



SOUTH AFRICA

**Explorer Lite**

**2022**



# **Explorer Lite Game Rules**

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## PART ONE – GAME DESCRIPTION

### 1. Introduction

The Explorer Lite competition is for children from the ages of 8 years to 12 years in the year of the competition and not the child's age at the time of the competition. The Explorer Competition is developed in South Africa and has no international component. In some years depending on national organiser decisions, there will be official provincial and national events.

For the 2022 Explorer season, provincial organisers have been given the choice to run a physical WRO Explorer event depending on demand from registrations in the province. The WRO National Organising Committee will later in the year make a decision as to the likelihood of a physical Explorer National Event.

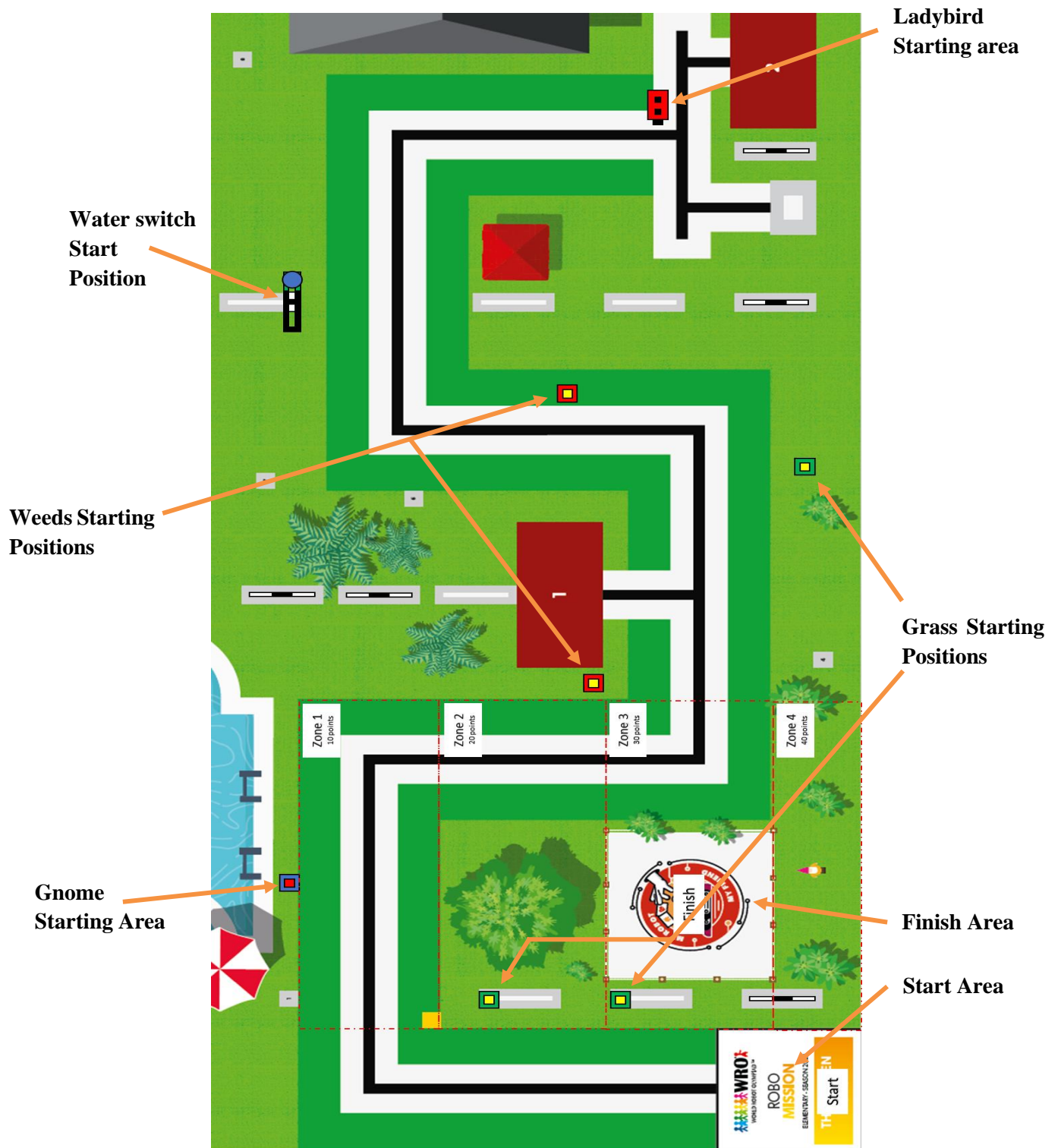
Teams may also enter an inhouse competition (competition run by coaches in their own school or club) and submit their scores on the WRO SA website during the scheduled event period 24<sup>th</sup> October – 30<sup>th</sup> October. Coaches choose one day during the seven (7) days the scoring system is open to run their own Explorer competition following the rules as laid out in this document. 1 week before the online competition special rules for the event will be released and may incorporate a surprise rule for the scoring week. Once teams have completed their runs their highest score for the competition must be submitted before the close of the scoring system at midnight on the 30<sup>th</sup> of October.

No late scores and submissions will be allowed.

Teams entering an online event are not eligible for the physical national event. To qualify for a national event teams must compete in the official physical provincial events and receive an invitation to the national event from the WRO SA organiser.

Please check the website [www.wrosa.co.za](http://www.wrosa.co.za) for the latest event updates.

## 2. Game Field



The following graphic shows the game field with the different areas.

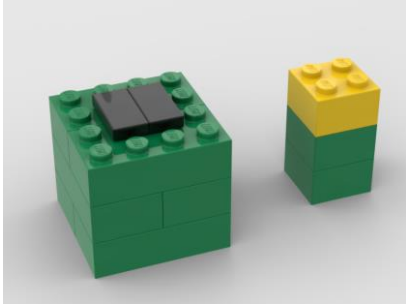
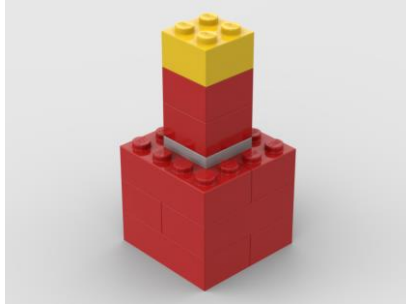

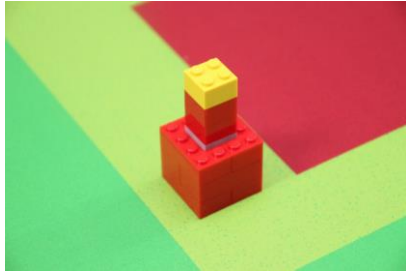
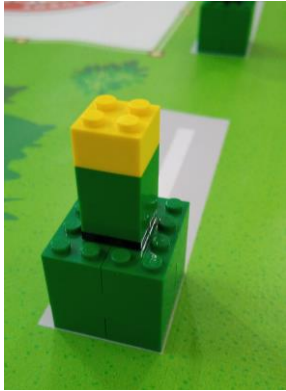
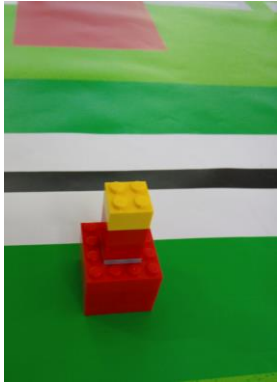
If the table is larger than the game mat, place the mat on the wall with the two sides of the start area.

### 3. Game Objects, Positioning, Randomization

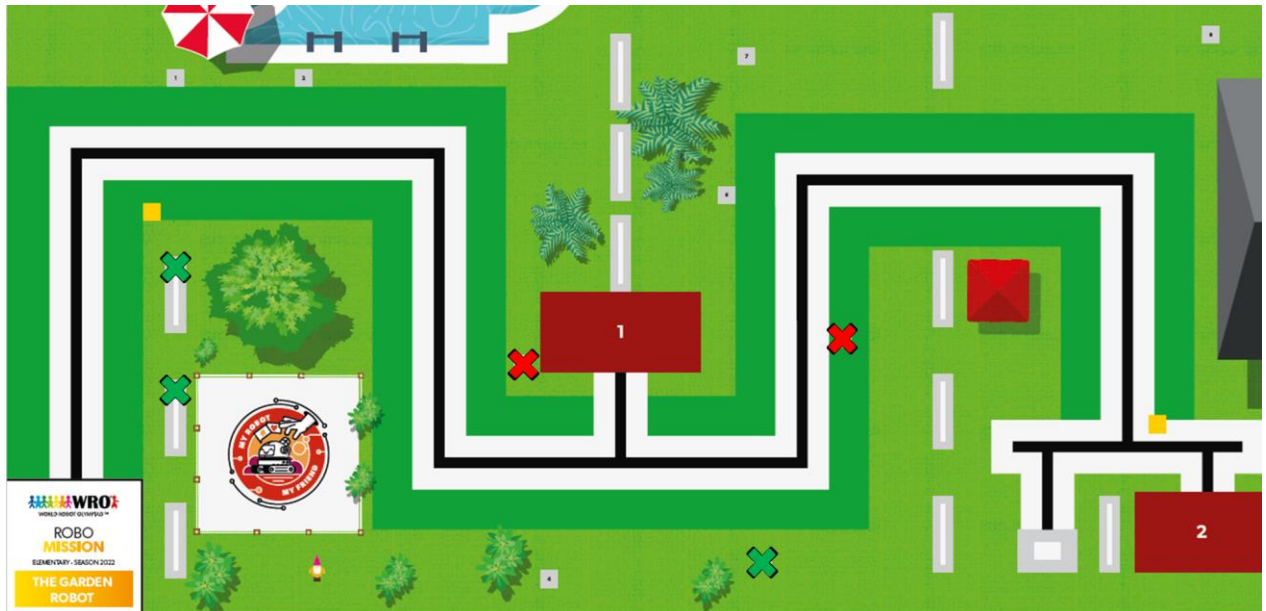
#### Grass (3x) & Bad weeds (2x)

Three green grass elements are placed on the game mat, two green grass elements near the start area and one grass element in grey square number 5.

Two red weed elements are placed on the mat, one in grey square 3 and one in the closest yellow square to the right of red area 1.

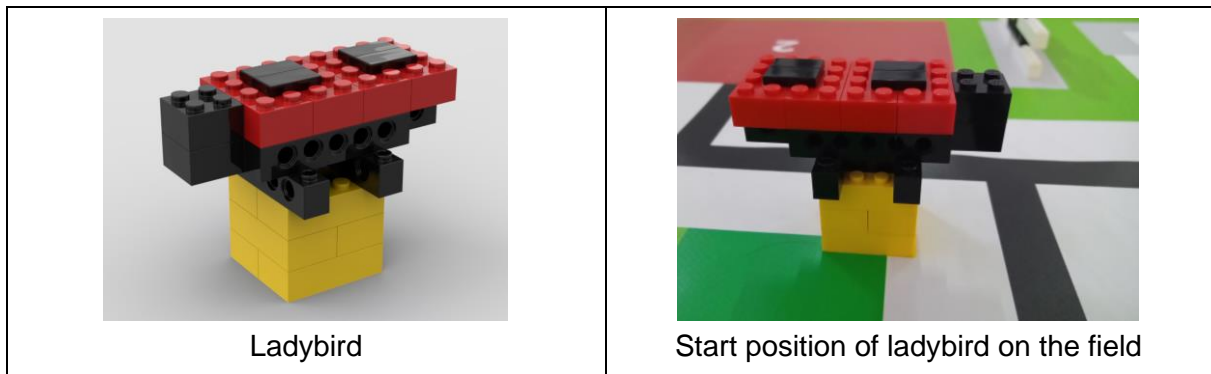
 <p><b>Grass</b> The green grass element consists of a base (left) and a top (right).</p>	 <p><b>Bad Weeds</b> The bad weed is only one element. Base and top are stuck together.</p>
 <p>Start position of object on the field (on grey area)</p>	 <p>Start position of object 1 on the field (on grey area 3)</p>
<p>Placement of the green grass elements near robot start area.</p> 	<p>Start position of object 2 on the field (yellow square closest to area 1)</p> 

Below are the starting positions of the green grass elements and the red weed elements:



### Ladybird (1x)

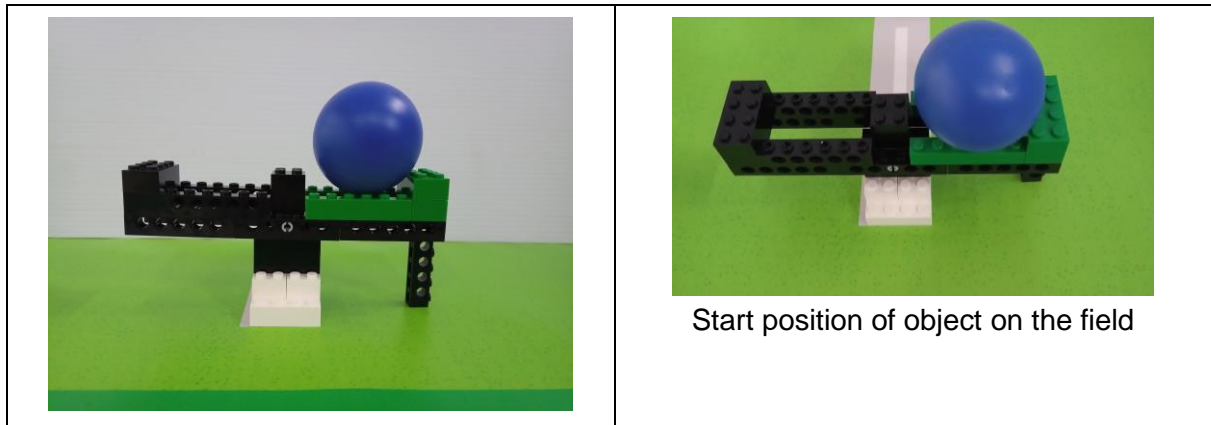
One ladybird is placed on the yellow square closest to red area 2, facing the starting area.





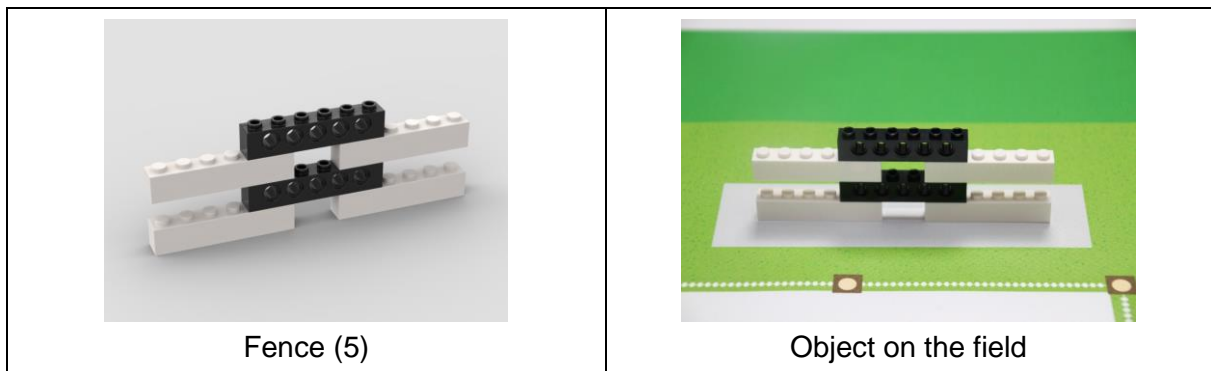
## Water Switch (1x)

The water switch is placed on the grey rectangle area between grey square 7 and 8. The green part of the switch holding the ball and facing towards grey area 8. The black 1x6 LEGO piece is placed upright underneath the green part of the switch holding the ball.



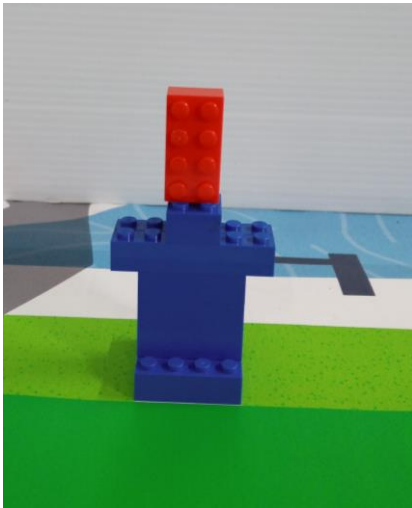
## Fences (5x)

There are 4 fences on the field that should not be moved or damaged. A fence is placed on the white line inside a grey area.

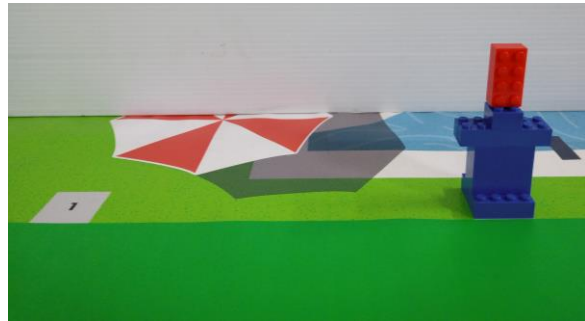


## Garden Gnome (1x)

There is 1 garden gnome placed on grey square 2 near the swimming pool. A red 2x4 brick is placed upright on top of the gnome.



Gnome start position grey square 2



Starting position of blue gnome

## **4. Robot Missions**

### **4.1 Points for use of sensors**

Teams should program the robot so that when a team member or judge breaks the ultrasonic sensors beam the robot waits for 1 second and then begins moving out of the start area before completing any of the missions on the game table. (if a judge can't verify this on the game mat they must check the teams program)

Teams should program the colour sensor so the robot follows a line of any colour anywhere on the game mat. (if a judge can't verify this on the game mat, they must check the teams program)

### **4.2 Move the ladybird**

The ladybird must be moved from its starting area and either moved into red area 2 for 10 points or red area 1 for 20 points. The points determination is based on the final position of the ladybird. 5 points are awarded if the ladybird no longer touches its yellow starting area.

### **4.3 Cut high grass**

The robot should knock off the top of the green grass pieces onto the game mat and try to keep the green bases completely inside of their original starting position.

A bonus 15 points are awarded if all 3 top grass pieces are touching the game mat at the end of the robot run.

### **4.4 Collect bad weeds**

The robot should collect the 2 red weeds and move them into red area 1.

### **4.5 Knock the ball off of the switch**

The robot should knock the ball onto the game mat so it no longer touches any part of the starting switch.

### **4.6 Move the Gnome and knock off its hat**

The garden gnome near the swimming pool needs to be moved into zone 4 marked by the gnome image on the game mat. Points are awarded for the furthest zone the gnome touches away from the gnomes starting position once the robot has completed it's scoring run.

The robot should also knock off the gnomes hat (red 2x4 brick) placed on top of the gnomes head. The 2x4 red brick must touch the game mat for these points to be awarded.



#### 4.7 Park the robot

Teams will receive points if their robot finishes with minimum 2 wheels inside of the 'My Friend my Robot Logo' area. This includes the white area around the logo image. (the jockey ball/wheel is counted as a wheel on the robot)

#### 4.8 Fences

There are 5 black and white fences on the game mat. The robot must **NOT** move any of the fences so they are outside of their grey starting area. 5 points are deducted per fence piece that is moved for a maximum of -25 points!

**Rule of Zero:** If a team's final score is to be negative (less than zero) the team is to receive a score of zero (0). For example if a team's score after their run was -20, the team's score on the score sheet must be recorded as zero (0).

#### Explorer Lite Scoring

For Explorer Lite game elements are awarded full points if the elements **touch** the correct scoring area, if part of the element is outside of the scoring area and is touching the game mat the team can score full points for the game element, unless stated otherwise in the game rules and on the score sheet.

## 5. Scoresheet



Judge Name:

Explorer Lite 2022

Team Name:

Tasks		Points:	1st Score	2nd Score	3rd Score	4th Score
Ultrasonic Sensor Used to start the robot.	Yes / No	10				
Used a light sensor to follow a line	Yes / No	30				
Cut the green grass, grass top pieces are touching the game mat	0 1 2 3	10 each				
<b>BONUS:</b> All 3 of the green grass tops are touching the game mat	Yes / No	15				
Moved red weeds into red area 1	0 1 2	10 each				
Invasive Ladybird has been moved off of its start area.	Yes / No	5				
Moved invasive ladybird into red area 2	Yes / No	10				
Moved invasives ladybird into red area 1	Yes / No	20				
Gnomes Hat has been knocked off and is touching the game mat.	Yes / No	10				
Gnome moved from swimming pool area and is touching zone:	0 1 2 3 4	x 10				
Ball has been knocked off of its starting platform.	Yes / No	20				
Robot finished with two driving wheels in the 'My friend my robot' logo area	Yes / No	20				
Moved a fence piece so part of it is outside of its grey starting area.	0 1 2 3 4 5	-5 each				
<b>Total:</b>		<b>220</b>				
The time the score was recorded: (e.g. 14:15)		Time:	hh:mm	hh:mm	hh:mm	hh:mm

Time of Score

..

Highest Score

Diamond  
220  
points

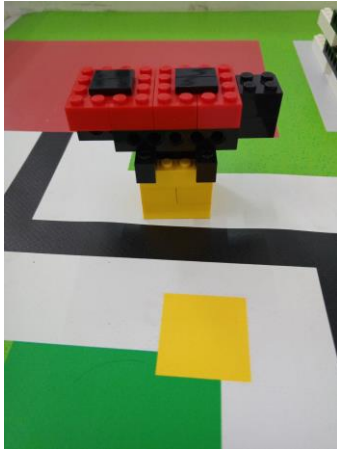
Gold  
145-215  
points

Silver  
75-140  
points

Bronze  
40-70  
points


## 6. Scoring Interpretation

### Ladybird



Ladybird no longer on its  
starting position  
5 points



Ladybird touching Red Area  
Full points awarded

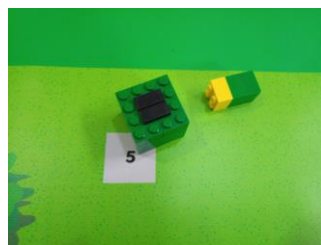


Lady Bird not standing in  
red area.  
Full points awarded

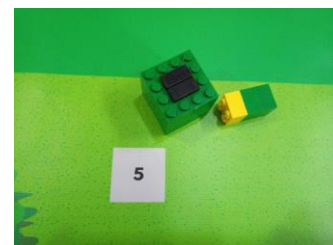
### Green Grass - Tops and Base



Top touching game mat  
full points



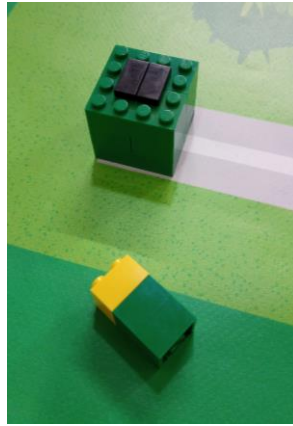
Top touching game mat and  
base still touching grey start  
area  
full points



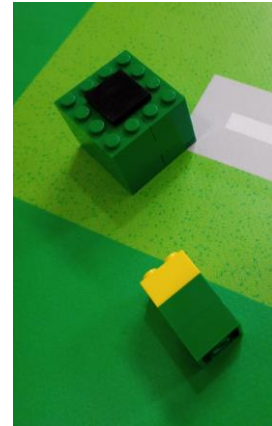
Top touching game mat  
and base is outside of grey  
starting area  
full points



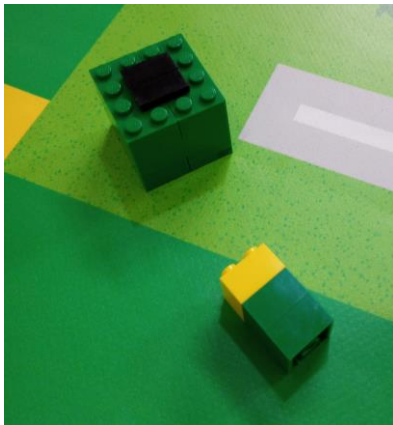
Top not touching game mat  
0 points



Top touching game mat  
Full points



Top touching the game  
mat and base still touching  
starting area  
Full points



Top touching game mat and  
base not touching starting  
area  
full points



Top not touching the game  
mat  
0 points

## Red Weeds



full points



full points



full points

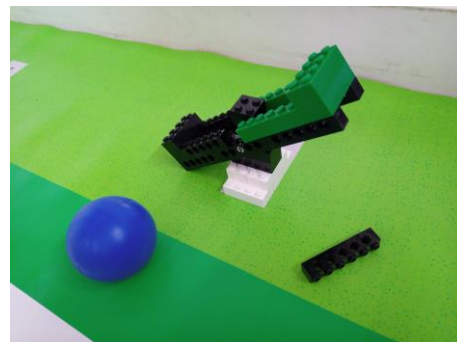


0 points  
(not inside)

## Water Switch



Ball no longer on top of water switch  
full points

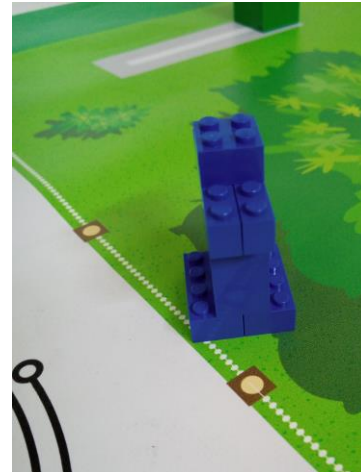


Ball touching the game mat and not touching the  
water switch  
full points

## Garden Gnome



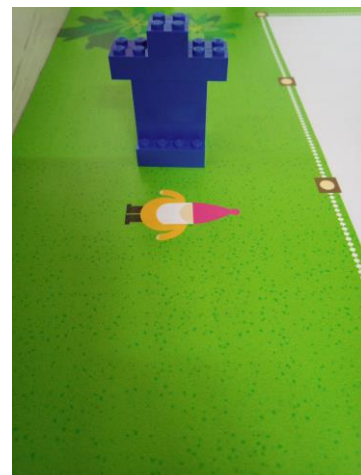
Gnome is lying in zone 1  
10 points. Red 2x4 brick is touching the mat.  
10 points



Gnome is inside zone 2 and not touching  
zone 3  
20 points



Gnome inside zone 3 touching zone 4  
40 points



Gnome completely inside zone 4  
40 points



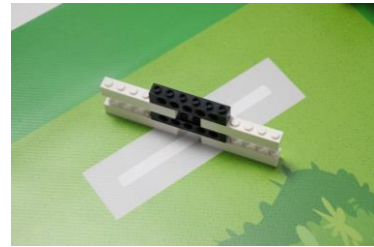
## Fences



fence, not moved.



Fence still inside required area.



-5 points, moved outside of grey area.

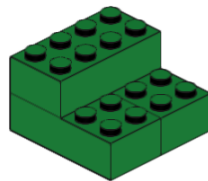
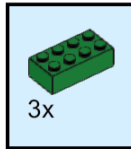


-5 points, moved outside of grey area.

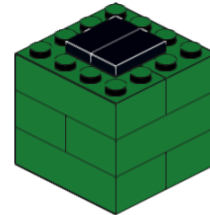
## PART TWO – ASSEMBLY OF GAME OBJECTS

### Grass (3x)

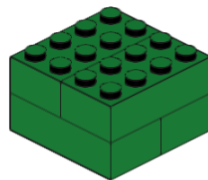
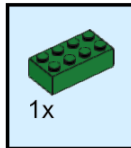
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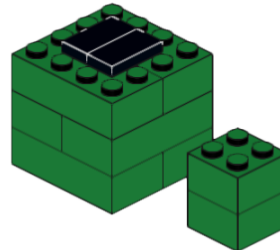
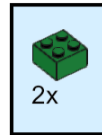
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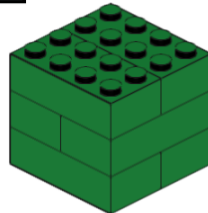
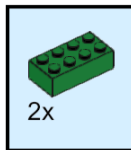
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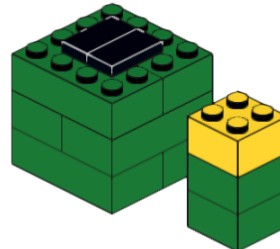
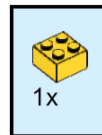
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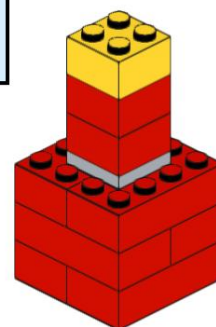
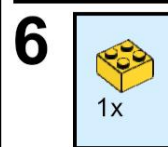
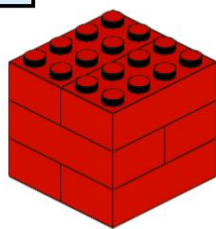
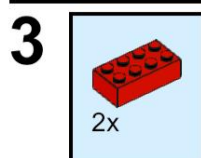
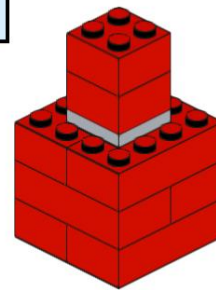
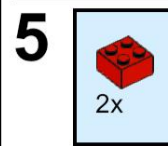
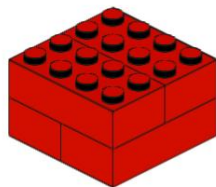
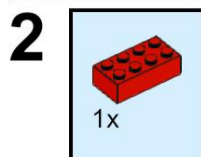
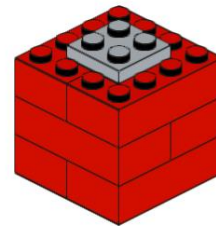
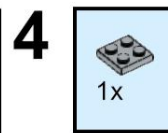
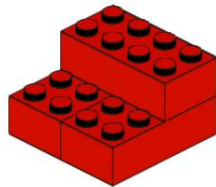
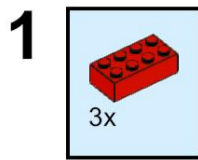
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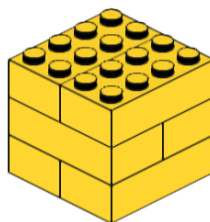
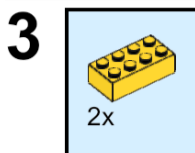
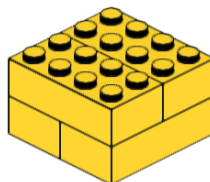
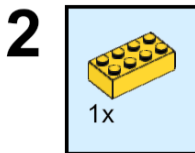
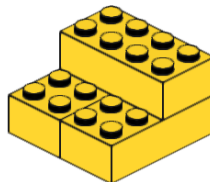
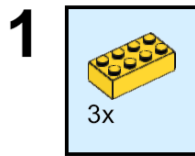
6



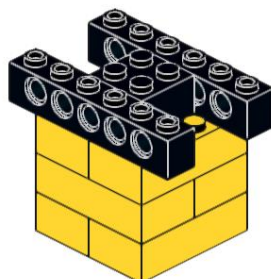
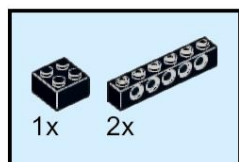
## Bad Weeds (2x)



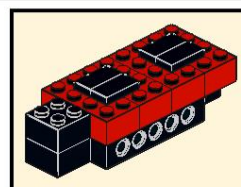
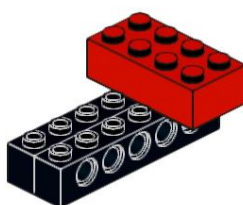
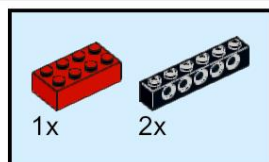
## Ladybird (1x)



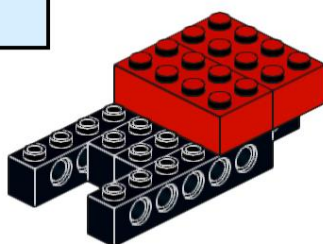
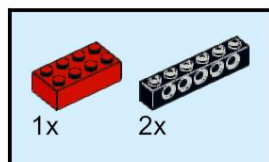
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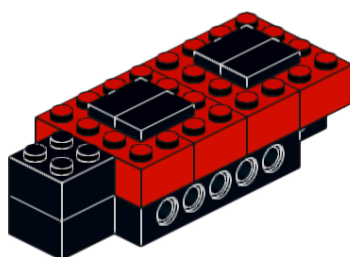
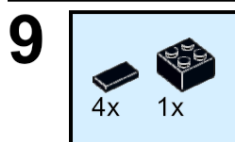
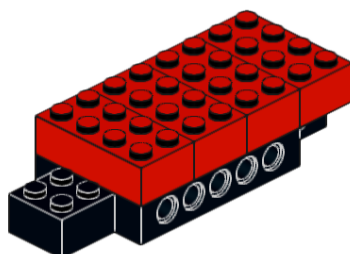
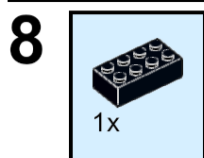
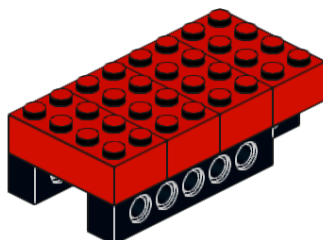
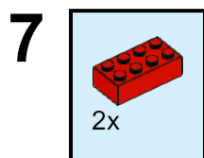


5



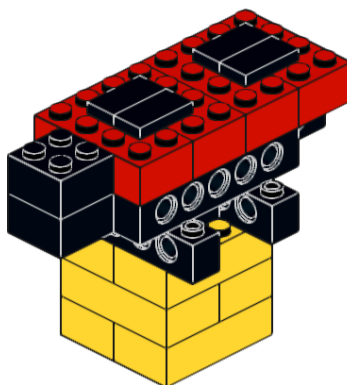
6





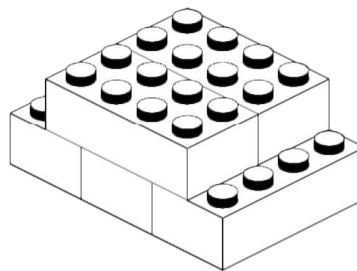
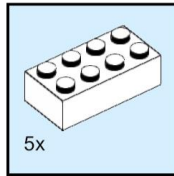


10

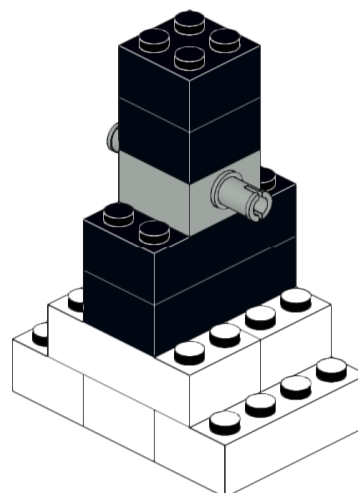
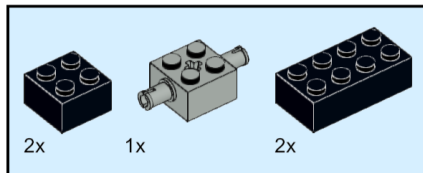


## Water Switch (1x)

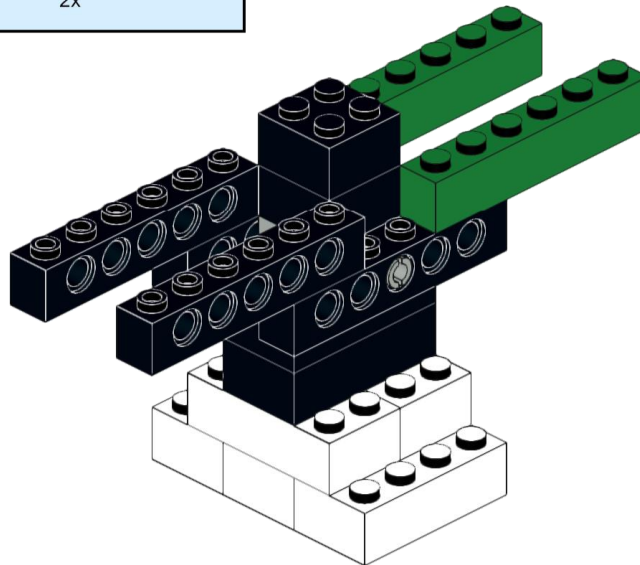
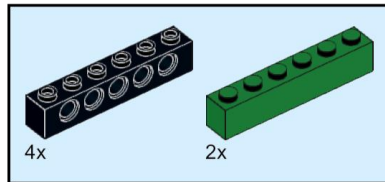
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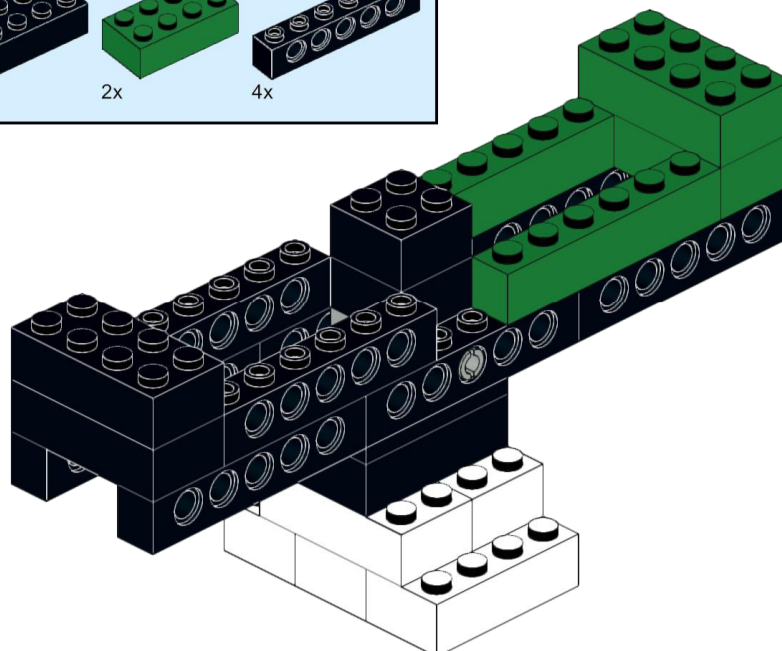
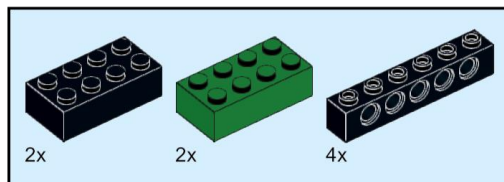
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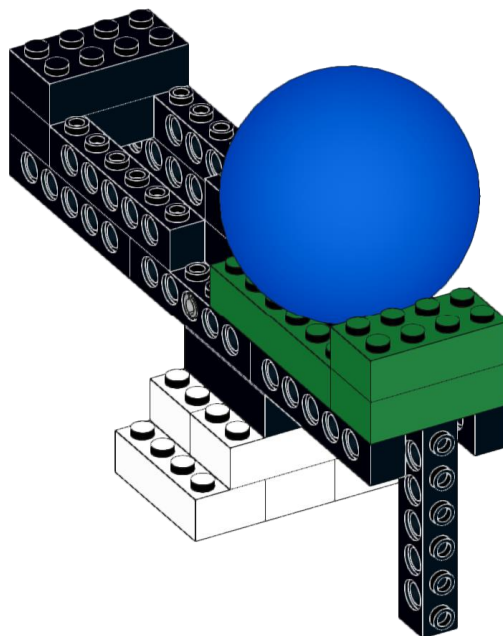
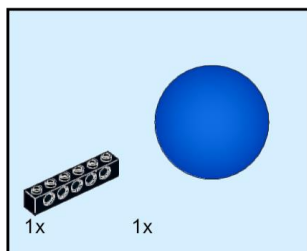
3



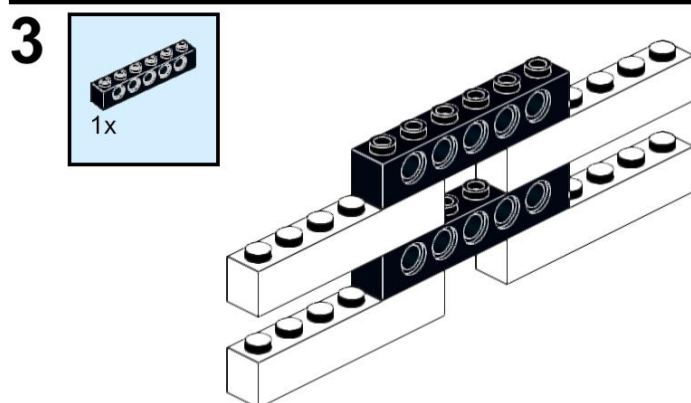
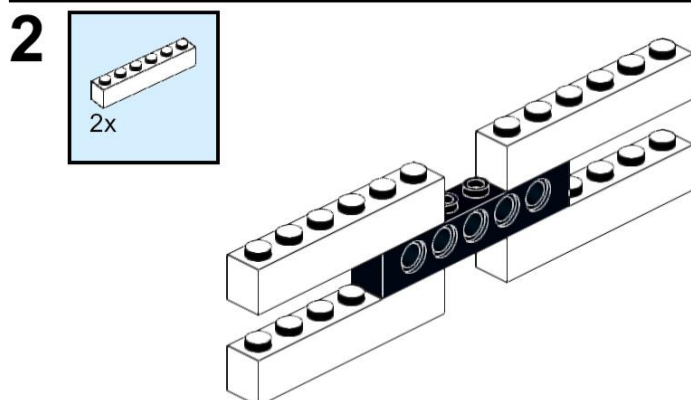
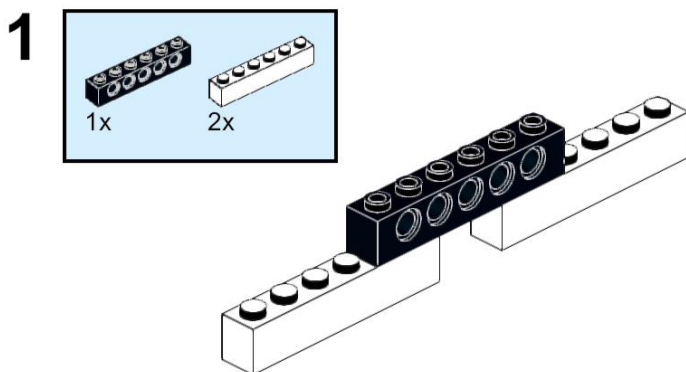
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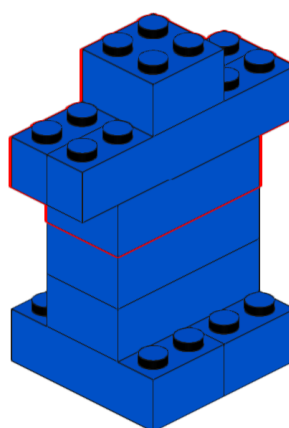
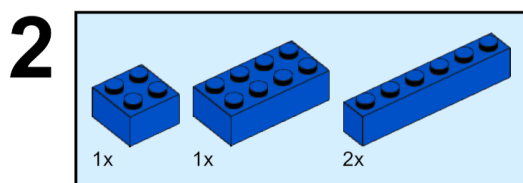
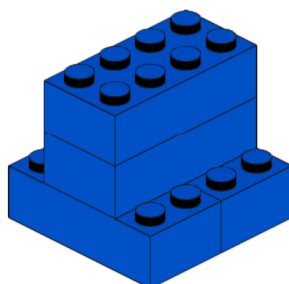
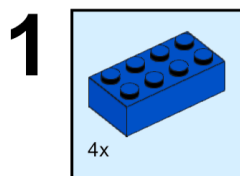
5



## Fence (5x)



## Garden Gnome (1x)





3

