



UNITED ROBOTICS OLYMPIAD

RoboMission

Junior Game Rules

Season 2026



The Future of Friendship

RESCUE BOT MISSION

Official Game Rules for the URO International Final. Version: 2026

(Note: Rules for local URO events may vary!)



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PART ONE – GAME DESCRIPTION

1. Introduction

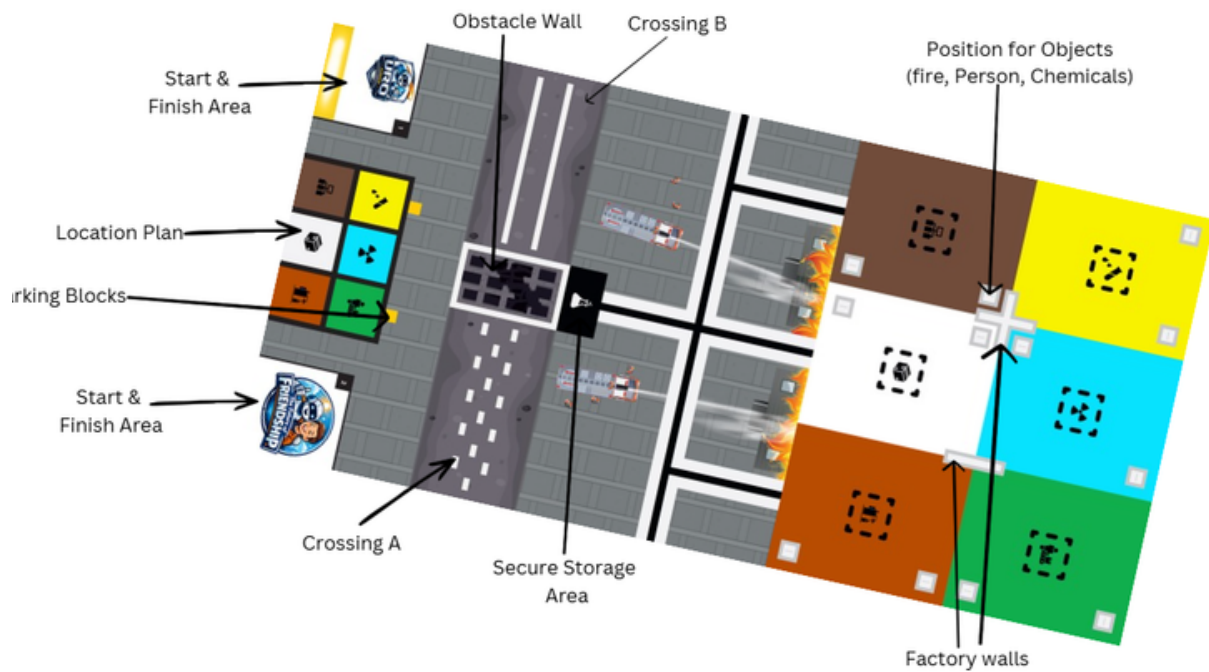
The Role of Rescue Robots in Emergency Situations

A rescue robot assists rescuers during emergencies by handling perilous or challenging tasks. These robots are designed to endure high temperatures, navigate through debris or up stairs, identify injured individuals, transport hazardous materials, and generate situational awareness of unfamiliar environments. The junior game field addresses several of these important functions.

In this operational environment, the robot is tasked with several critical responsibilities: assisting in extinguishing a fire within a factory, transporting hazardous chemicals, and relaying information to rescue services regarding the location of individuals inside the factory. Additionally, the robot must navigate through unfamiliar terrain en route to the facility.

2. Game Field

The following graphic illustrates the game field along with its various areas.



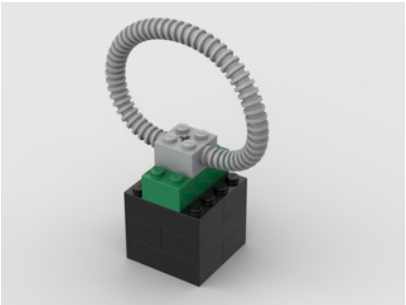
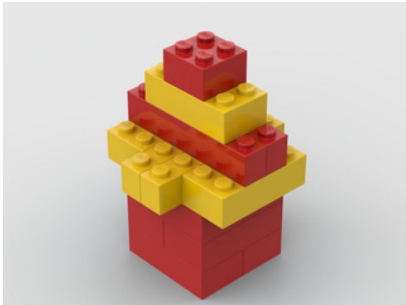
If the table exceeds the size of the game mat, position the mat along the shorter side, ensuring that the two start areas are against the wall. Center it between the longer walls for optimal alignment.

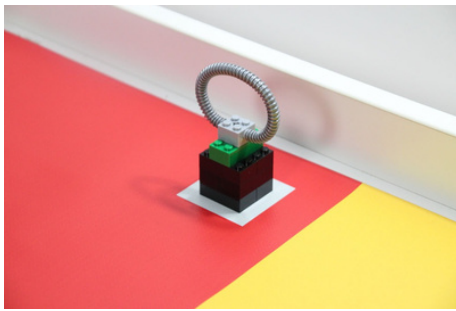
3. Game Objects, Positioning, Randomization

Objects in the factory

the field includes two fire objects, two people (one small and one large), and one chemical object. These items are randomly positioned on the white marked areas inside the rooms, with no more than one object placed in any single room.

The objects are positioned with their orientation aligned to the small line within the grey rectangle.

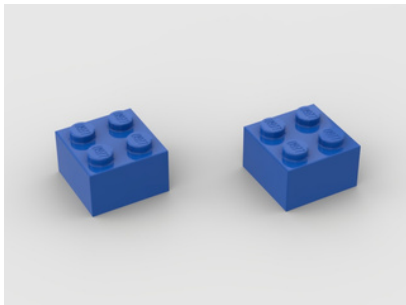
 Chemicals Object (1)	 Fire object (2)
 Big Person (1)	 Small Person (1)
 Example for an object placed on the field	 The small grey line within the grey area indicates the placement and orientation of a game object.



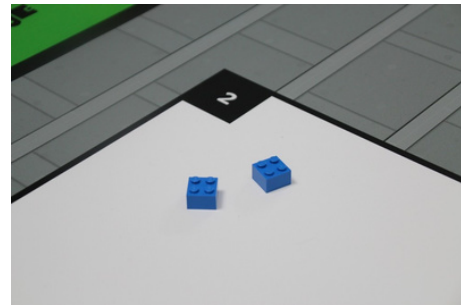
Example for an object placed on the field

Water

Water objects are essential for extinguishing fires in a room. Before the run begins, these water objects can be placed on the robot. It's important to ensure that they fit within the robot's maximum size specifications.



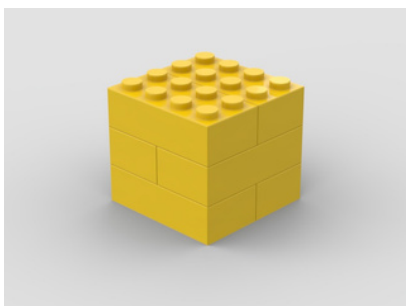
Water Objects (2)



water objects are placed in the designated starting area. These may be loaded onto the robot, but they must not be removed from the playing field at any time.

Marking Blocks

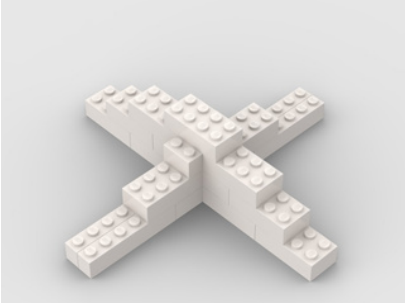
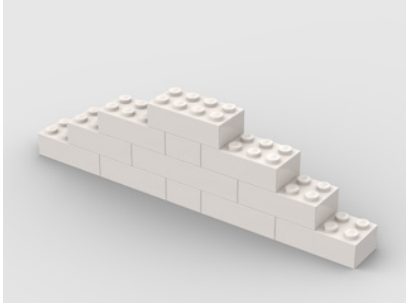
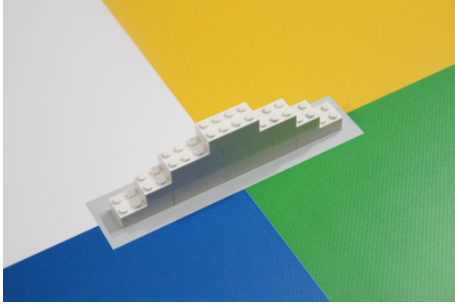
Marking blocks serve to indicate a person's position on the location plan. Two marking blocks are positioned on the two yellow squares adjacent to the location map.



Start position of the marking blocks

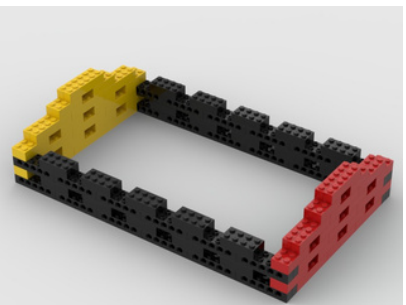
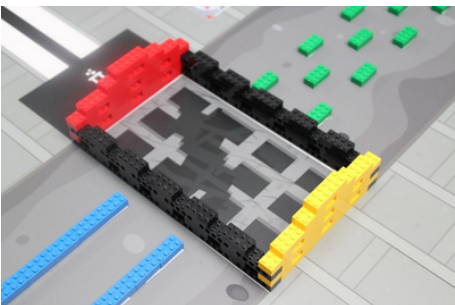
Factory Walls

There are two factory walls: one is straight, while the other is cross-shaped. These walls are positioned along the grey markings within the factory area.

 Cross Wall	 Straight wall
 Start position of the wall on the field	 Start position of the wall on the field

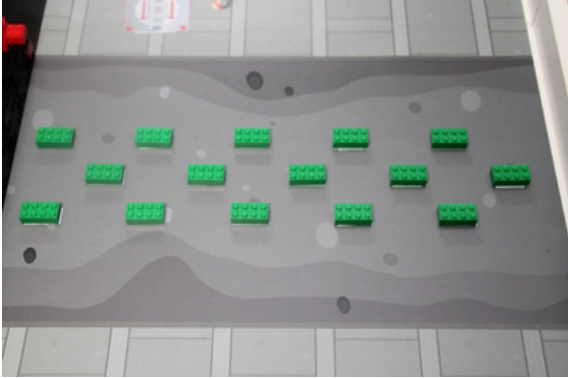
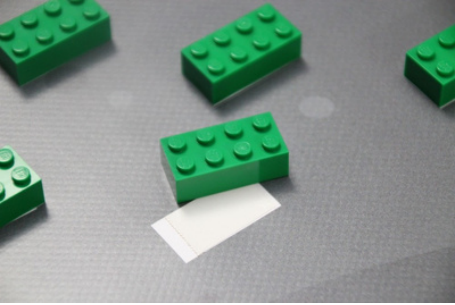
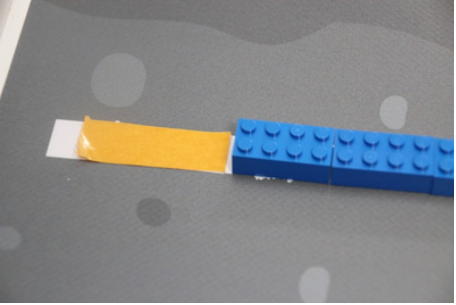
Obstacle Wall

An obstacle wall is positioned between the two areas that the robot needs to traverse. Moving or damaging this wall is strictly prohibited.

 Obstacle Wall	 Start position of the wall on the field
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Obstacle Elements

The field features a variety of obstacle elements. Specifically, there are 15 green single elements positioned at crossing A, along with two lines of 14 blue elements each (totaling 28) located at crossing B.

	
Single element, LEGO 2x4 brick	Single blue elements, LEGO 2x4 brick
	
Both green and blue bricks are fixed with double-sided tape on the field.	

Two Start Areas

There are two designated start and finish areas on the field. For the competition day, a decision will be made regarding which of the two areas the robot will begin. Prior to the run, the robot must be completely positioned within one of the defined start areas; however, the surrounding line does not count as part of this area. Additionally, the cables will be included in the robot's maximum size and must fit within the start area.

Summary of Randomization

On the day of the competition, the start area will be selected at random. During each round, the following objects will be placed randomly on the field:

- Objects located in the factory should be placed on the grey squares, with a maximum of one object allowed per room.



4. Robot Missions

For enhanced clarity, the missions will be detailed across several sections.

The team has the flexibility to choose the order in which they will tackle the missions.

4.1 Find and extinguish the fire

One of the key responsibilities of a rescue robot is to locate fires within an unfamiliar building. To accomplish this, the robot must detect fire hazards in the factory and position a water object in each relevant room. Points are granted when the water object is placed in the same room as the fire object, with a maximum of one water object per room earning points.

Conversely, placing a water object in an incorrect room results in negative points.

4.2 Relocate the Chemicals from the Factory

Identifying and Transporting Hazardous Materials

One of the critical functions of a rescue robot is to locate and transport hazardous goods. In the event of a fire within a building, it is vital to safely collect chemicals and remove them. The robot's responsibility includes identifying the chemical items and transporting them to a secure storage area.

- Points are awarded if the chemical item is outside the factory.
- Full points are given when the chemical item is entirely within the secure storage area.

4.3 Locating Individuals in the Factory

During a fire emergency, it's crucial to ascertain whether individuals are present in the building and their locations. However, the rescue robot is not designed to transport people independently; that responsibility still lies with humans.

- The robot's role is to identify rooms occupied by people and relay this information to the operations team.
- To accomplish this, the robot must navigate through the factory, recognize individuals, remember the room locations, and mark these areas using marking blocks on the location map displayed on the left side of the field.

Full points are awarded when a marking block is accurately placed within the corresponding room on the location map.



4.4 Navigating Uneven Terrain

Rescue robots operate in unpredictable and unfamiliar environments. Therefore, it is essential for the robot to traverse uneven terrain on the game field. These areas are designated as “Crossing A” and “Crossing B.”

- Points are awarded when the robot fully crosses the space marked by the two lines surrounding each crossing.
- Each crossing earns points only once.

The referee is tasked with monitoring the outcomes of this challenge throughout the run.

4.5 Park the Robot

At the conclusion of the task, the robot must return to a designated finish area that is different from the starting area. Points will only be awarded if the robot parks in this new area, ensuring that the entire chassis (as viewed from above) is contained within it. Cables may extend outside the designated space.

4.6 Earn Bonus Points and Avoid Penalties

You can earn bonus points for refraining from moving or damaging the walls within the factory. Additionally, bonus points will be granted for not displacing the fire and person objects located in the factory. However, moving or damaging the obstacle wall will result in penalty points.



5. Scoring

Definitions for the scoring

“Completely” signifies that the game object is solely in contact with the designated area, excluding the black lines.

Task	Each	Total
Find and extinguish the fire		
Water the object fully in a room that contains a fire object (only one water object per room is counted).	15	30
Water objects are present in a room that contains no fire or has more water objects than fires.	-3	-6
Move the chemicals out of the factory		
A chemical object located entirely outside of the factory and not stored in a secure area.		8
A chemical substance is securely stored in a designated area.		12
Find people in the factory		
The marking block is placed within the correct square, indicating a person or object in the factory room that matches the color.	19	38
Crossing uneven ground in the factory		
Navigating “Crossing A” or “Crossing B” involves passing through a marked area defined by two lines. Points are awarded once for each crossing, as long as the obstacle wall remains intact.	15	30
Park the robot		
The robot halts in the start and finish area, which is not designated as the competition day's starting point (this applies only if other points, excluding bonuses, are allocated).		13
Get bonus points and avoid penalties		
Each fire and individual object that remains unmoved or undamaged.	5	20
For each factory wall that remains undisturbed or intact.	6	12
A movable or damaged obstacle wall.		-12
Maximum Score		155



Scoring Sheet

Team name: _____

Round: _____

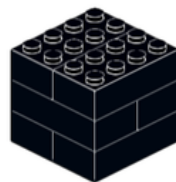
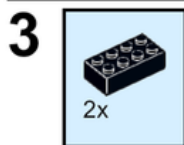
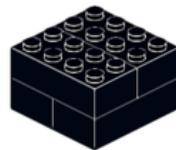
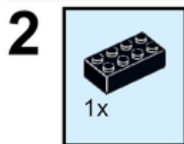
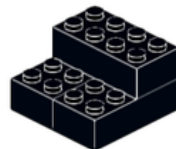
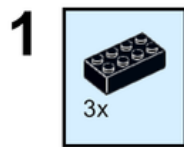
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Get bonus points and avoid penalties				
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For each factory wall that remains undisturbed or intact.	6	12		
A movable or damaged obstacle wall.		-12		
Maximum Score		155		
Surprise Rule				
Total Score in this run				
Time in full seconds				

Signature Team

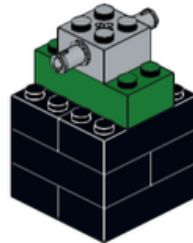
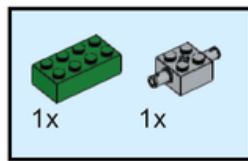
Signature Judge

PART TWO – ASSEMBLY OF GAME OBJECTS

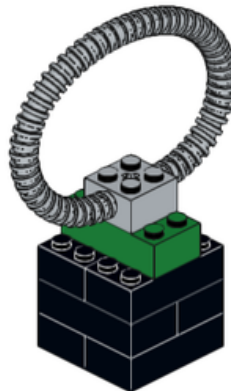
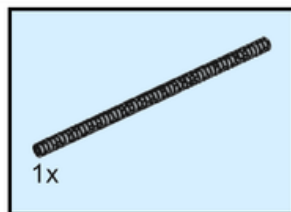
Chemicals Object (1x)



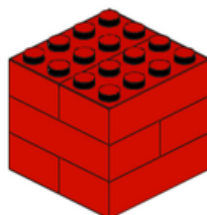
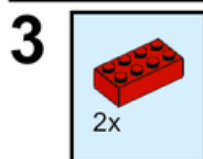
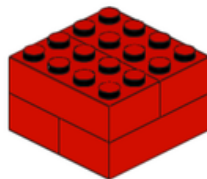
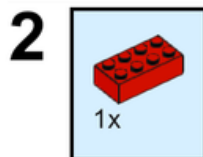
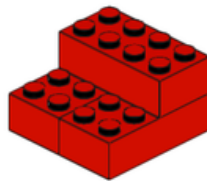
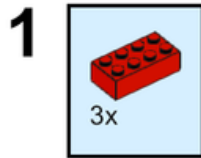
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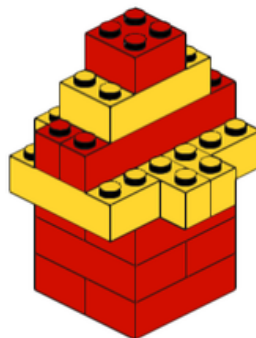
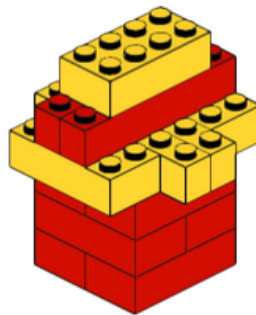
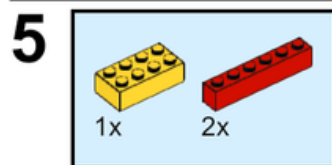
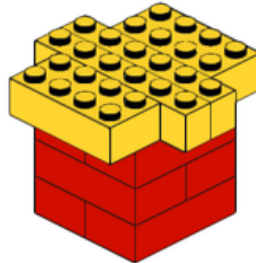
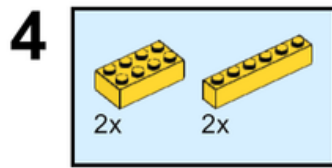


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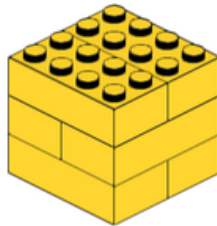
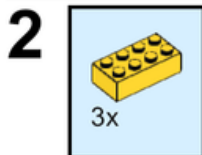
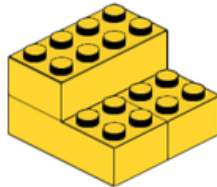
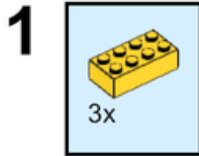


Fire Object (2x)

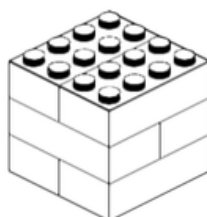
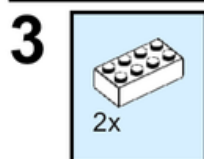
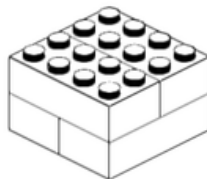
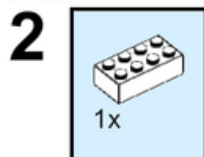
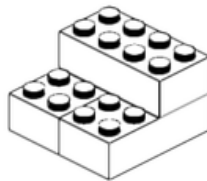
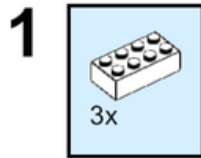




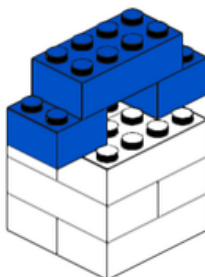
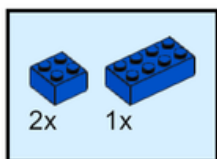
Marking Blocks (2x)



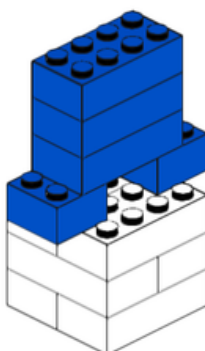
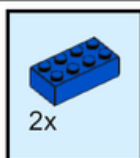
Big Person (1x)



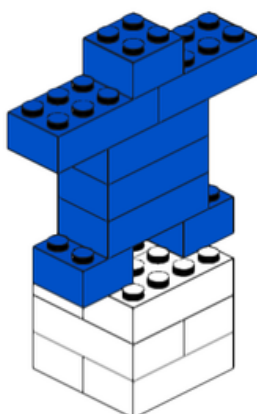
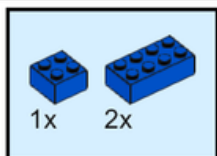
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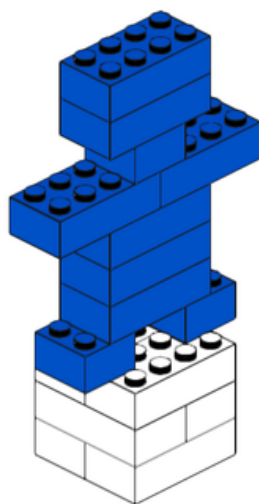
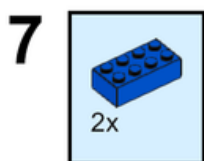


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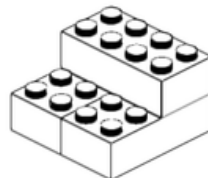
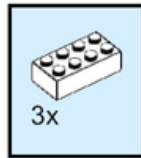
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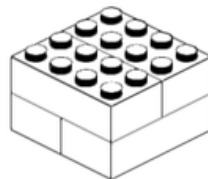
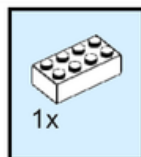


Small Person (1x)

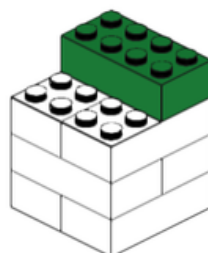
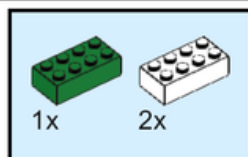
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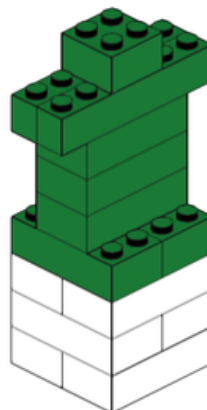
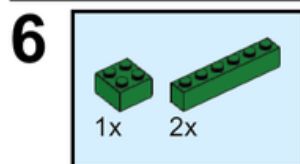
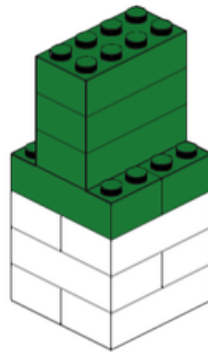
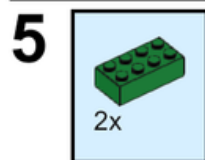
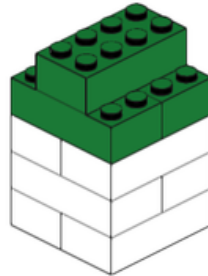
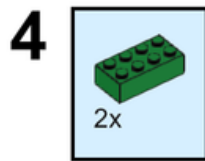


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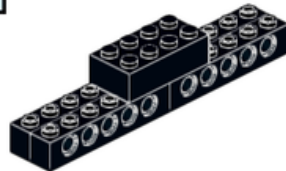
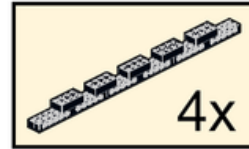
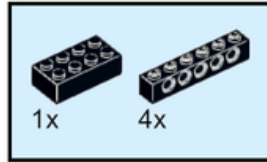
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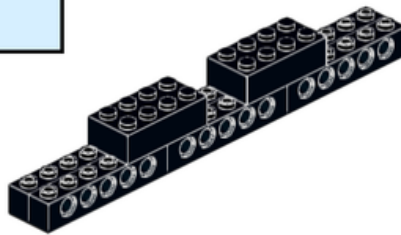
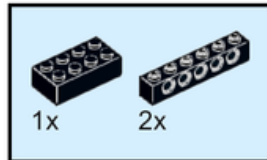


Obstacle Wall (1x)

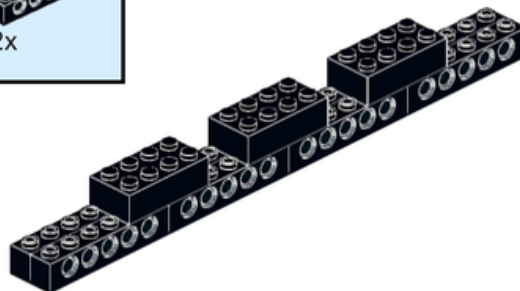
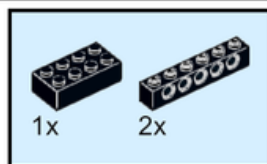
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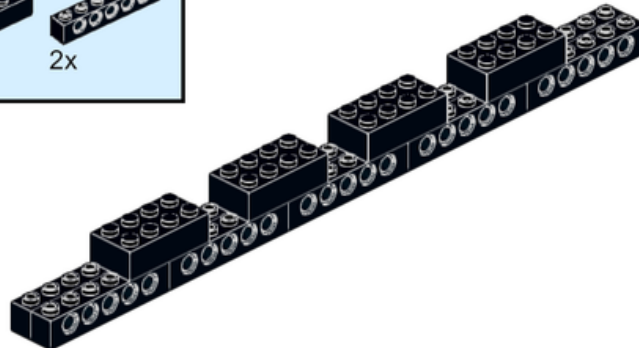
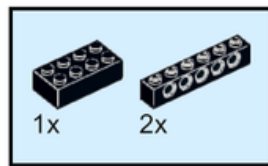
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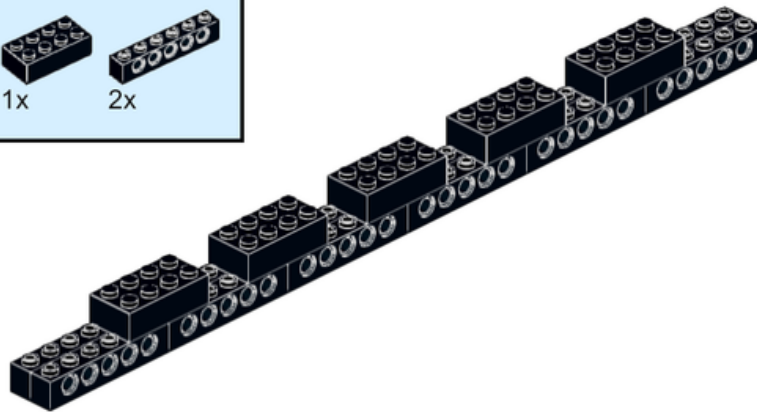
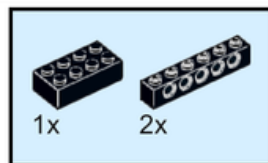
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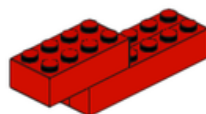
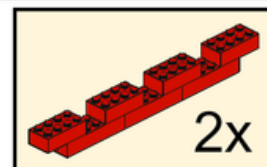
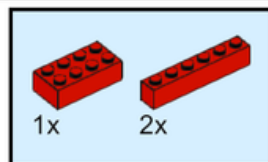
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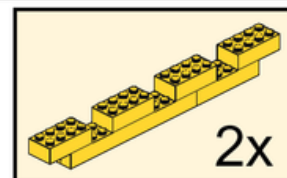
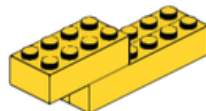
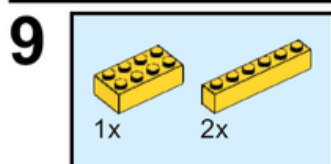
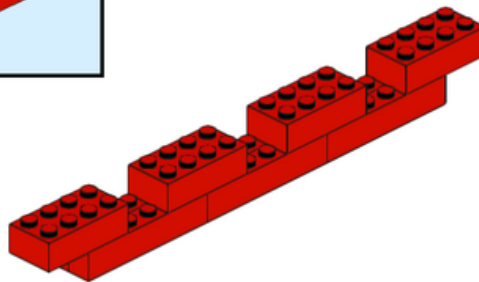
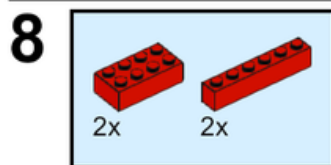
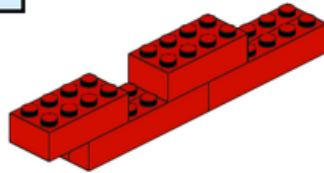
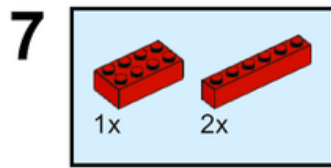


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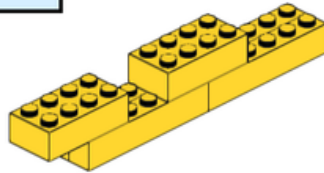
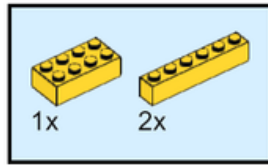


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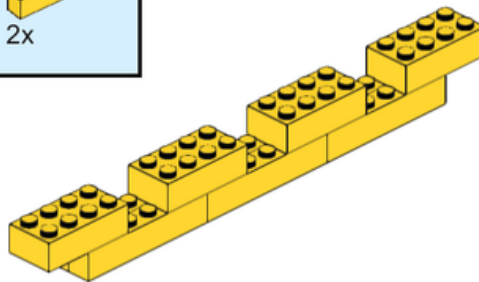
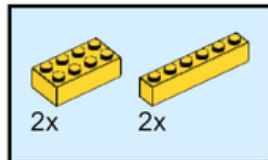




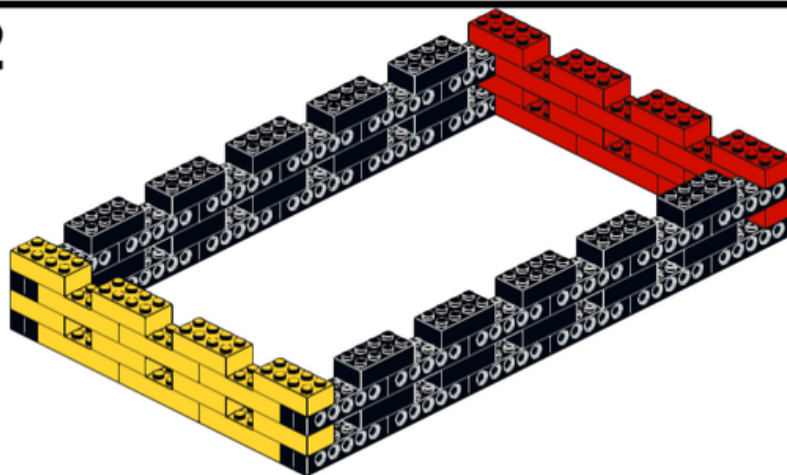
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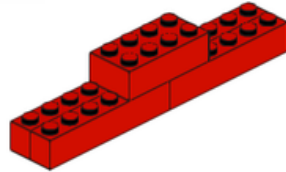
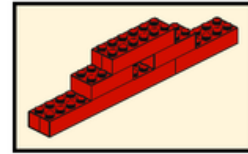
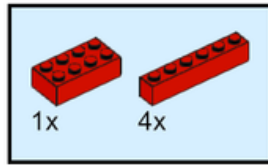
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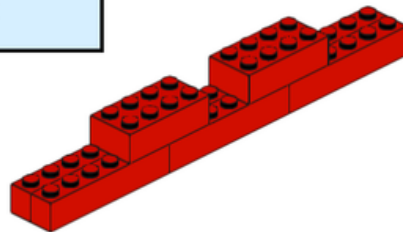
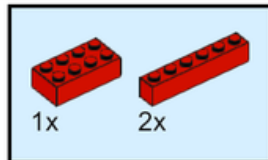
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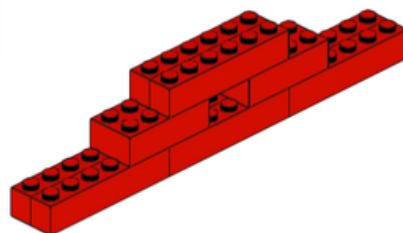
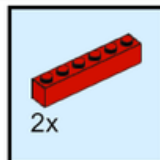
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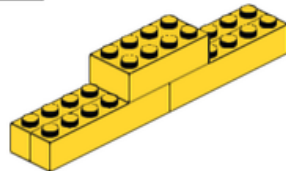
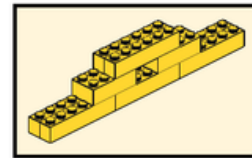
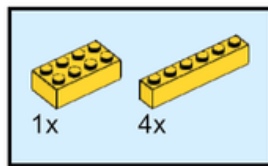
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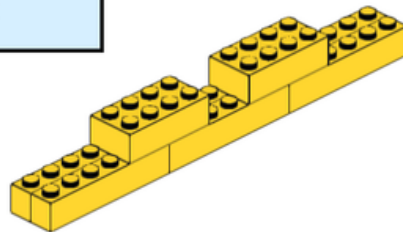
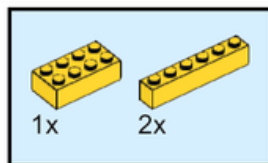
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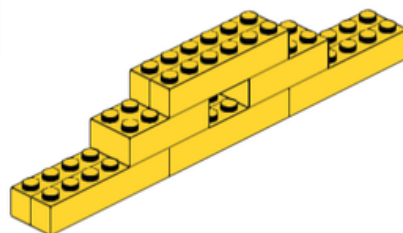
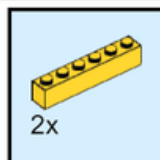
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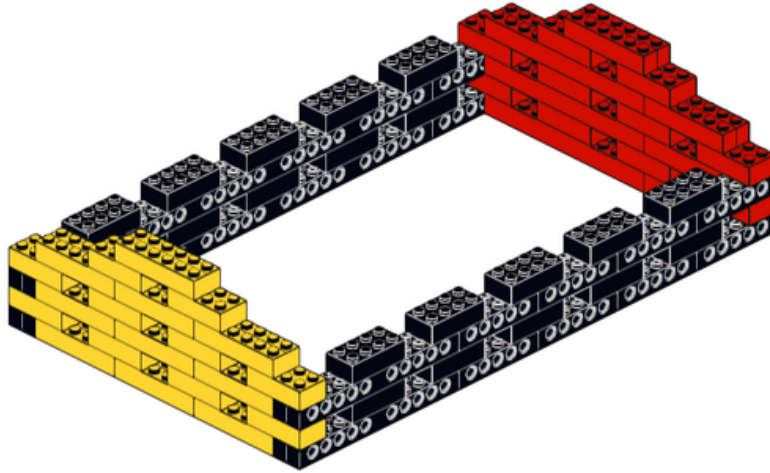
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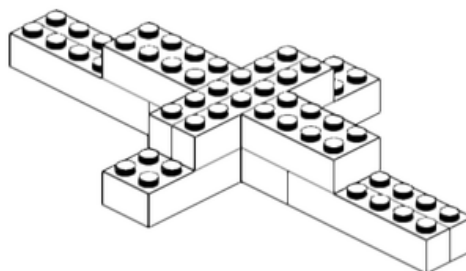
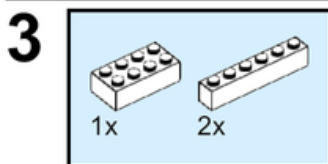
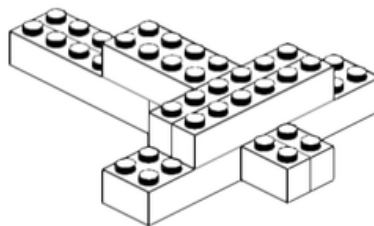
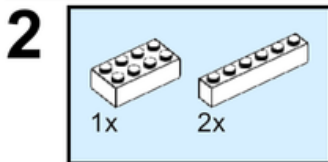
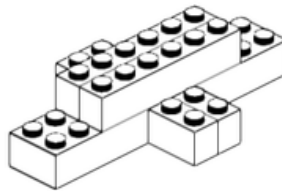
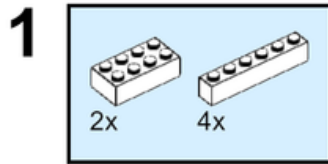
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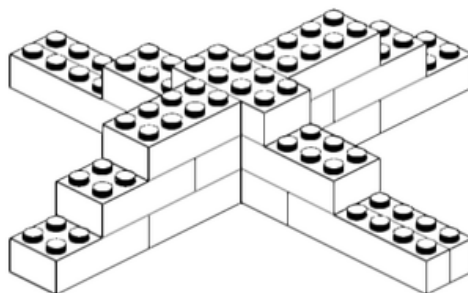
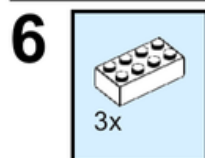
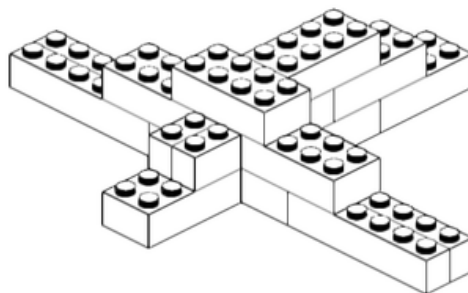
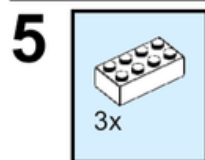
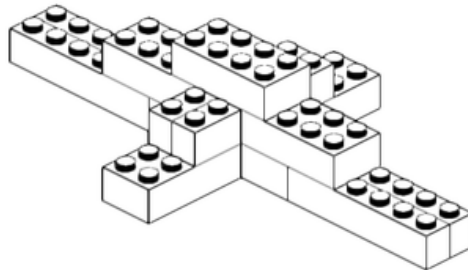
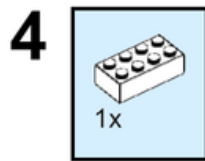


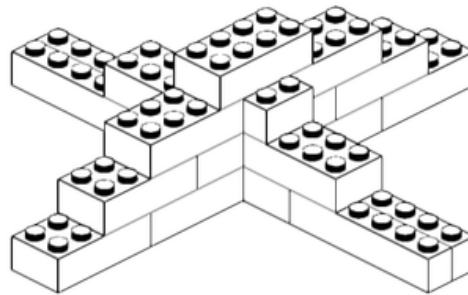
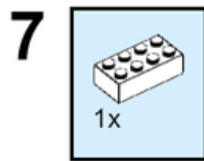
19



Cross Wall (1x)

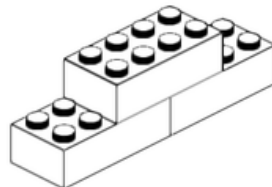
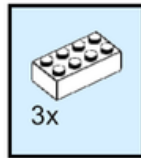




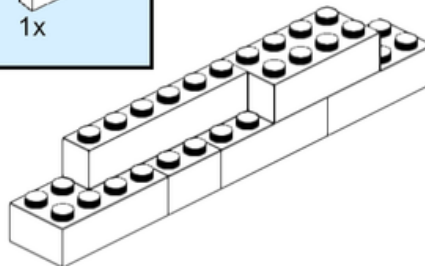
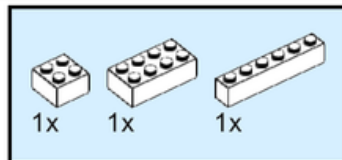


Straight Wall (1x)

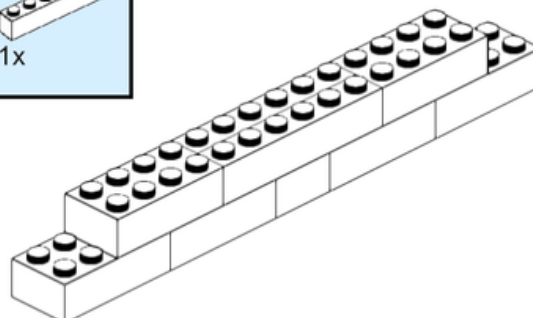
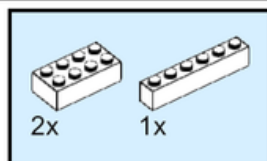
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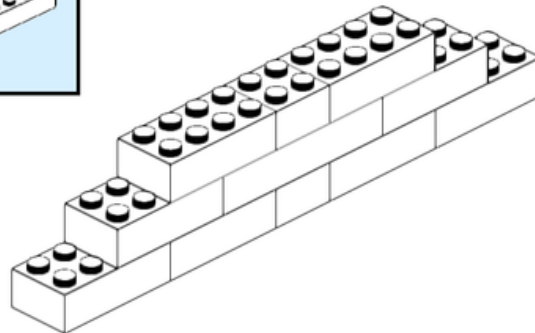
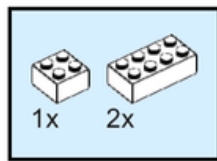
2



3



4



5

