



UNITED ROBOTICS OLYMPIAD

RoboMission

Senior Game Rules

Season 2026



The Future of Friendship

Care 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

Robots have the potential to enhance our daily lives in countless ways. They can creatively guide us through museums or assist with monotonous and physically demanding tasks. In the realm of senior care, robots serve as both care and transport aides within hospitals. Their responsibilities include transporting laundry to the hospital's laundry facility, delivering water to various rooms, and even engaging in play with patients. Additionally, these robots must navigate hospital corridors while being mindful of nurses and visitors.

2. Game Field

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



Certain areas are designated with numbers for easy identification. Check the game mat to see which areas these numbers refer to. Each room features five areas marked with the following numbers:

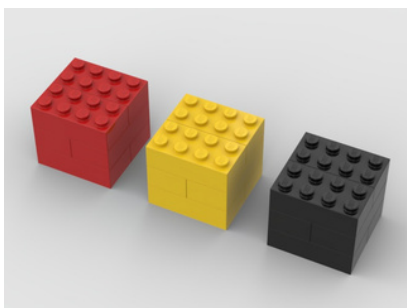
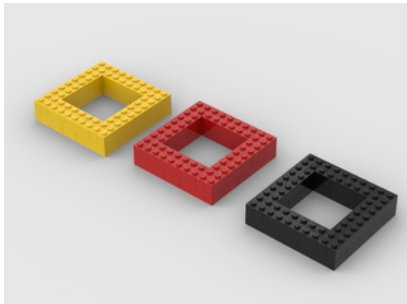
- 1. Positions to Consider
- 2. Laundry Block Position
- 3. Game Ball Position
- 4. Game Net Position
- 5. Table Position Marking Block Position

3. Game Objects, Positioning, Randomization

Laundry Blocks & Containers

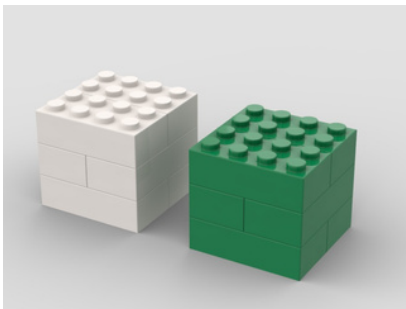
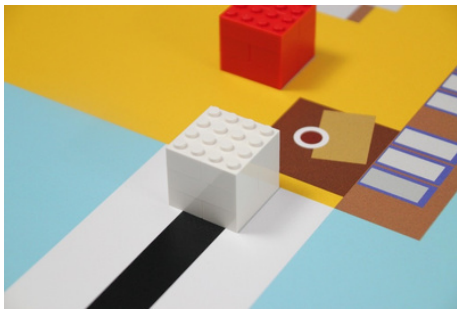
There are three laundry blocks (one black, one red, and one yellow) along with three corresponding containers (one black, one red, and one yellow). The arrangement of these items will be as follows:

The three laundry blocks will be randomly positioned in each round within the four areas designated with “1” across the various rooms. Meanwhile, the three laundry containers will be randomly arranged in each round on the grey squares located in the laundry area.

 Laundry Block	 Black laundry block in blue room
 Laundry container	 Possible starting configuration of the laundry container

Marking Blocks

There are four marking blocks on the field—two white and two green. Each round, these marking blocks are randomly positioned in front of a room, specifically in the areas designated with “5.” These blocks play a crucial role in identifying which tasks need to be completed in which rooms (refer to the game description for more details).

 Marking Blocks	 Marking block in front of the yellow room
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Game ball & game net

There are two items used to engage in the game: the ball and the game net. The game net comes in four colors—red, yellow, blue, and green—and is located in the corresponding colored room. Within the setup, there are two blue balls and two red balls. The red balls are positioned in the yellow and green rooms, while the blue balls are found in the blue and red rooms. Each ball rests on a 2x2 LEGO plate in areas marked with “2” in their respective rooms, and the game net is situated in areas marked with “3” in each corresponding color room.

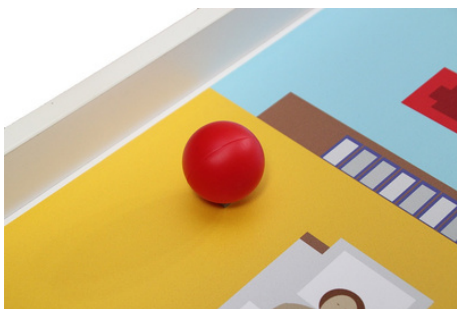
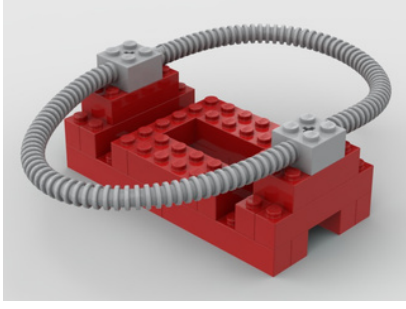
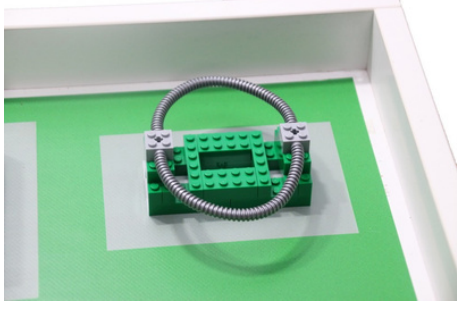
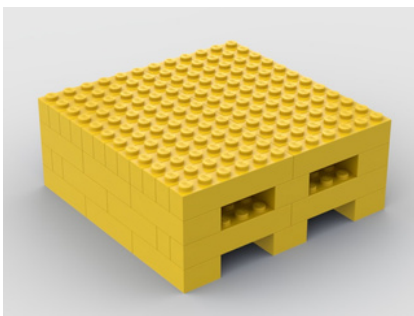
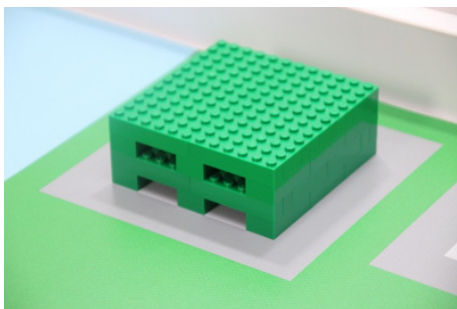
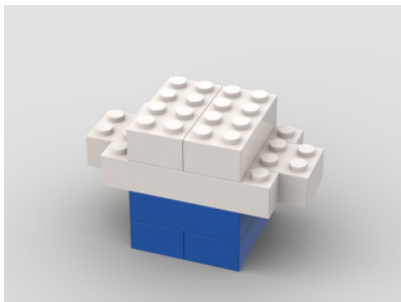
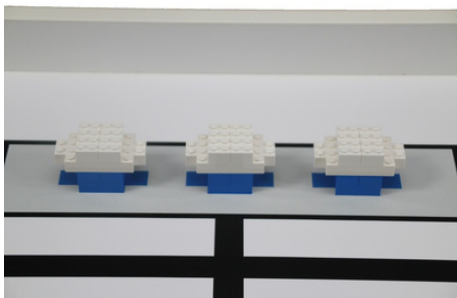
 Balls	 Ball in yellow room
 Game Net	 Green game net in green room
Please be aware that balls, nets, and tables must be set up in each room for every round, even if not all items are utilized in every round.	

Table & Water

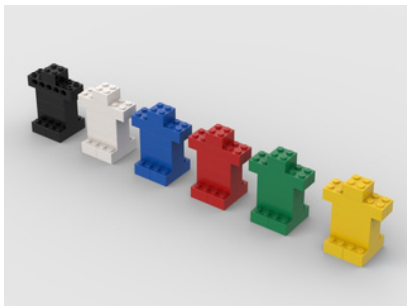
There are four tables positioned on the field: one red, one blue, one green, and one yellow. Each table is placed in the room that matches its color, specifically in the area marked with “4.”

In addition, there are three water bottles located on the field. These bottles are positioned as intended within the equipment area.

 Table	 Green table in the green room
 Water Bottle	 Water Elements in the Equipment Area Each water element is positioned according to the orientation indicated by the shape on the field.

People

We have six individuals, represented by figures in yellow, green, red, blue, white, and black, positioned on the field. In each round, these six figures are randomly assigned to the eight available red squares.

 People	 A yellow figure is positioned on the field, with each individual arranged according to the orientation indicated by the shape on the field.
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Summary randomization

The following game objects are **randomly placed on the game field each round:**

- Laundry blocks should be placed in the area designated as “1.”
- The laundry container is situated across three squares within the laundry area.
- Marking blocks are allocated to the area labeled “5.”
- Individuals are positioned on the eight distinct red squares.

In each round, all other objects—including water, the table, the game net, and the ball—are positioned on the game field, but their placement is not randomized.



4. Robot Missions

For a clearer understanding, the missions will be detailed in several sections.
The team can determine the order in which they will tackle the missions.

4.1 Doing the laundry

The Role of Service Robots in Material Transport

One of the key responsibilities of a service robot is assisting humans in transporting materials. In a hospital setting, these robots can effectively move laundry from various rooms to a central laundry facility. This is the robot's primary function in the field.

- The robot is tasked with collecting three laundry blocks from different rooms and delivering them to the laundry area.
- Maximum points are awarded when the laundry blocks are placed in their corresponding colored laundry containers (for instance, a red laundry block should go into the red laundry container).

While the laundry containers do not have to remain in their original positions, it is essential that they are fully located within the laundry area by the end of the task.

4.2 Information: Marking Blocks

For the next two tasks, the initial placement of the marking blocks in front of each room is crucial (moving the blocks after scanning is permitted). The arrangement of these marking blocks will influence the following scenarios:

- **White block in front of a room:** In this room a water bottle should be placed on the table. Please note that penalty points are awarded if the robot brings water to the wrong room.
- **Green block in front of a room:** In this room the robot should play a game with the resident of this room. Points are only awarded if the robot plays the game in the correct room.

4.3 Bring water to the rooms

In a hospital it is important that every patient in each room has enough water to drink. Therefore, it is one task of the service robot to bring water to the different rooms every day. But the robot should be careful and bring only water to those rooms that need new water.

The robot should take the water bottles from the equipment area and bring these to the correct rooms (rooms marked with a white block in front). Points are awarded if the water bottle is in the correct room, maximum points are awarded if the water bottle is standing correctly on the table. Maximum one water bottle per room counts, in the equipment area there is one spare water bottle.

Please note that there are 3 water bottles on the field, the robot only needs 2 bottles. The third bottle is just a spare part.



4.4 Play a Game

One of the tasks for a service robot could involve engaging with patients in a hospital setting. However, due to the limited number of robots available, they can only play games in designated areas. Therefore, the robot should only participate in games within rooms marked with a green block.

To play a game in the appropriate room, the robot must lift a ball into the game net. (The ball's color is not significant.) Full points are awarded when the ball exclusively touches the game net and does not make contact with the game field.

4.5 Park the Robot

Finally, the robot needs to return to the Start & Finish area. The mission will be considered complete once the robot arrives, halts, and its chassis is fully contained within the Start & Finish area from a top view (cables may extend outside this area).

4.6 Earn Bonus Points

While navigating through the hospital, the robot must remain aware of its surroundings, including doors, stairs, corners, and, of course, people. It is essential for the robot to avoid any individuals present on the game field.

Bonus points will be granted for avoiding movement or damage to the figures of people in the game field. Additionally, bonus points will also be awarded for not disturbing or damaging the game nets and tables within the rooms.



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: _____

Task	Each	Total	#	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 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		
Surprise Rule				
Total Score in this run				
Time in full seconds				

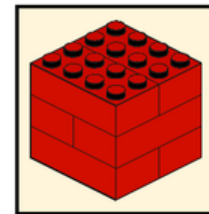
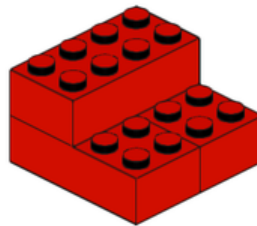
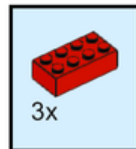
Signature Team

Signature Judge

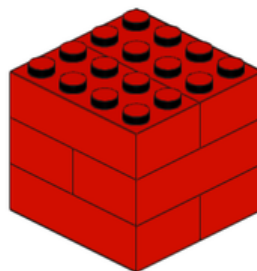
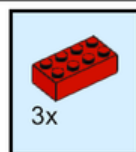
PART TWO – ASSEMBLY OF GAME OBJECTS

Laundry Block (1x per colour, 3 in total)

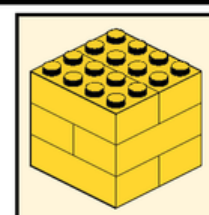
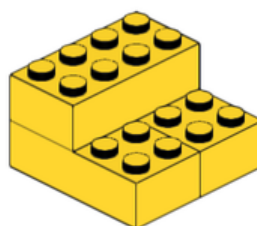
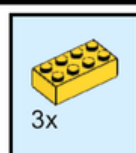
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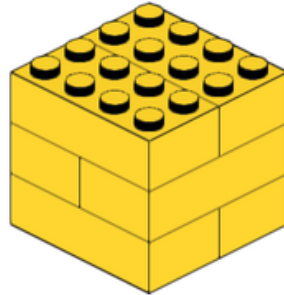
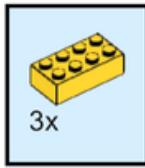
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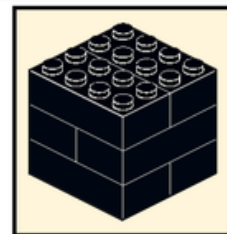
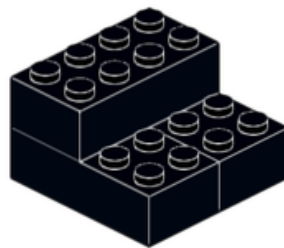
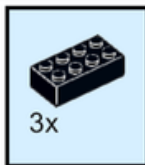
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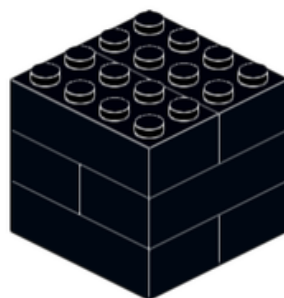
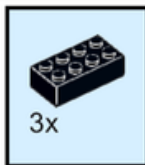
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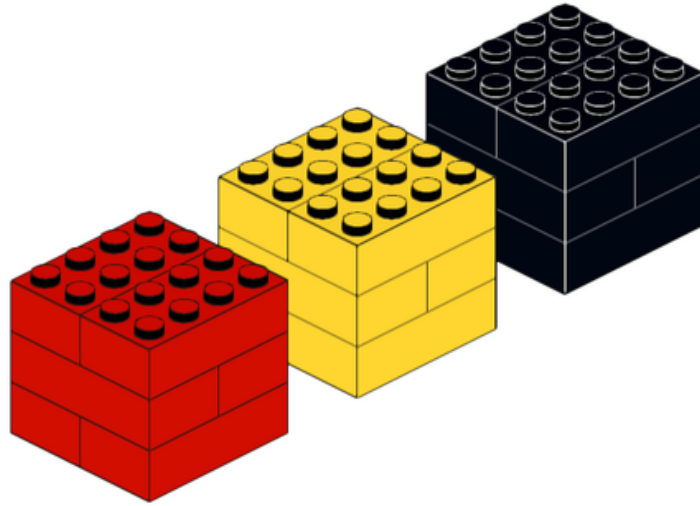
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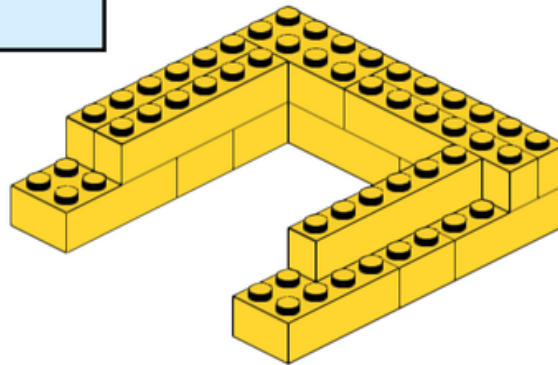
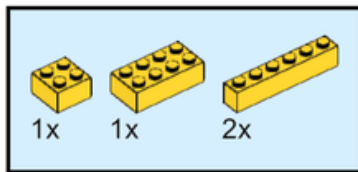


Laundry container (1x per colour, 3 in total)

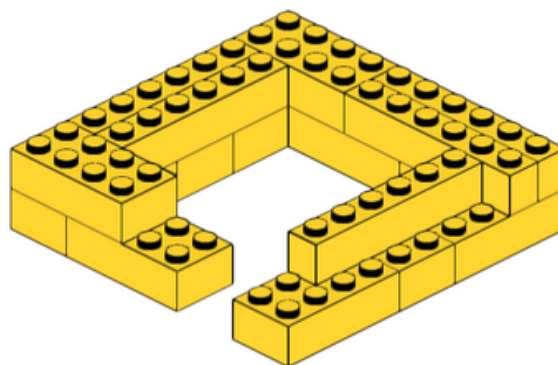
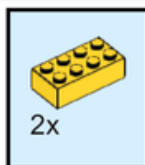
A yellow 1x6 brick with a 1x3 brick on top of the first three studs.

A yellow L-shaped block composed of 10 smaller cubes. It consists of a horizontal row of 7 cubes and a vertical column of 3 cubes, with the corner cube shared between the two rows.

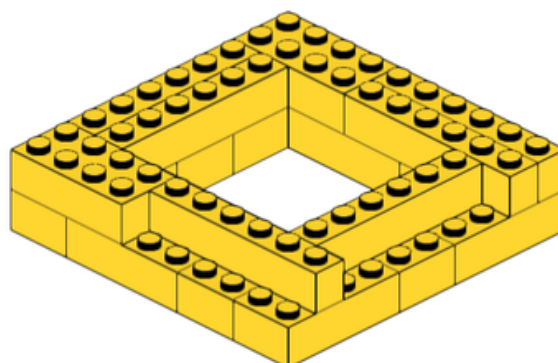
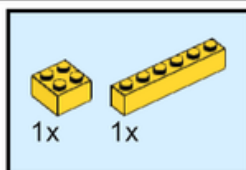
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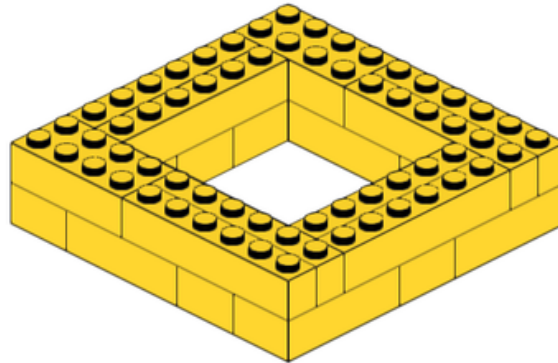
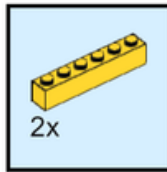
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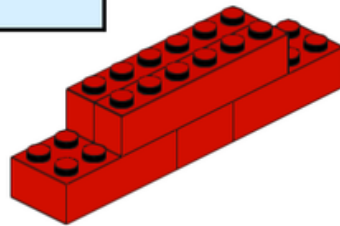
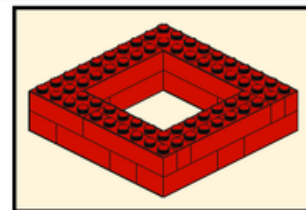
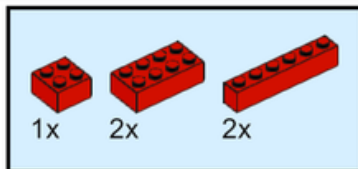
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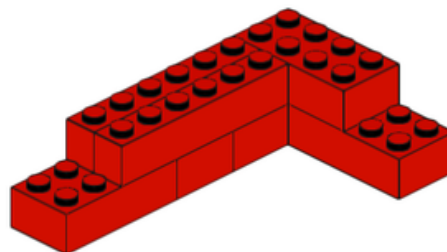
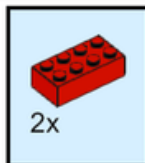
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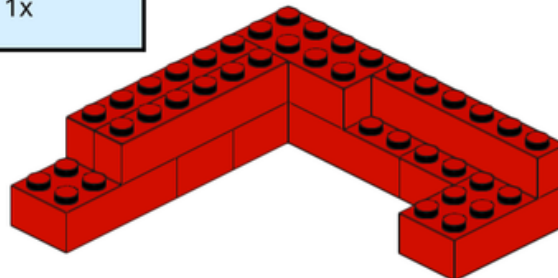
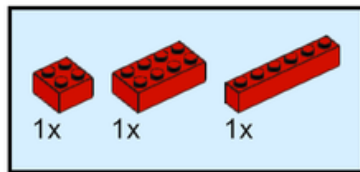
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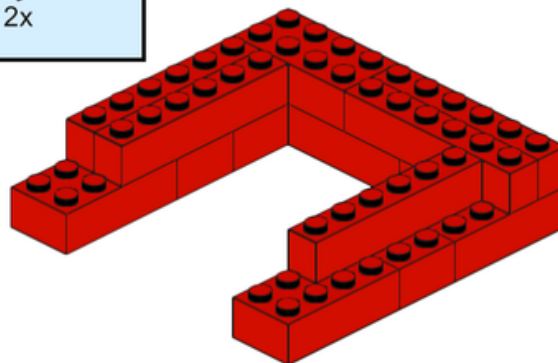
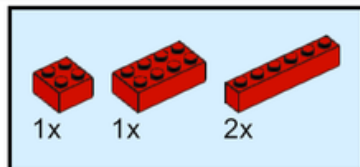
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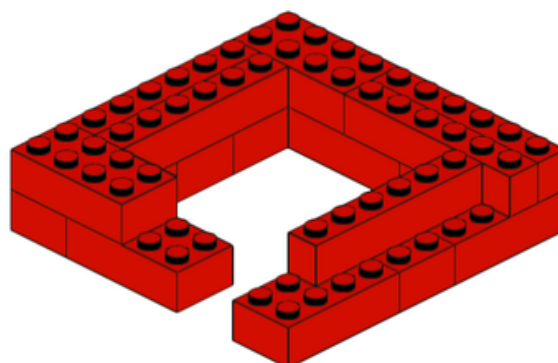
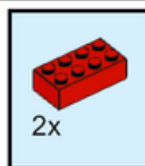
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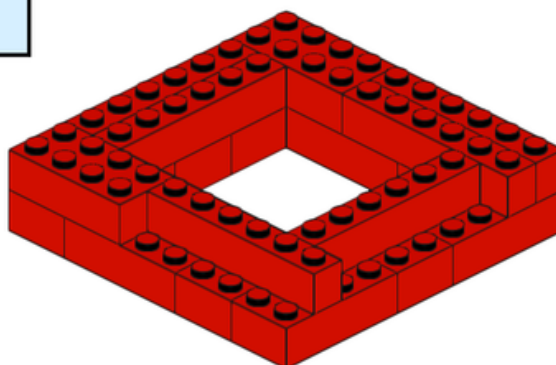
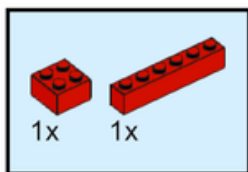
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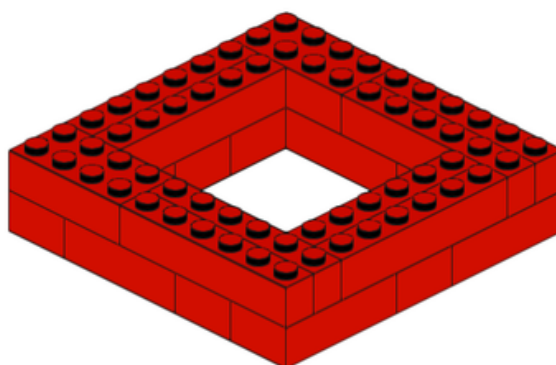
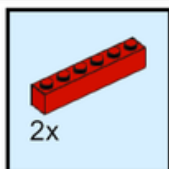
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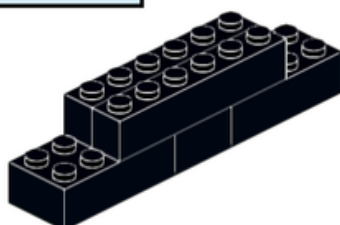
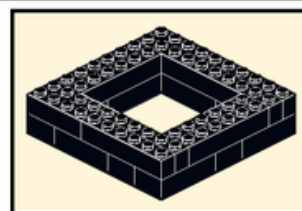
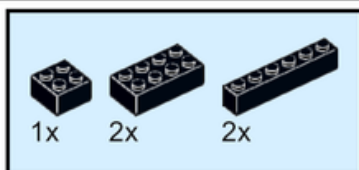
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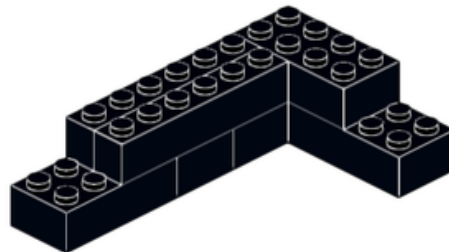
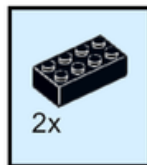
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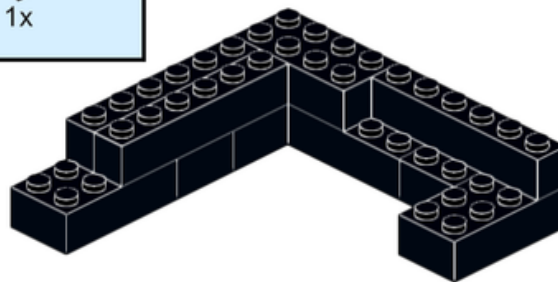
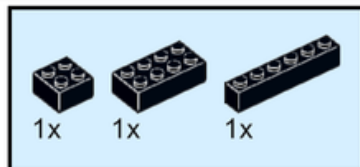
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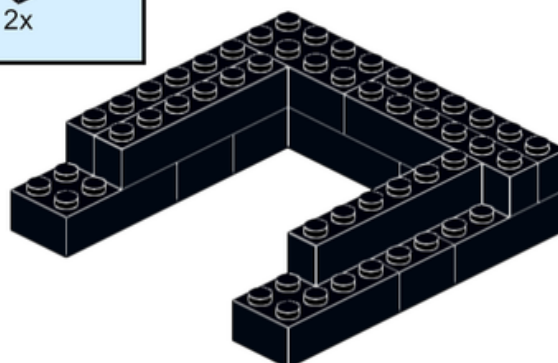
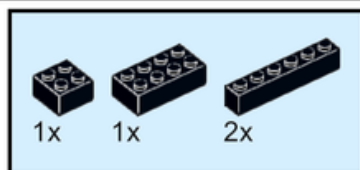
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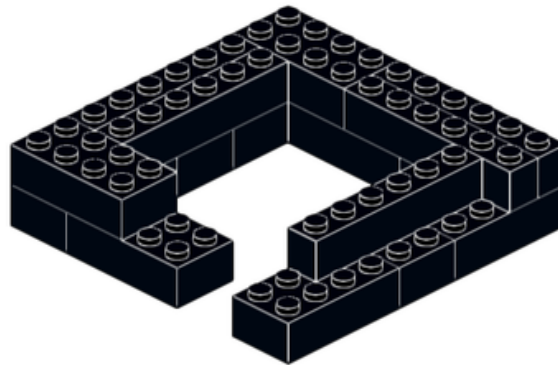
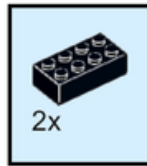
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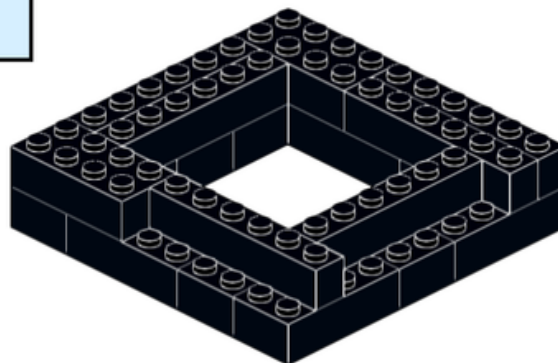
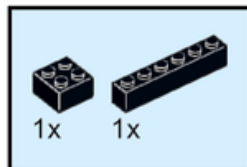
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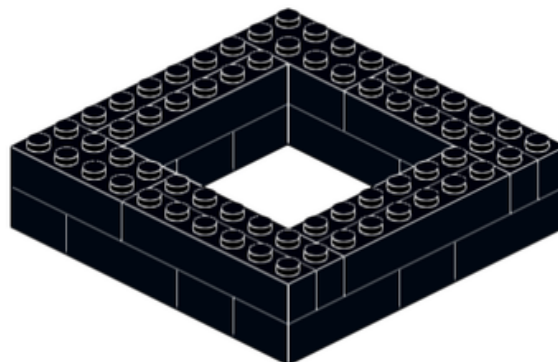
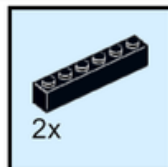
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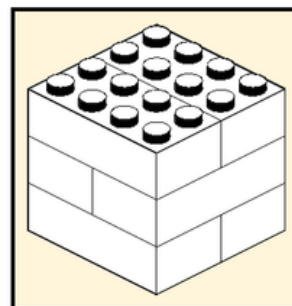
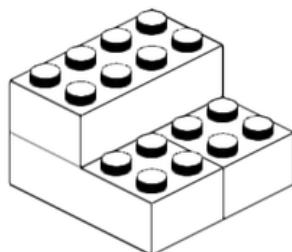
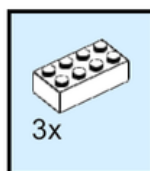


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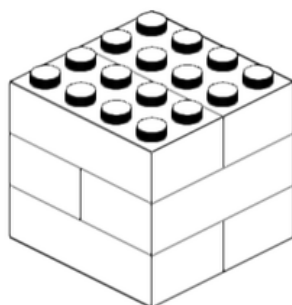
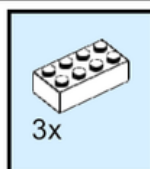


Marking blocks (2x white, 2x green)

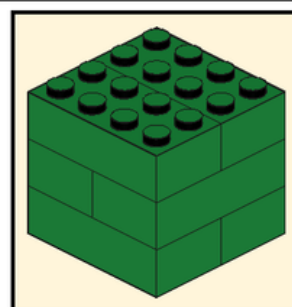
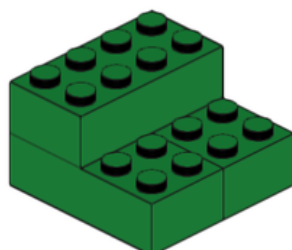
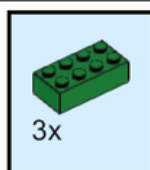
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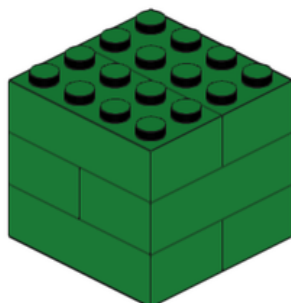
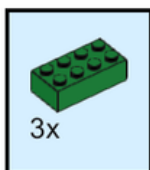
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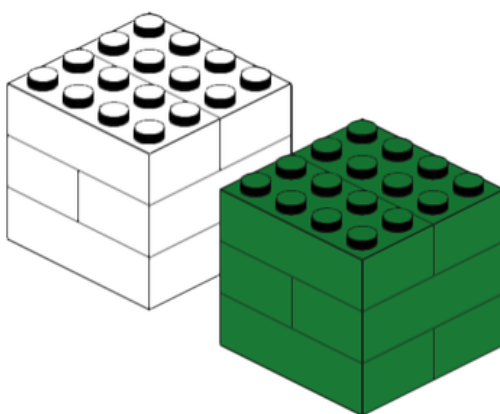
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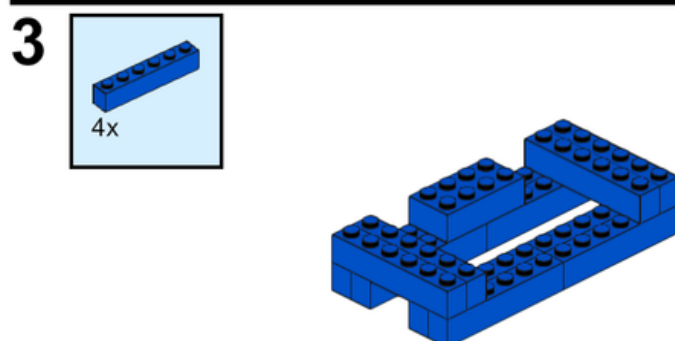
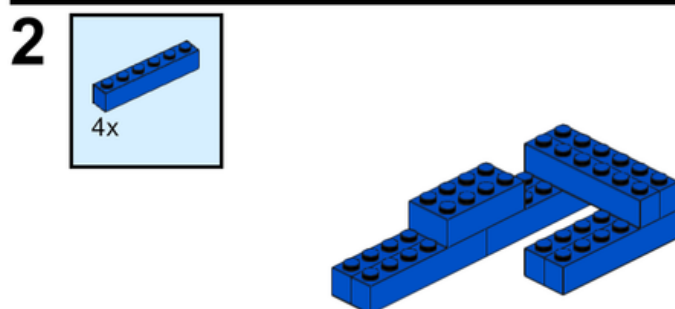
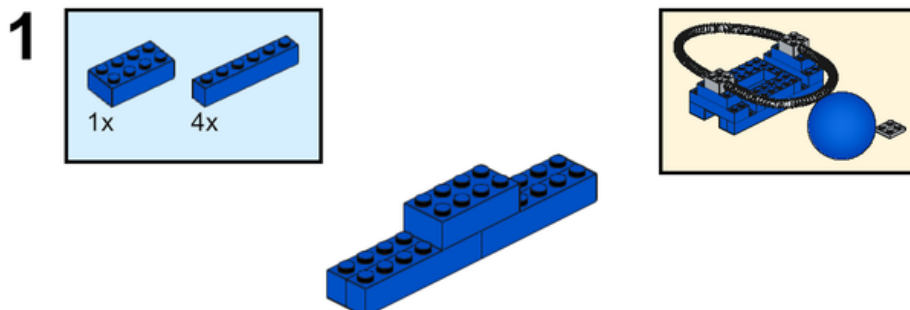
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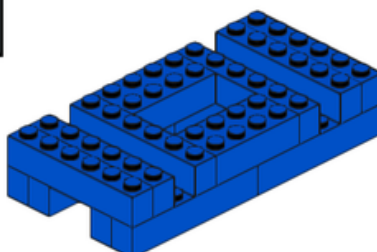
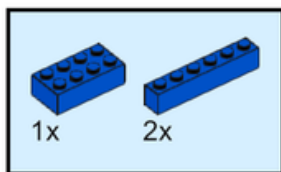
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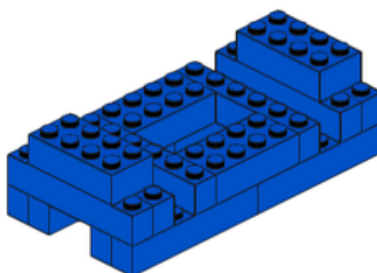
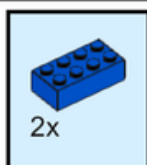
Game net & game ball (1x per colour, 4 in total)



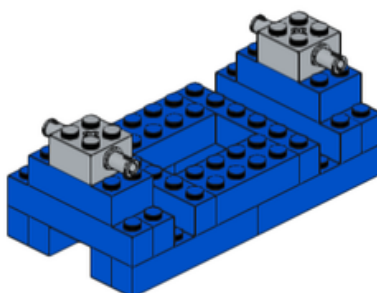
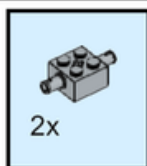
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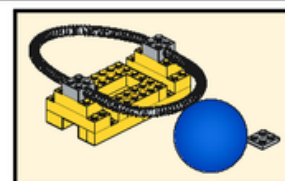
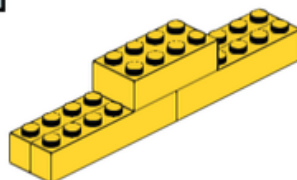
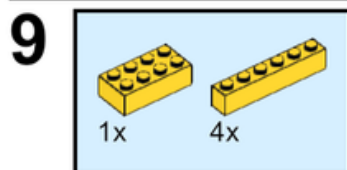
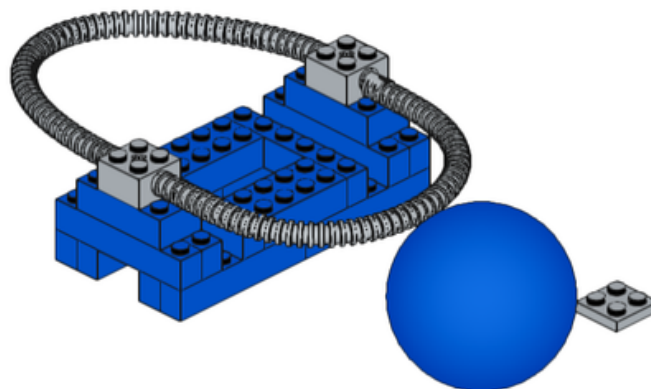
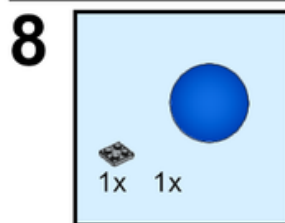
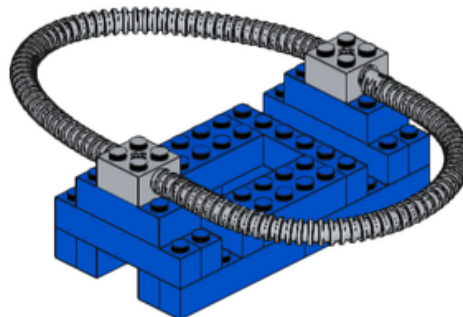
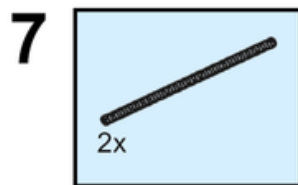


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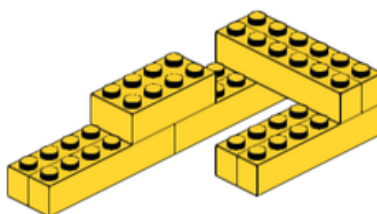
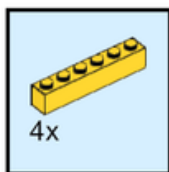


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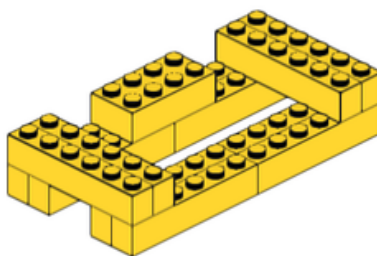
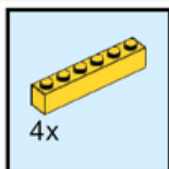




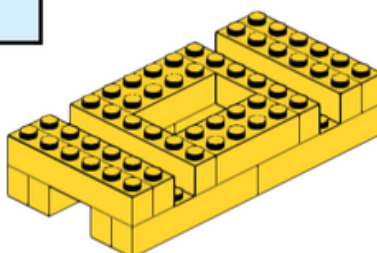
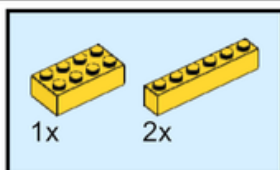
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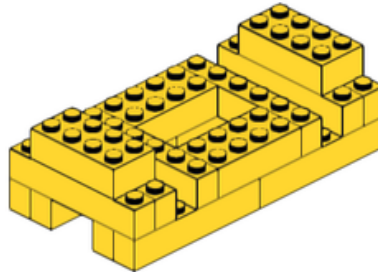
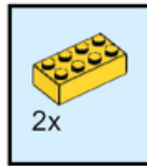
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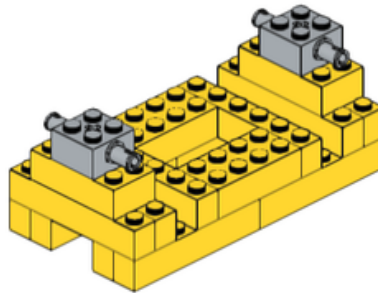
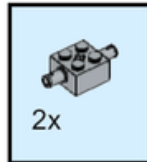
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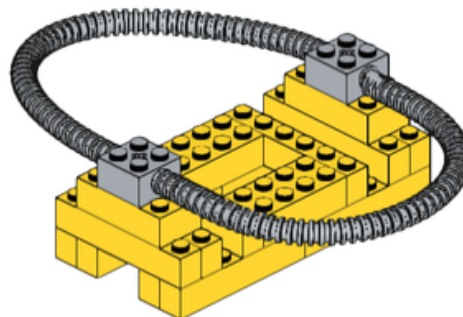
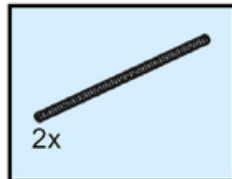
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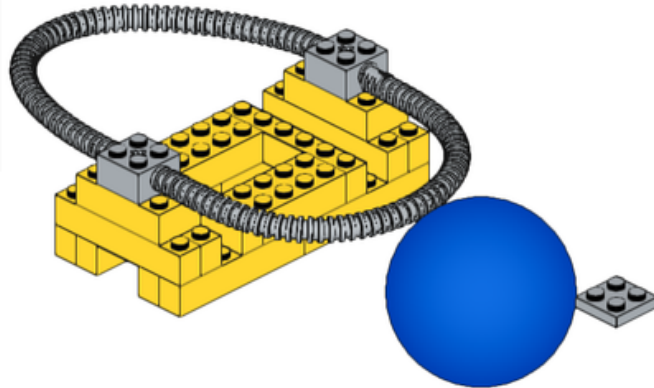
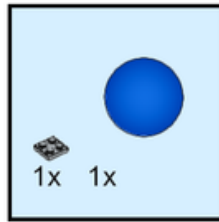
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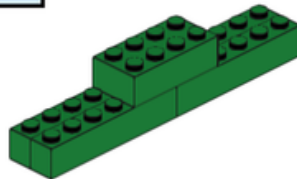
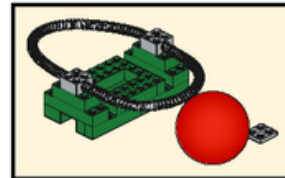
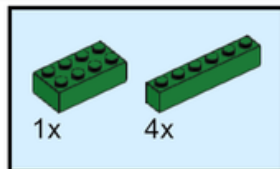
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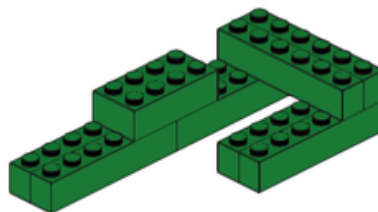
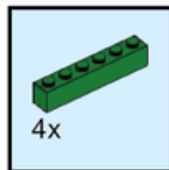
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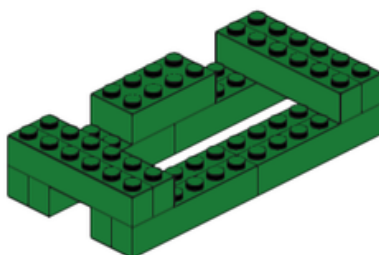
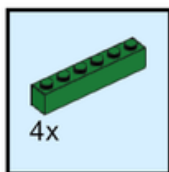
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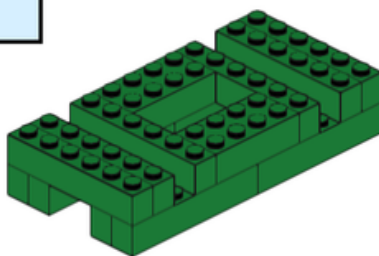
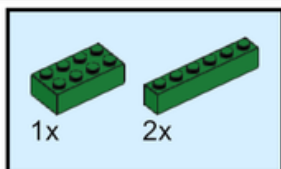
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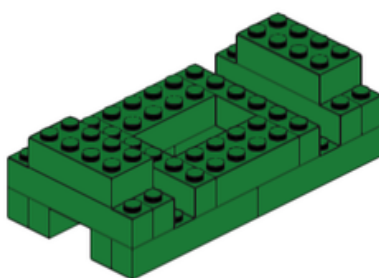
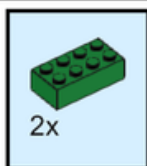
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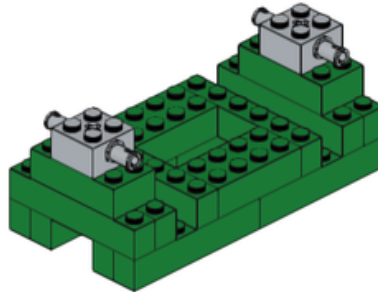
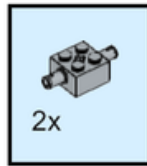
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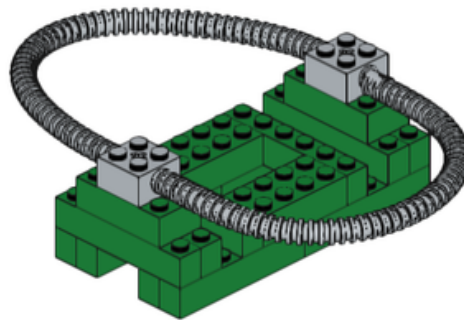
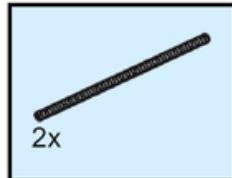
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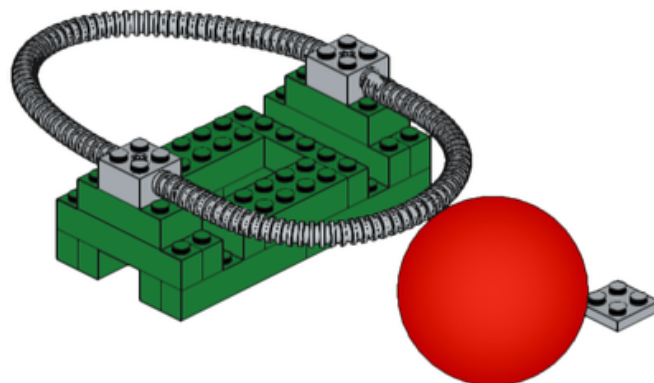
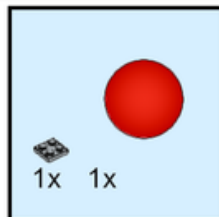
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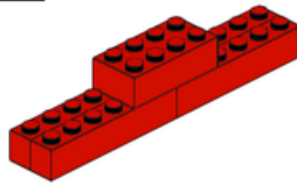
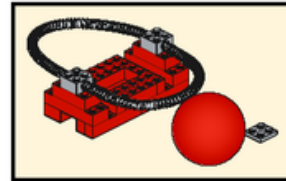
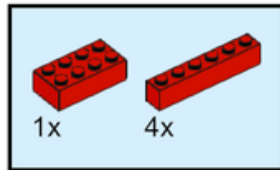
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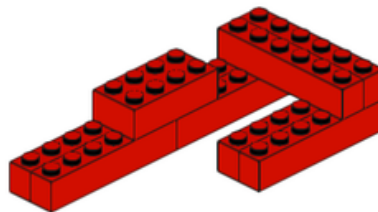
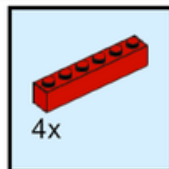
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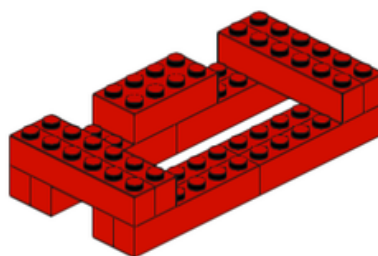
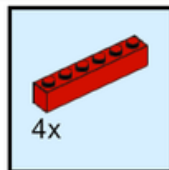
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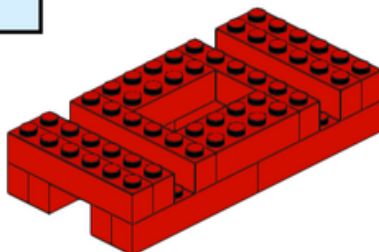
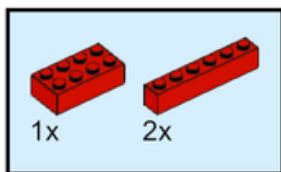
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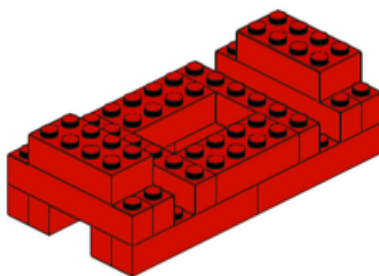
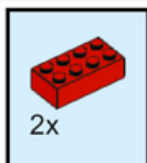
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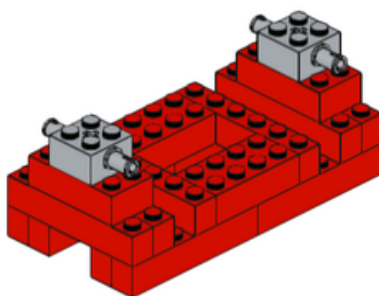
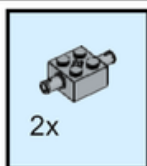
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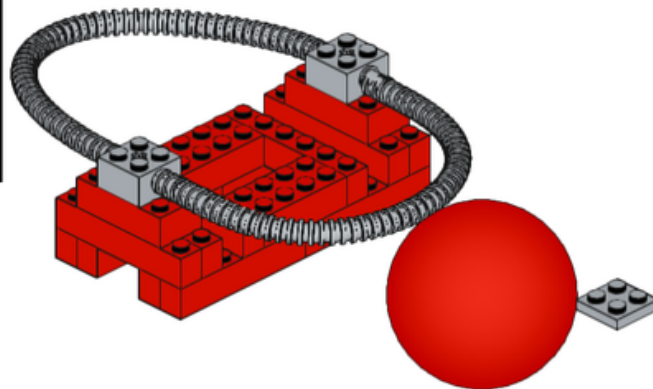
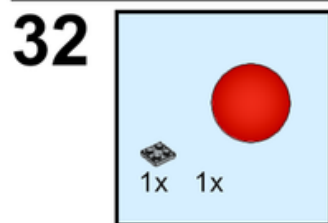
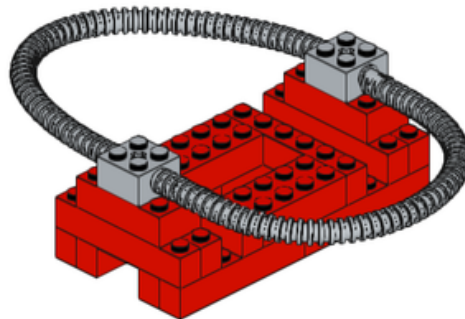
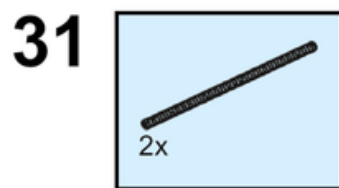


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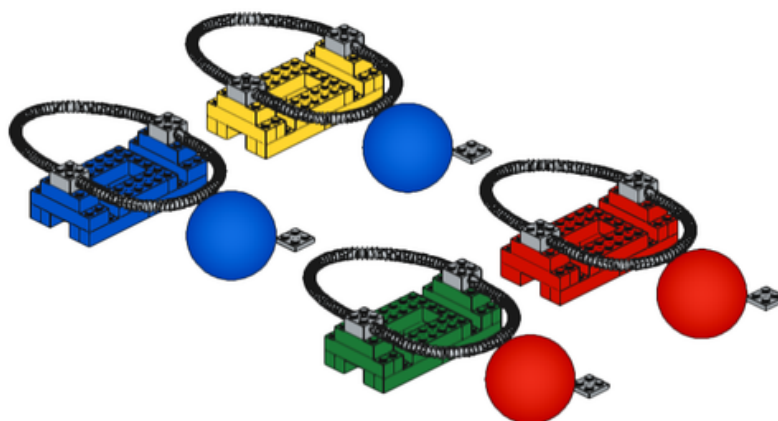
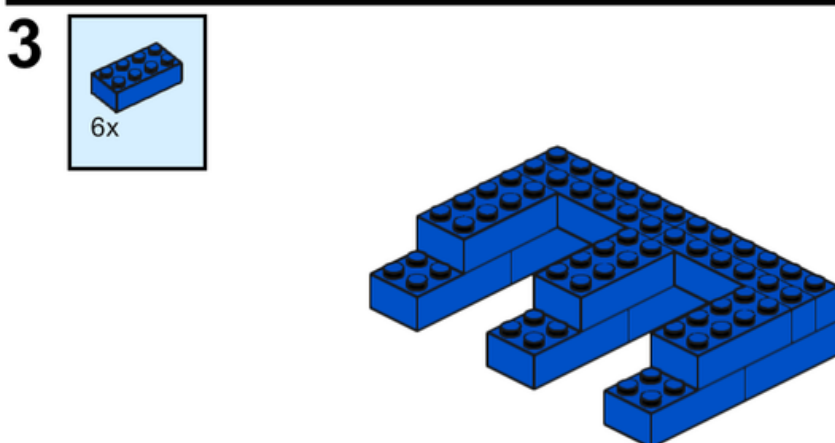
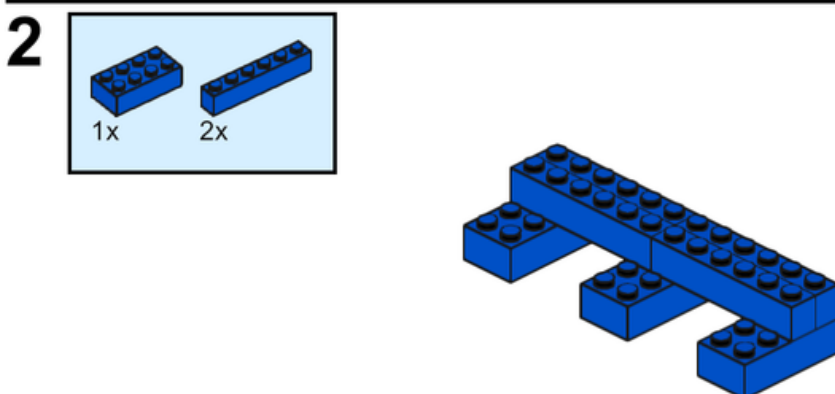
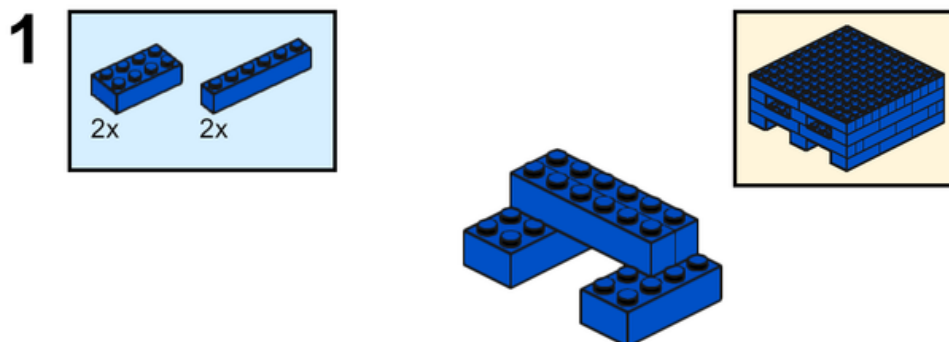
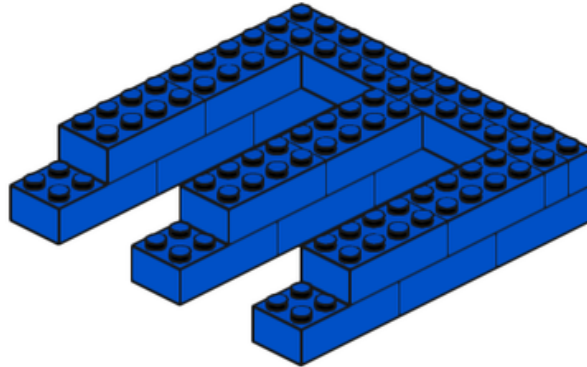
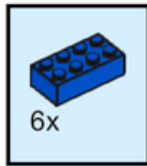


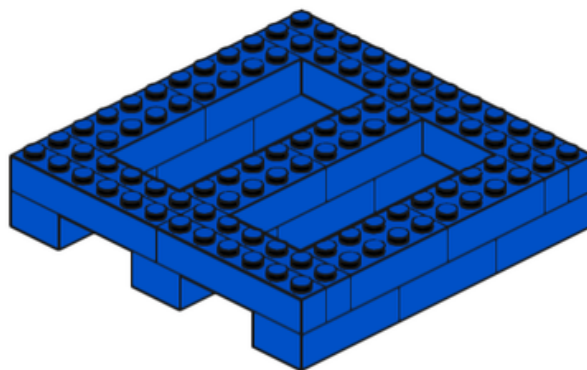
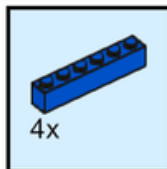
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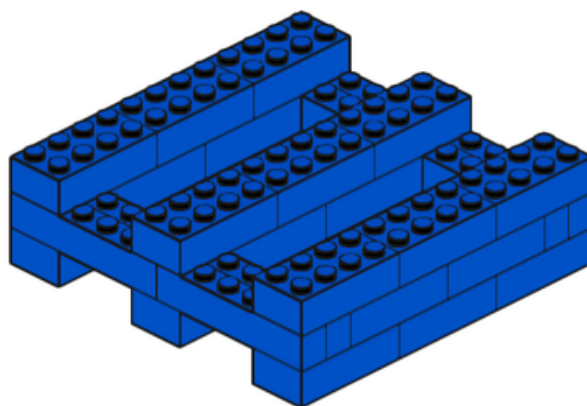
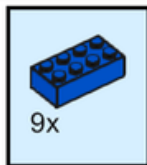
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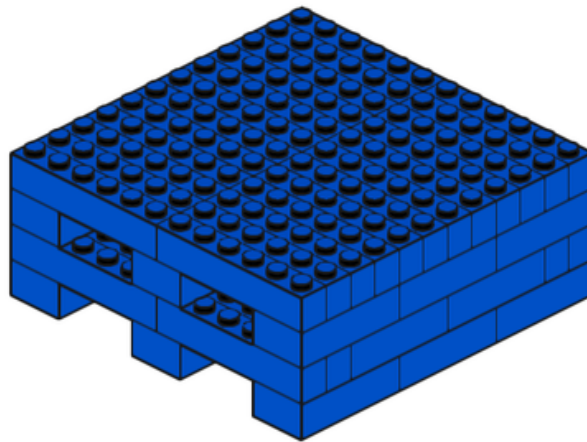
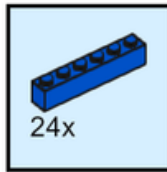
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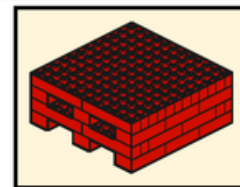
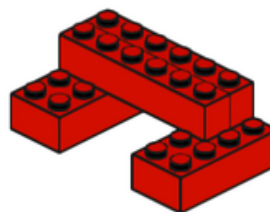
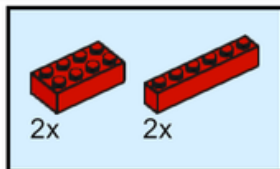
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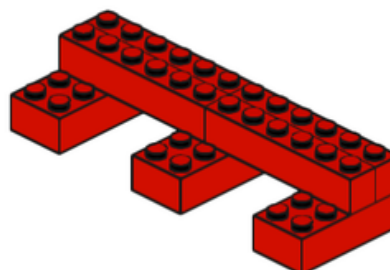
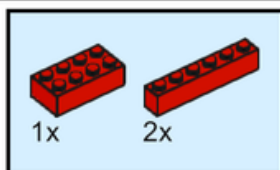
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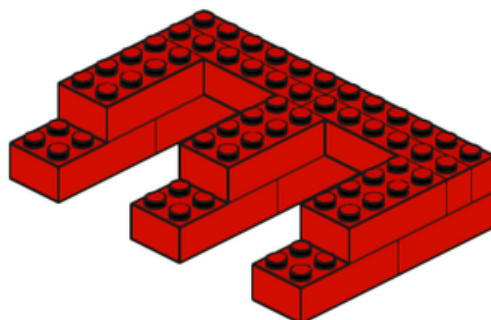
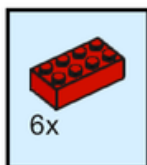
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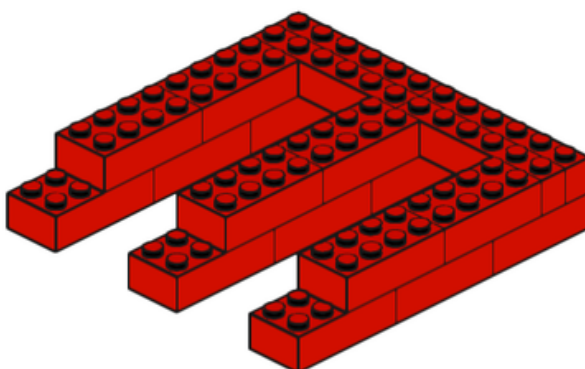
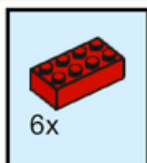
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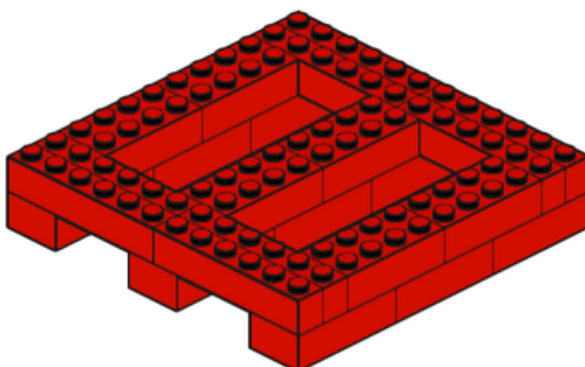
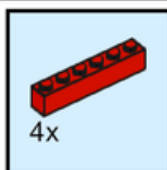
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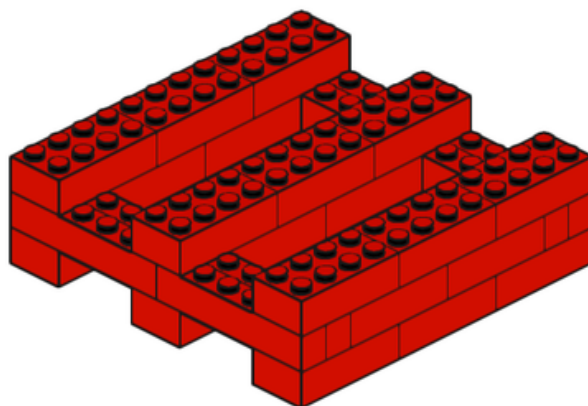
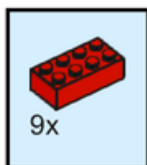
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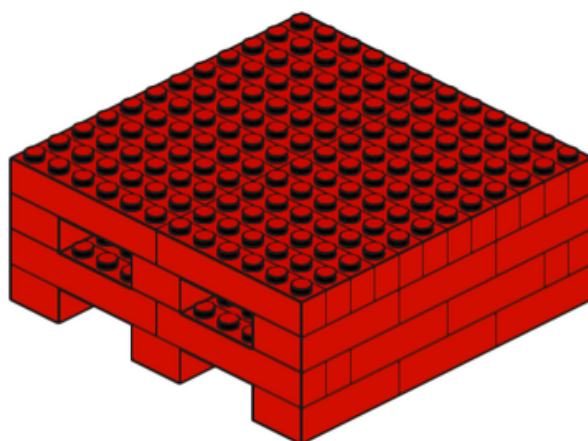
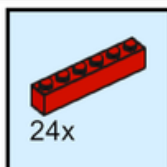
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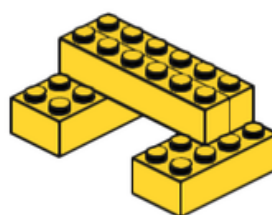
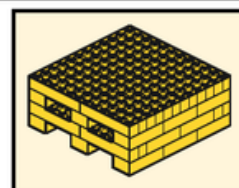
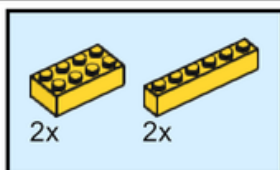
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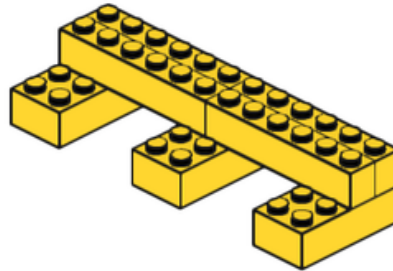
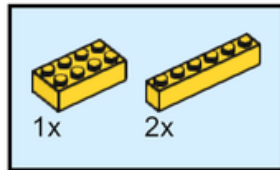
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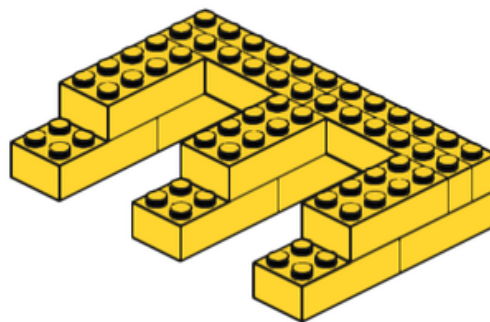
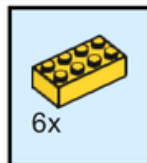
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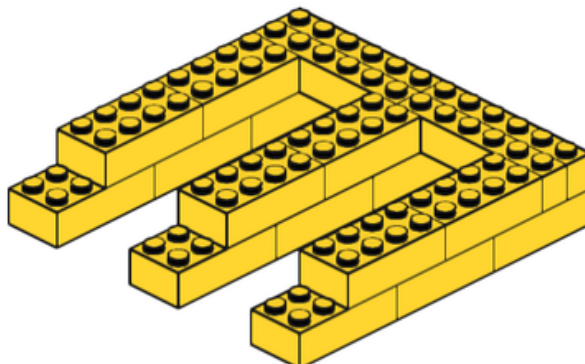
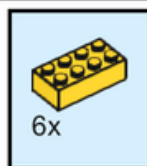
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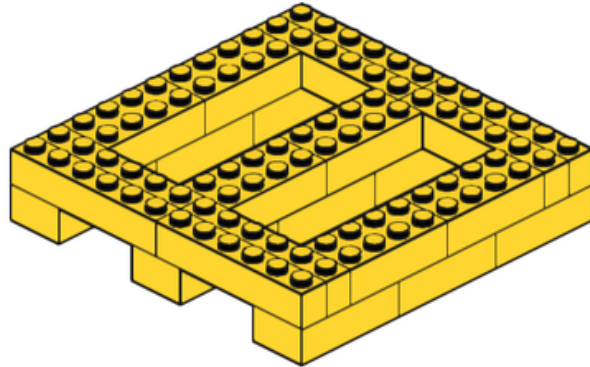
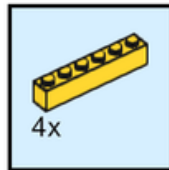
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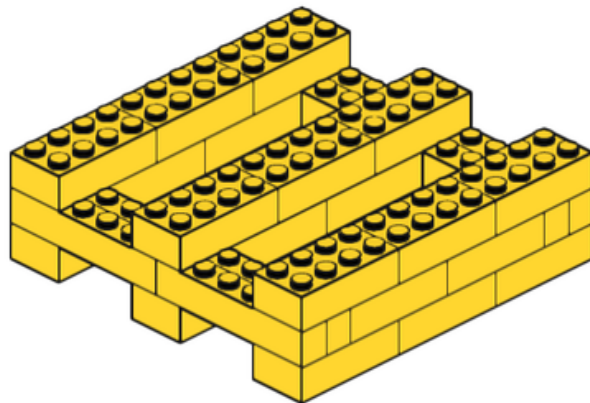
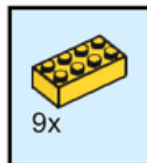
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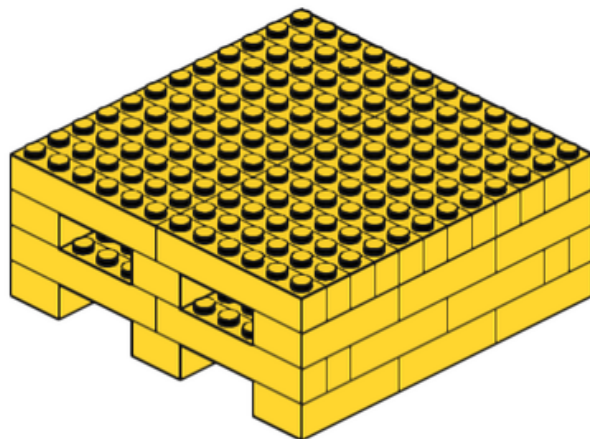
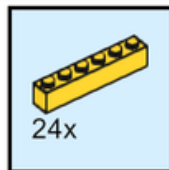
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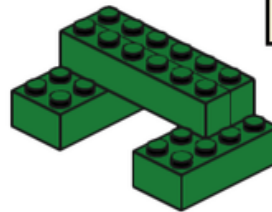
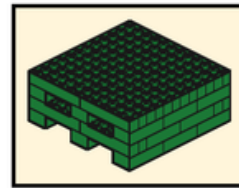
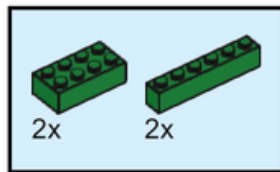
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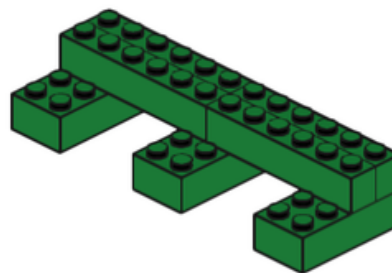
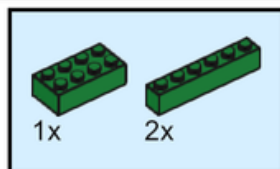
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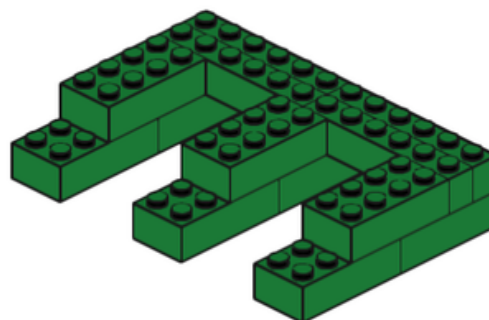
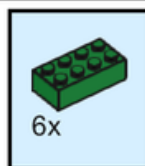
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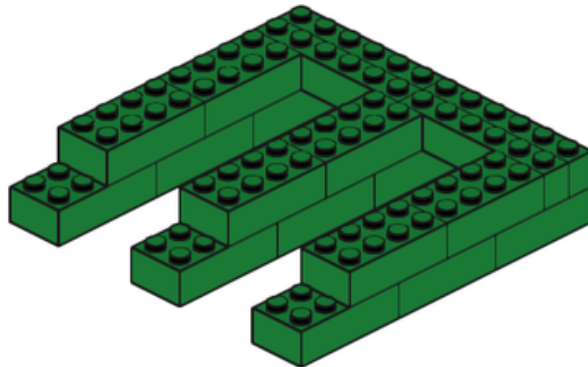
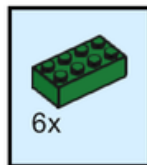
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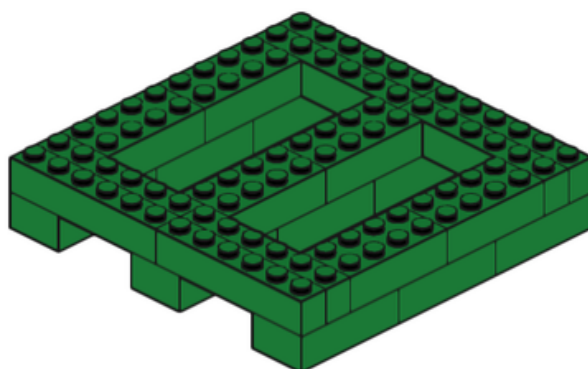
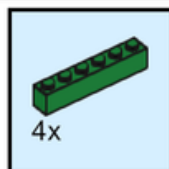
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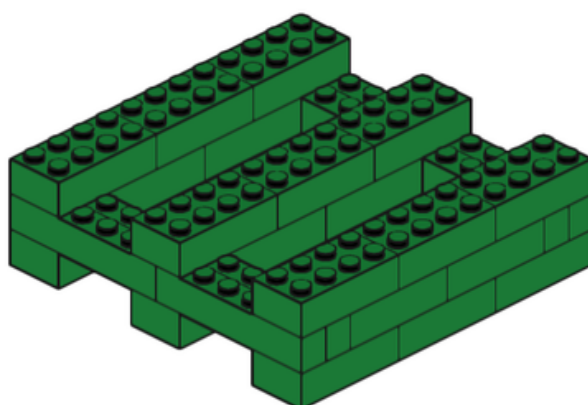
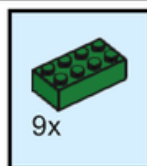
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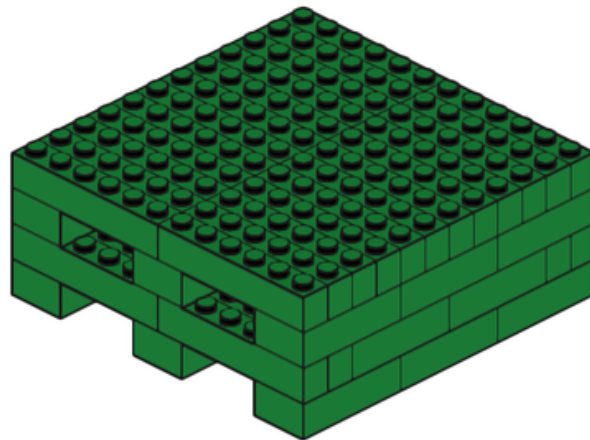
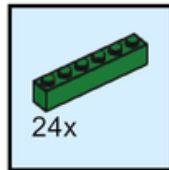
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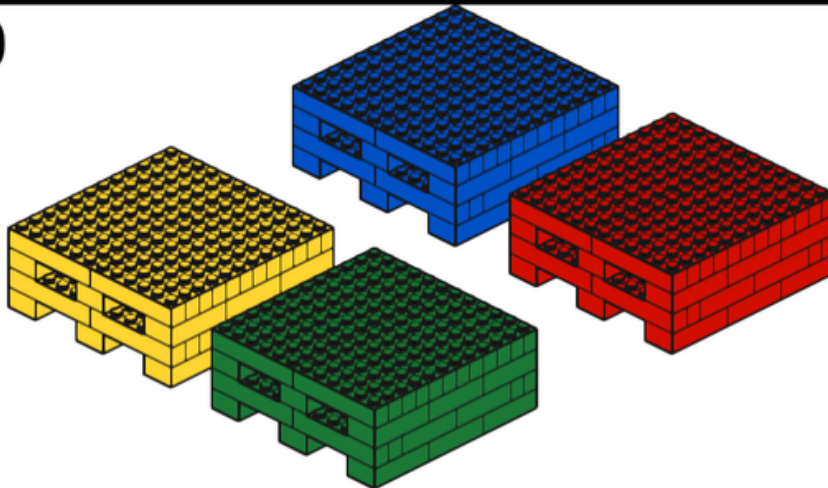
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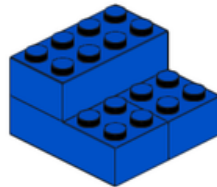
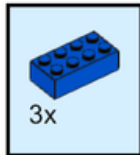


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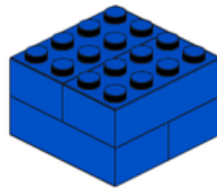
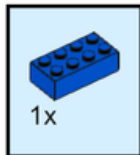


Water Bottle (3x)

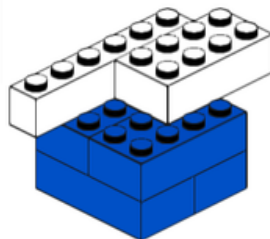
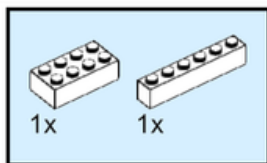
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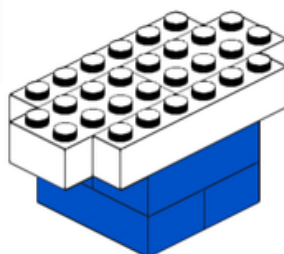
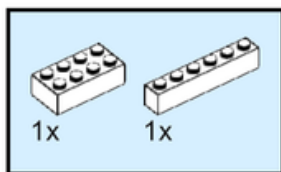
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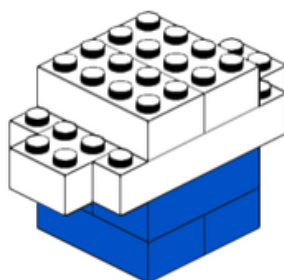
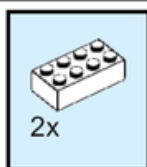
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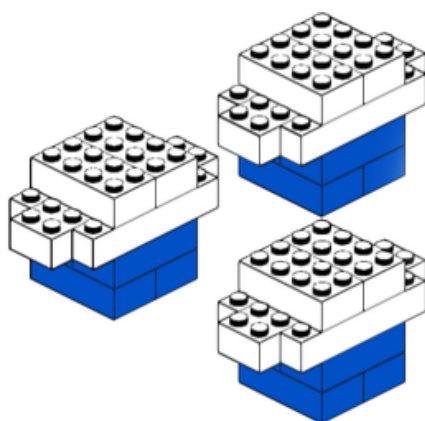
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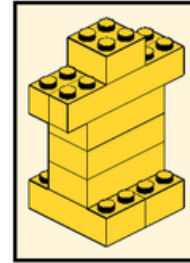
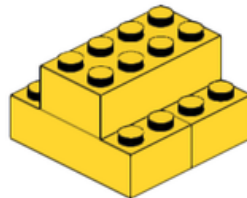
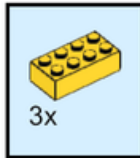


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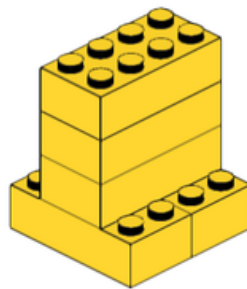
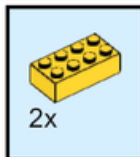


People (1x per colour, 6 in total)

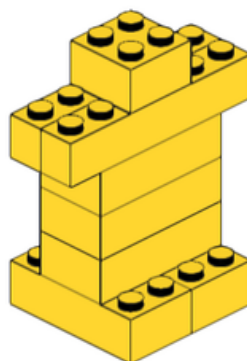
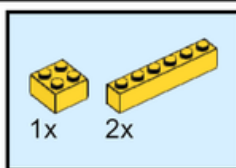
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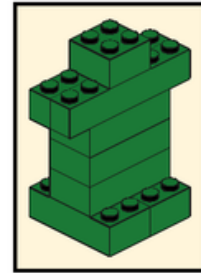
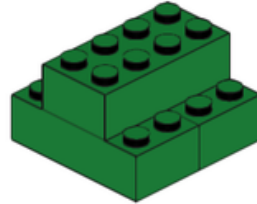
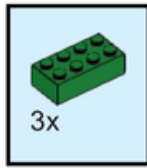
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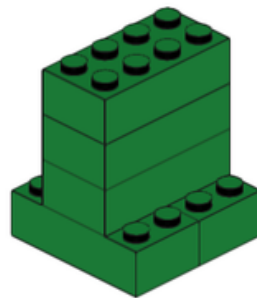
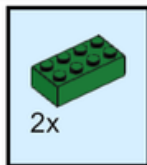
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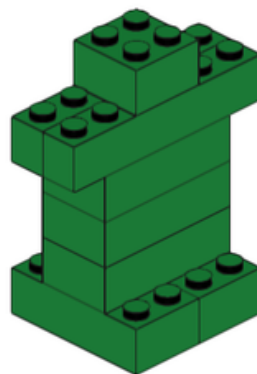
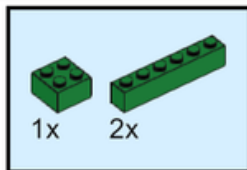
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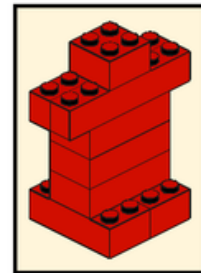
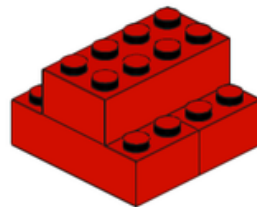
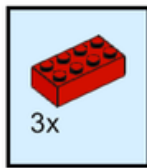
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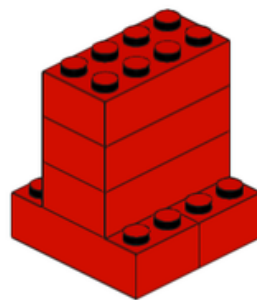
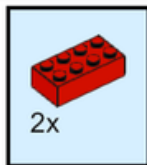
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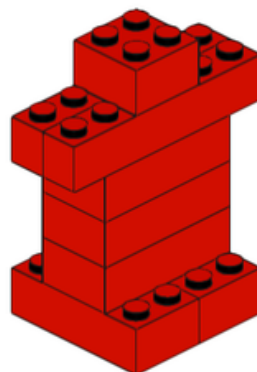
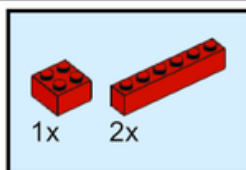
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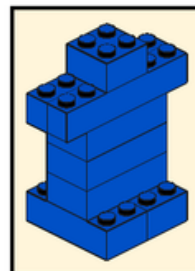
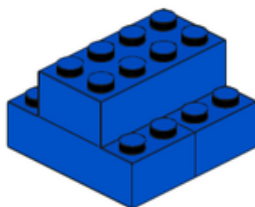
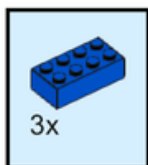
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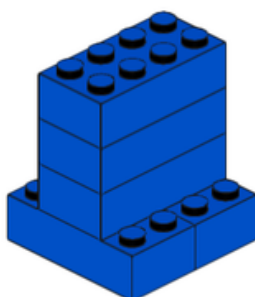
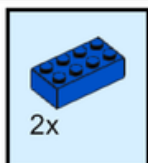
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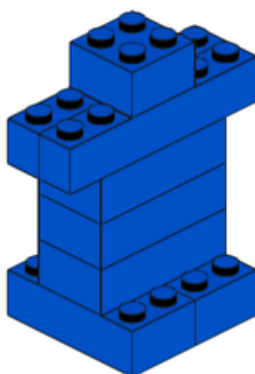
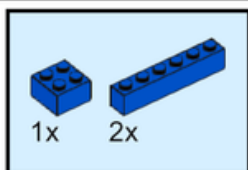
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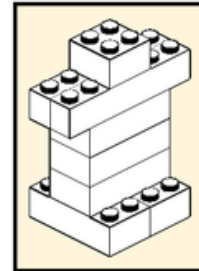
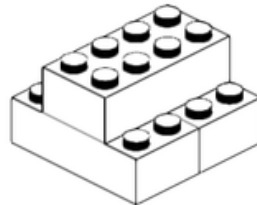
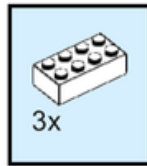
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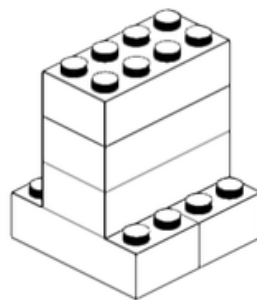
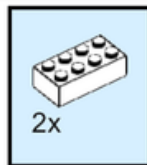
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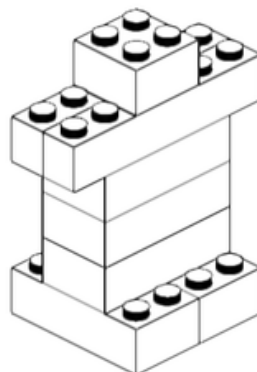
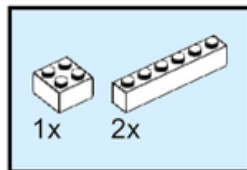
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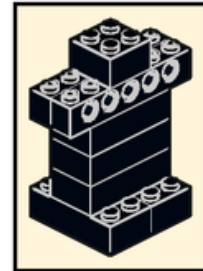
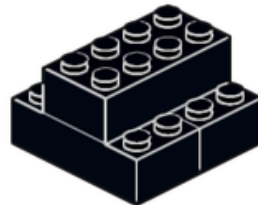
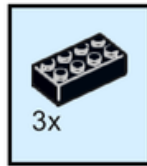
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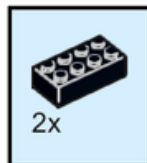
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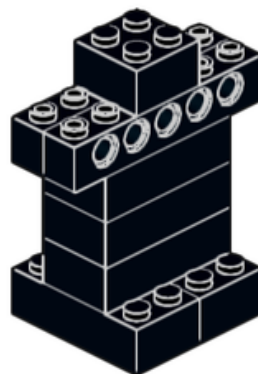
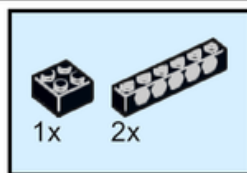
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