

# GAMES AND RULES

## *Rookie Age Group*



organized  
by





*Rookie age group has some rules different from the General Rulebook so that the challenge fits their age much better. We will list these rules below, but in all other aspects the General Rulebook applies to this age group as well.*

## 1. Special rules

- 1.1. Competitors can also use LEGO Education WeDo set to build their robot. Competitors can use any number of controllers.
- 1.2. The robot can run a program, or it can also be remote controlled via either Bluetooth or Wi-Fi, therefore there is no need to show in the uploaded video if Bluetooth and Wifi are switched off or not.

## 2. Game field

You can see the game field and the areas on the picture below. For further information about the game field please check Engineer Challenge General Rulebook.



### 3. Game objects

#### Light mill pieces

(plastic bottle cap – possible colors: pink, light blue, light grey, light green, white etc.)



**Number:** 4 pieces

**Size:** 25 mm diameter

**Placement:** completely on the marked points of the Nine Men's Morris field (see 4. Game object placement)

#### Dark mill pieces

(plastic bottle cap – possible colors: red, dark blue, dark green, black etc.)



**Number:** 4 pieces

**Size:** 25 mm diameter

**Placement:** completely placed in 4 freely chosen circles out of the available 6 circles in the finish area



*You must have 2 different colored mill pieces for light and dark pieces that can be easily identified. The light and dark naming comes from the official Nine Men's Morris game.*

#### Box of matches

(only the bottom part is needed) – in the following: box



**Number:** 1 piece

**Size:** standard (35x53x10 mm)

**Placement:** on grandpa's couch, in the rectangle area in the right lower side of the game field

#### Grandpa LEGO minifigure



**Number:** 1 piece

**Size:** standard LEGO minifigure

**Placement:** completely in the bottom of the box of matches

#### Sock



**Number:** 1 piece (does not have to be a pair)

**Size:** 35 - 52

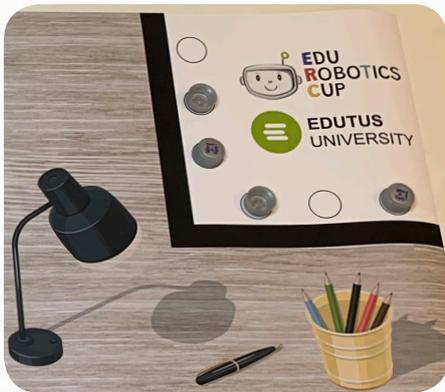
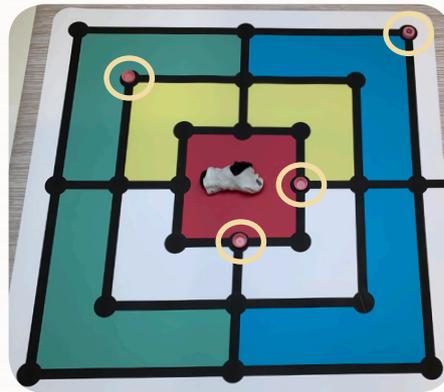
**Placement:** completely in the middle red area of the Nine Men's Morris board



*When a game object is placed in an area that is limited by black lines it has to be completely inside the area and it mustn't touch the lines (neither the object itself nor any parts of it). The LEGO minifigure can only consist of a head, a body and a leg component and its hands have to be empty.*

## 4. Game object placement

At the start **light mill pieces** have to be **placed** on the points **as shown in the picture**.



**Dark mill pieces** have to be completely **placed in 4 freely chosen circles** out of the available 6 circles in the finish area.

At the start the **sock** has to be **placed completely in the middle red area** of the Nine Men's Morris board.



At the start **grandpa minifigure** has to be **placed completely in the box** which is completely **in the rectangle** in the right lower part of the game field.



**In case of rule violation:**

*If any of the game objects are not placed properly for the start, the team will not get the points for that game object.*

## 5. Challenge tasks

The robot can start from anywhere on the game field.

### 5.1. Tidying the desk

You left your sock on the desk by accident. You have to remove it in order to start playing with your grandpa.

### 5.2. Placing dark mills pieces

Grandpa already placed the light mill pieces on the Nine Men's Morris table. He asks you to place the dark pieces as well, which are at the Finish area. You are a beginner so for now grandpa asks you to put the pieces inside a colored area.

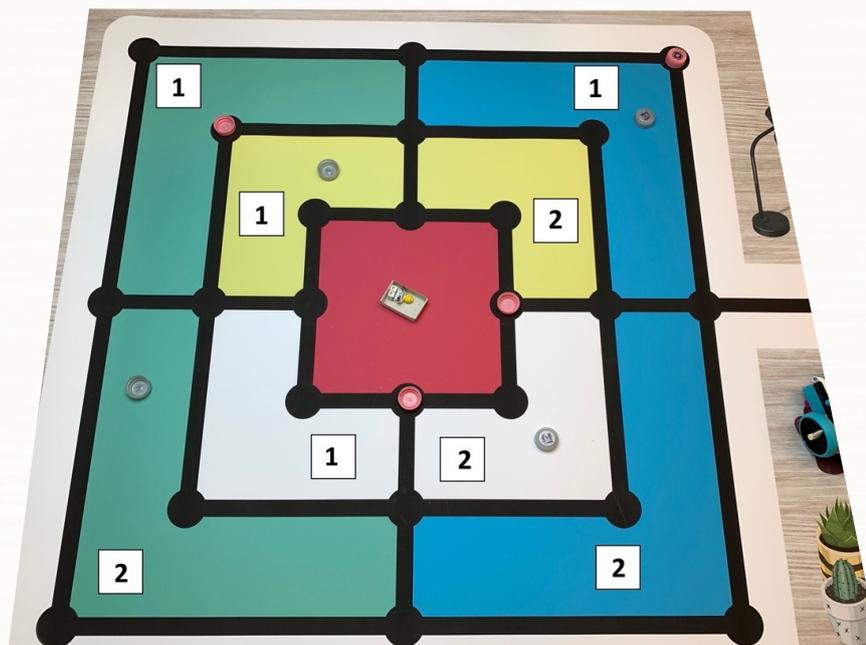


#### **Randomization:**

You can see that we gave a number of 1 or 2 for each separated areas of the same color.

You have to randomize where you need to place a dark mill piece. Place 1 blue, 1 white, 1 yellow and 1 green 2x4 LEGO brick in a non-transparent bag, pouch or box. Start drawing them one after another. As you draw them, you will have to place the dark mills to the following places:

- 1. draw: no. 1 area of 1st drawn color (in this example blue or yellow)
- 2. draw: no. 2 area of 2nd drawn color (in this example green or white)
- 3. draw: no. 1 area of 3rd drawn color (in this example blue or yellow)
- 4. draw: no. 2 area of 4th drawn color (in this example green or white)



5.3. **Avoid light mill pieces**

You must avoid the already placed light mill pieces when placing the dark ones on the board. They mustn't be moved from their starting position.

5.4. **Help grandpa sit next to the board**

While you were placing the dark pieces grandpa was resting but now he wants to join you at the game board. Help him to get to the game board!

5.5. **Parking**

After the robot finishes the tasks it parks completely in the finish area to let you play Nine Men's Morris with your grandpa.

## 6. Scoring

Challenge tasks	Points
<b>Tidy the desk</b>	
The robot completely removed the sock from the game field	<b>10</b>
The robot partly removed the sock from the game field	5
<b>Placing dark mill pieces</b>	
The dark piece is completely inside the correct colored area	<b>40</b> 10 / piece
The dark piece is partly inside the correct colored area	20 5 / piece
The dark piece is completely inside a colored area, but it is not the correct area based on randomization	20 5 / piece
<b>Avoid light mill pieces</b>	
Light mill piece is completely in its starting point	<b>20</b> 5 / piece
<b>Help grandpa sit at the game board</b>	
The robot transports grandpa in the box of matches completely to the middle red area of the board and grandpa only touches the box	<b>10</b>
The robot transports grandpa in the box of matches partly to the middle red area of the board and grandpa only touches the box	5
<b>Parking (points are only awarded if any other challenge points have been awarded too)</b>	
The robot parks completely inside the finish area	<b>10</b>
<b>Technical points (points are only awarded if any other challenge points have been awarded too)</b>	
The uploaded video includes all the required shots (see General rulebook): recording of the robot, recording of the game field and game objects, recording of the competition run, recording of the game objects and robot end positions.	<b>5</b>
The team or individual uploaded only one video file and one program documentation file, which were in the correct format and also named correctly.	<b>5</b>
<b>Max. points</b>	<b>100</b>

### 6.1. Scoring terminology

#### **Completely inside:**

The game object or robot is completely inside an area if it only touches the area and its projection from above does not reach out of the area.

#### **Partly inside:**

The game object or robot is partly inside an area if it at least touches the area, but also touches other areas or its projection from above reaches out of the area.

## 7. Scoring manual

### Tidying the desk

#### 10 points

Sock **completely outside** of the game field. **10 points** awarded if it is **not touching the game field**, the robot or any game object.



#### 5 points

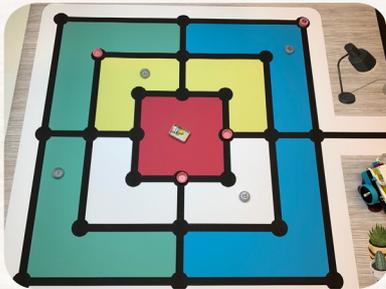
Sock **partly outside** of the game field. **5 points** awarded if the sock touches the area surrounding the game field, the robot or any game object, but it is not completely outside.



### Placing dark mill pieces

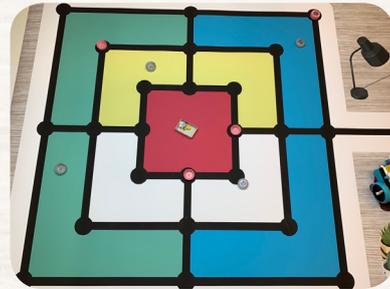
#### 40 points (10 / piece)

All **4 dark mill pieces** are **completely inside the correct areas** (example randomization is 1<sup>st</sup> blue, 2<sup>nd</sup> white, 3<sup>rd</sup> yellow, 4<sup>th</sup> green).



#### 35 points

35 points awarded, **10/pieces completely inside the correct area** and **5 for the piece partly inside the correct white area** (example randomization is 1<sup>st</sup> blue, 2<sup>nd</sup> white, 3<sup>rd</sup> yellow, 4<sup>th</sup> green).



Pieces are **completely inside** the areas but if it is **not matching the randomization**, pieces would be awarded **5 points each for being in an incorrect area** (example randomization is 1<sup>st</sup> blue, 2<sup>nd</sup> white, 3<sup>rd</sup> yellow, 4<sup>th</sup> green).

**If a dark piece is only partly inside an incorrect area no points are awarded.**

If white is the correct target area, 5 points are awarded for this piece as it is partly inside the area.



## Avoid light mill pieces

### 20 points (5/piece)

**5 points** for this **light mill piece** because it is **still completely inside its starting black point** on the board.

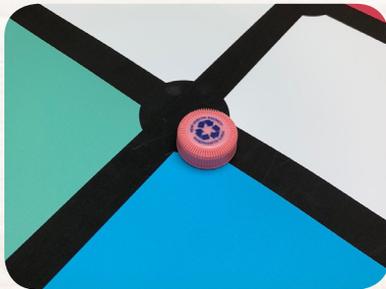


Unlikely, but **still 5 points** for this **light mill piece**, because it is **still completely inside its starting black point** on the board. It does not matter in what position the pieces stays in the area.



### 0 points

**0 points** for this **light mill piece** because it **moved partly outside its starting black point** on the board.



**0 points** for this **light mill piece** because it **moved completely outside its starting black point** on the board.



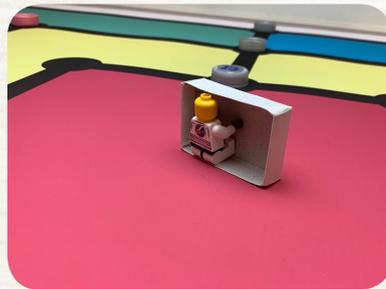
## Help grandpa sit at the game board

**10 points**

The box is completely inside the red area and grandpa only touches the box.



However unlikely it is, if grandpa decides to do some extreme parkour, **maximum 10 points can still be awarded if, if he only touches the box...** like you can see in the following two pictures.



**0 points**

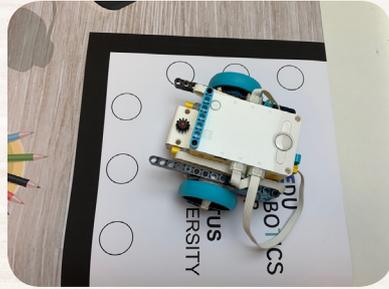
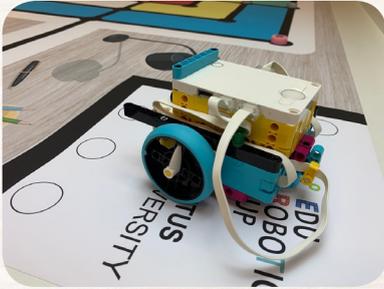
Although the **box is completely inside** the red area, **grandpa is not touching only the box.**



## Parking the robot

**10 points**

Parking completely inside the finish area.



**0 points**

**0 points** in both cases as the cables are counted as part of the robot for parking.

