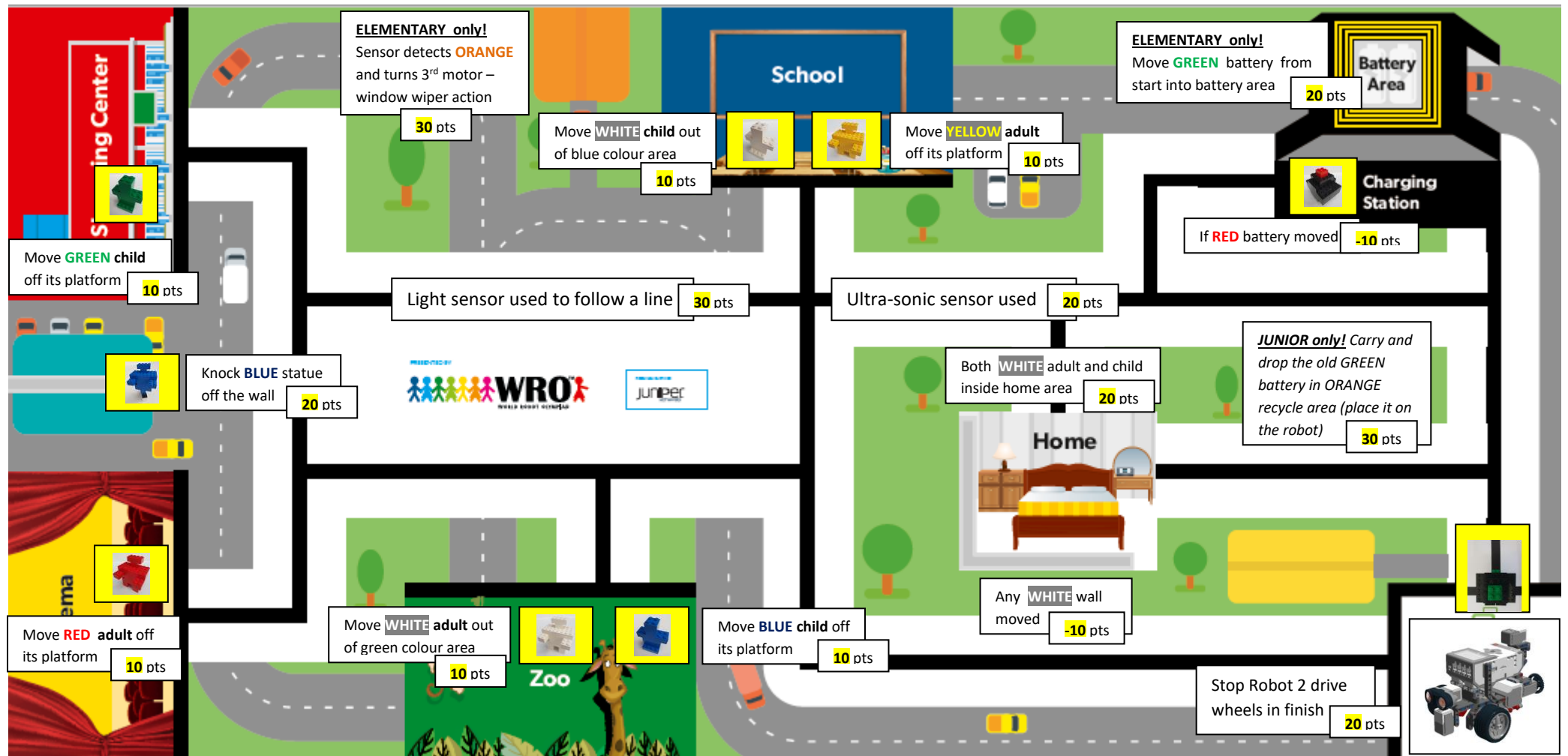
5.2 - No sensors or mechanical pieces are to be attached on the model before competition starts (These parts may be pre-assembled to attach once allowed time starts)

5.3 - You have to re-program your robot on the day from beginning (No pre written or saved programs may be used, no programs on the robot or PC)

5.4 - Referees will check this before the start and failure to adhere will result in disqualification.

5.5 - Scoring happens on a continuous basis until the end of competition time.

ROBOT EXPLORER CATEGORY WROSA 2019 – SMART CITIES



COMPETITION RULES: Brief

- 1 – Arrive with a prebuilt NXT or EV3 robot which is a basic driving base. Standard build instructions to be used. **No sensors or sensor/motor assemblies attached!**
- 2 – You have to re-program your robot on the day from the beginning (No pre-written or saved programs may be used)
- 2 – Mechanical sensor parts/assemblies may be prebuilt to attach as soon as the competition starts.
- 3 – The robot may be altered/changed during the competition to complete the challenges.
- 4 – The Robot needs to start in the Start/Finish area (all wheels completely inside) and finish in the Start/Finish area (two drive wheels completely inside)
- 5 – You may register a maximum of 4 scores during the competition time allowed. Your highest score in the allocated time will be your final score.
Example: if your score is 85 pts and the referee has seen it, register 85 points as your first score, then try and improve on your last registered score.

THEME: Smart Passenger Transport - The robot needs to start and finish in the same Start/Finish area!!

SCORING OPTIONS:

The points may be scored in any order! (It is not compulsory to follow the order below except for start and finish scores)

**For Explorer Elementary – if an element is in or partially in the score counts – if an element is out or partially out the score counts!*

BE AWARE for Junior Explorer, ages 13 -15 there are slight changes in the scoring tasks and **only “completely in or out” scores will count!*

- Name your robot in the brick screen area (where it says EV3) A name to be used will be given on the day of competition ----- 10 pts
- Name the program to be used. A name to be used will be given on the day of competition ----- 10 pts
- Start the robot, with all wheels completely inside the Start/Finish area
- Use a touch sensor to start the program and wait for 1 second to go ----- 10 pts
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- Move the YELLOW adult off its platform ----- 10 pts
- Move the RED adult off its platform ----- 10 pts
- Knock the blue adult statue of the wall ----- 20 pts
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- Move the GREEN child off its platform ----- 10 pts
- Move the BLUE child off its platform ----- 10 pts
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- Move the WHITE child out of the blue colour area ----- 10 pts
- Move the WHITE adult out of the green colour area ----- 10 pts
- If BOTH, WHITE adult and child are inside the home area ----- 20 pts
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- Use the ultrasonic sensor anywhere on the challenge mat area ----- 20 pts
- Use a light/colour sensor to follow a line anywhere on the challenge mat area ----- 30 pts
- **Elementary only!** Use a light/colour sensor to detect/see ORANGE in the orange area next to the school and turn a third motor to replicate a windscreen wiper action on your robot (wipe – left to right/up-down at least 3 times) ----- 30 pts
- **Elementary only!** Move the GREEN battery into the battery area ----- 20 pts
- One or two WHITE walls moved ----- - 10 pts
- If the RED battery is moved off its place completely ----- - 10 pts
- **Junior Only!** Pick-up (lift), Carry and drop old GREEN battery in Orange recycle area next to the school ----- 40 pts
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- Finish with the 2 drive wheels of the robot completely inside the Start/Finish area ----- 20 pts

Maximum possible score – Elementary 250 pts – Junior 240 pts

There may be an addition of a surprise rule at the National Competition for more bonus points.

“ROBOT EXPLORER” 2019

Element builds required are the same as for WRO Elementary Category.

2 x white walls

1 x Battery with a GREEN 2x2 LEGO brick on top and a GREEN 2x2 LEGO brick connected to the base for lining up on the mat (as per diagram below)

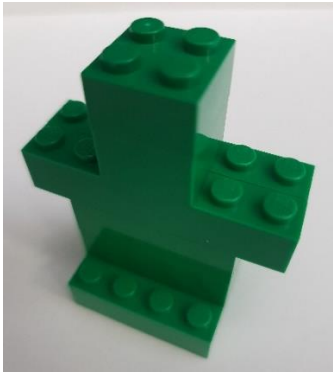
1 x Battery with a RED 2x2 LEGO brick on top.

1 x YELLOW adult 1 x WHITE adult 1 x RED adult 1 x BLUE adult STATUE

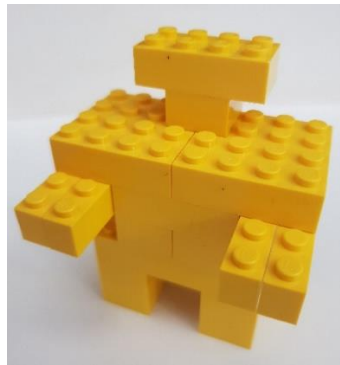
1 x WHITE child 1 x GREEN child 1 x BLUE child

Check where the elements are placed on the Explorer mat/map above.

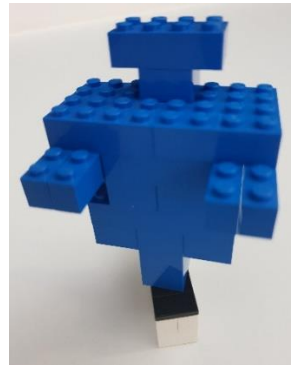
The build of the blue adult is adapted to be a statue on the white dividing wall as below:



Child model build



Adult model build



Adult statue build



Add 4 (2x1) flat plates onto white dividing wall for BLUE statue



A Green (2x2) LEGO brick is added on to the bottom of the battery to place it on the black line “T” of the start area