

Universal Robotics Challenge 2026

Real Robotics Advanced Division Rulebook

Published April 1 (Wed), 2026

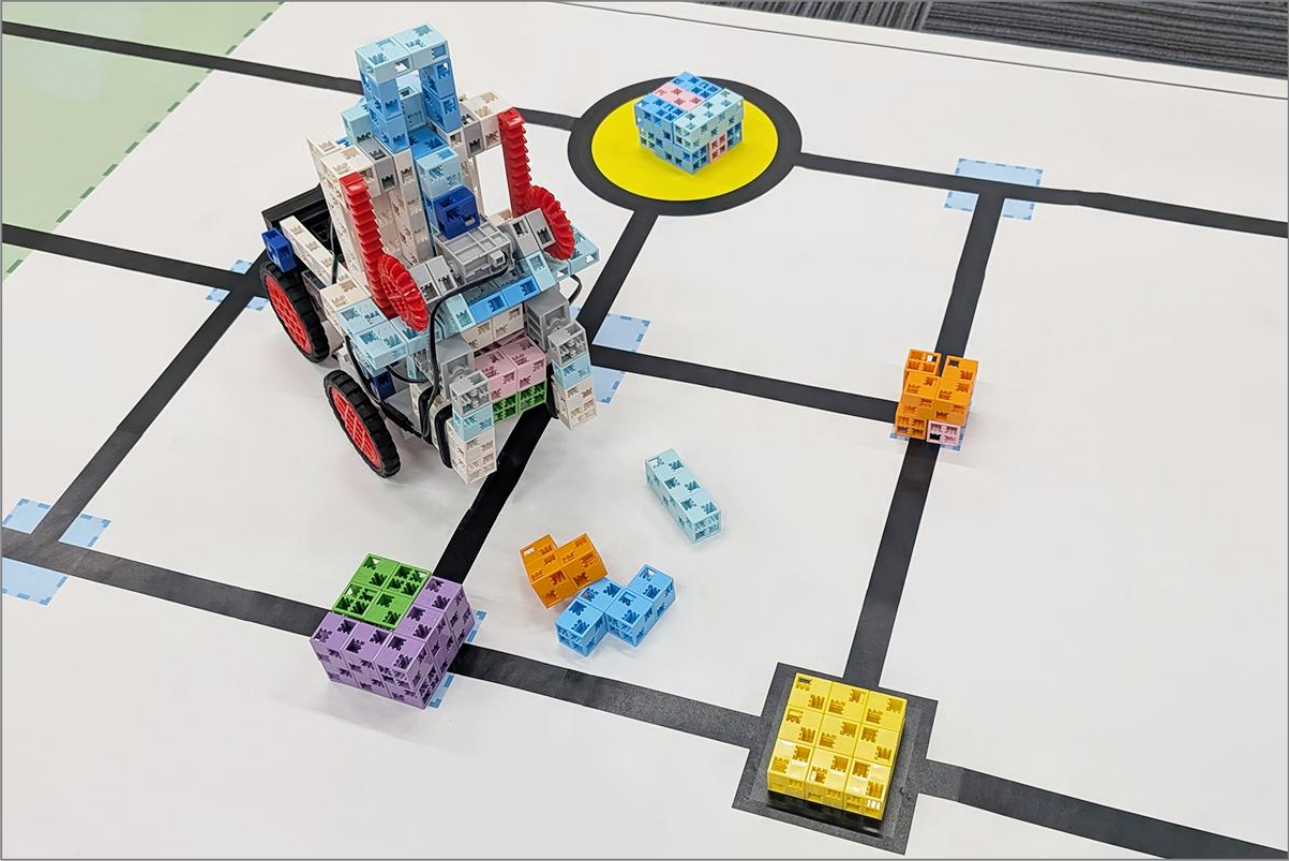


Table of Contents

Overview	2
<u>1. Delivering Aid</u>	2
<u>2. Competition Robots</u>	3
<u>3. The Field</u>	5
<u>4. The Pieces</u>	8
Competition Flow	9
<u>1. Before the Round</u>	9
<u>2. Starting the Round</u>	11
<u>3. Competition Flow</u>	12
<u>4. Scoring</u>	12
<u>5. Other Notes</u>	14
Appendices	15
Appendix 1. Making Pieces.....	15
Appendix 2. Competition Boards.....	17
Appendix 3. Electronic Parts.....	18
Appendix 4. Artec Blocks	19
Appendix 5. Scoring.....	20

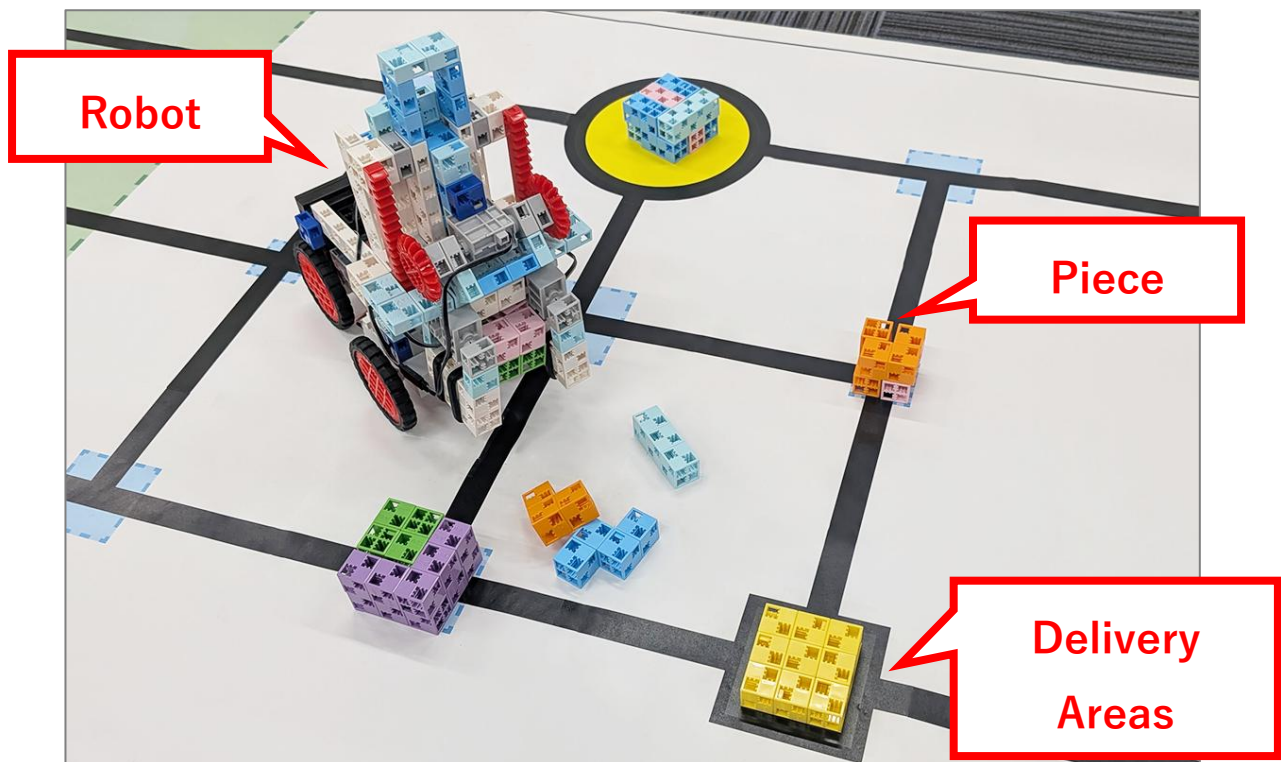
Overview

With an increase in natural disasters like typhoons and wildfires in recent years, there's more of a need than ever for disaster relief robots which can go where humans can't when disaster strikes.

This division calls on participants to use their creativity and engineering skill to make a robot which can rise to the challenge!

1. Delivering Aid

In the Advanced Division, participants take on the challenge of making a robot which can deliver rescue supplies to Relief Areas. There are multiple Relief Areas. The more difficult an area is to reach, the more points you get! Each team's score is based on the number of pieces they deliver and the type of area.



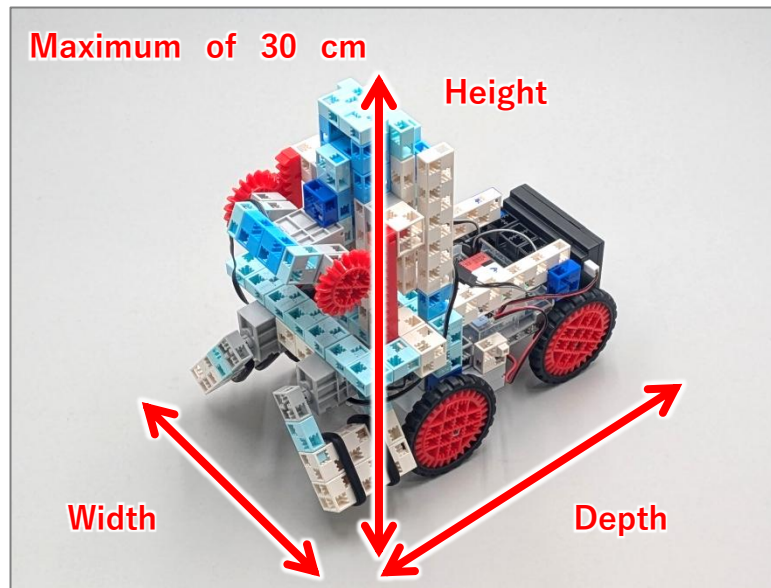
2. Competition Robots

Each team uses a robot they made for the competition.

Only **1 robot** is allowed per team.

○ Robot Specifications

- Robots may not exceed **30 cm** in height, width, or depth.



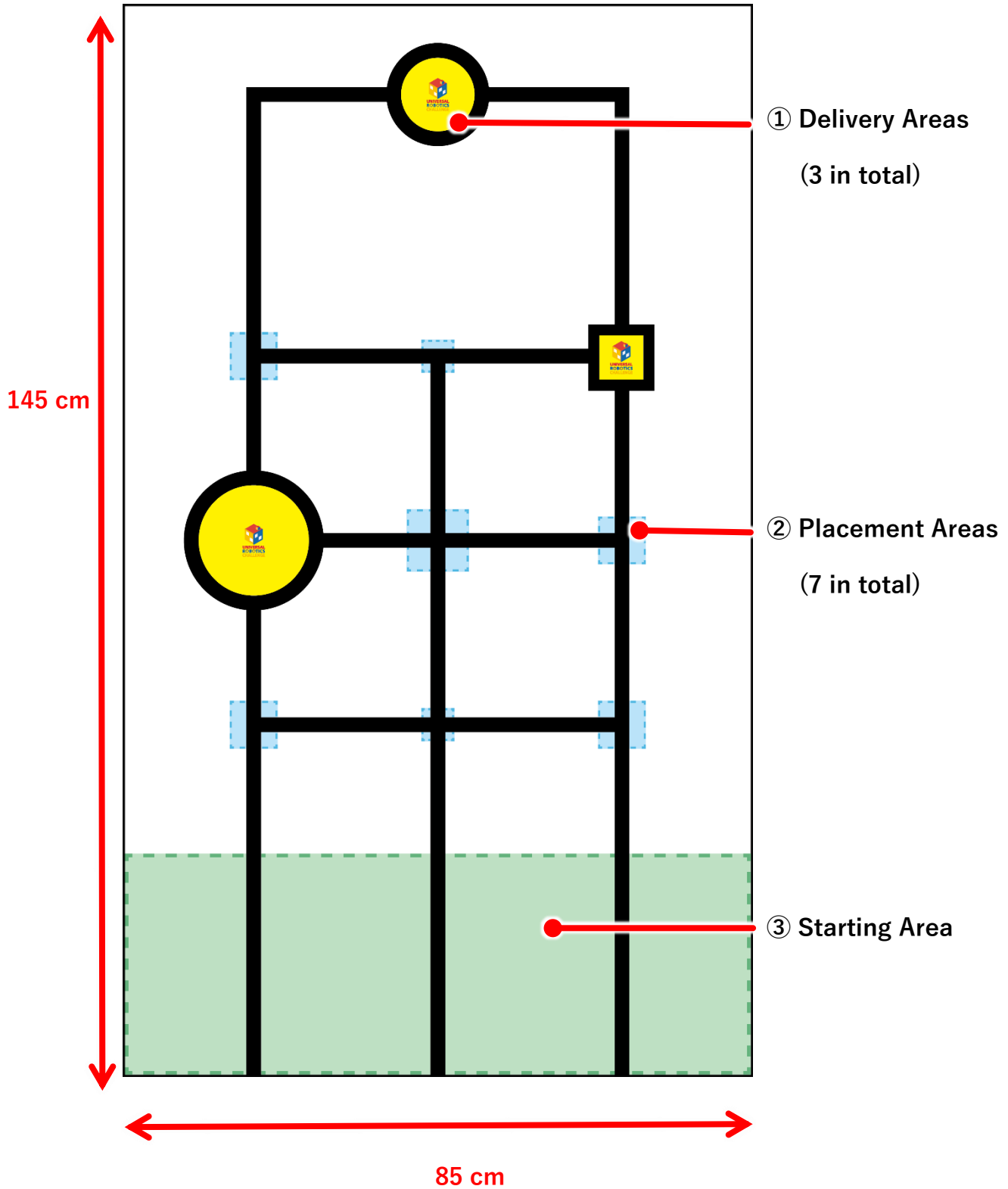
- Robots may transform or break apart to become larger than 30 cm once the round has started.
- Separated parts are considered to be a part of the robot, but cannot move away from the main body.
- Robots must not use any power sources aside from the **ArtecRobo power sources** listed in **Appendix 3**. Commercially available power banks are also prohibited.
- Any program which controls the robot must be transferred to allow the robot to operate independently. Use of controllers or other devices to control robots is prohibited.

○ Approved Parts

- Robots may only use the microcontrollers and expansion boards listed in Appendix 2. All other circuit boards and parts are prohibited.
- Robots may use multiple microcontrollers and expansion boards with no restriction on the type or number.
- Parts which you can use to build your robot are listed in Appendix 3 along with the Artec Blocks you can use in Appendix 4.
- Modified or broken parts are prohibited.
- You can use rubber bands or zip ties to keep your cables together, but not to reinforce your blocks.

3. The Field

The competition will use the field shown below:

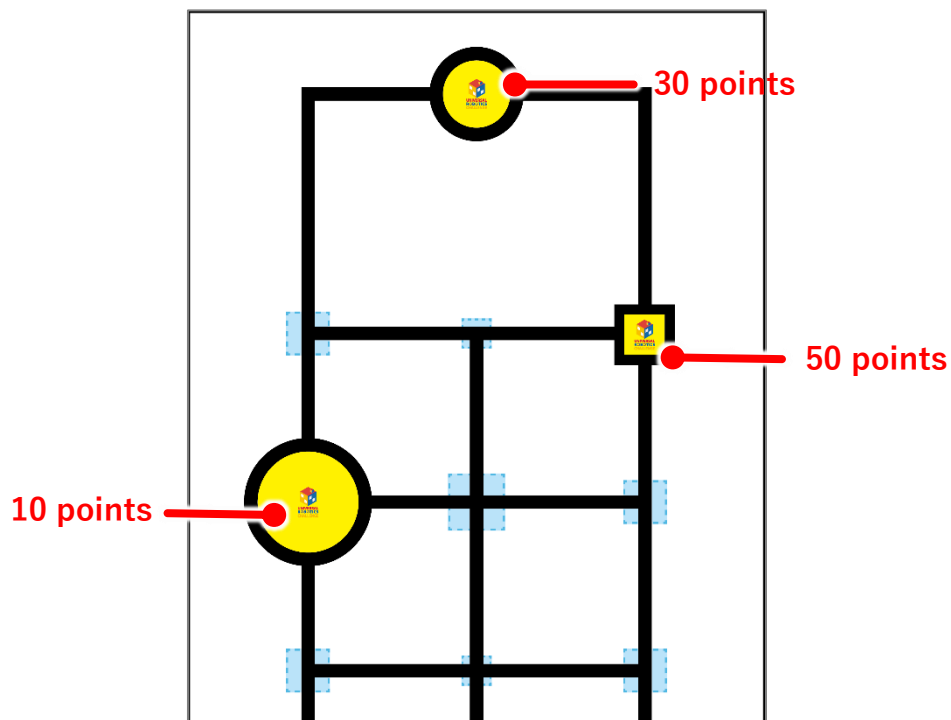


① Delivery Areas (yellow)

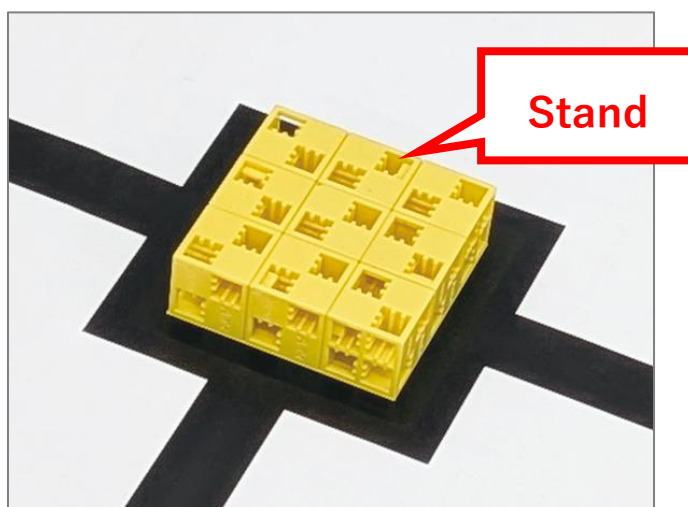
Your score is based on the number of pieces your robot delivers by the end of the round.

Points are based on the area each piece is delivered to.

★ Delivery Areas do not include the black line.



- Delivery Areas on the right side of the field are 3 x 3 squares of yellow cubes. They're taped in place so they don't move!



② Placement Areas (aqua)

Place your pieces here before the round starts.

You can stack them as high as three blocks!

(a block height is the height of 1 Artec Block)

★ Placement Areas also include the black line.

③ Starting Area (green)

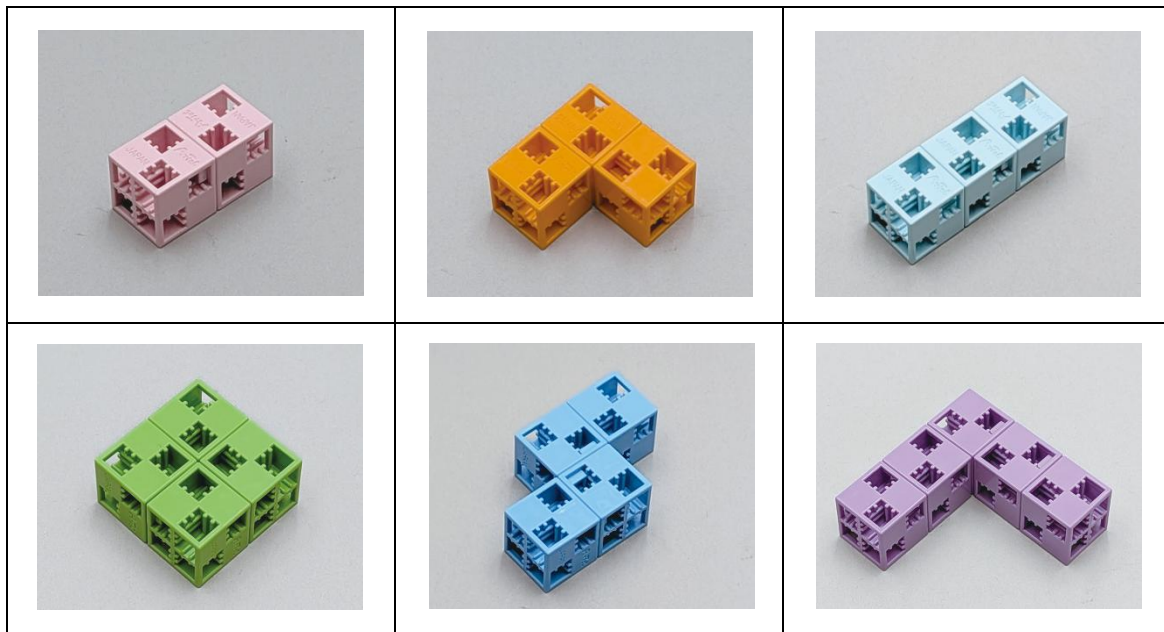
This is where the robot starts.

★ Starting Area also includes the black line.

4. The Pieces

Your robot's job is to transport pieces from different points around the field.

- Pieces are made from multiple Artec Blocks.
- There are 6 types of pieces, and the shape and color of each piece is shown in the table below.
- Up to 8 of each piece can be used per round.



Competition Flow

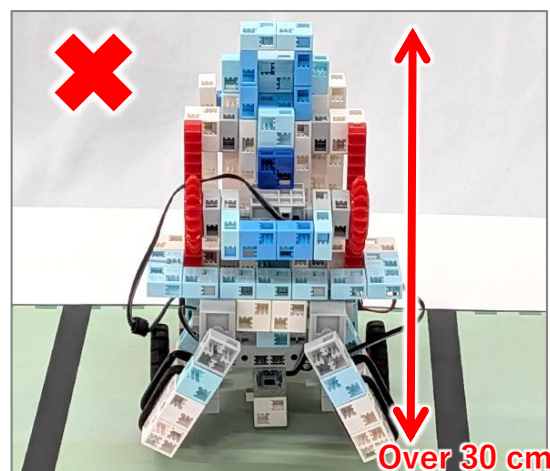
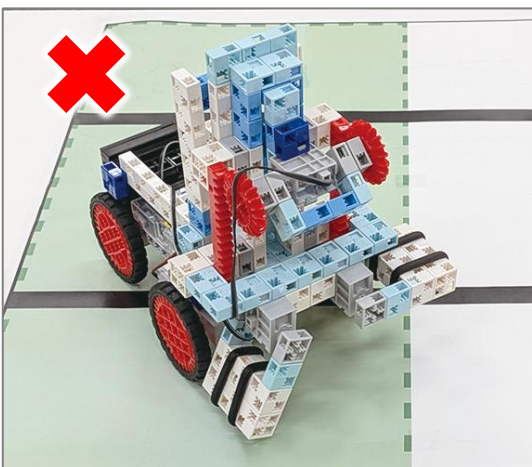
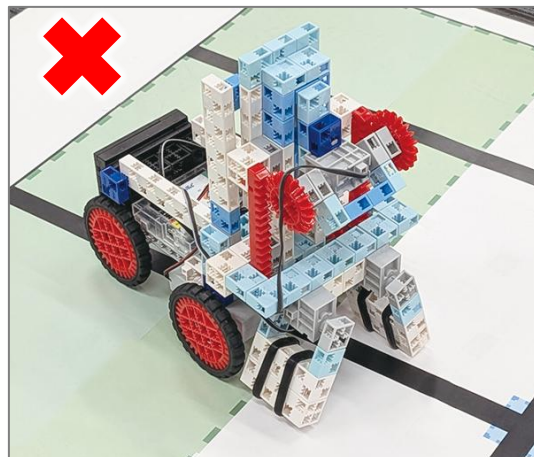
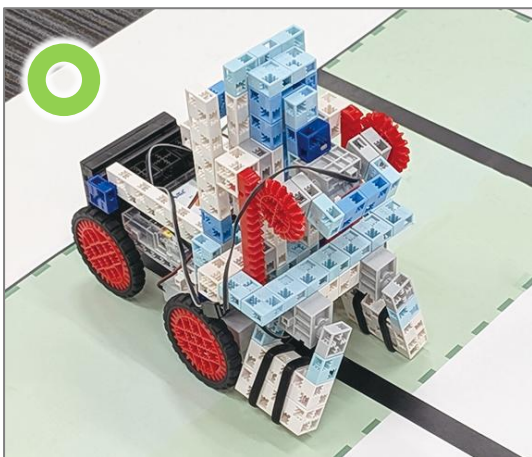
1. Before the Round

Before the round starts, each team prepares by setting down their robot and pieces.

○ Placing the Robot

Participants place their robot in the **Starting Area** before the round starts.

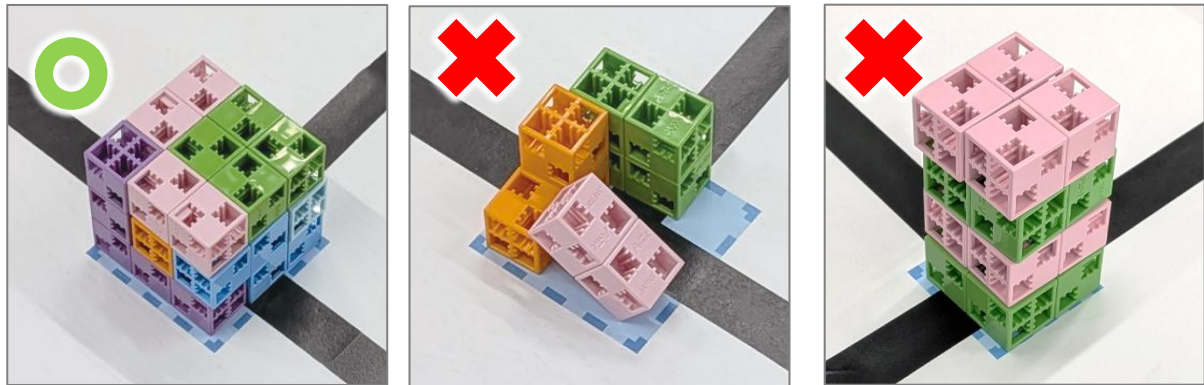
- The robot can be placed facing any direction anywhere within the Starting Area.
- The robot should be 30 cm or less in height, width, or depth.
- The robot must be completely inside of Starting Area.
- The robot can't be powered on until the round starts.



○ Placing Pieces

Participants place their pieces in the **Placement Areas** before the round starts.

- Pieces must be placed **flat along the field** and must not be leaning.
- Pieces can be stacked a maximum of 3 blocks high.



- Pieces should not stick out of Placement Areas, including parts in the air.



- If any pieces are sticking out the areas at the start of the round, the round will be declared a retry and the pieces will have to be reset.
 - Pieces which aren't placed should be kept off of the field. These pieces can't be used even in the event of a retry.
 - Once placed, participants can't touch pieces until scoring has been completed.
- ★ During the World Finals, **1 player** from each team will have **1 minute** to place their pieces.

2. Starting the Round

Participants can turn on their robot once the round has started.

- After turning on their robot, participants must leave the field until the round is over.

○ Retries

Touching the robot outside of the Starting Area or pieces during the round will result in a **retry**, and participants will be able to enter the field.

Any team member can declare a retry, but only **1 team member** can enter the field to touch the robot and pieces during **each retry**.

- Participants can move pieces back to or rearrange them within the Placement Areas during a retry.
- Participants can also touch their robot and reset it back to its original form outside of the Starting Area.
- Participants can choose to **leave any pieces that the robot has already grabbed where they are** or **move them back to a Placement Area**.
- There is no limit on the number of retries. However, each retry will result in a **40-point** deduction from the team's final score.
- The clock for the round will continue running during the retry.
- Once participants have finished preparing for their retry, they will have to move their robot back to the Starting Area before continuing the round.

3. Competition Flow

The round will end automatically after **3 minutes**.

- The round can also be considered over if all pieces are transported before the time limit is up.
- Once the round is over, participants must stop their robot immediately and leave the field. If any pieces in the Delivery Areas fall, they will be scored in this state.

4. Scoring

Once the round is over, your score will be calculated based on the number of valid pieces. Bonus points are added and retry penalties are subtracted to get your final score for the round.

○ Valid Pieces

A piece is valid if it satisfies one of 2 conditions:

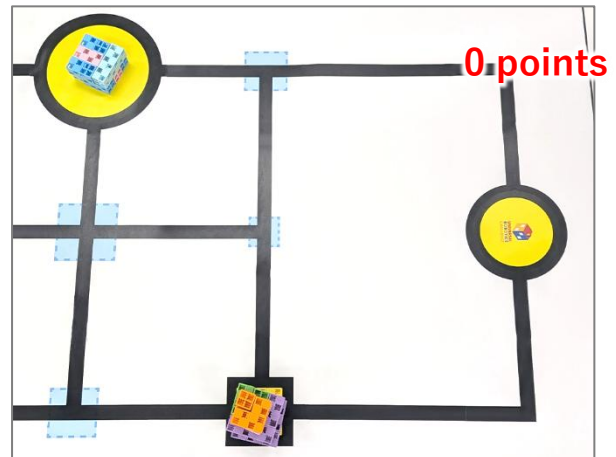
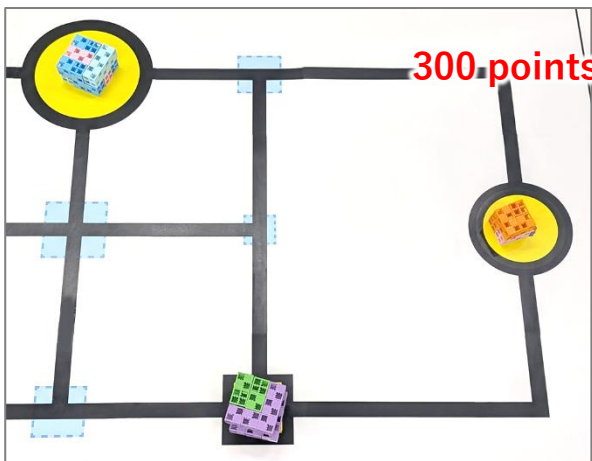
- ① It touches a Delivery Area.
- ② It touches another valid piece.

A piece is considered invalid in the case of the following:

- ★ The piece makes contact with any other area than the Delivery Area.
- ★ It is still touching the robot.
- ★ It is placed in a Delivery Area after the round ends.

○ Bonus Points

You get a 300-point bonus if your robot delivers pieces to every Delivery Area by the end of the round!



Example)

10 points	30 points	50 points
5 x 10 = 50 points	3 x 30 = 90 points	3 x 50 = 150 points
<p>50 + 90 + 150 + 300 (bonus) = 590 points</p>		

○ Ranking

The rank of each team is determined by score from highest to lowest. If multiple teams have the same score, rank is chosen by the number of pieces delivered. If teams have delivered the same number of pieces, the winner will be chosen by the least number of retries and shortest round time.

★ A draw will be declared if all conditions are equal.

Example)

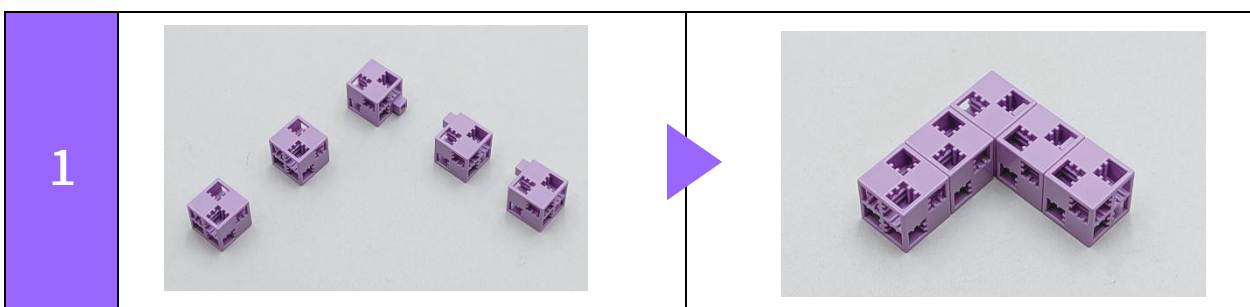
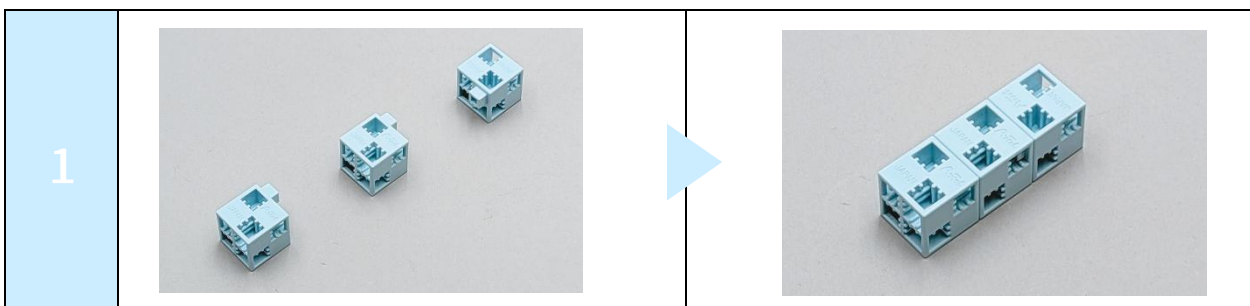
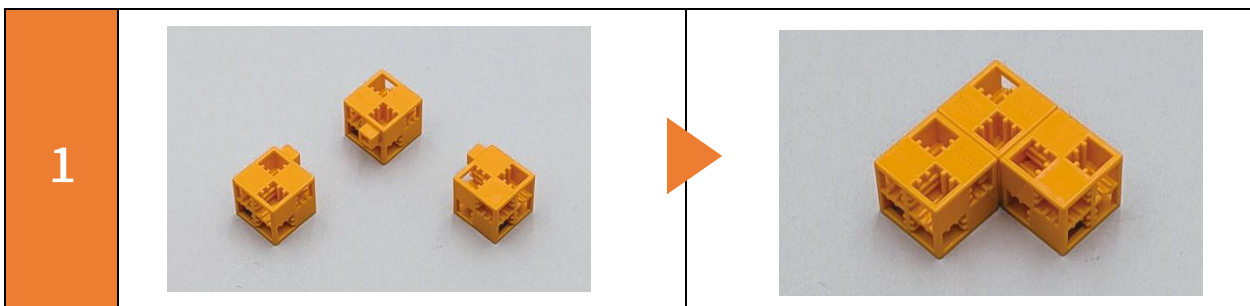
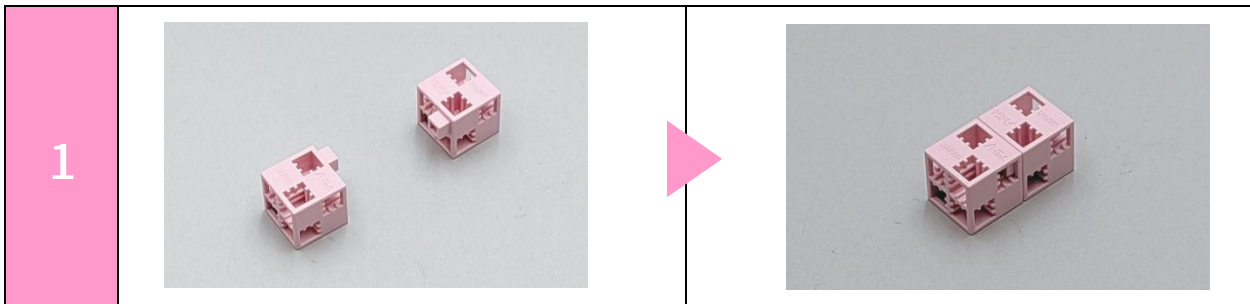
Team	Score	Pieces Delivered	Retries	Time	Rank
A	1160	39	3	0:15	2nd
B	780	18	2	1:47	4th
C	780	18	0	0:25	3rd
D	1480	34	4	0:00	1st
E	450	9	0	2:03	5th

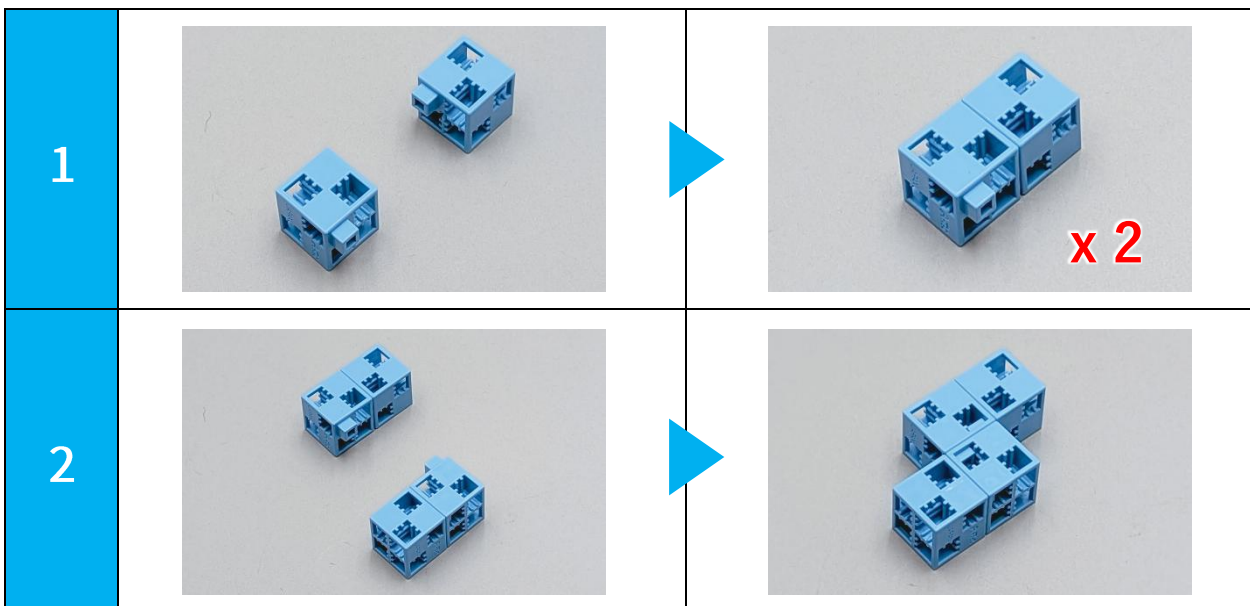
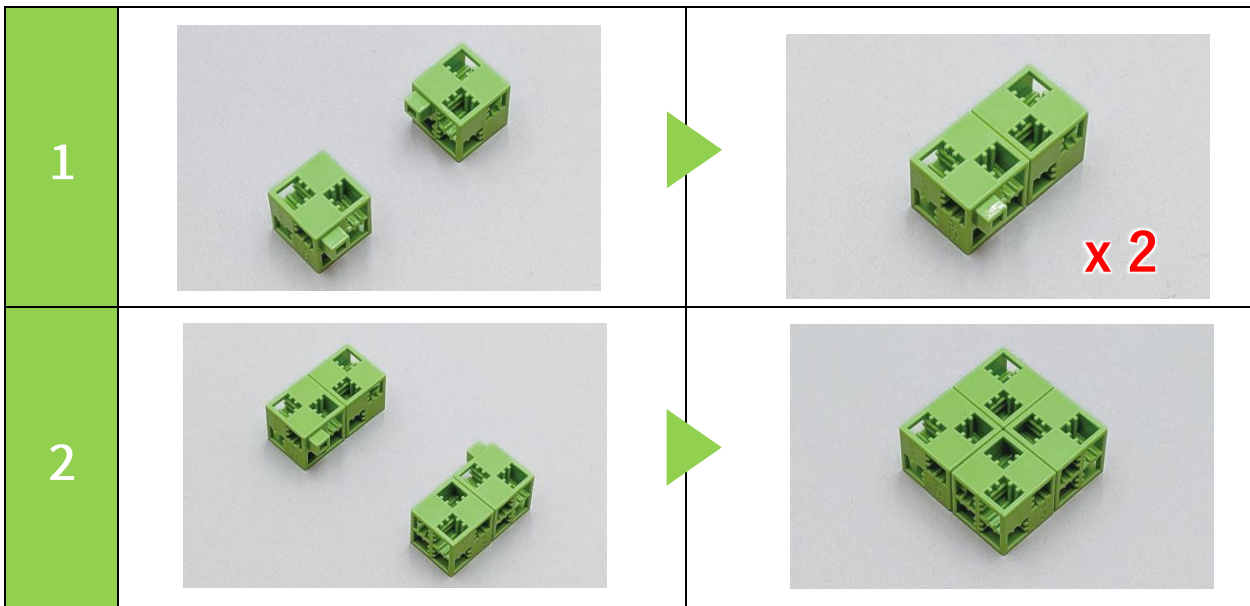
5. Other Notes

- Participants are allowed to bring only what they need for the round. **Parts or blocks aside from those needed for the robot are prohibited.**
- A **forced retry** will be declared for any contact with robots or pieces outside of a retry.
- Stand that move or pieces that are damaged during the competition will be scored as **0 points**.
- Any breaches of the rules or the flow of the competition may result in a disqualification by the judges. Disqualifying teams will not be scored or ranked.

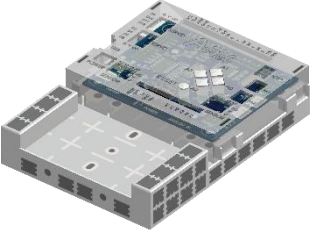
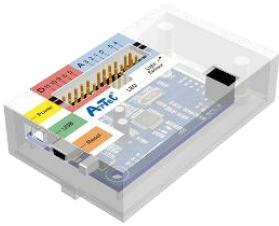


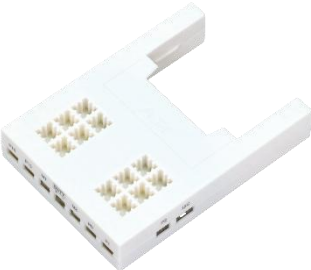

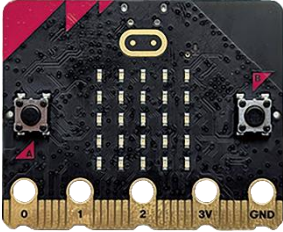
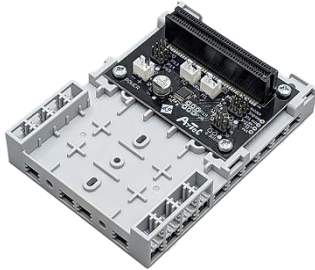

Appendices

Appendix 1. Making Pieces




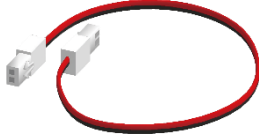


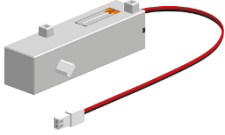
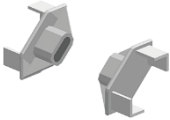
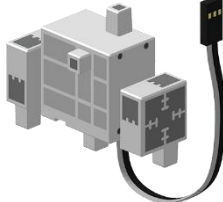
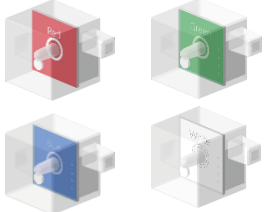
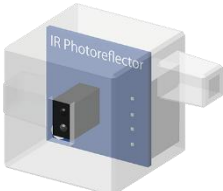
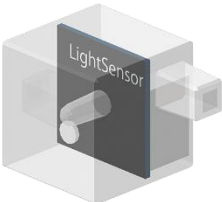
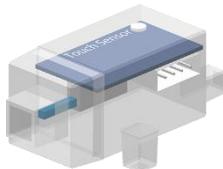
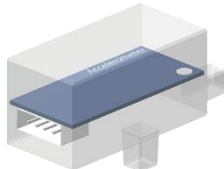
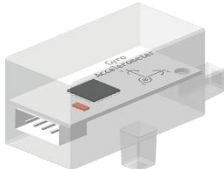




Appendix 2. Competition Boards

Studuino	Studuino:mini	Studuino:mini DC Motor Expansion Board
		
Studuino:bit Core Unit	Robot Expansion Unit	Studuino Lite
		
micro:bit	micro:bit Expansion Board	Artec Links (including expansion units)
		



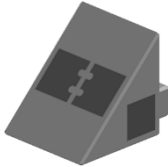
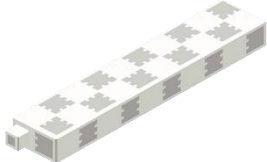






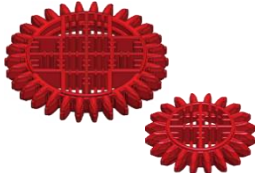
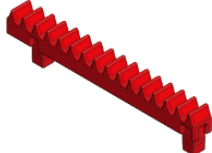



★ Stands, covers, and stickers are optional.

Appendix 3. Electronic Parts

Battery Box	Battery Box Cable	Power Bank	USB Cable
			
DC Motor	DC Motor Parts	Servomotor	LED
			
IR Photorelector	Light Sensor	Touch Sensor	Accelerometer
			
Gyroscope	Sensor Connecting Cable	Sensor Extension Cable	
			

★ Covers are optional.

Appendix 4. Artec Blocks

Basic Cube	Mini Cube	Triangle	Beam
			
Half A	Half B	Half C	Half D
			
Bases	Axle	Gears (S and L)	Rack
			
Wheels	O-Rings and Tires	Disks	
			

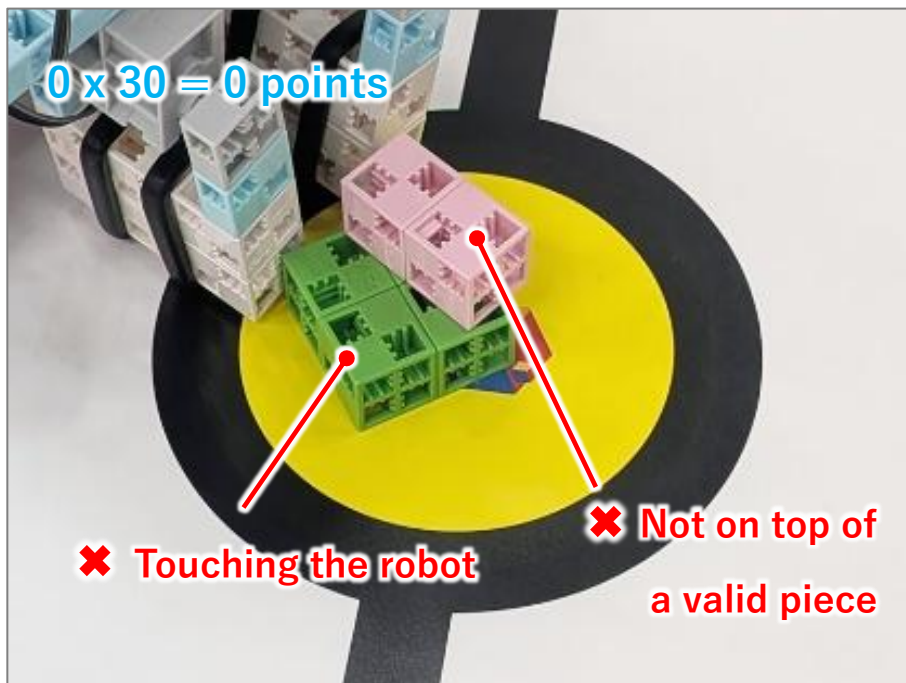
★ Blocks can be of any color.

Appendix 5. Scoring

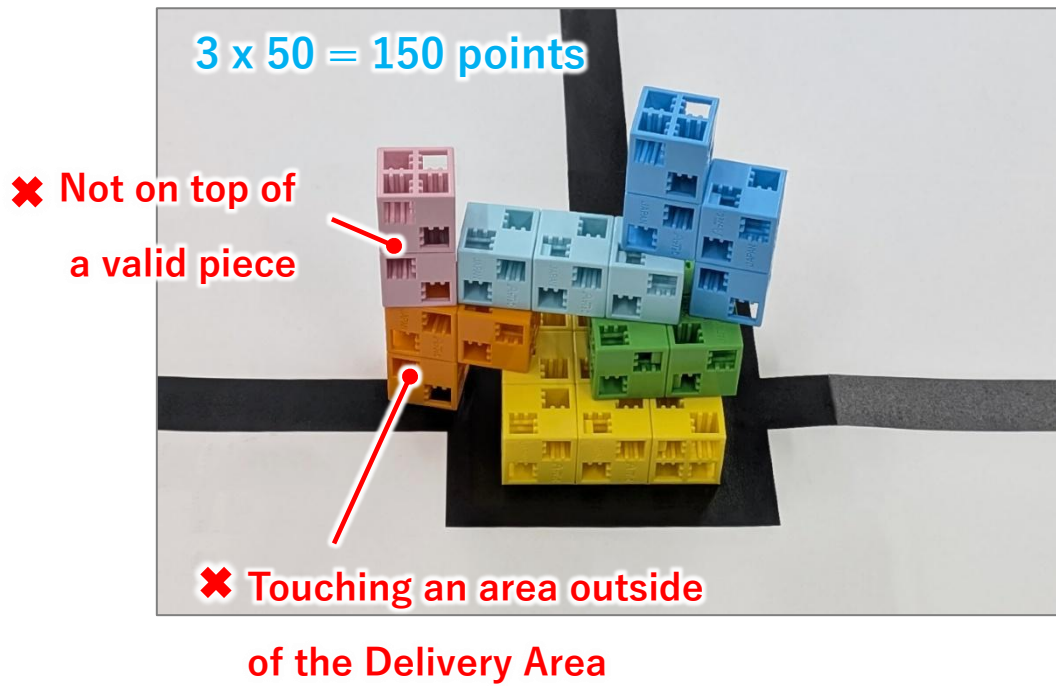
Example 1)



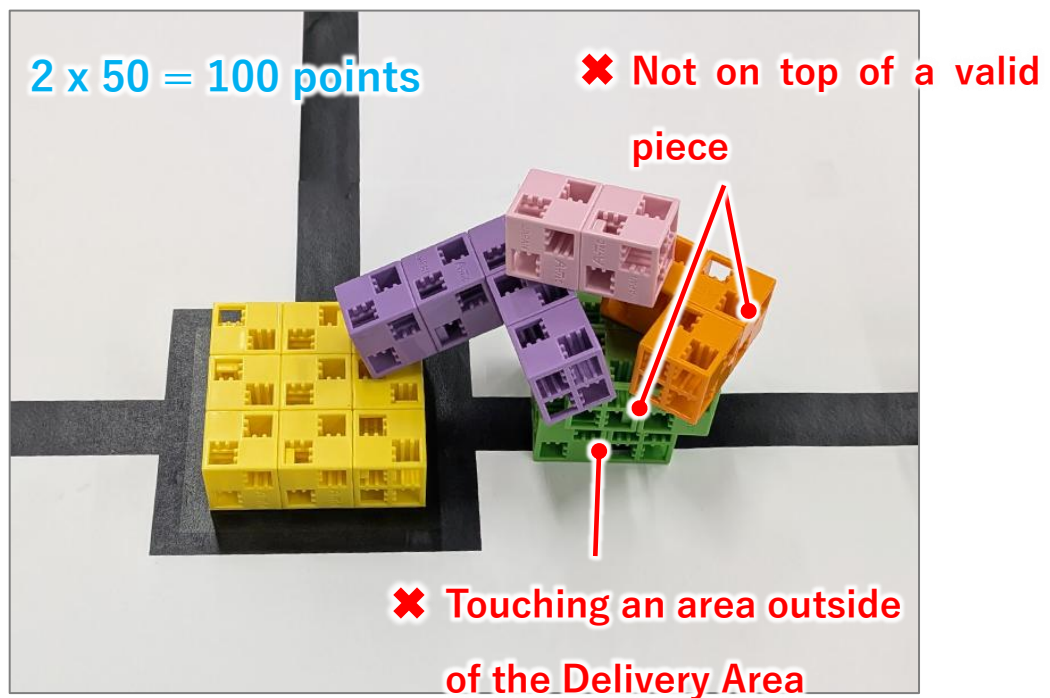
Example 2)



Example 3)



Example 4)



◆ FAQ

Q1) Do you lose points if your robot leaves the field during the round?

A) No, you don't lose any points and you can continue the round! If your robot can't make it back to the field, you will have to declare a retry and place it back in the Starting Area or end the round.

Q2) Is there a limit to the number of parts and blocks you can use to make your robot?

A) No, there's no restriction on the number of parts and blocks you can use!

Q3) Do you need to place every single piece on the field?

A) You can place as many pieces on the field. However, any pieces you haven't placed by the start of the round can't be used for that round!

Q4) Do you have to use a specific programming environment?

A) No. You can choose a block- or Python- based programming environment to program your robot!

Q5) What kind of field will you have at the world finals?

A) Instead of paper, courses at the world finals are made of waterproof material.

In order to make it level, the field is attached to a board which is 5 mm thick!