WORLD ROBOT OLYMPIAD ™

RoboMission

Senior Game Rules
Season 2026

Mosaic Masters

Official Game Rules for the WRO International Final. Version: January 15th 2026
(Note: Rules for local WRO events may vary!)

WRO LEARN

WRO Learn supports students, coaches and judges with free lessons and supporting materials - check out the WRO Learning platform www.wro-learn.org.

Table of Contents

Important information for reading this document:

- Some general rules (e.g. some robot limitations) have changed for 2026. Make sure to read them entirely.
- These game rules are made for international competitions.
- National Organizers in WRO countries are allowed to simplify the missions.
- For the International Final, one extra mission will be released on October 8th 2026. The extra challenge will work with the same game mat and brick set.
- Because of possible surprise rules and the extra mission for the International Final, the game field may contain areas and markings that are not used at local or national events.
- For greater clarity, the robot missions are explained in multiple sections. But the teams can decide which missions they will do and which order.
- The game missions have easy and more complicated tasks. This makes the competition suitable for beginning and more experience teams. It is not necessary to solve all missions to enjoy a WRO participation.
- General information on game table setup and fixing of game objects on the field you find in the WRO RoboMission General Rules, chapter 7.

We wish everyone much success and a lot of fun with our WRO 2026 challenges!

Your team of World Robot Olympiad Association

1. Introduction

Across the world, murals and mosaics don't just decorate cities - they tell stories. These colourful artworks celebrate culture and creativity, but time, weather and natural disasters can damage even the strongest murals. That is where technology can step in.

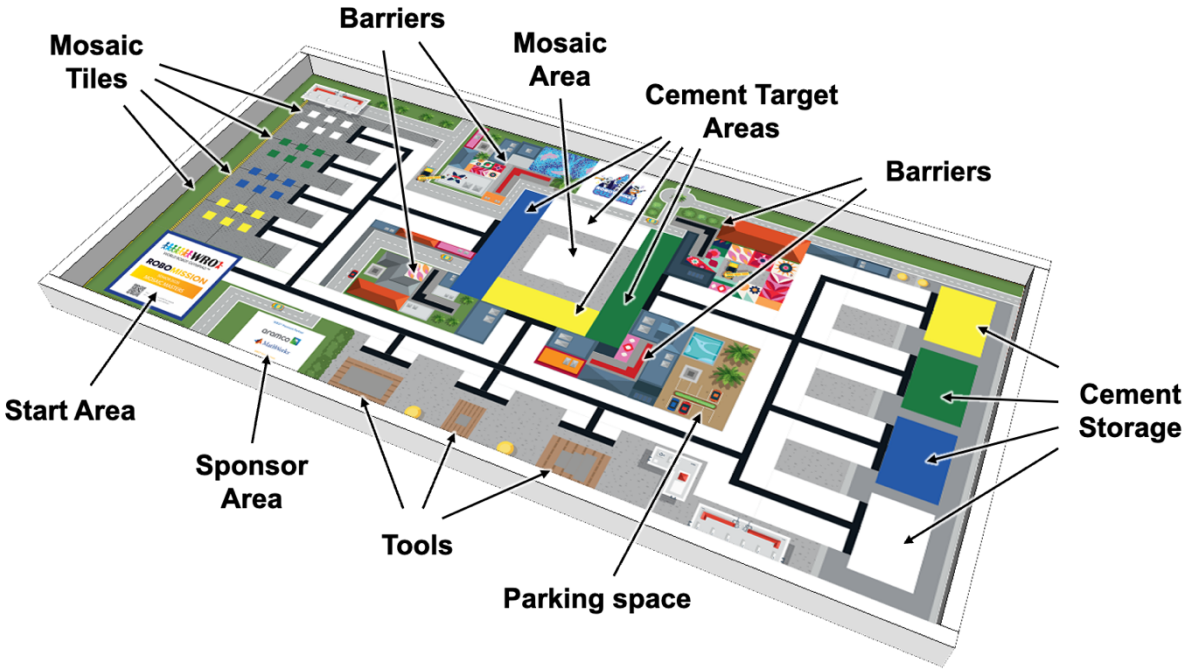
In this challenge, you will design and program a robot that helps restore a damaged mosaic. Your robot will transport tools, deliver building materials, and carefully place coloured mosaic tiles to rebuild the artwork. Precision matters: the robot must avoid obstacles, protect the surroundings, and make sure every tile ends up exactly where it belongs.

Just like real engineers and conservation teams who use robots, sensors, and AI to protect historical art, you will explore how robotics can preserve culture and shape the future.

Are you ready to become a **Mosaic Master?**

2. Game Field

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

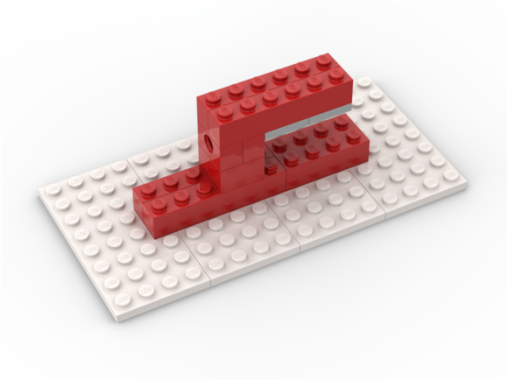
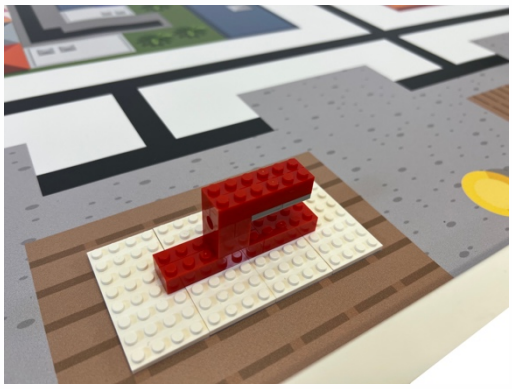
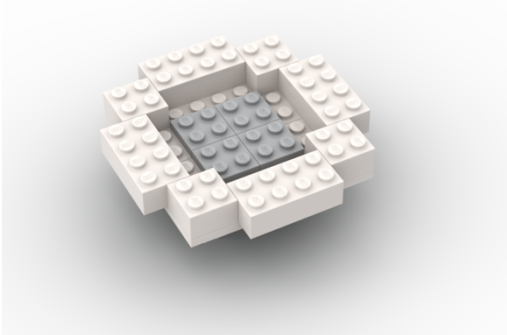
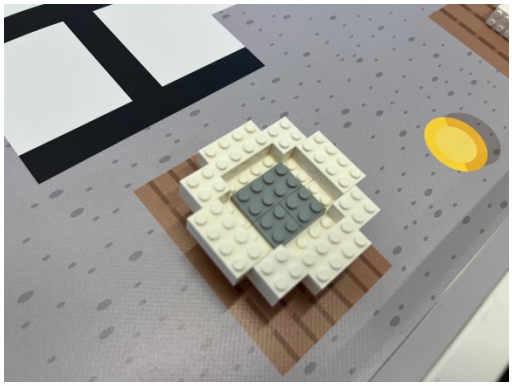
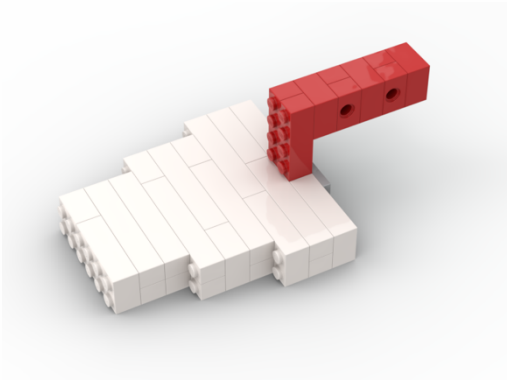
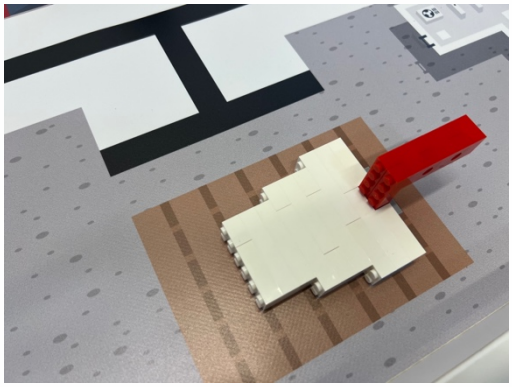


If the table is larger than the game mat, place the mat against the wall with the two sides closer to the start area (in the picture: left and bottom side).

3. Game Objects, Positioning, Randomization

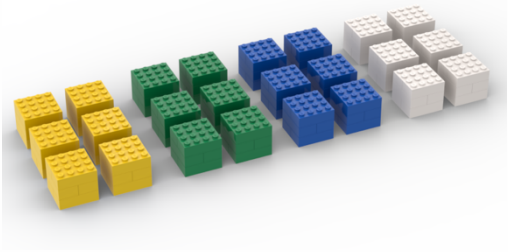
Tools

There are **3 tools (1x rectangular trowel, 1x cement bowl, 1x masonry trowel)** on the field. The positions are the grey areas on the bottom of the field. The photos show the orientation of the game objects at the beginning of the run.

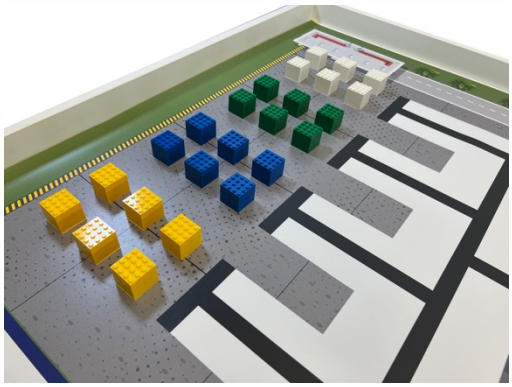
 Rectangular trowel	 Position on the field
 Cement bowl	 Position on the field
 Masonry trowel	 Position on the field

Mosaic tiles

There are **24 mosaic tiles (6x yellow, 6x blue, 6x green, 6x white)** on the field. The position on the game field is at the left end. The field contains more mosaic tiles than needed to fully solve the mission.



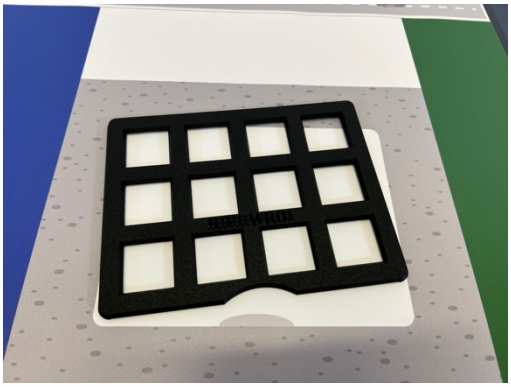
Mosaic tiles



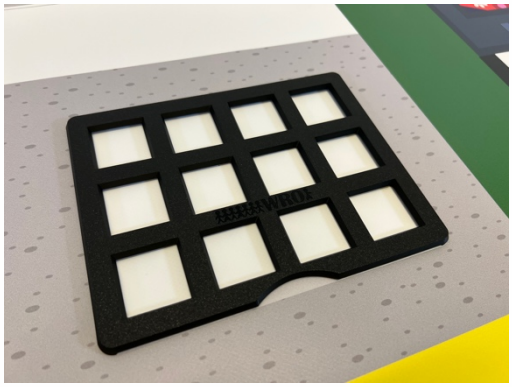
Position on the field

Mosaic frame

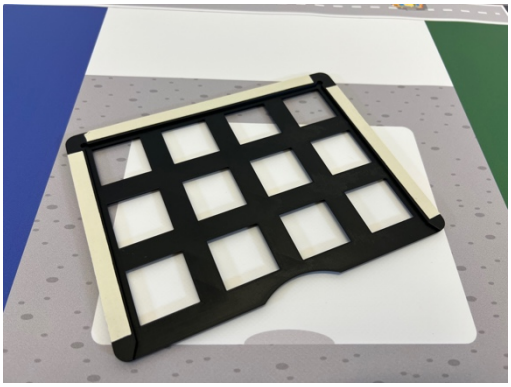
There is **a mosaic frame** on the field. The frame is a 3D-printed object and is placed in the middle of the field. The marking on the field shows the orientation of the frame. The 3d-files can be downloaded: https://link.wro-association.org/rm-senior-2026-3d



Marking on the game field



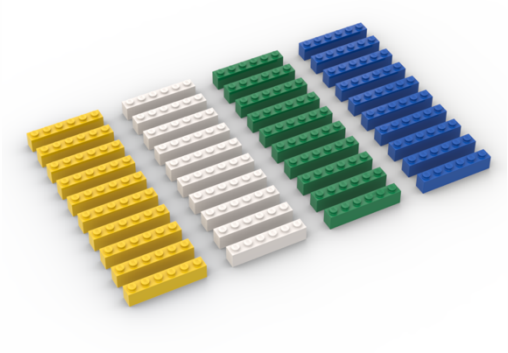
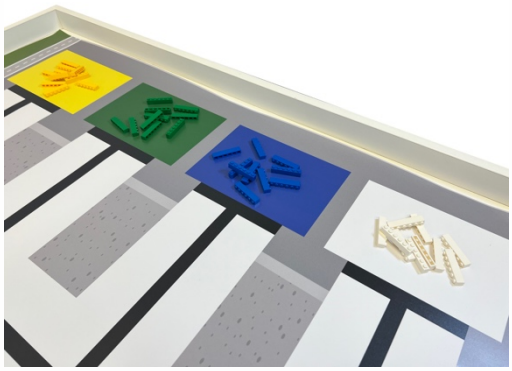
Position on the field



Double sided tape at the mosaic frame (bottom side)

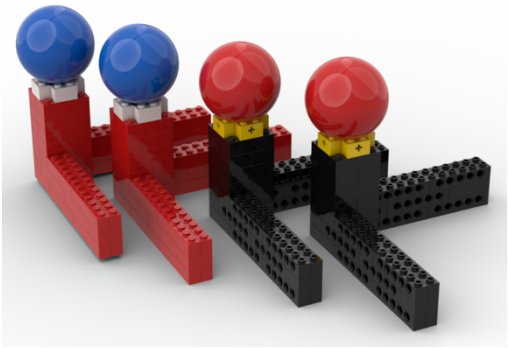
Cement elements

There are **40 cement elements (10x yellow, 10x blue, 10x green, 10x white)** on the field. The position on the game field is at the right end. The elements are placed randomly within the correct coloured area and can even be stacked on each other.

	
Cement elements	Position on the field

Barriers

The field contains **4 barriers (2x red with blue balls, 2x black with red balls)**. The position on the game field is in the middle around the mosaic area and cement target area.

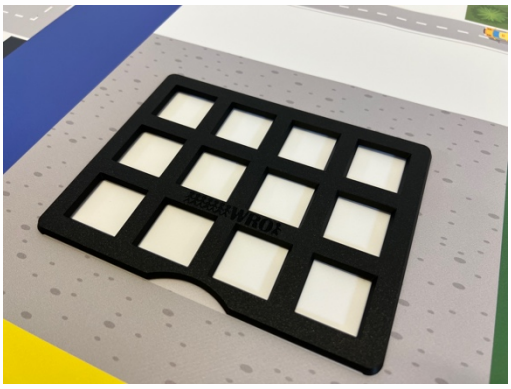
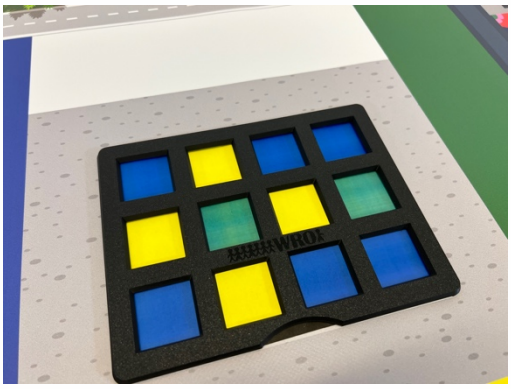
	
Barriers	Position on the field

Summary randomization

On this field, the following things are **randomly placed in <u>each round</u>**:

- **All cement elements** are randomly placed within the matching-coloured cement storage area. <u>Important:</u> Not the colours are randomized, but the position of the cement elements on the field, they are randomly placed are before each robot run.
- The **mosaic** to be set in the mosaic frame is determined randomly. This is determined by placing a sheet of paper with a mosaic pattern under the frame.

The following pictures show, what this can look like:

<table>
<tr>
<td> 
Mosaic frame without paper</td>
<td> 
Paper in front of mosaic frame</td>
</tr>
<tr>
<td> 
Paper under mosaic frame</td>
<td>Note for National Organizer:
It is an option to do this task without the mosaic frame. To do this, the paper can simply be stuck to the playing field with transparent tape. However, this makes it more difficult to place the blocks correctly, because they do not slide into the correct position.

Note for teams:
Please check the local rules in your country to make sure to know how this task is handled.</td>
</tr>
</table>

There will be a power point file, that can be used to create and print own randomizations.

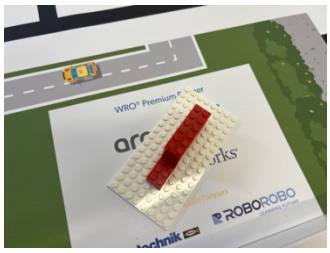
Robot Missions

3.1 Provide the tools

The three tools are place on the bottom end of the game field. They are needed in different parts of the city to continue the work. Make sure to bring them to the correct target areas.

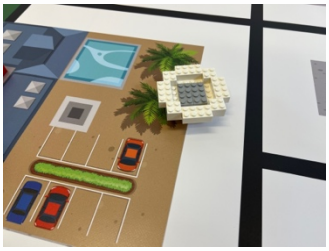
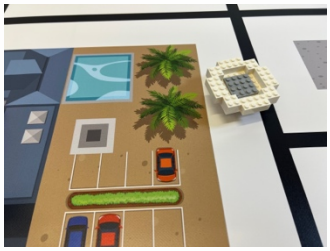
- Definition “completely in”: Completely means that the game object is touching the corresponding area and no other area on the mat.

Rectangular trowel	**Each**	**Max.**
The rectangular trowel is completely in the sponsor area*.	**15**	**15**
The rectangular trowel is partly in the sponsor area*.	5	

 15 points (completely inside)	 5 points (partly in the area)	 0 points (completely outside of area)
 15 points (completely inside)	 0 points (tool broken)	

* The sponsor area is the white area with the logos next to the start area.

Cement bowl	**Each**	**Max.**
The cement bowl is completely in the parking space*.	**15**	**15**
The cement bowl is partly in the parking space*.	5	

		
15 points (completely inside)	5 points (partly in the area)	0 points (completely outside of area)

* The parking space is the whole brown area including the cars, pool, palm trees, etc.

Masonry trowel	**Each**	**Max.**
The masonry trowel is completely in the start area*.	**15**	**15**
The masonry trowel is partly in the start area*.	5	

		
15 points (completely inside)	5 points (partly in the area)	0 points (completely outside of area)

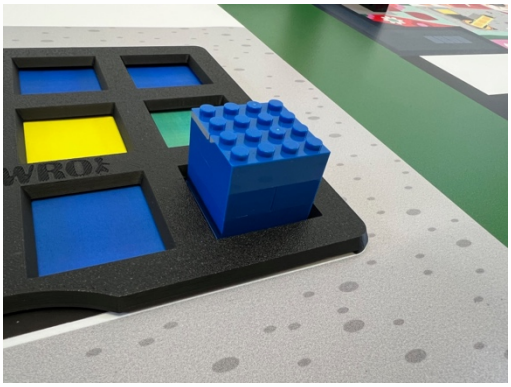
* The start area is the white are where the robot starts without the blue border.

3.2 Put the mosaic in place

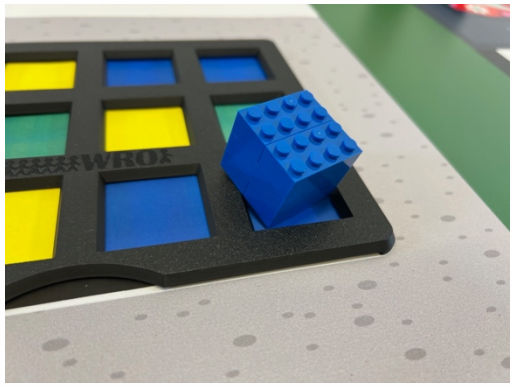
The colours in the mosaic frame define how the mosaic should be constructed. Place the mosaic tiles according to the specifications. The field contains more mosaic tiles than needed to fully solve the mission.

- Definition “correctly placed”: Correctly placed means that the mosaic tile is only touching the corresponding-coloured area in the mosaic frame and stands evenly on the ground.
- Definition “incorrectly placed”: Incorrectly placed means that the mosaic tile does not have the matching colour or is not evenly placed on the ground, but still touches it.
- Only one element scores points per spot in the mosaic frame.

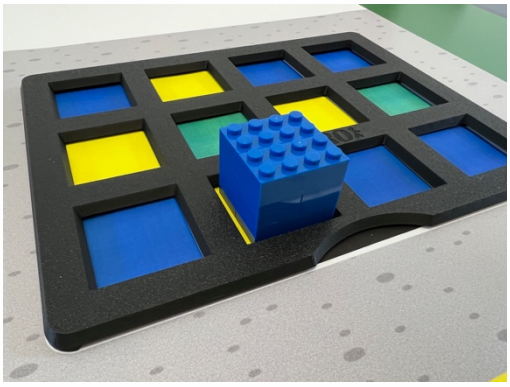
	Each	Max.
Mosaic tile correctly placed in the mosaic frame.	**10**	**120**
Mosaic tile incorrectly placed in the mosaic frame.	5	



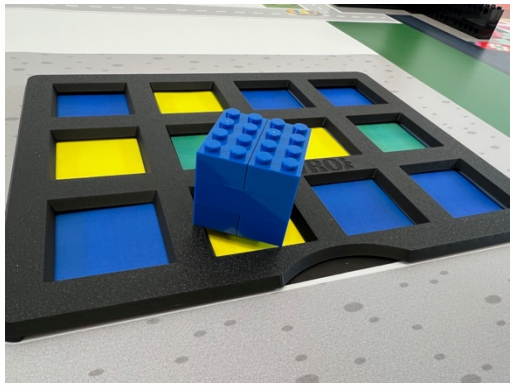
10 points
(mosaic tile correctly placed)



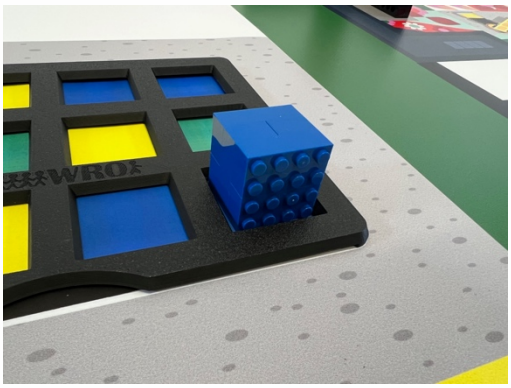
5 points
(mosaic tile incorrectly placed, because tile is not evenly on the ground)



5 points
(mosaic tile incorrectly placed, because tile colour does not match)

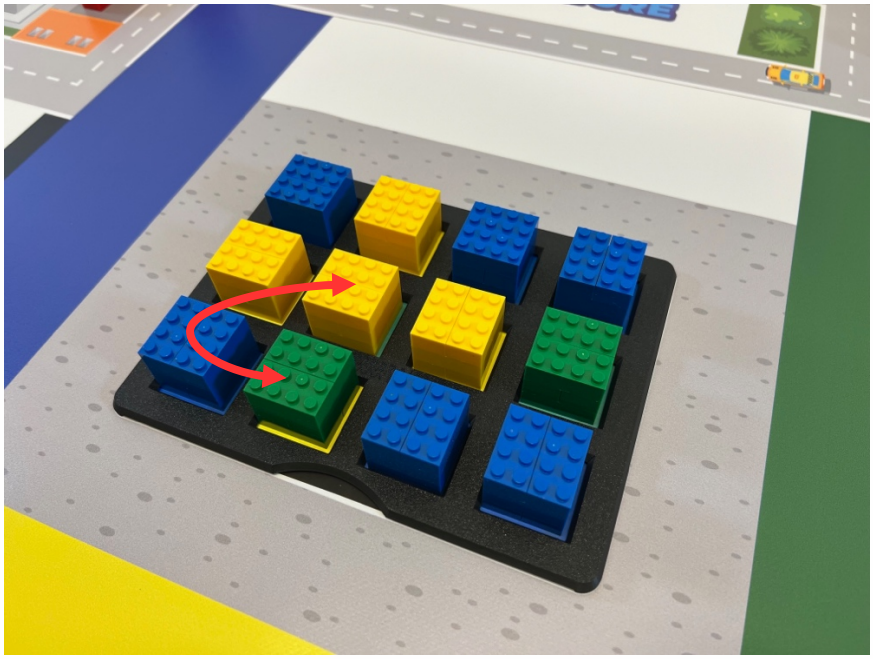


0 points
(mosaic tile does not touch the ground)



10 points
(mosaic tile correctly placed, orientation does not matter)

120 points
(fully solved with all mosaic tiles correctly placed)



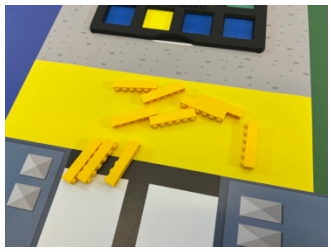
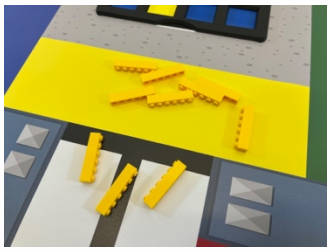
110 points
(one yellow and one green mosaic tile are switched and only score 5 instead of 10 points)

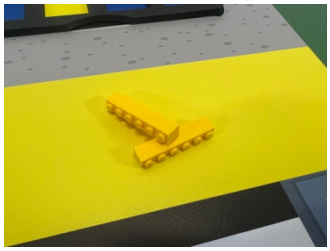
3.3 Deliver the cement

The cement is used to complete the mosaic. Deliver it in the corresponding-coloured cement target areas in the centre of the game field.

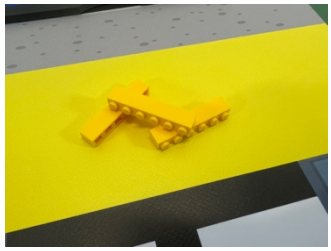
- Definition “completely in”: Completely means that the game object is touching the corresponding area and no other area on the mat.

	Each	Max.
Cement element is completely in corresponding-coloured cement target area	**1**	**40**

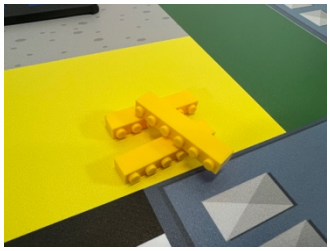
		
10 points (all yellow cement elements are completely in the yellow cement target area)	7 points (3 cement elements are only partly in the yellow area and do not score points)	7 points (3 cement elements are not in the yellow area at all and do not score points)



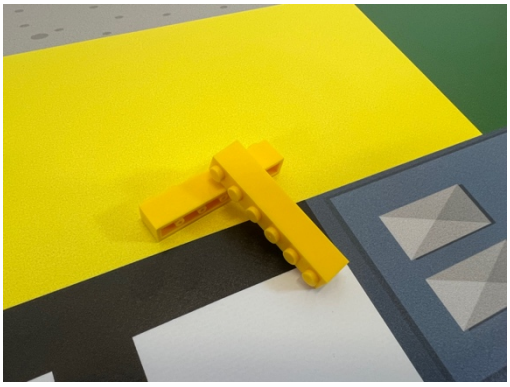
2 points
(the partly stacked cement element is considered completely in, because the one it lies on is completely in and it only touches the yellow area)



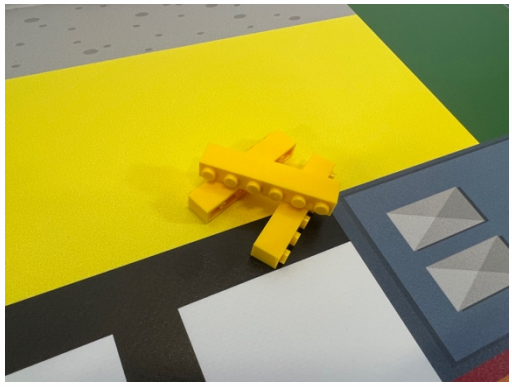
3 points
(the stacked cement element is considered completely in, because the tiles it lies on are completely in)



3 points
(the stacked cement element is considered completely in, because the elements it lies on are completely in. It does not touch the mat outside)



1 point
(the partly stacked cement element is touching the mat outside of the yellow area and therefore does not score a point)



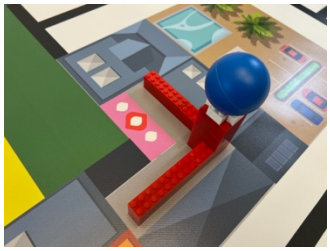
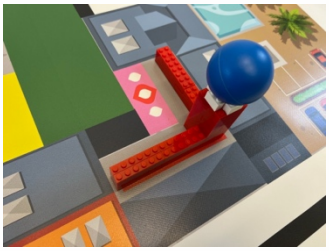
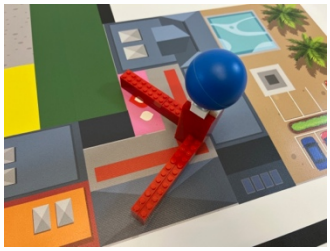
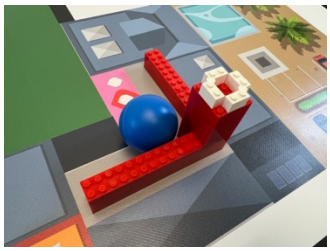
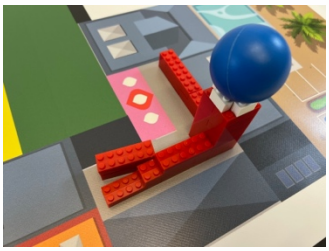
1 point
(one cement element is completely in (1 point) and one is not completely in (0 points). The stacked element is not considered completely in. To score points all elements it lies on have to be completely in)

3.4 Bonus for barriers

When working in the city, precision is key. Make sure that no other elements of the city are damaged.

- Definition “damaged”: Any situation that means that the game object is not exactly like at the start of the run, e.g. a brick or ball fell off.
- Definition “moved”: The game object is considered as moved if a part of the game object is touching the mat outside of the grey areas.

	Each	Max.
Barrier is not damaged or moved	7	28

 7 points (barrier not moved)	 7 points (barrier moved, but within grey area)	 0 points (barrier moved)
 0 points (barrier damaged, because ball is not on top anymore)	 0 points (barrier damaged, because bricks fell of)	

4. Scoring Sheet

Team name: _____ Round: _____

Tasks	Each	Max.	#	Total
1. Provide the tools				
The rectangular trowel is completely in the sponsor area.	**15**	**15**		
The rectangular trowel is partly in the sponsor area.	5			
The cement bowl is completely in the parking space.	**15**	**15**		
The cement bowl is partly in the parking space.	5			
The masonry trowel is completely in the start area.	**15**	**15**		
The masonry trowel is partly in the start area.	5			
2. Put the mosaic in place				
Mosaic tile correctly placed in the mosaic frame.	**10**	**120**		
Mosaic tile incorrectly placed in the mosaic frame.	5			
3. Deliver the cement				
Cement element is completely in corresponding-coloured cement target area	**1**	**40**		
4. Bonus for barriers				
Barrier is not damaged or moved	**7**	**28**		
Maximum Score		**233**		
			Total Score in this run	
			Time in full seconds	

5. WRO Learn: the free platform to help you!

WRO Learn is our free global learning platform — a great entry-point to build your robotics skills. Whether you're a student starting your robotics journey or a teacher or coach looking for ready-to-use materials, WRO Learn gives you what you need.

Available courses for RoboMission

- An introduction to robotics
- WRO RoboMission skills

Courses for judges:

- How to judge in the RoboMission Category

Register, dive into the courses and be more prepared than ever!

wro-learn.org