SOUTH AFRICA

Explorer Prime

2022

Explorer Prime Game Rules

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PART ONE – GAME DESCRIPTION

1. Introduction

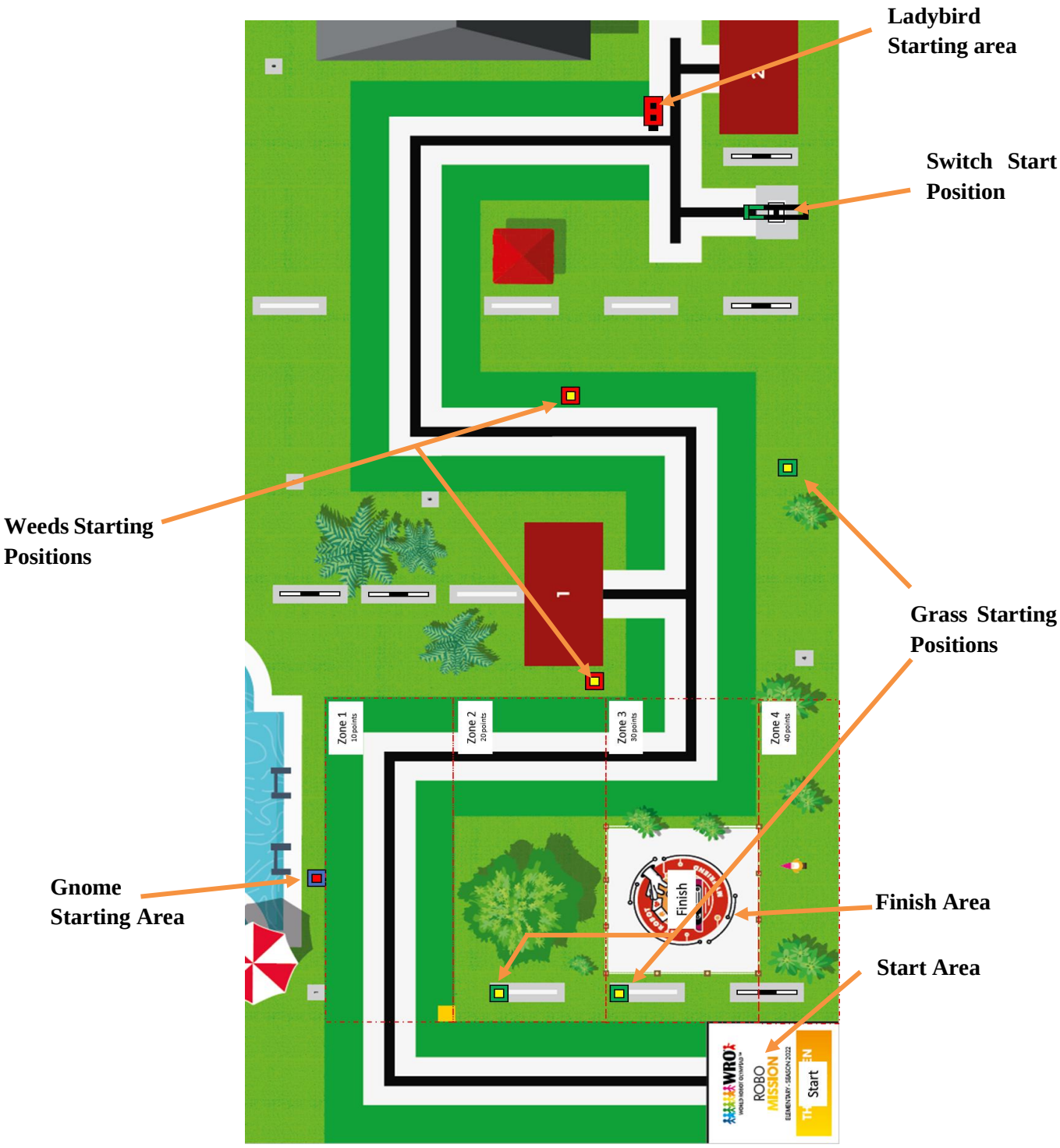
The Explorer Prime competition is for children from the ages of 11 years to 15 years in the year of the competition and not the child's age at the time of the competition. The Explorer Competition is South African developed and has no international component. In some years depending on national organiser 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 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 24th October – 30th 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 30th 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 for the latest event updates.

2. Game Field



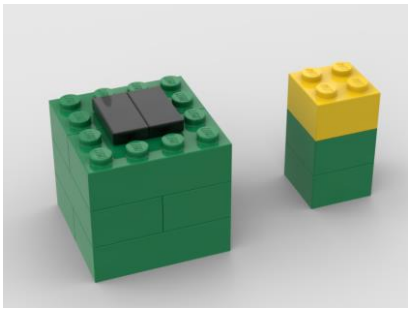
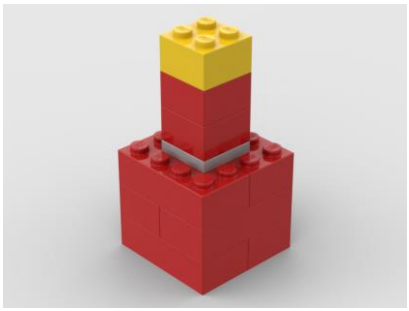
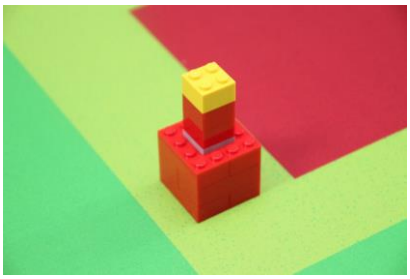
The following graphic shows the game field with the different areas.

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.

<table>
<tr>
<td> 
Grass
The green grass element consists of a base (left) and a top (right).</td>
<td> 
Bad Weeds
The bad weed is only one element. Base and top are stuck together.</td>
</tr>
<tr>
<td>
Start position of object on the field
(on grey area 5)</td>
<td> 
Start position of object 1 on the field
(on grey area 3)</td>
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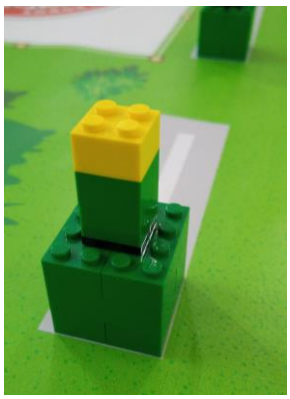
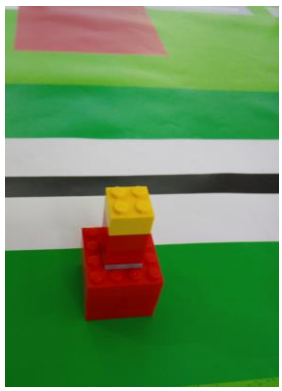
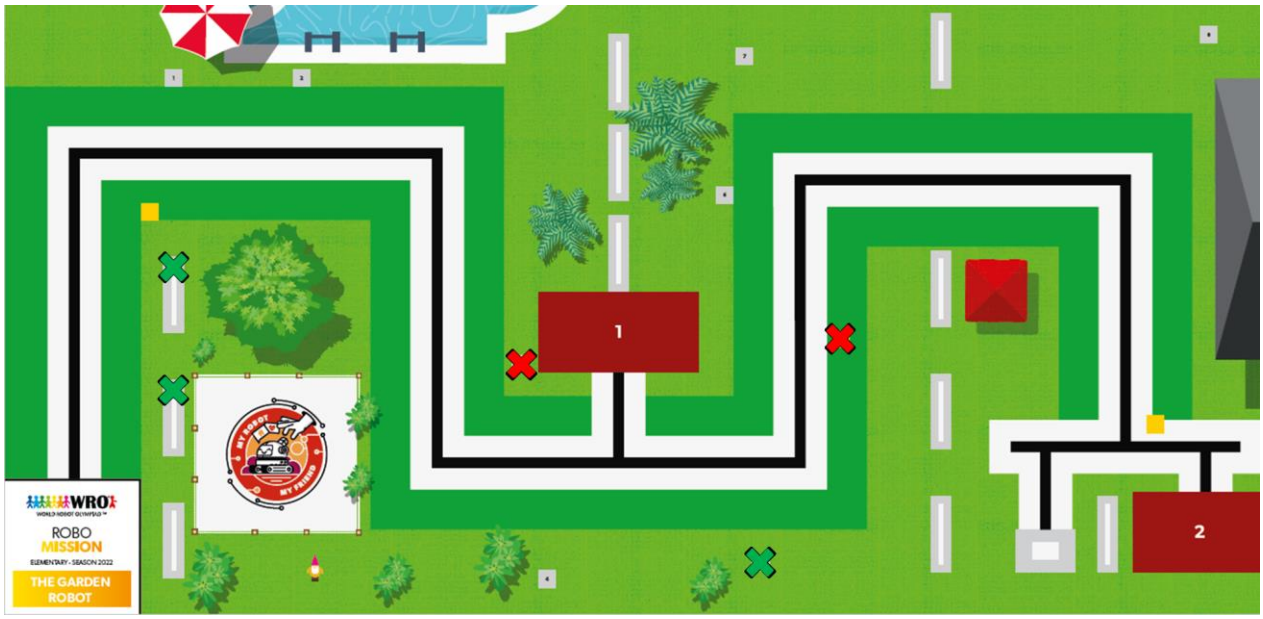
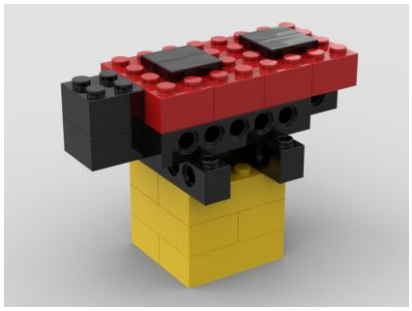
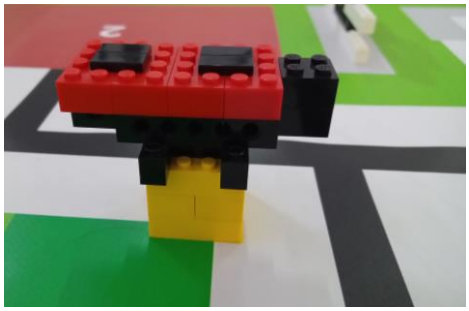
<td> 
Placement of the green grass elements near robot start area.</td>
<td>Start position of object 2 on the field (yellow square closest to area 1)
  </td>
</tr>
</table>

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



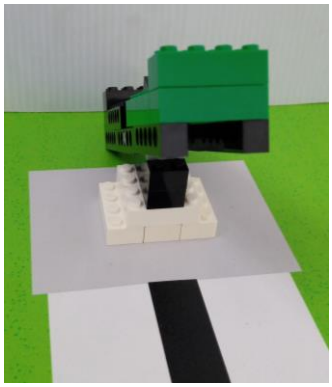
Ladybird (1x)

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

 Ladybird	 Start position of ladybird on the field

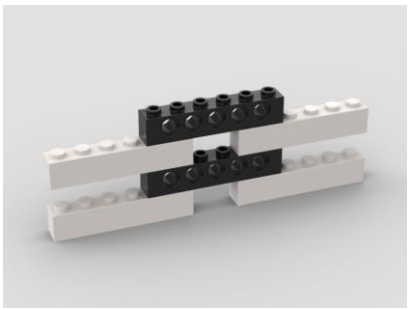
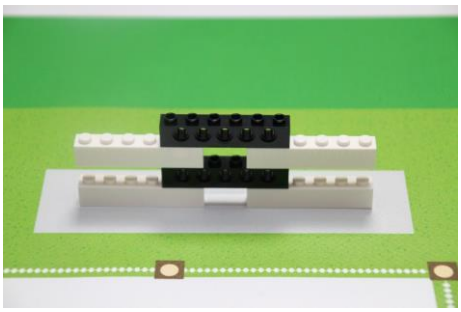
Switch (1x)

The switch is placed on the white rectangle surrounded by a larger grey rectangle between the two fences close to red area 2 on the game mat. It is placed with the green part of the switch facing into the game area and the black part of the switch starts touching the game mat.



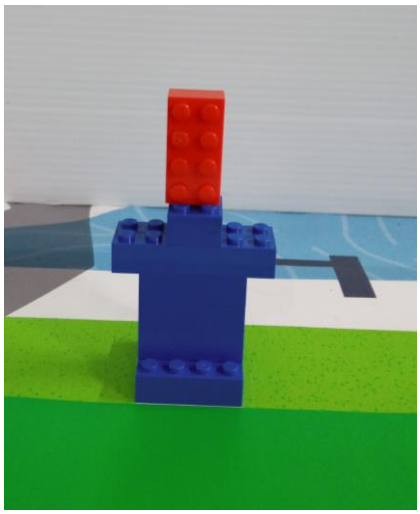
Fences (5x)

There are 5 fences on the field that should not be moved or damaged. A fence is placed on the white line inside a grey area.

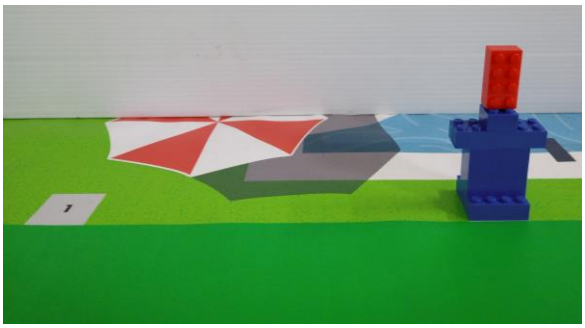
 Fence (5)	 Object on the field

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 any colour line 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. The ladybird only needs to touch the correct scoring area for full points to be awarded, i.e. the ladybird **does not need to be completely inside** of the scoring area for full points to be scored.

4.3 Cut high grass

The robot should knock off the top of the green grass pieces onto the game mat and not move the green bases completely outside of their original starting position to receive full points, partial points are awarded if a base has been moved completely outside of its start 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 and no base has been completely moved outside of its starting position.

4.4 Collect bad weeds

The robot should collect the 2 red weeds and move them completely inside red area 1 for full points. Partial points are awarded if the weed is not completely inside of red area 1.

4.5 Turn the switch on

The robot must use a third motor to turn the switch on so that the green part of the switch is touching the game mat when the robot run ends. The base of the switch must not touch anywhere outside of its grey starting area and the switch must remain upright.

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 teams final score is to be negative (less than zero) the team is to receive a score of zero (0). For example if a teams score after their run was -20 the teams score on the score sheet must be recorded as zero (0).

Explorer Prime Scoring

For Explorer Prime game elements are only awarded full points if the object is **completely inside** of the correct scoring area, if any part of the element is outside of the scoring area and is touching the game mat the team can score partial points for the game element, unless stated otherwise in the game rules and on the score sheet.

5. Scoresheet

Judge Name:

Explorer Prime 2022

Elements are considered completely inside if no part of the element is touching the mat anywhere outside of its start or finish area.

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				
Grass top pieces are touching the game mat and base is touching its start area.	0 1 2 3	10 each				
Grass top pieces are touching the game mat and base not touching its start area.	0 1 2 3	5 each				
BONUS: All 3 grass tops are touching the game mat and no base has been moved completely outside of its start area.	Yes / No	15				
Moved red weeds completely inside red area 1	0 1 2	10 each				
Moved red weeds partially inside red area 1	0 1 2	5 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				
Green part of switch touches the mat and the base is not touching anything outside of the grey starting area.	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				
	Total:	220				
The time the score was recorded: (e.g. 14:15)		Time:	:	:	:	:

Time of Score ..

Highest Score

Diamond 220 points

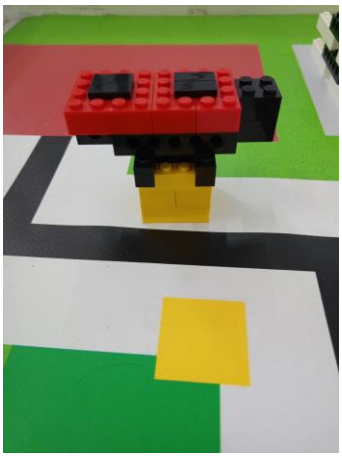
Gold 145-215 points

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

Red Weeds

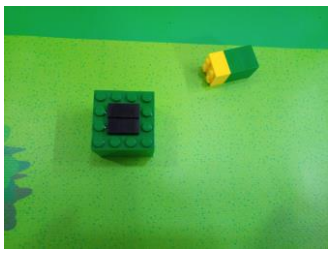
full points

10 points (1 red weed is completely inside the red area, the other is touching the outside of the area)

0 points (element is not completely inside the red area)

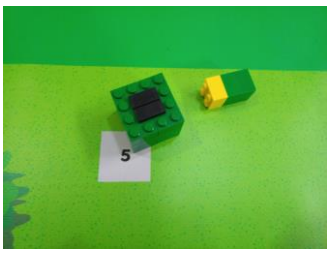
0 points
(not inside red area)

Green Grass - Tops and Base



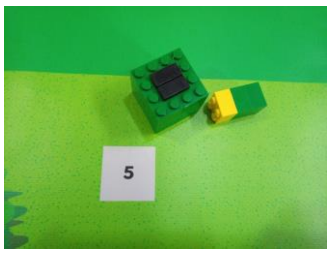
Top touching game mat

full points



Top touching game mat and base still touching grey start area

full points

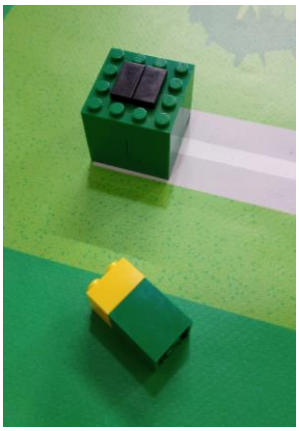


Top touching game mat and base is outside of grey starting area

5 points

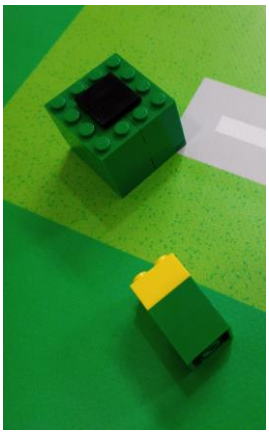
Top not touching game mat

0 points



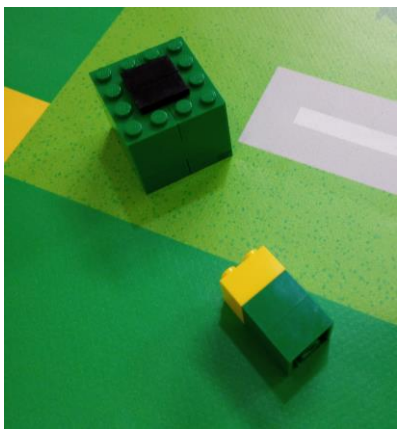
Top touching game mat

Full points



Top touching the game mat and base still touching starting area

Full points



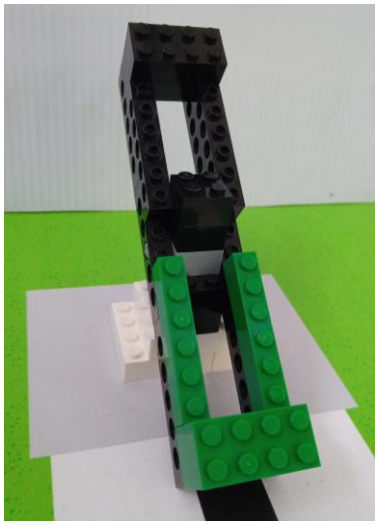
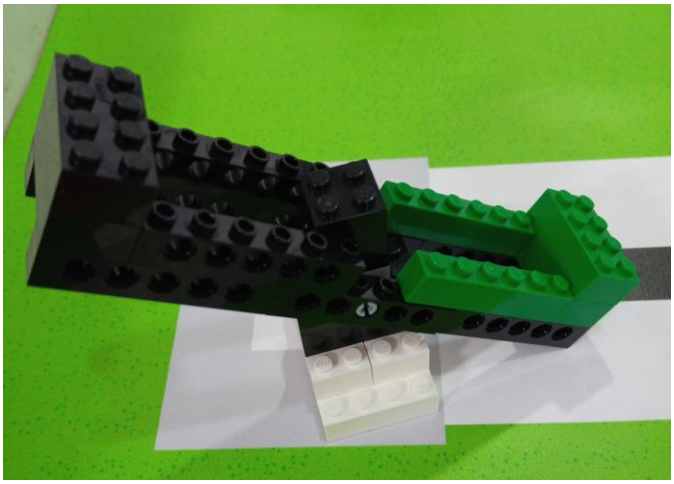
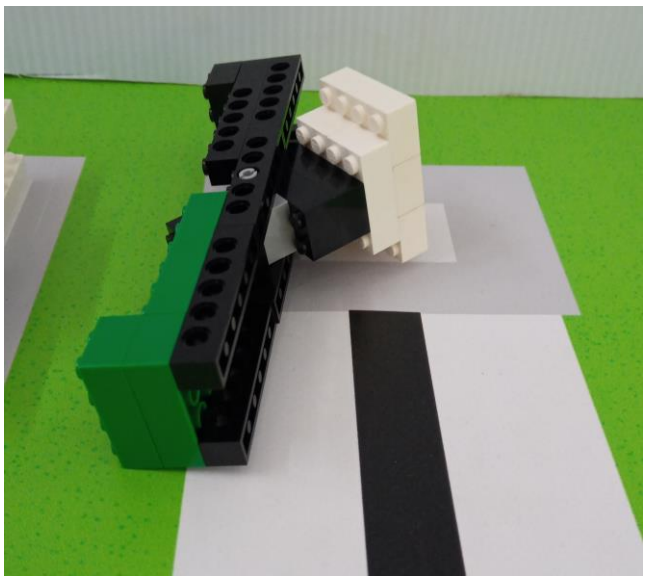
Top touching game mat and base not touching starting area

5 points

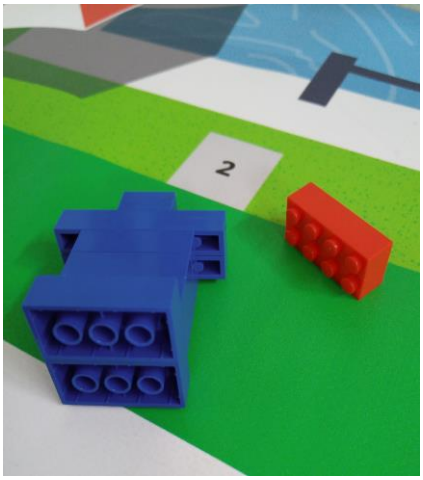
Top not touching the game mat

0 points

Switch

 Switch is in the on position, green pieces closest to the game mat. full points	 Switch base still within the surrounding grey area, switch is in the on position green pieces closest to the game mat. full points
 Switch in the on position green area closest to the game mat base touching game mat outside of the grey starting area. 0 points	 Switch is not upright 0 points

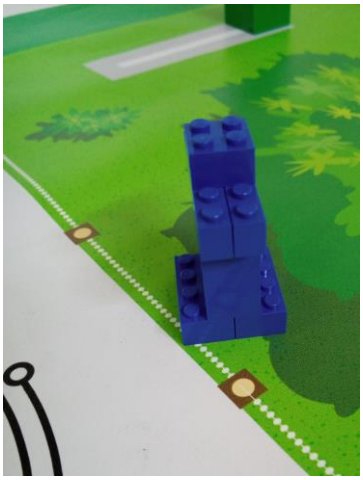
Garden Gnome



Gnome is lying in zone 1

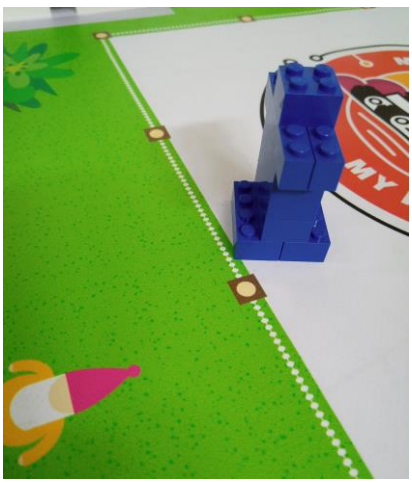
10 points. Red 2x4 brick is touching the mat.

10 points



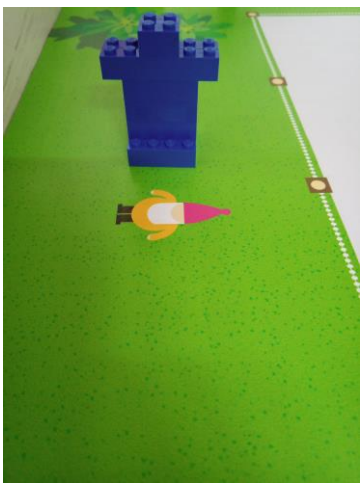
Gnome is inside zone 2 and not touching zone 3

20 points



Gnome inside zone 3 touching zone 4

40 points



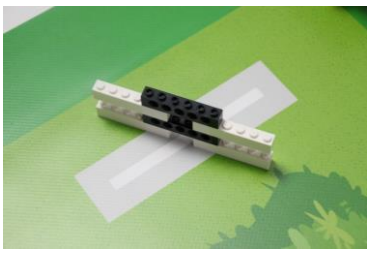
Gnome completely inside zone 4

40 points

Fences

fence, not moved.

Fence still inside required area.

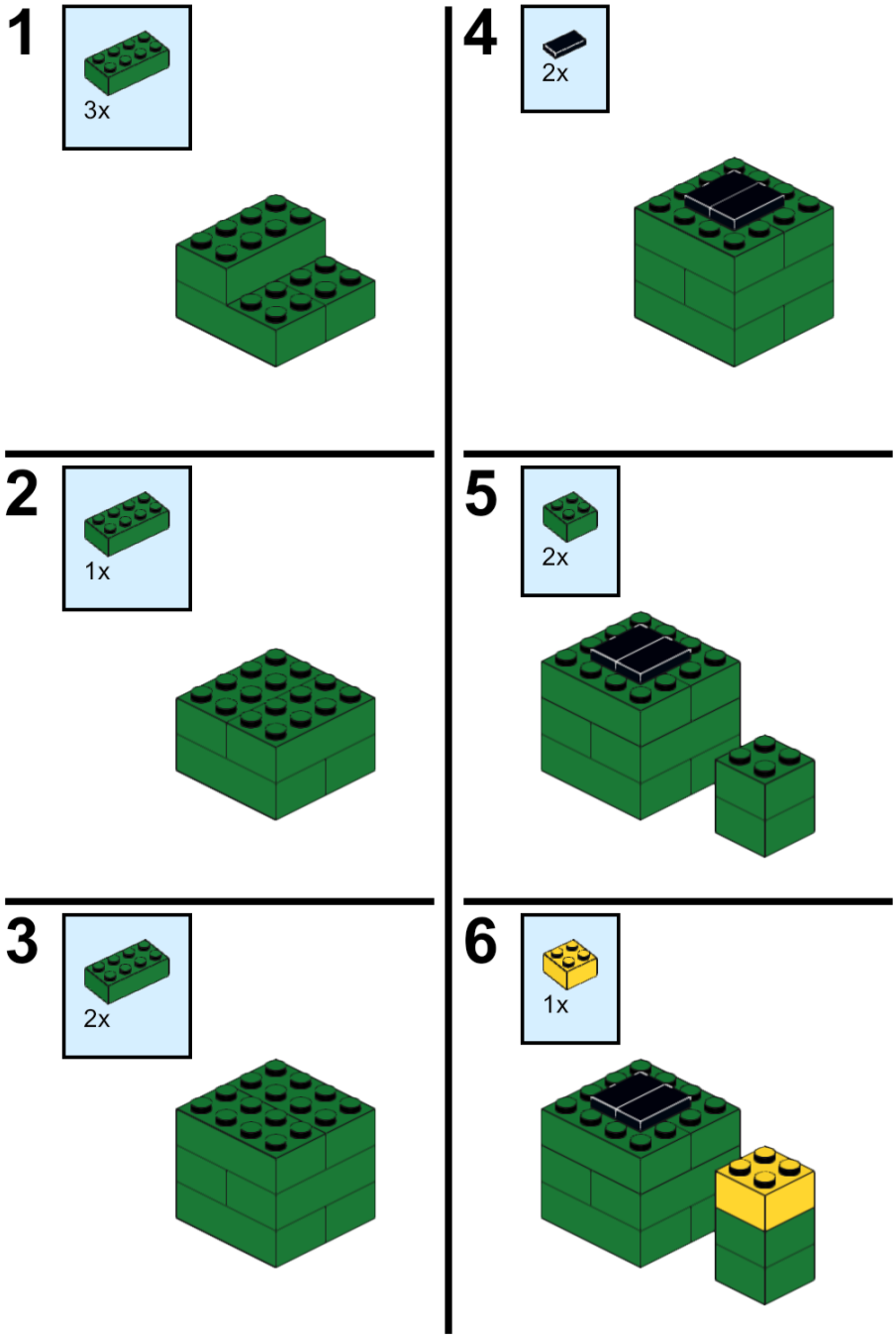


-5 points, moved outside of grey area.

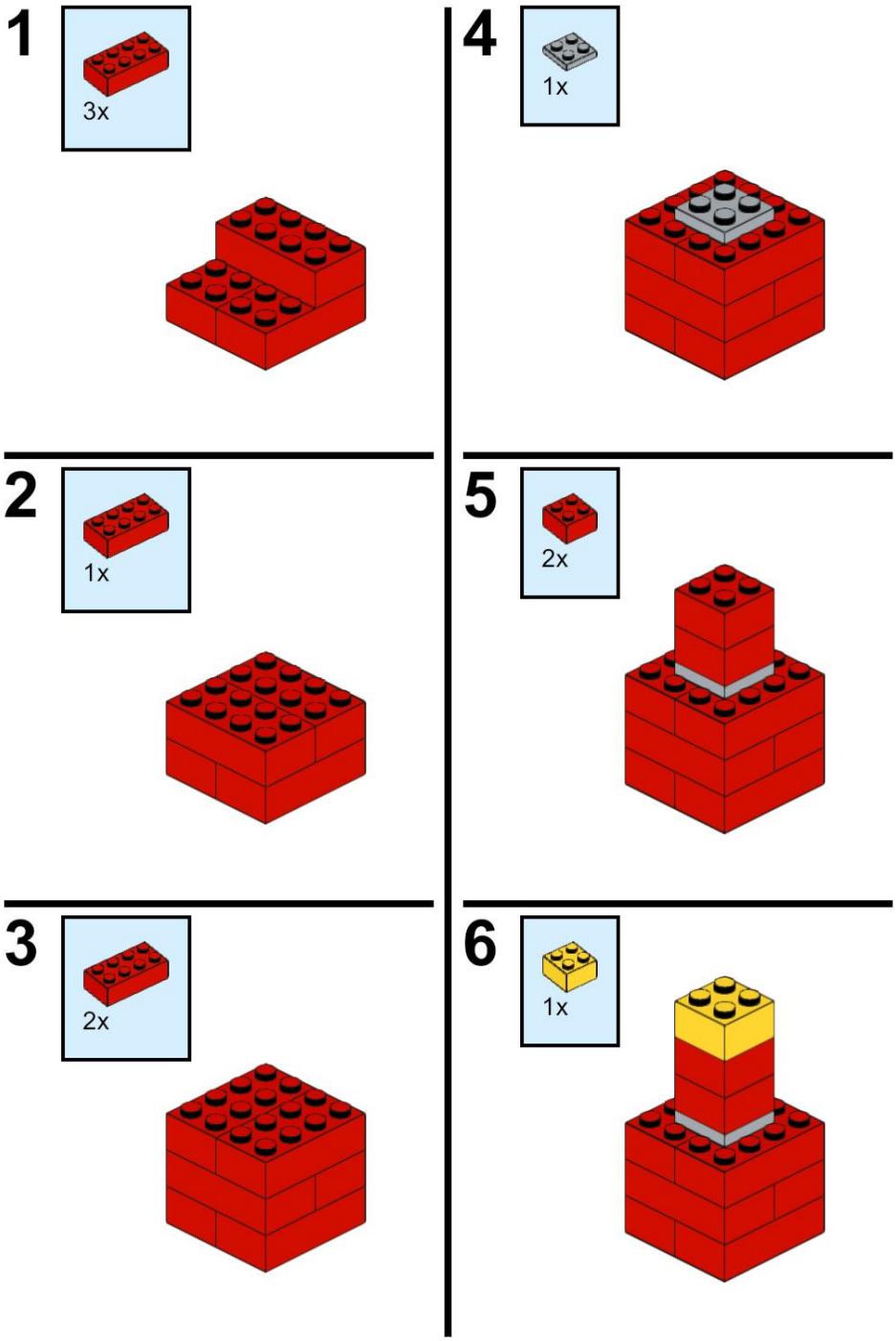
-5 points, moved outside of grey area.

PART TWO – ASSEMBLY OF GAME OBJECTS

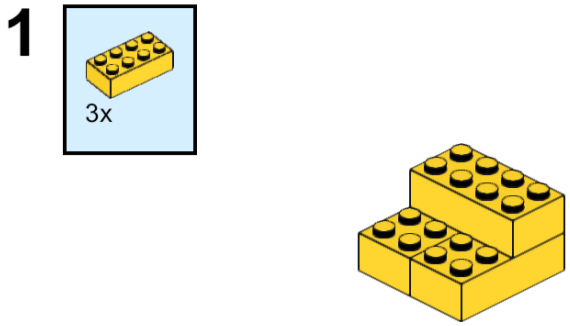
Grass (3x)

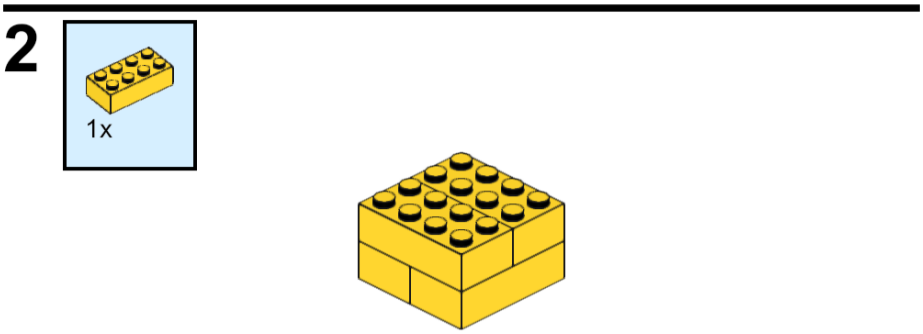


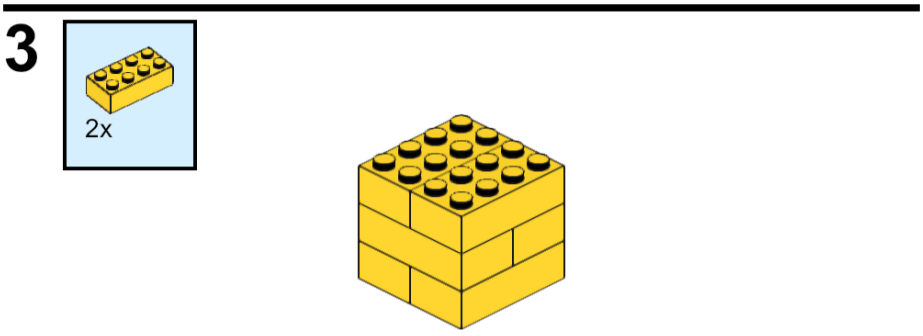
Bad Weeds (2x)

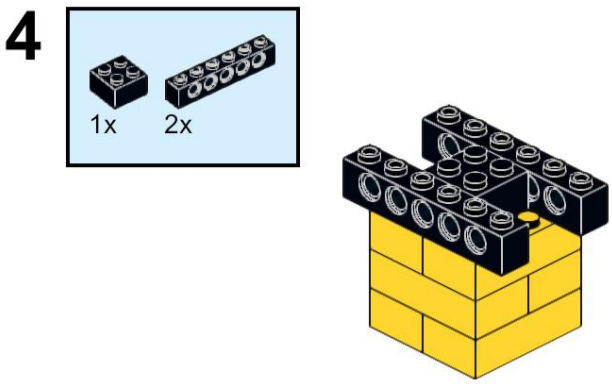


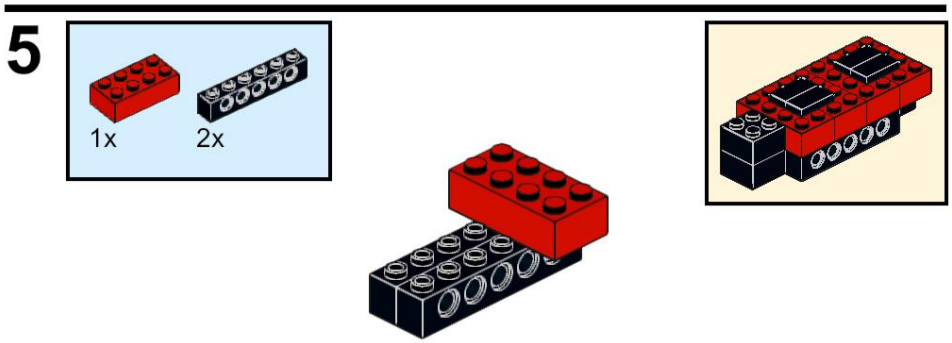
Ladybird (1x)

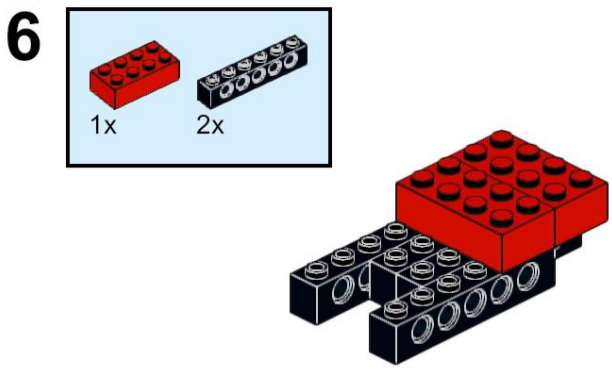


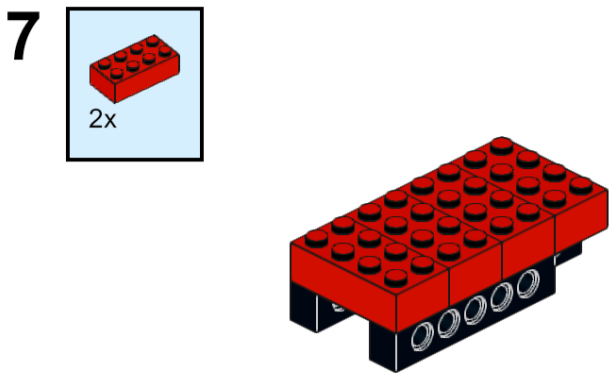


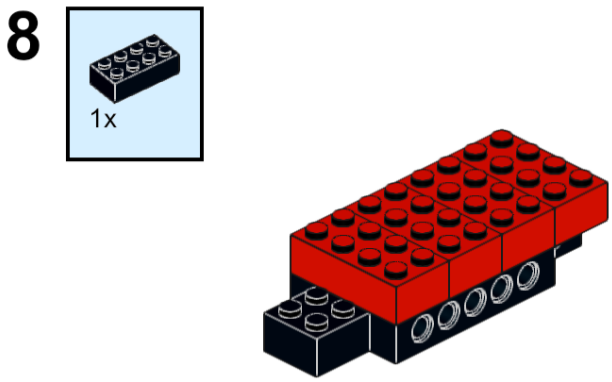



4
1x
2x


5
1x
2x


6
1x
2x


7
2x


8
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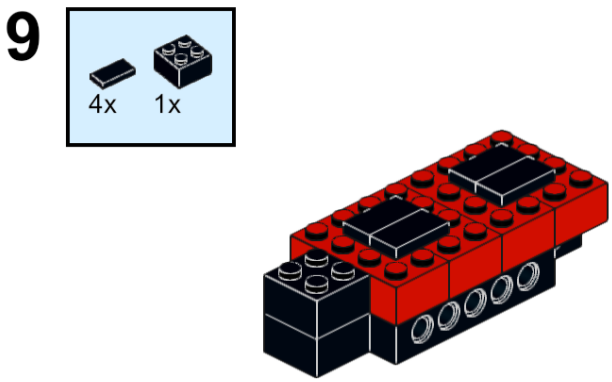
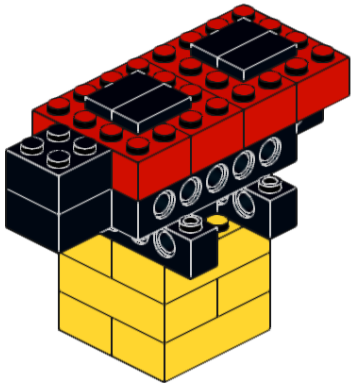
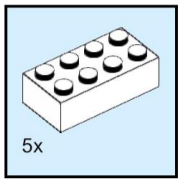

9
4x
1x

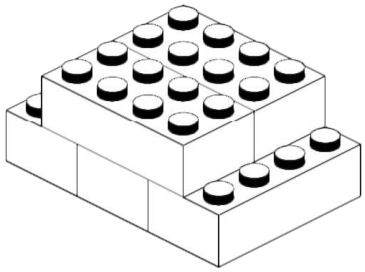
10



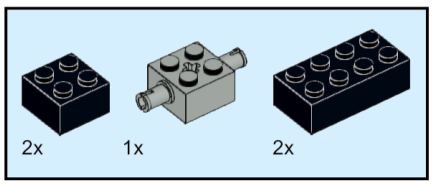
Switch (1x)

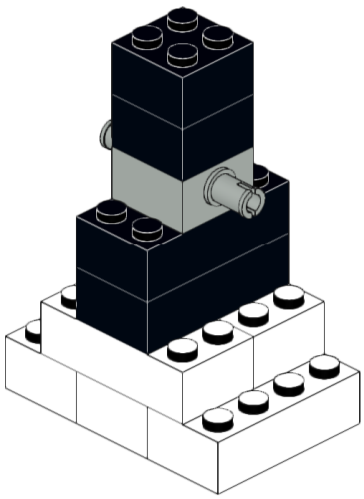
1

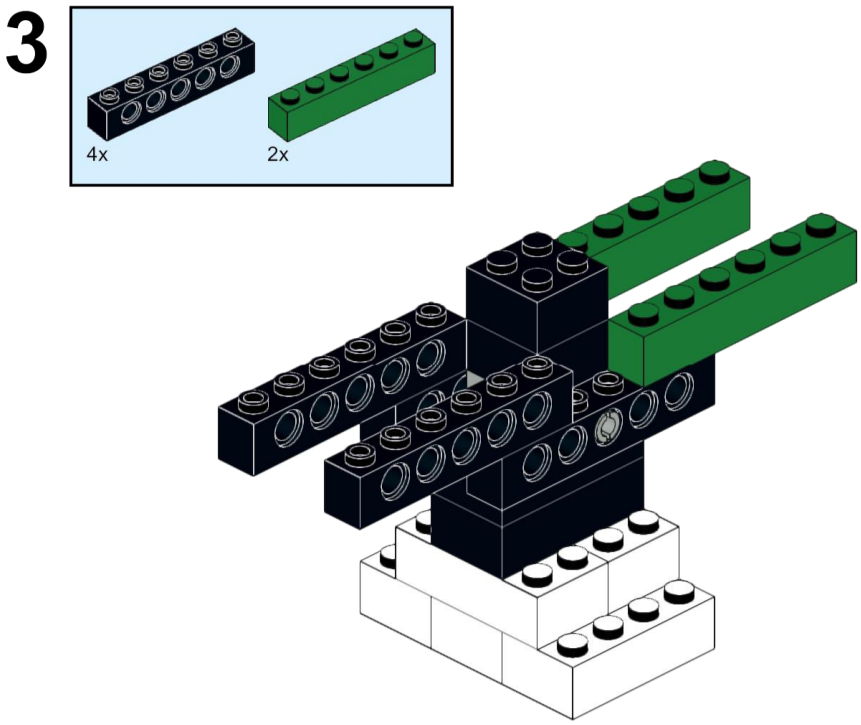


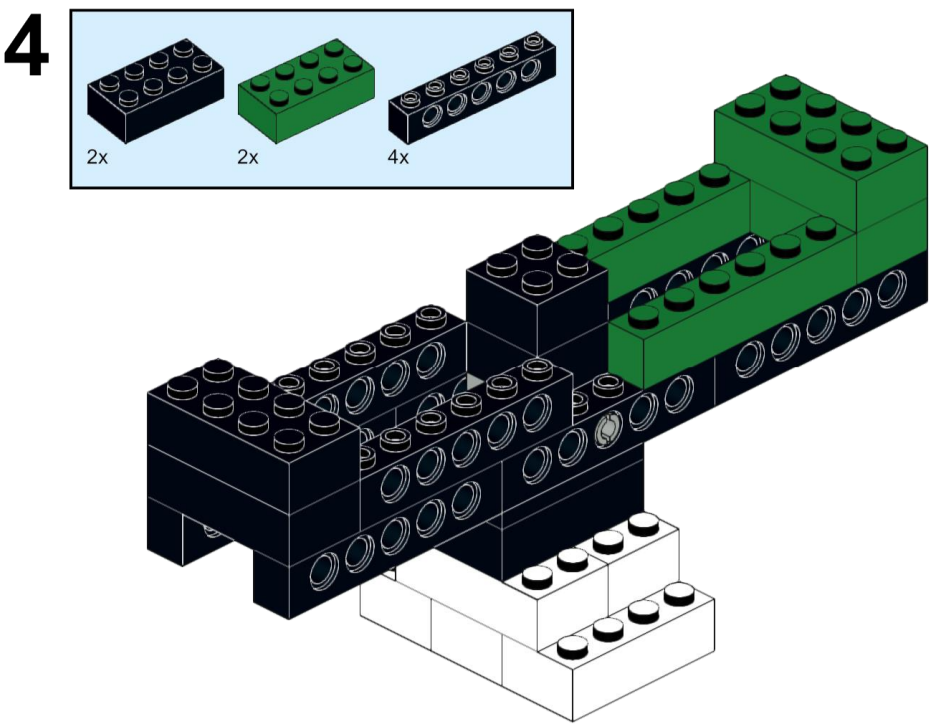


2

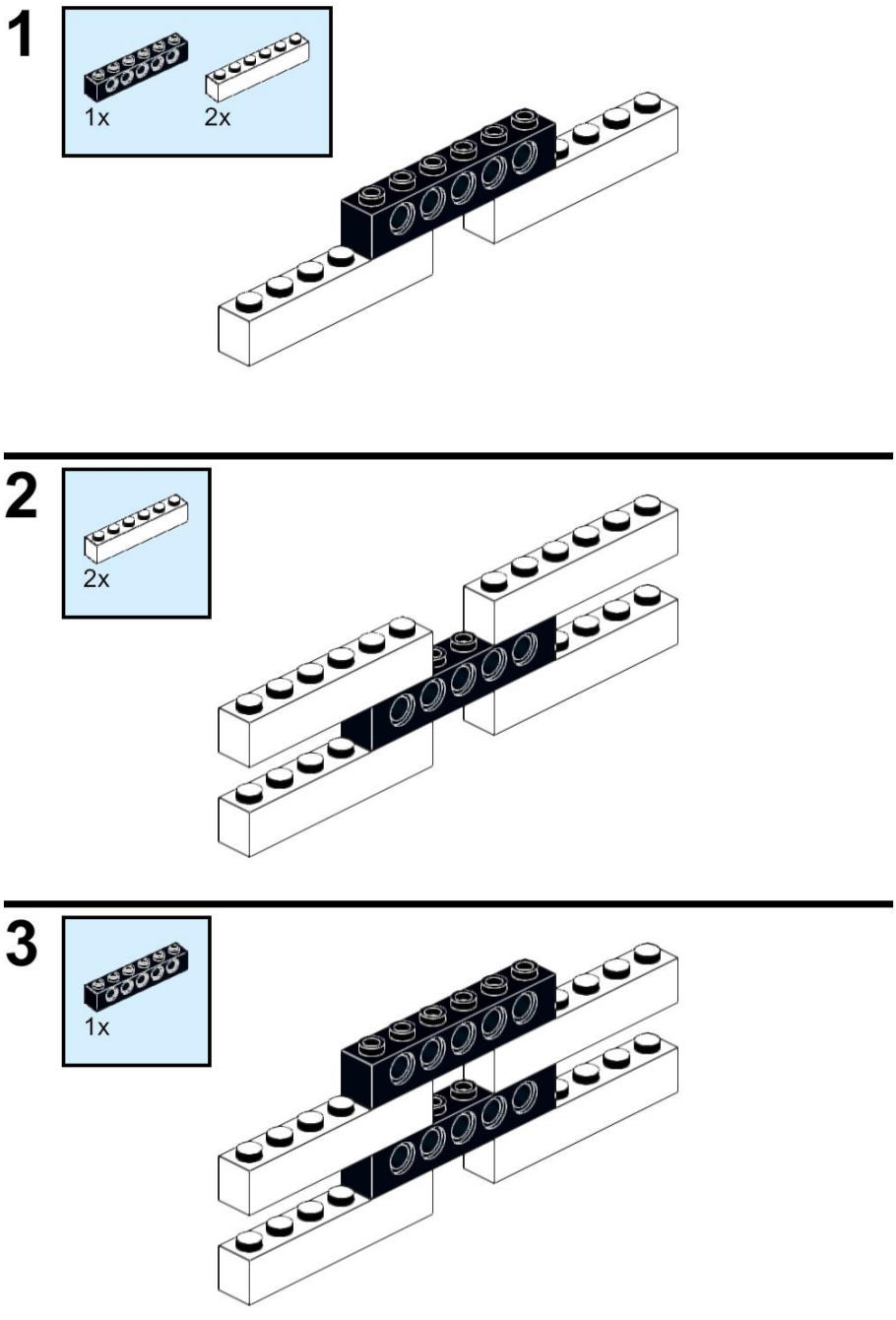





3
4x
2x

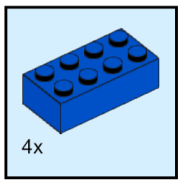

4
2x
2x
4x

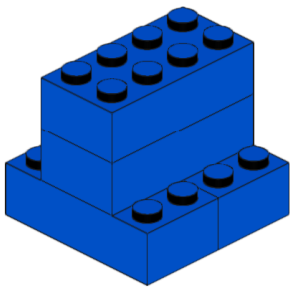
Fence (5x)



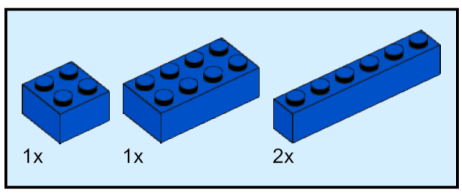
Garden Gnome (1x)

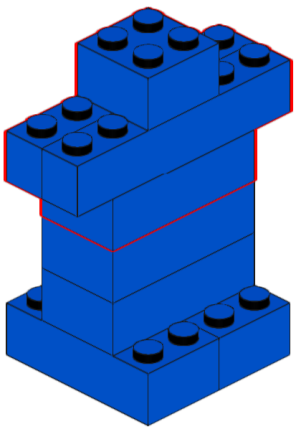
1

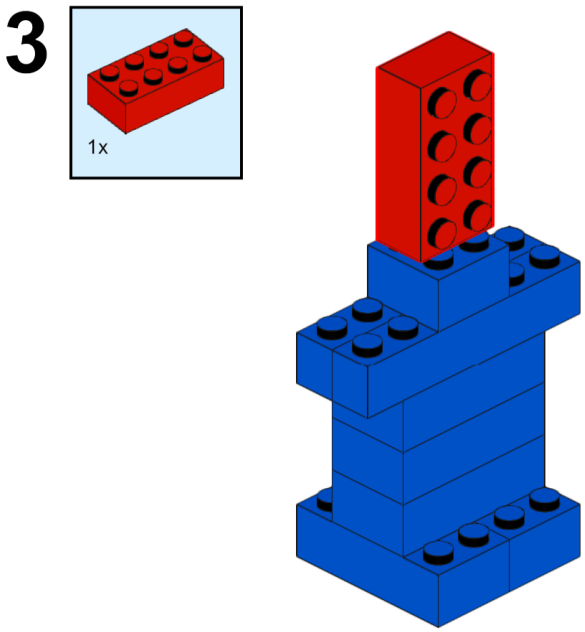




2






3
1x