

ENGINEER CHALLENGE

MASTERS AGE GROUP

GAME RULES

14th – 17th December 2023





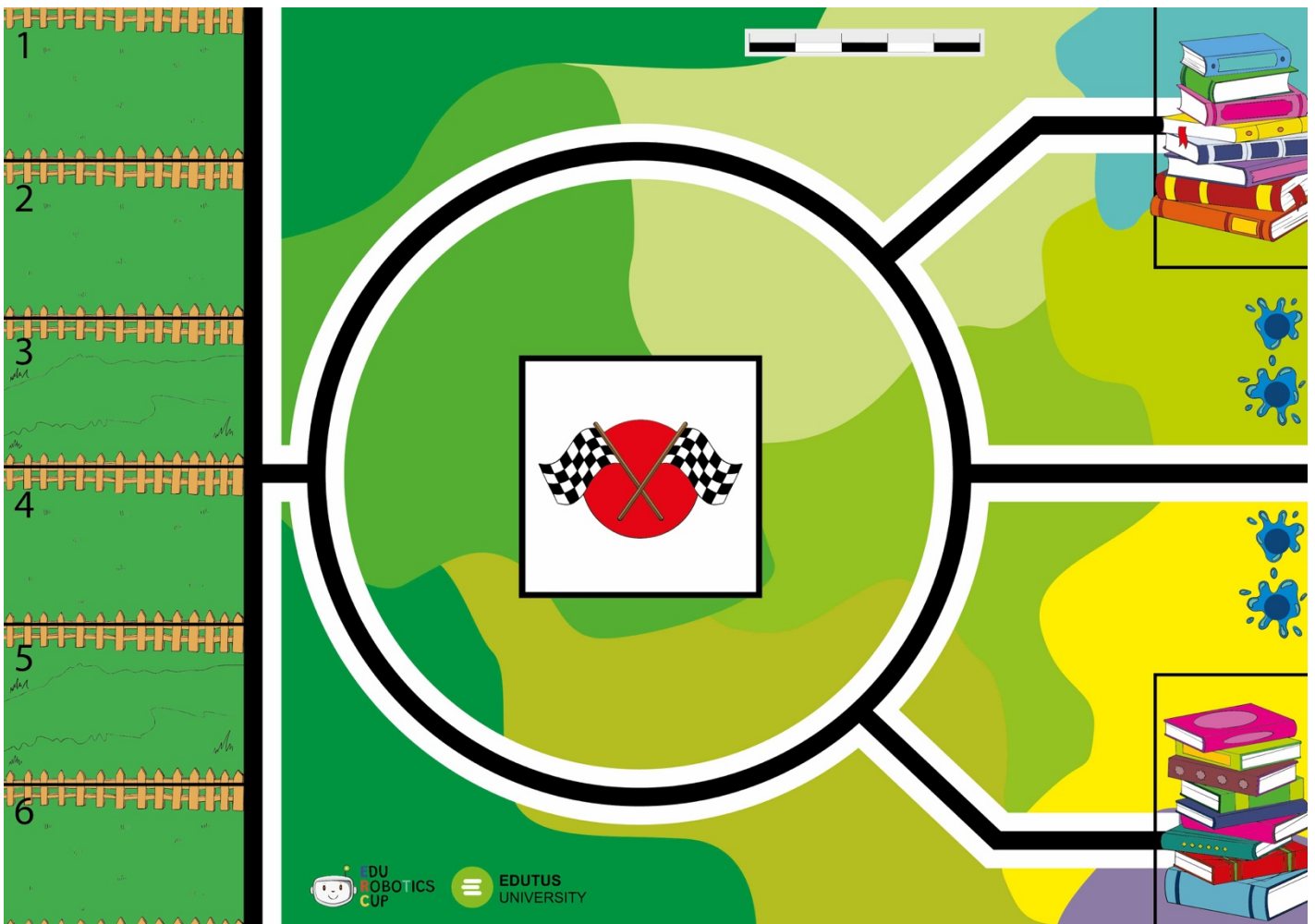
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1. Game mat



Below you can see the game mat:



2. 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.

Plastic bottle cap (preferred: blue, but any color allowed):

Amount: 4 pieces

Size: diameter 23 - 28 mm

Placement: place each one on "water source" marks

Origami animals (preparation is in the 'Masters game objects' document):

Amount: 3 pigs, 3 cows, 3 ducks

Size: build the animals from 15cm x 15cm starting sheets

Placement: randomly place the animals on the left side of the game mat in 1-6 "barns" (first: pigs, secondly: cows, thirdly: ducks)

4 wheeled LEGO brick trailer:

Amount: 1 piece

Size: what fits into one "Barn"

Placement: randomly place it on the left side of the game mat in a free "barn"

Books:

Amount: minimum 2

Size: what fits into the two "Book area"

Placement: place the book on "Book area" (the height of the books is minimum 5 cm (both side))





Dice (6 side):

Amount: 1

Just for the randomization!

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

Before the start of the robot run don't forget about:

- start recording
- introduce your team
- share with us the name of your sustainable city
- place a ruler next to the black and white area and show it on record before robot run don't forget to remove it
- **HAVE FUN!**

3. Game objects on the mat

ROLL FOR THE LOCATION



Randomly placed the following objects on the left side of the game mat in 1–6 "barns"
One barn, one type of animal, and reroll until you find an empty barn!

- first, place the pigs



- secondly place the cows



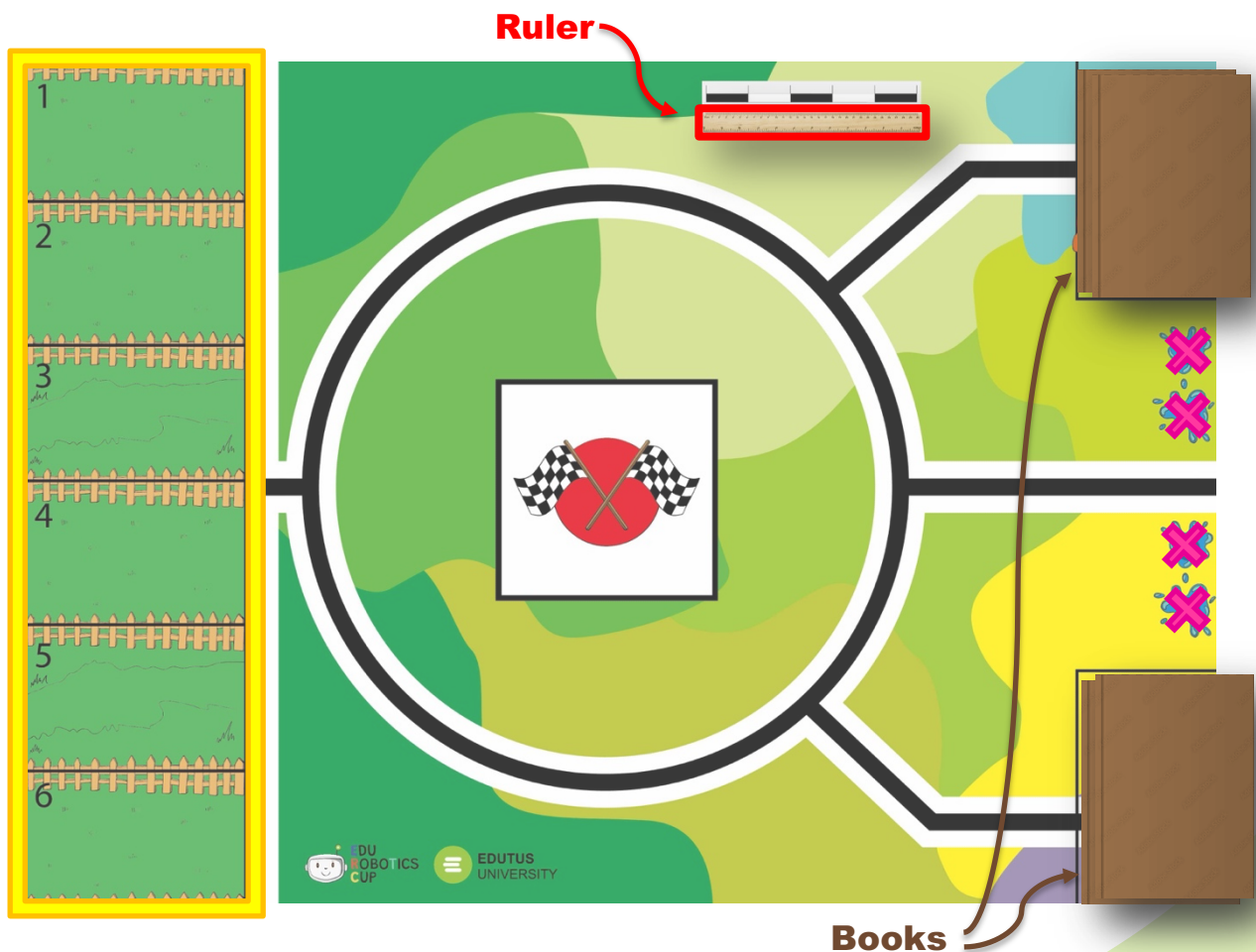
- thirdly place the ducks



- after animals place the



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.

4. Game tasks

The robot has to start completely inside from the Start area in the middle of the game field.

Watering:

The animals need water. Transfer "water" (bottle caps) to the each barns where are any animals (pigs, cows, ducks). Don't waste!

Pigs first:

Transfer **only two pigs** from the barn **to the nearest "book-stand"**.

- If the pigs are in 1-3 barn you have to take them to upper "book-stand"
- If the pigs are in 4-6 barn you have to take them to bottom "book-stand"

Cows for food:

Transfer **only two cows** to the another "book-stand" (It depends on pigs location!)

- If pigs are on upper "book-stand" you have to take the cows to bottom "book-stand"!
- If pigs are on bottom "book-stand" you have to take the cows to upper "book-stand"!





Collect the ducks:

Take the 4 wheeled trailer. Put only **two ducks** on the trailer.

Duck train:

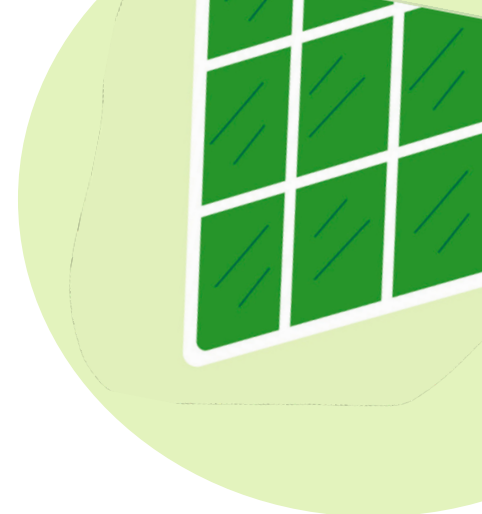
At the end, transfer the **trailer** with the **ducks** to the “**Start**” field.

You earn score for this task only if the trailer holds at least one duck.

Robot must be in contact with the trailer at the end.



5. Scoring



Tasks	Score
Watering	maximum 60 points
“Water” (bottle cap) delivered to each barn where is some kind of animal	20 points / “water”
Pigs first	maximum 30 points
Pig delivered to the closest “book” ramp	15 points / pig
Cows for food	maximum 40 points
Cow delivered to the ramp opposite of the pig-stand	20 points / cow
Collect the ducks	maximum 40 points
Duck is on the cart	20 points / duck
Duck train	maximum 25 points
The trailer with 2 ducks in the start area	25 points for full projection
The trailer with 2 ducks is only partially on the starting area	10 points for partial projection
The trailer with at least one duck is in the start area	15 points for partial projection
Total score	195 points

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.

