

“EXPLORER” CHALLENGE – WRO SA 2017

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 Competition 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.

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 the all Provincial competitions and qualifiers will get the opportunity to participate at the National Competition.

2.2 - The challenge has been designed on the WRO Elementary competition mat – Sustainable Tourism

3.0 - Participants are only allowed to compete in the Robot Explorer Category **once** at WRO SA Provincial and National level.

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

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

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.

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)

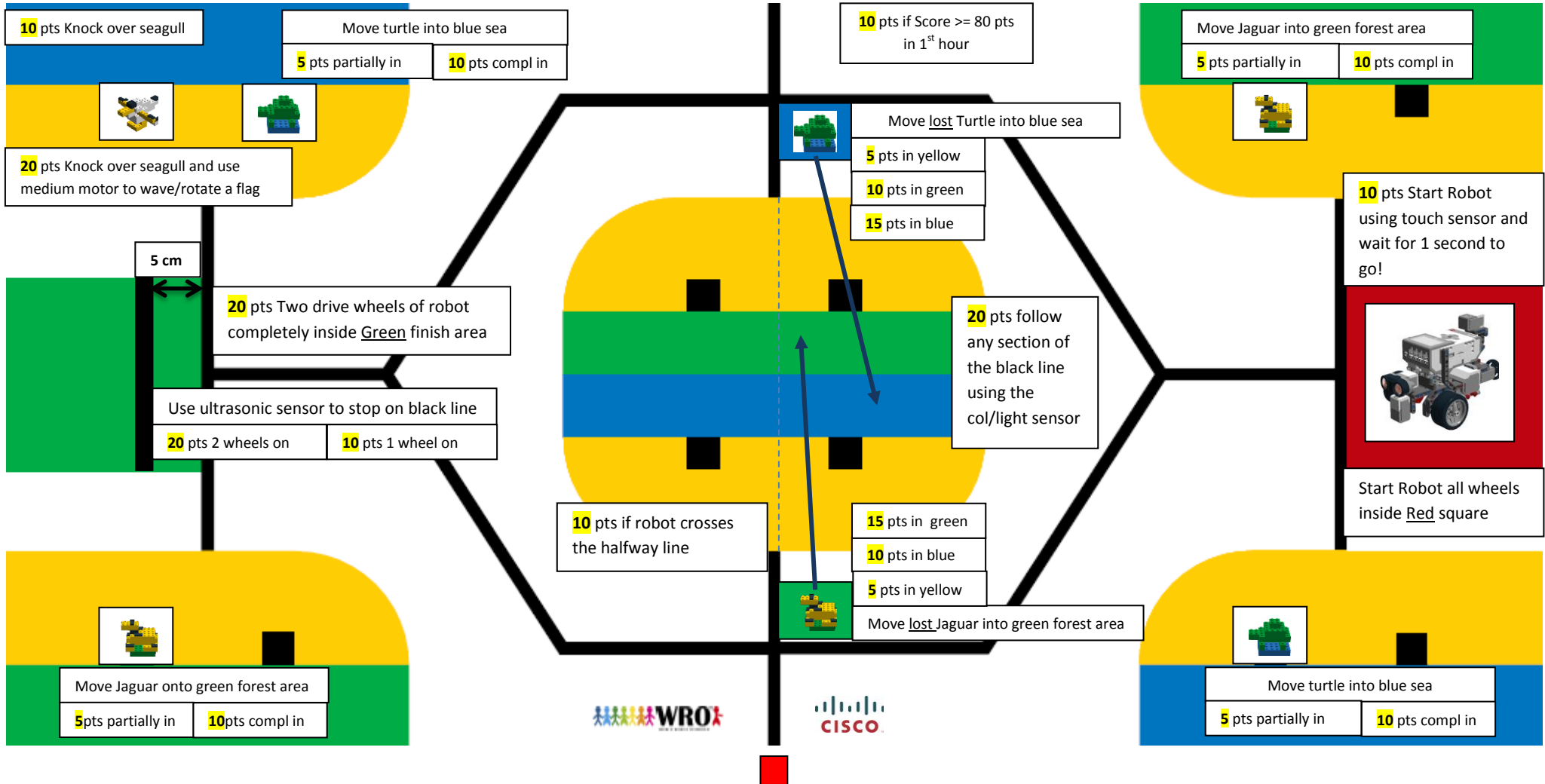
5.2 - No sensors or mechanical pieces are to be attached on the model before competition starts (These parts may be pre-assembled to attach once allowed time starts)

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 2017 – SUSTAINABLE TOURISM



COMPETITION RULES: Brief

- 1 – Arrive with a prebuilt NXT or EV3 robot which is a basic driving base. Build instructions inside the box. **No sensors 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 RED area (all wheels completely inside) and finish in the GREEN 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 3 hours 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: Sustainable Tourism

In the case of Explorer SA 2017 the robot needs to start in the **RED square** (on a degrading planet earth we are in the environmental RED) and finish in the **GREEN square** as we work towards a more environmentally friendly planet “Earth”

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 Junior High, ages 13 -15 only completely in 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
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- Name the program to be used. A name to be used will be given on the day of competition ----- 10 pts
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- Start the robot, with all wheels inside the RED square, using a touch sensor and wait for 1 second to go! ----- 10 pts
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- Move 2 Jaguars and 2 Turtles into their closest environmental area ----- 4 x 5 pts – partially in 4 x 10 pts – completely in (40)
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- Move the lost Jaguar in the middle of the table across the table into the green area -- 5 pts in yellow area – 10 pts in blue area – 15 pts into the green area
- Move the lost Turtle in the middle of the table across the table into the blue area --- 5 pts in yellow area – 10 pts in green area – 15 pts into the blue area
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- Robot moves completely across the halfway line on the table ----- 10 – pts
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- Knock over the seagull (chase it away from the baby turtle) ----- 10 pts
- Then use a medium motor to wave/rotate a flag with your team name on it (make one at home) ----- 10 pts
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- Follow any section of the black line using a colour/light sensor (any time or distance) ----- 20 pts
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- Use the ultrasonic sensor to stop the robot, wheels touching the black line in the green/finish square ----- 10 pts 1 wheel on – 20 pts 2 wheels on
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- Finish with the 2 drive wheels of the robot completely inside the green square ----- 20 pts
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- If the team scores over 80 pts in 1st hour they get a bonus 10 pts (if successful score is added to team’s highest score) ----- 10 pts

Maximum possible score 200 pts

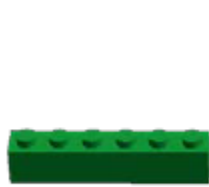
There may be an addition of a surprise rule at the National Competition for more bonus points.

If there are teams with the same scores then they will run against each other with a timed round.

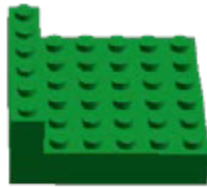
“ROBOT EXPLORER” 2017 – Elements required

There will be 3 jaguars:

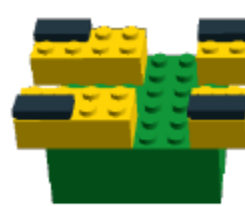
Each jaguar has 12 green 1x6 LEGO bricks, 4 yellow 1x6 LEGO bricks, 6 yellow 2x4 LEGO bricks, 2 yellow 2x2 LEGO brick, 1 black 2x2 LEGO brick, and 8 black 1x2 LEGO plates.



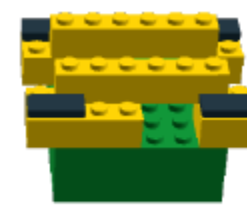
Step 1



Step 2



Step 3



Step 4



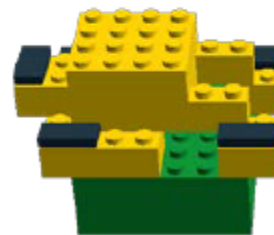
Step 5



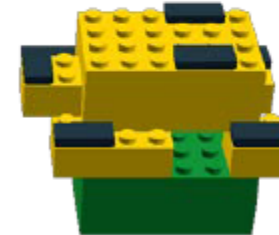
Step 6



Step 7



Step 8



Step 9



Step 10

“ROBOT EXPLORER” 2017 – Elements required

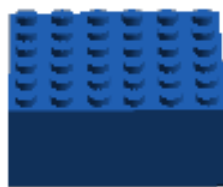
There will be 3 turtles:

Each turtle has 12 blue 1x6 LEGO bricks, 6 green 1x6 LEGO bricks, 2 green 2x4 LEGO bricks, and 2 green 2x2 LEGO brick

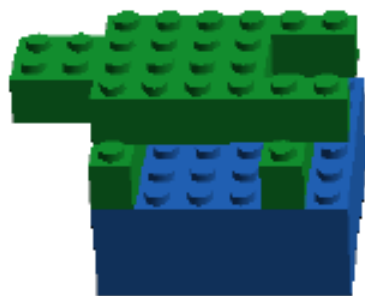
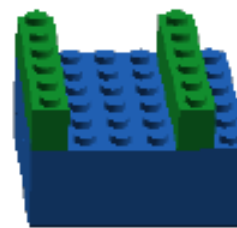
Step 1



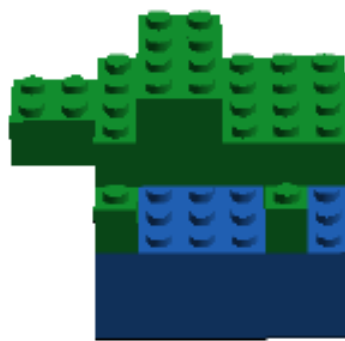
Step 2



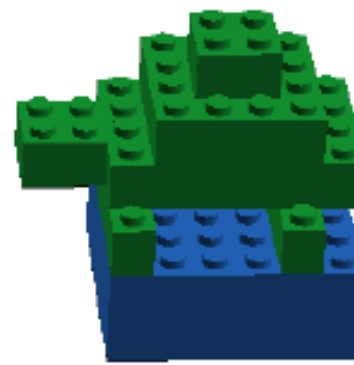
Step 3



Step 4



Step 5



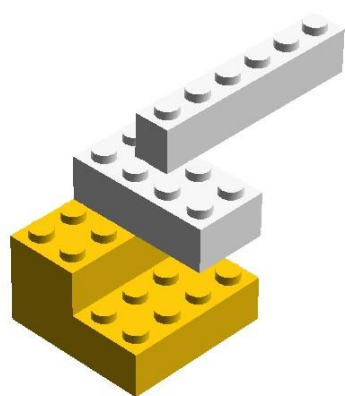
Step 6

“ROBOT EXPLORER” 2017 – Elements required

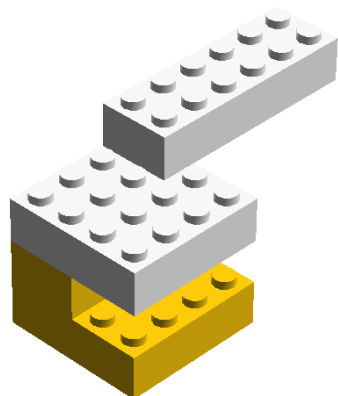
There will be 1 seagull:

The seagull has **4 yellow** 2x4 LEGO bricks, **2 yellow** 1x6 LEGO bricks, **9 white** 2x4 LEGO bricks, **2 white** 2x2 LEGO brick, **4 white** 1x6 LEGO bricks

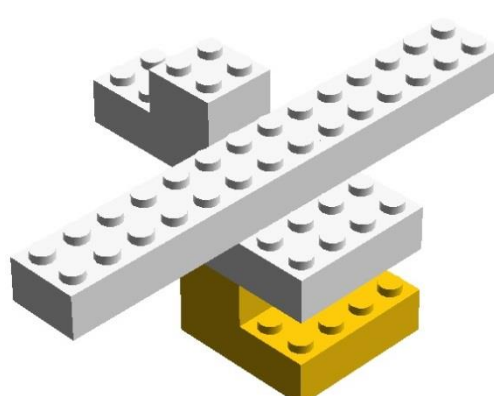
1 black 2x2 LEGO brick and **6 black** 1x2 LEGO plates



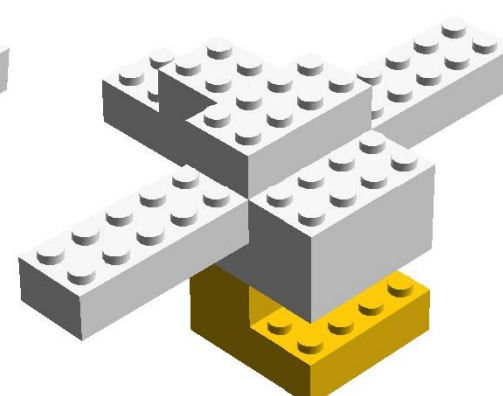
Step 1



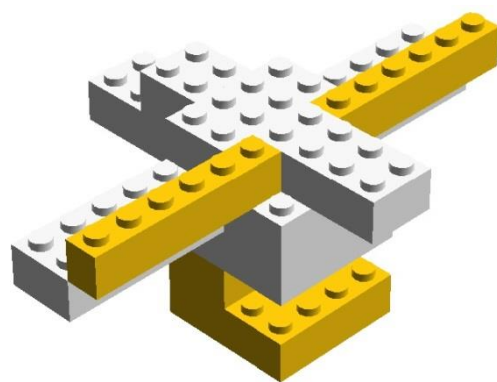
Step 2



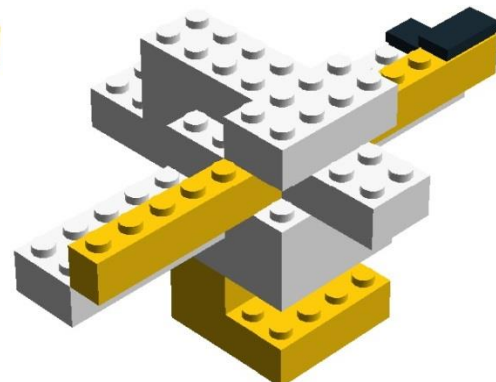
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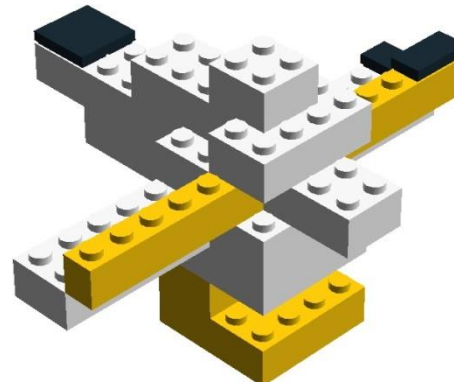
Step 4



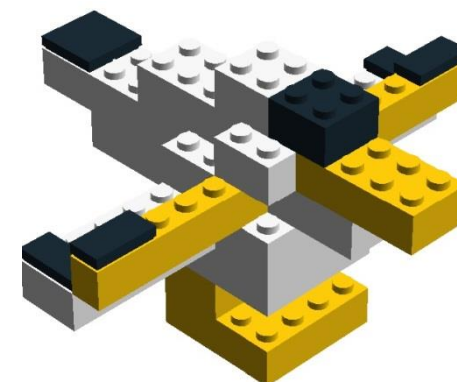
Step 5



Step 6



Step 7



Step 8