



# ENGINEER CHALLENGE ROOKIE AGE GROUP

In Rookie age group we want to make sure that the rules suit the young children and so we have some rules different from the General Rules. In all other aspects General Rules apply to this age group as well.

21st – 25th January 2023

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# Special Rules

1.1.

The robot can function on its own, with remote control via Bluetooth or WiFi, or it can be a combination of the abovementioned two.

1.2.

In accordance with rule 1.1. teams in Rookie age group does not have to show the Bluetooth/WiFi switched off in the recorded video – as it does not matter for them.

1.3.

Rookie age group teams can use the following LEGO Education Robotics Sets:

- LEGO WeDo 2.0
- LEGO Spike Essential
- LEGO Mindstorms EV3
- LEGO Mindstorms Robot Inventor
- LEGO Spike Prime

1.4.

Team members are allowed to touch the robot in the cave area (lower right corner of the game field). Team members can touch the robot if any part of the robot touches the cave area (robot does not have to be completely inside the area).

# Game Mat

Below you can see the game mat:



# Game Objects

**Important:** whenever a game object has to be placed on an area the bordering lines of the area are not considered part of the area. If there is no bordering line then the edge of the color of the area is considered the border.

## Toilet paper cylinder

**Amount:** 1

**Size:** 45 x 100 mm

**Placement:** completely on the circle area in the right lower corner (marked with red X in the picture below)

## Light color plastic bottle cap

*Depending on your local opportunities the color can be: pink, light blue, light gray etc. Most important is that it can be clearly distinguished from the dark caps.)*

**Amount:** 3

**Size:** 23–28 mm diameter

**Placement:** completely inside the circles with blue–white flowered bushes on them across the game field (marked with light blue X in the picture below)

## Dark color plastic bottle cap

*Depending on your local opportunities the color can be: red, dark blue, dark gray, dark green, black etc. Most important is that it can be clearly distinguished from the dark caps.)*

**Amount:** 3

**Size:** 23–28 mm diameter

**Placement:** completely inside the circles with red flowered bushes on them across the game field (marked with orange X in the picture below)

## Pencil

Any color allowed)

**Size:** standard size approximately 200 mm long x 10 mm diameter

**Placement:** completely inside the long rectangles in the upper right part of the game field (marked with numbers 1, 2, 3)

## Lego mini figure

*(only head + body + legs, no other accessories allowed)*

**Amount:** 1

**Size:** standard Lego mini figure

**Placement in two pieces** *(marked with red circle in the picture below):*

- head + body: completely inside the rectangle in the middle of the game field
- legs: completely inside the rectangle in the lower left part of the game field

## Black marker

**Amount:** 1

**Size:** doesn't matter

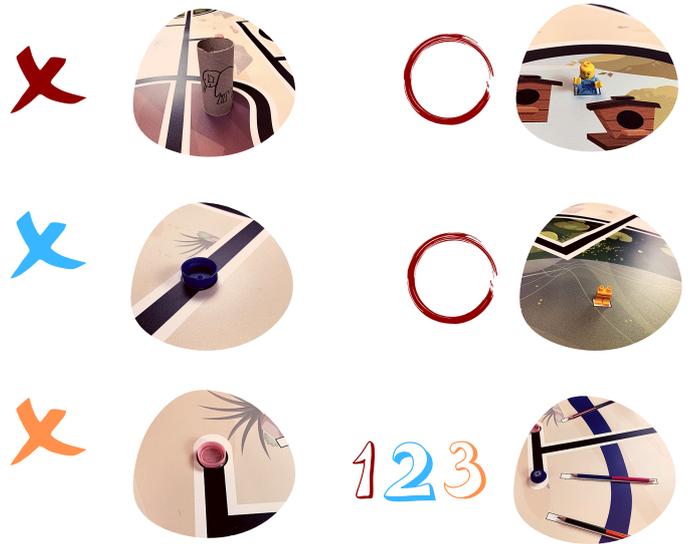
## Ruler

**Amount:** 1

**Size:** 30 cm

**Placement:** to show us in the video that the game mat is of the correct size you have to place a ruler on or next to the green rectangle at the bottom of the game field

# Game objects on the Game mat



See picture below where to place the different game objects:



**In case of rule infringement:** If a game object is not placed on the game field in the correct position points for that object will not be awarded for the team.

# Game Tasks

The robot has to start completely inside the wooden house area in the upper left part of the game field.

## Check out the cave drawings

Before anything happens on the game field pick up the marker and the toilet paper cylinder and please create the cave drawings to be checked out. To do that please draw whatever you want on the outside of the cylinder, this is going to be your unique cave drawing! When the robot is running it has to go around the cylinder so that it sees all the drawings. To see how much it has to move around the cylinder check out the video about the rules.

## Feed the wild animals

You have to take the light plastic bottle caps completely inside the feeding area (circle in the middle of the game field). This way you have taken all the valuable berries to the feeder for the animals to eat.

## Remove the fallen trees from the river

Beavers have been blocking the river with some logs and you have to remove them. Make sure to move the pencils outside the whole game field.

## Collect the lost doll

Adam lost his doll (lego mini figure) in the national park and it has been torn into two pieces. Bring both pieces back to the wooden house so they can repair it.

## Avoid poisonous berries

Dark plastic bottle caps are poisonous berries that should not be touched. Avoid moving them outside their starting circle area. Points are only awarded if any other points are achieved by the team from tasks 5.1. – 5.4.

# Scoring

Tasks	Score
<b>Check out the cave drawings</b>	
Robot goes around the cave drawings	20
<b>Feed the wild animals</b>	
Light cap is completely inside the feeder area	30 10 / cap
<b>Remove the fallen trees from the river</b>	
Pencil is completely outside the game field	45 15 / pencil
Pencil no longer touches its starting area	15 5 / pencil
<b>Collect the lost doll</b>	
Head + body is completely inside the wooden house area	10
Legs are completely inside the wooden house area	10
Both parts of the doll are in the wooden house area	10
<b>Avoid poisonous berries</b>	
Dark cap still touching its starting area	15 5 / cap
<b>Technical points</b>	
Recorded and uploaded video includes all requested parts: <ul style="list-style-type: none"> <li>• robot,</li> <li>• game field and game objects,</li> <li>• robot run,</li> <li>• end position of robot and game objects.</li> </ul>	10
The team uploaded only one video file and one program documentation, which apply to the requested format and naming format.	5
<b>Total score</b>	<b>155</b>

## Definitions for scoring

**Completely inside:** every part of the game object that touches the game field only touches the target area not including the surrounding line.

**Touching:** the game object touches the target area not including the surrounding line. Important that in this case the game object is not completely inside the area, because that is a different case.