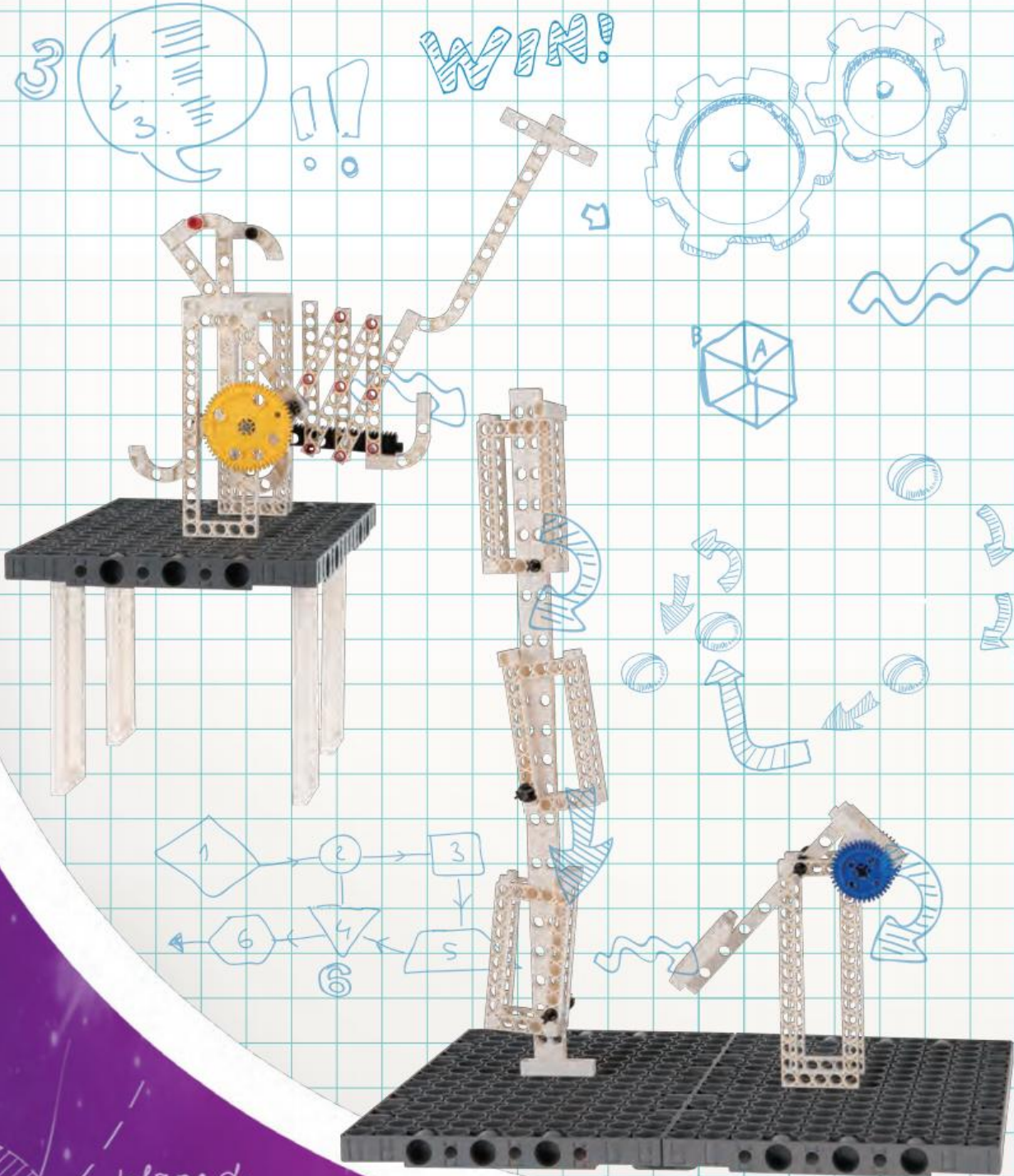




趣味機關組

FUN WITH MECHANISM

FUN LAB



1270

445 PCS

7+

KNOWLEDGE COMES

FROM EXPERIENCE ALONE

40 MODELS TO BUILD



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各位小朋友，歡迎您加入 Gigo 智高的 FUN LAB 趣味實驗室。

這次，我們將要使用智高積木，創作許多饒富趣味的機關。

機關它可以是連鎖觸發的活動，也可以是連續能量與運動型態的模型轉換。機關除了需要縝密的設計、可以應用許多科學與創意原理，更強調動態展現與視覺驚奇。我們使用智高積木，透過〔輸入→動作→輸出〕就能創作出機關，而曾經在 FUN LAB 趣味實驗室中學習到的各種原理，在這裡都能派上用場哦！

機關不只是個人的活動，它重視團隊合作，透過發想與討論，結合團隊成員們的創意點子，創造獨樹一幟的機關王。

學習機關創作，不僅能活用物理化學觀念與機械運作原理，還能訓練邏輯思考與解決問題的能力，更重要的是創意思考與創造力的培養，激發強烈的成就意識與團隊共識。讓我們一起在 FUN LAB 趣味實驗室中，創作出令人為之驚嘆的趣味機關吧！

Hello, everyone! Welcome to join Gigo's Fun Lab.

In the class, we will use Gigo blocks to create a variety of interesting contraptions.

A contraption can be a device designed to trigger off a series of motions. It can be a series of transformation between force and motions as well. Besides careful design and application of scientific and creative concepts, a contraption emphasizes dynamic presentation and visual surprise. Gigo blocks can build contraptions with the process of (force input–motion created–force output). All the theories you have ever learned in Gigo's Fun Lab can be applied for your design.

More than a personal job, a contraption project requires team work. Through concept development and discussion, combining the creative tips from the team workers a unique contraption is achieved.

With the learning of contraption development, one can utilize the concepts of physics, chemistry and mechanism. Moreover, he can train his ability of logical thinking and solving problems. Above all, the learning can develop the creative ideas, stimulate a strong conscious of accomplishment and achieve a team consensus.

Let's work together to create amazing fun contraptions in Gigo's Fun Lab.



1
C-軸扣鍵
C-AXLE CONNECTOR
x20



2
C-自轉軸鍵
C-AXLE
x5



3
C-凸輪連結鍵
C-CAM CONNECTOR
x5



4
C-長結合鍵
C-LONG PEG
x20



5
B-短結合鍵
B-SHORT PEG
x50



6
C-軸固定鍵
C-AXLE FIXING
x10



12
C-3孔超長條
C-3 HOLE DUAL ROD
x15



13
C-3孔長條
C-3 HOLE ROD
LATERAL CLOSED
x15



14
C-3孔長條側有孔
C-3 HOLE ROD
x15



15
C-5孔超長條
C-5 HOLE DUAL ROD
x15



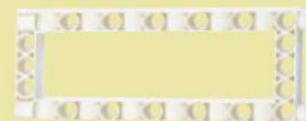
16
C-5孔長條
C-5 HOLE ROD
x15



22
C-11孔長條
C-11 HOLE ROD
x15



23
C-15孔超長條
C-15 HOLE DUAL ROD
x25



24
C-5x13孔超長方框
C-5x13 DUAL FRAME
x2



29
C-20T鍊輪
C-20T CHAIN GEAR
x2



30
C-10T鍊輪
C-10T CHAIN GEAR
x2



31
C-80T齒輪
C-80T GEAR
x2



32
C-60T齒輪
C-60T GEAR
x4



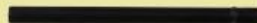
33
C-40T齒輪
C-40T GEAR
x6



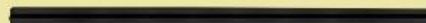
39
C-30mm II 軸
C-30mm AXLE II
x5



40
C-70mm II 軸
C-70mm AXLE II
x10



41
C-100mm II 軸
C-100mm AXLE II
x5



42
C-150mm I 軸
C-150mm AXLE I
x5



47
玻璃彈珠
Marble
x10



48
C-100mm橡皮筋
C-100mm RUBBER BAND
x2



49
A-58mm扭蛋球
A-CAPSULE BALL
x3



50
B-扳手
B-PEG REMOVER
x1



7
C-軸轉接器
C-ROD CONNECTOR
x5



8
C-關節鍵
C-HINGE
x10



9
C-單向轉接鍵
C-FRONT
CONVERTER
x10



10
C-雙向轉接鍵
C-LATERAL
CONVERTER
x10



11
C-3孔1/4弧長條
C-BENDED ROD
x12



17
C-5孔長條側有孔
C-5 HOLE ROD
FRONT CLOSED
x15



18
C-大底盤結合器
C-JUMBO BASE
GRID CONNECTOR
x6



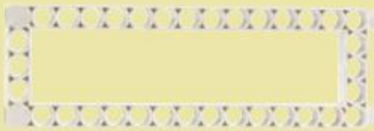
19
C-大底盤拆卸器
C-JUMBO BASE
GRID REMOVER
x2



20
C-曲軸
C-CRANK
x5



21
C-二合一結合鍵
C-TWO-IN-ONE
CONVERTER
x10



25
C-5x15孔長方框
C-5X15 FRAME
x15



26
C-5x10孔長方框
C-5X10 FRAME
x10



27
C-5x5孔正方形
C-5X5 FRAME
x10



28
C-蛋形凸輪
C-EGG CAM
x1



34
C-20T齒輪
C-20T GEAR
x6



35
C-OD53mm滑輪
C-OD53 PULLEY
x2



36
C-OD33mm滑輪
C-OD33 PULLEY
x2



37
C-渦桿
C-WORM GEAR
x2



38
C-墊片
C-WASHER
x10



43
C-15孔超長齒條
C-150mm RACK
x4



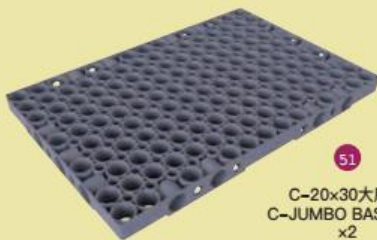
44
A-多向轉接器
A-2cm CUBE PEG
x5



45
A-90度結合器
A-LATERAL PEG
x2



46
C-特多龍線
C-STRING
x5



51
C-20x30大底盤
C-JUMBO BASE GRID
x2

組裝小技巧

Assembly tips

課前須將 200cm 棉線剪成
一條 30cm、一條 170cm 備用

Cut the 200 cm string into two, one 30 cm long and the other 170 cm, ready for the class.



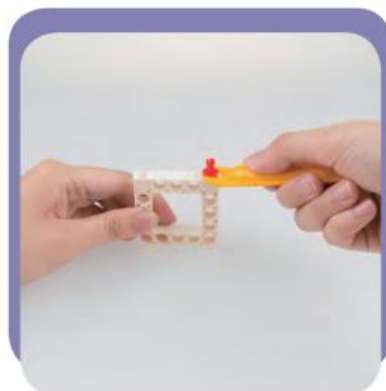
長、短結合鍵組裝特性
Connect Pegs with Rod as the picture shows.



長結合鍵拆解法
Pull Peg off Frame with side A of Peg Remover.



軸扣鍵拆解法
Push Axle Connector out of Frame with Long Axle.

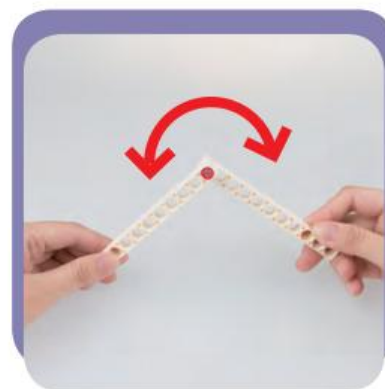


自轉軸鍵拆解法
Pull Axle off Frame with side B of Peg Remover. 用手拉住方框邊，用扳手(B側)將自轉軸鍵拆下。

Push Axle out of Gear with the back of Peg Remover. 用扳手壓住自轉軸鍵的凸面，往齒輪的內側推入。



結合鍵功用固定
Long Pegs can be used to join and fix two Rods together. 兩顆以上的長結合鍵可連接並固定兩根長條。



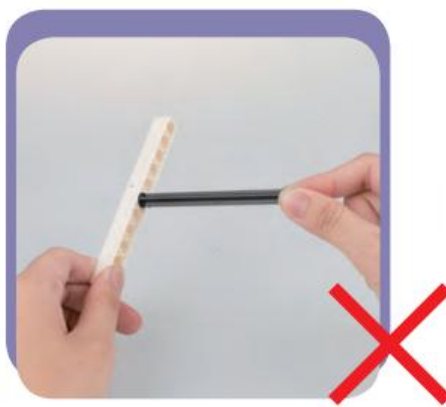
軸扣功用活動
Axle Connector can be used to join two Rods and keep them flexible at any angle. 軸扣鍵可用於連接兩個桿，並讓他們能自由地轉動調整角度。



底盤的正面
The top of Base Grid



框架的比例關係
The ratios between Frames.



長軸插入方式

When putting Long Axle through the hole of Rod, the flange must go behind to prevent Long Axle being stopped.

當使用長軸時需要注意並確保方向正確，以免無法裝入。



軸固定鍵用法

Axle Fixing can be used to keep Axles from slipping.

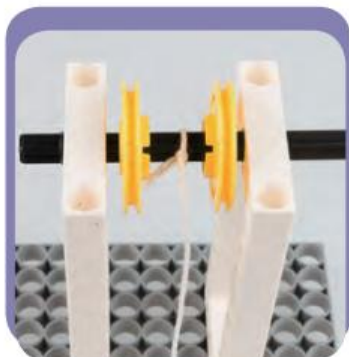
軸固定鍵可以用來防止軸的滑動。



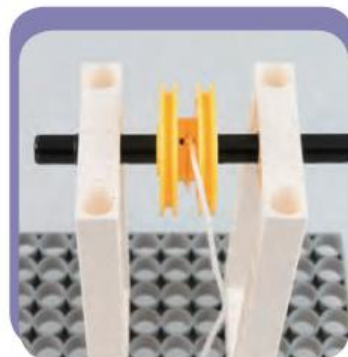
齒輪正面
The top of 60T Gear



定位點溝槽
The locating cut on pulley



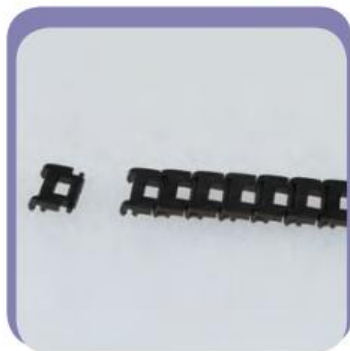
將滑輪穿過軸後，定位點面對面擺放，並在中間將繩索打結
Connect two pulleys with the axle, with the locating cuts facing each other, and tie the string in between.



滑輪合起後，將繩索從定位點溝槽中拉出，即可隱藏繩結，並防止繩結空轉
Put the pulleys together, and pull out the string through the locating cut to fix the knot and avoid idling.

鍊條組裝方式

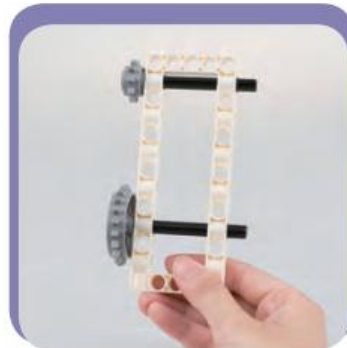
Connecting unit chains with the faces upwards



鍊條組裝成品須有垂墜感，可加減一個鍊條去做調整
The gear chain should be a little loose when used to connect two chain gears.
A unit chain can be added or reduced to adjust the tightness.



鏈輪配置需平行
Chain gears should be put on in a parallel line.



課前準備

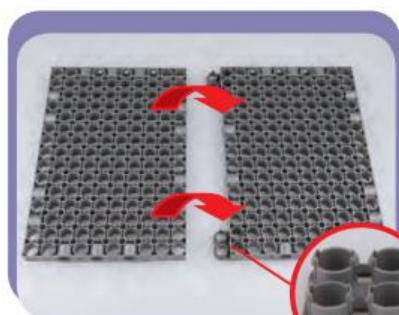
Before the class



大底盤正面 The top of Jumbo Base Grid

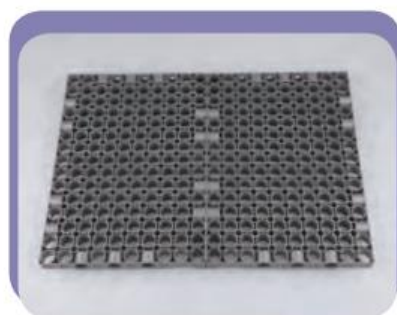
可依 Logo 正反作為判斷依據

You can see the Gigo logos on the edge of Jumbo Base Grid stand upwards if its top is placed upwards.

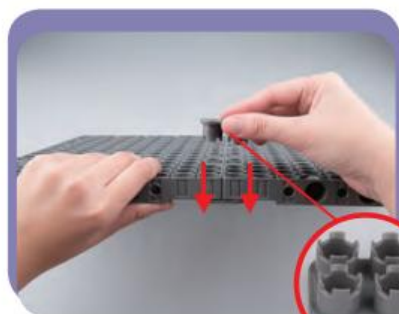
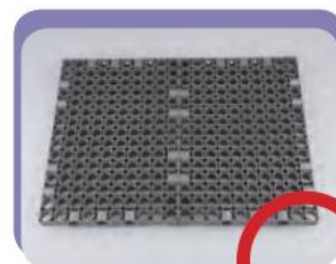


大底盤的組裝

Jumbo Base Grids can be connected each other with Jumbo Base Grid Connectors as the pictures show.



大底盤結合鍵 Jumbo base grid connector

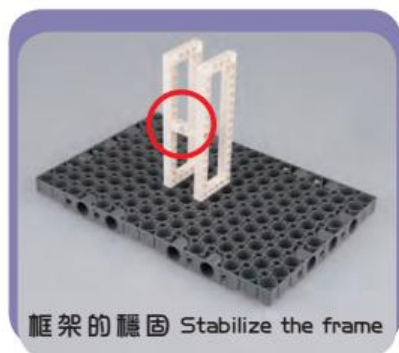
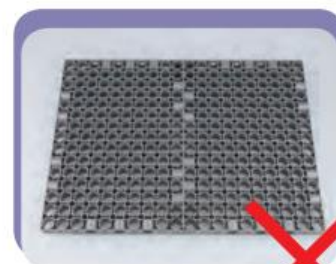


大底盤的拆卸

Jumbo Base Grid Remover is used to release the connection of Jumbo Base Grids.

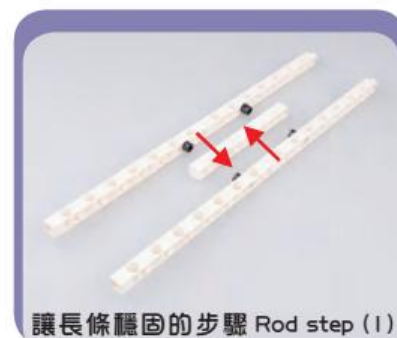


大底盤拆卸鍵 Jumbo base grid remover



框架的穩固 Stabilize the frame

可使用 (12) 三孔超長條固定
Stabilize the frame with 3 hole dual rod



讓長條穩固的步驟 Rod step (1)

5 Hole Rod can be used to strengthen the stability of Frames.
將 5 孔長條用來連接兩長條。



長條的穩固 Rod step (2)

5 Hole Rod and Short Pegs can be used to strengthen the stability of 15 Hole Dual Rods.
若要將長條並排組合，需要用短結合鍵的幫助，方可穩固平整。



以軸扣暫時定住彈珠
Hold on Marble with an Axle Connector.

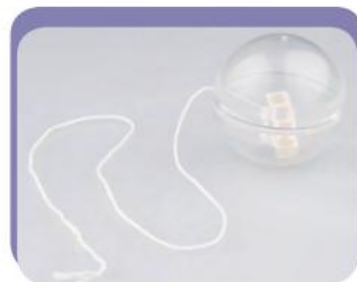
透明球的應用 Application of Capsule Ball



球內可裝積木增重
Add blocks into Capsule Ball to get more weight.



球內可裝彈珠增重
Add marbles into Capsule Ball to get more weight.

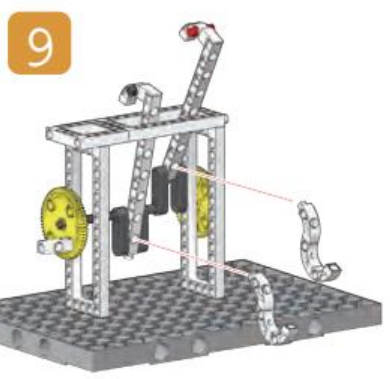
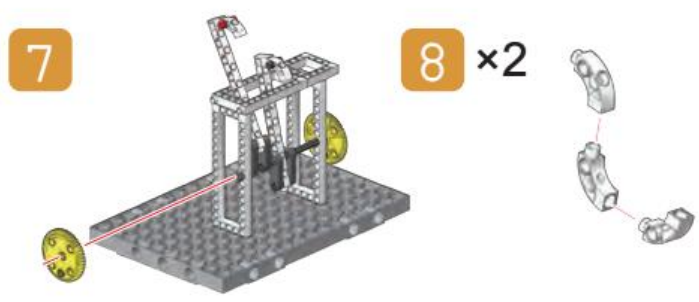
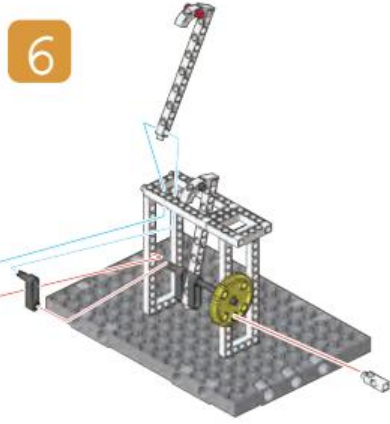
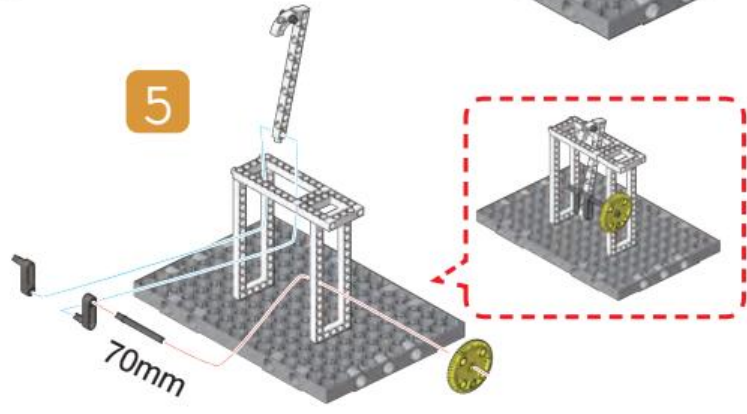
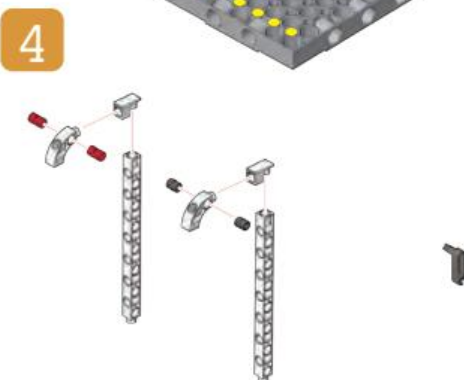
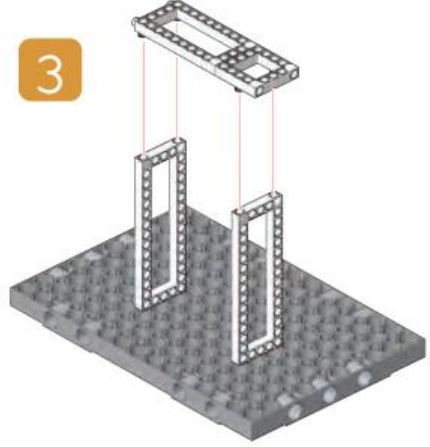
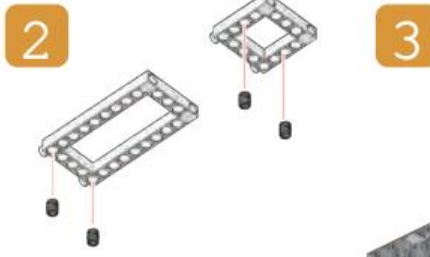
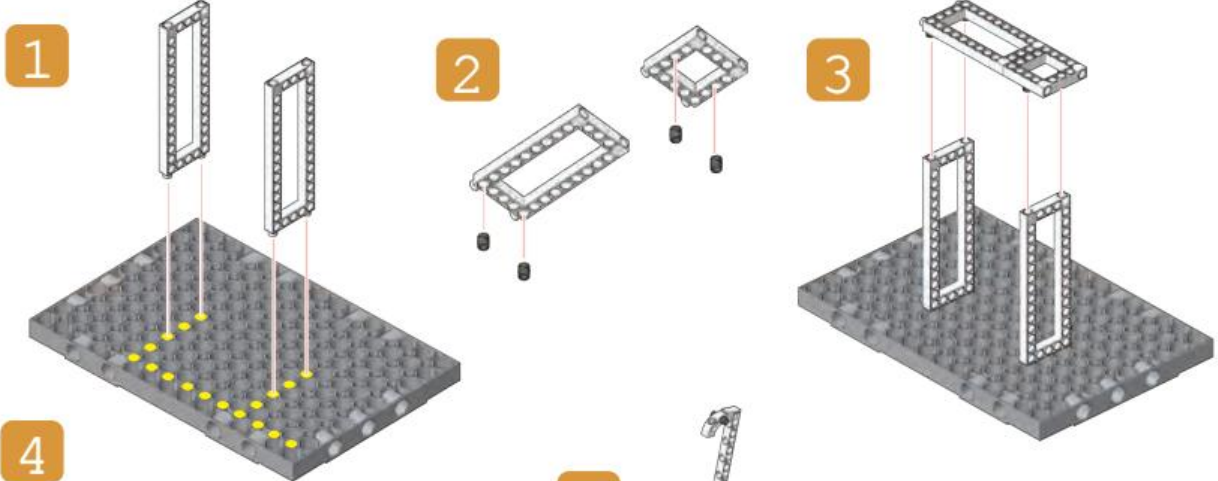


球內可裝棉線
Add cotton thread into Capsule Ball to get more weight.

機關間的連結與觸發 Linking and triggering off the devices

動作型態 Motions	可提供採用的元件或原理 Applicable elements or theories				
碰撞 Collision	彈珠、球 Pinball . ball	敲槌 Mallet	骨牌 Domino	重力槌 Gravity hammer	磁力彈弓 Magnetic sling shot
拉力 Pulling force	繩子 Thread	連桿 Linking rod	鍊條 Chain	滑輪 Pulley	異磁極相吸 Opposite poles: attracted
推力 Pushing force	連桿 Linking rod	齒條 Gears	液壓缸 Hydraulic cylinder	吹漲氣球 Balloon inflation	同磁極相斥 Same poles: repelled
浮力 Buoyancy	水 Water	乒乓球 Ping pong	保麗龍 Styrofoam		
電力 Electricity	各式開關 Switches	電解質液體 Liquid electrolytes	銅、鋁箔 Copper. Foil	磁簧開關 Reed switch	鋼珠開關 Pinball switch
風力 Wind power	繩子 String	風帆 Sail	風車 Windmill	扇葉 Fan blades	
彈力 Elastic force	橡皮筋 Rubber band	扭轉橡皮筋 Twisted rubber band	彈簧 Spring	扭轉彈簧 Twist reed blades	彈性反跳 bounce
省力 Energy saving	第二類橫桿 Type 2: linking rod fixed	動滑輪組 Fixed Pulley kit	輪與軸 Axle and shaft	水壓 Water pressure	重物墜落拉力 Pulling force: by heavy objects
磁力 magnetic	鋼片、鋼珠 Steel piece Steel pinball	異磁極相吸 Opposite poles: attracted	同磁極相斥 Same poles: repelled	電磁 Electromagnetic	不同磁力大小 Various magnetic power
改變運動方向 Adapted movements	第一類橫桿 Type 1: linking rod	滑輪組 Movable Pulley kit	骨牌排列 Domino effect		
緩衝 Cushion	橡皮筋 Rubber band	緩衝擋桿 Cushion Rod	多次碰撞傳遞 Multi-collision	蹺蹺板承接與釋放 Seesaw effect	
捕捉 Capture	漏斗 Funnel	網子 Net	磁鐵 Magnet		
釋放 Release	插銷 Pin	卡榫 Latch	棘輪 Ratchet	重心與平衡 Center of gravity & balance	消去磁力 Magnet shielding

4	5	9	11	12	20	23	25
x2	x6	x2	x8	x1	x4	x2	x2
26	27	32	40	50			51
x1	x1	x2	x1	x1			x1



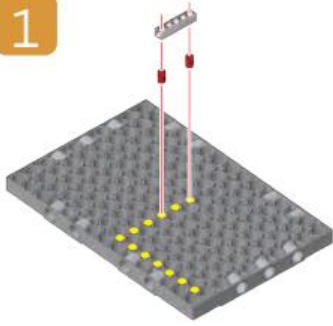
層層疊

Layers

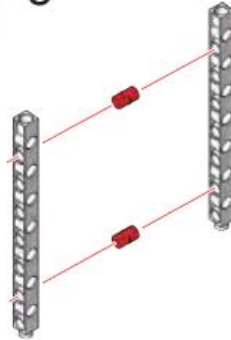
需用零件 Parts Needed

4	6	16	17	23	26	40	50	51
x8	x3	x1	x3	x6	x6	x3	x1	x1

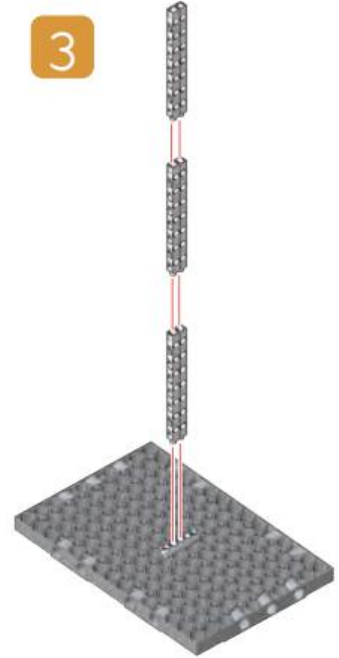
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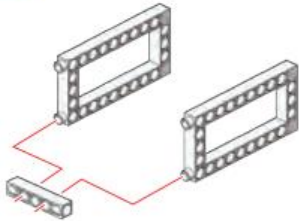
2 x3



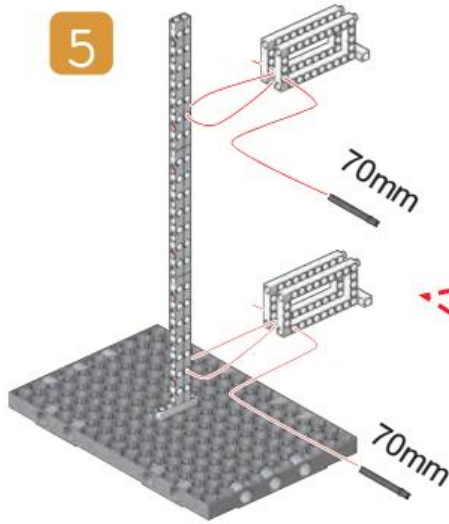
3



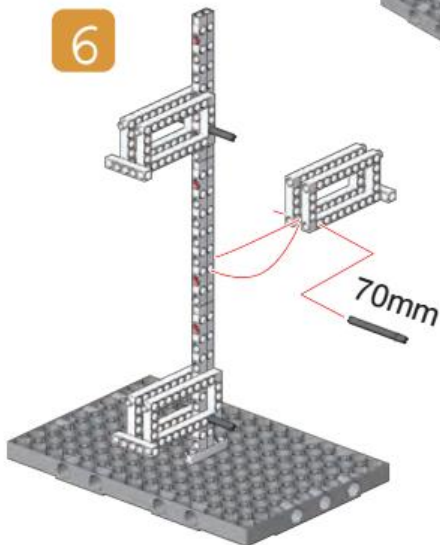
4 x3



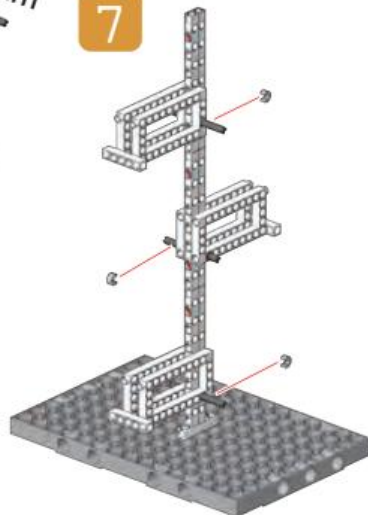
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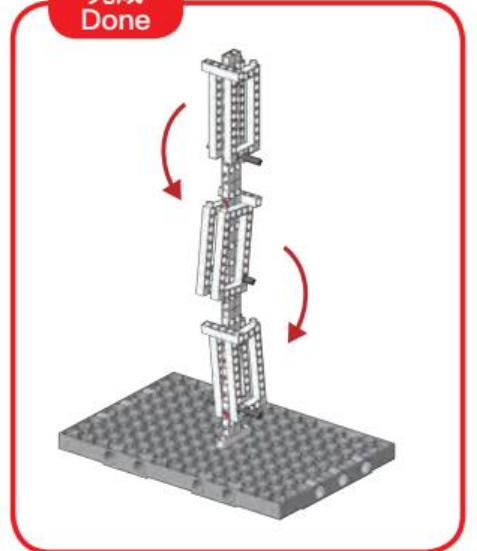
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7



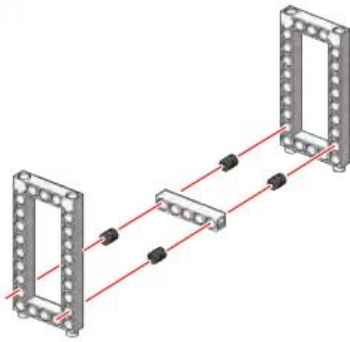
完成
Done



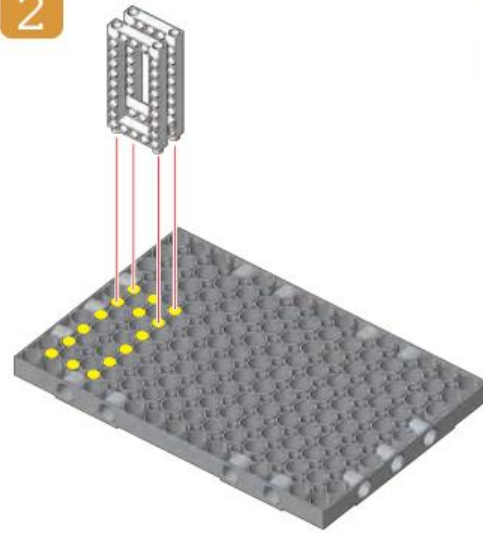
1	5	9	10	11	12	15	16	20	22	
x10	x4	x2	x1	x2	x2	x1	x1	x1	x7	

26	34	40	43	50	51
x2	x2	x1	x2	x1	x1

1



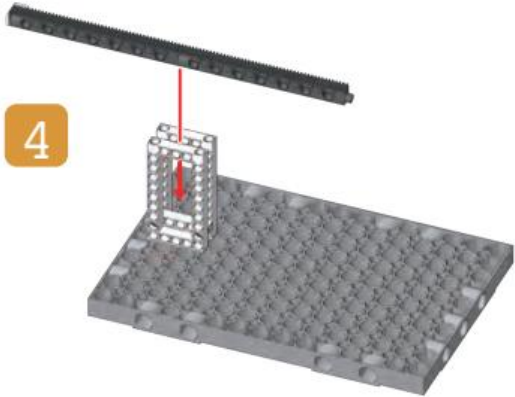
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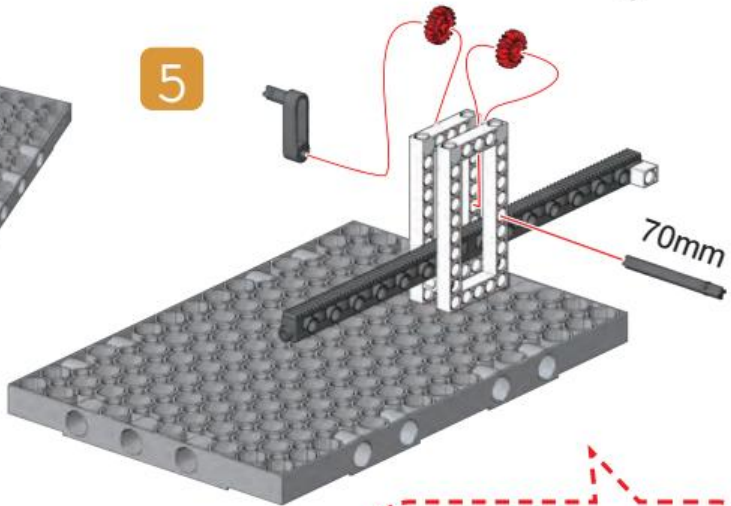
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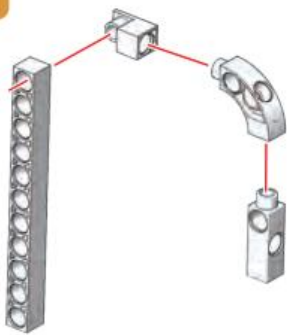
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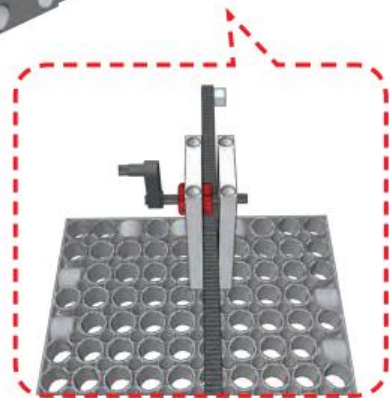
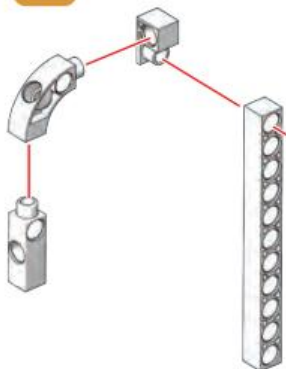
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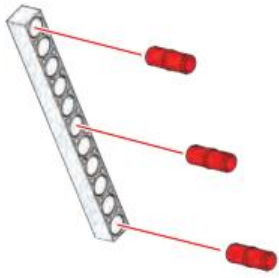
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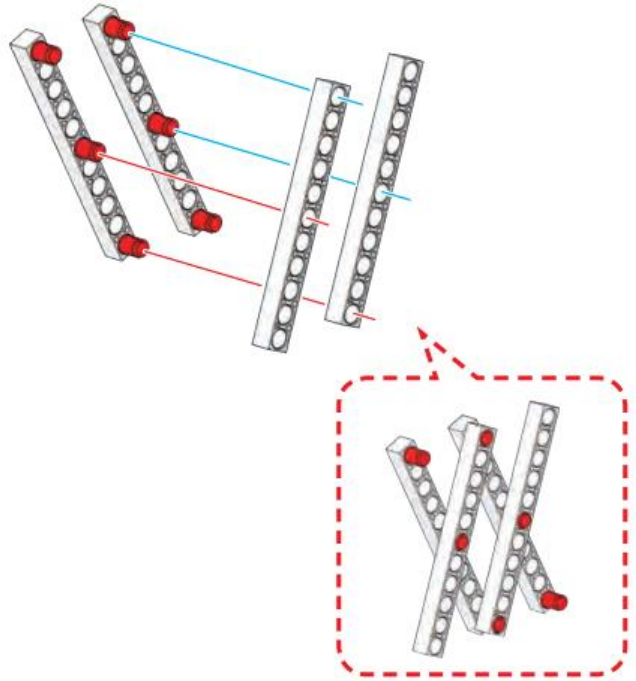
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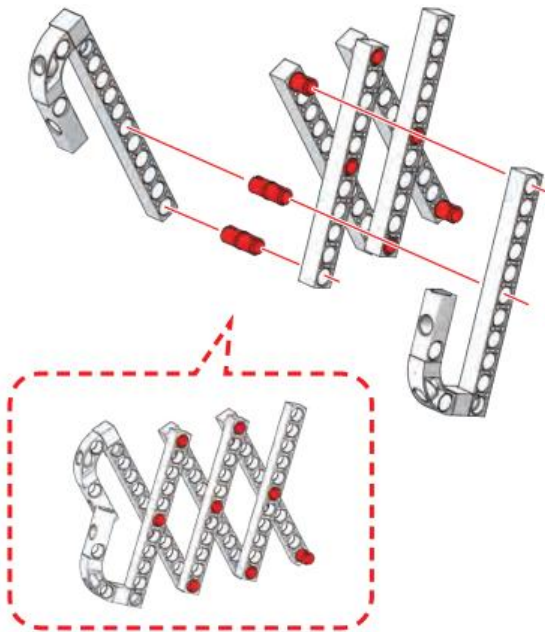
8 x2



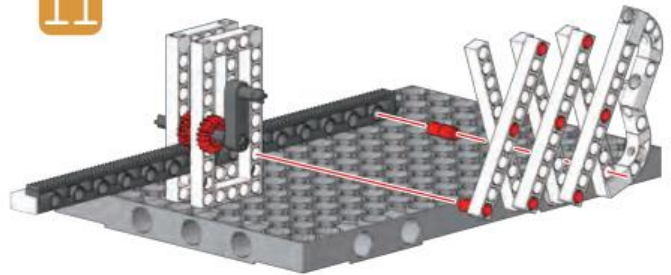
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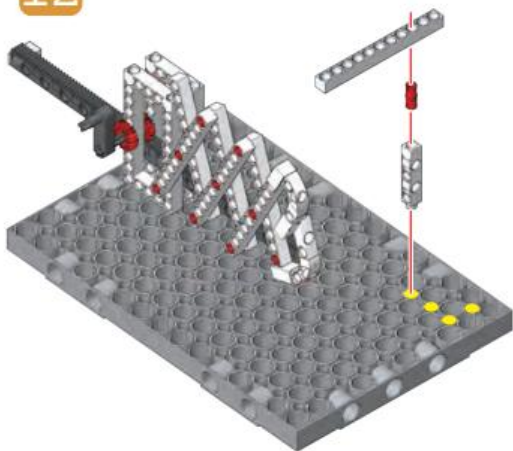
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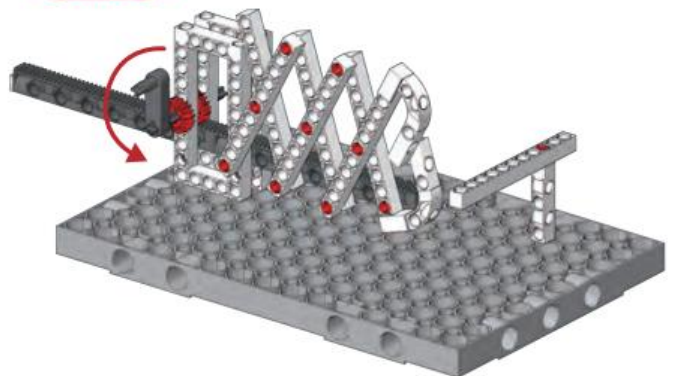
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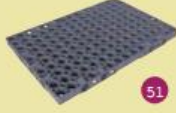


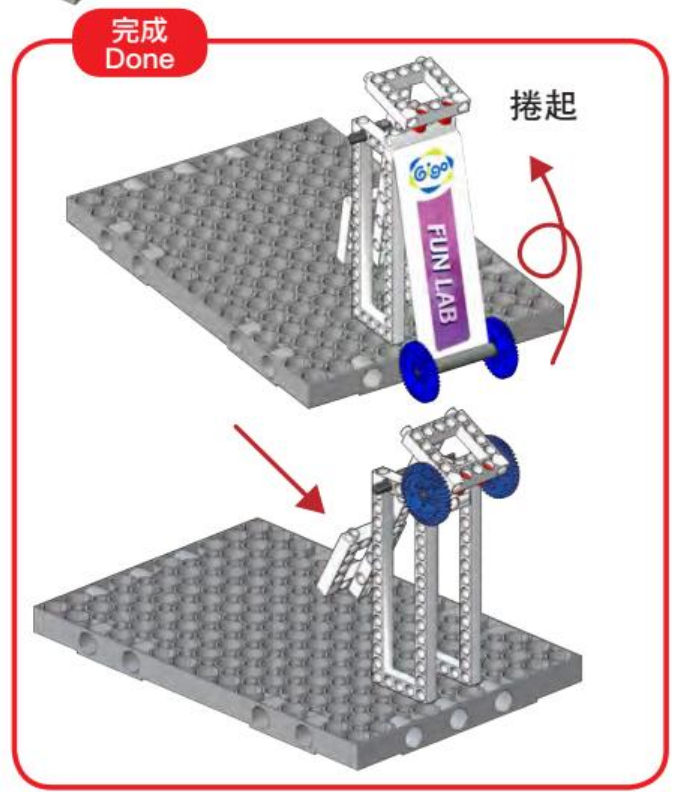
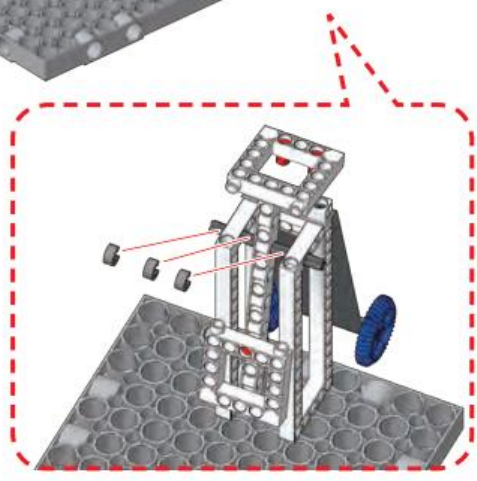
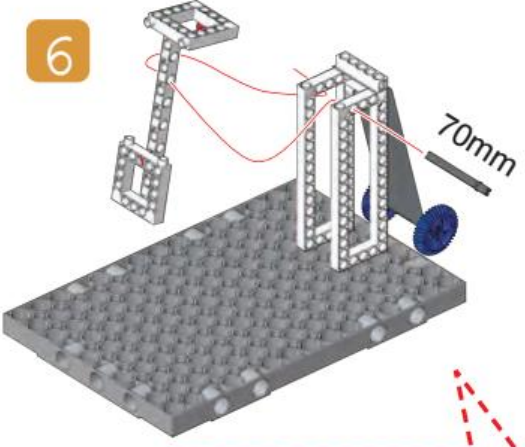
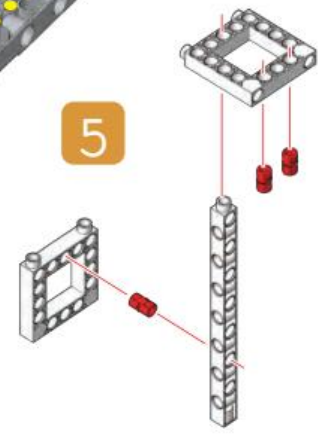
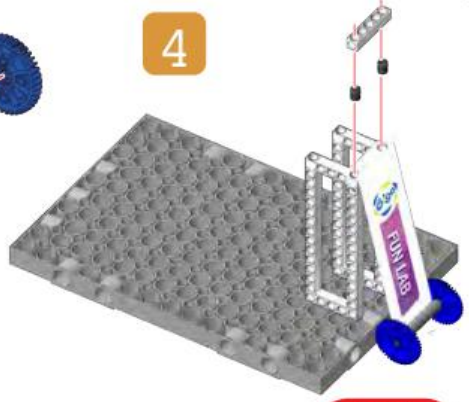
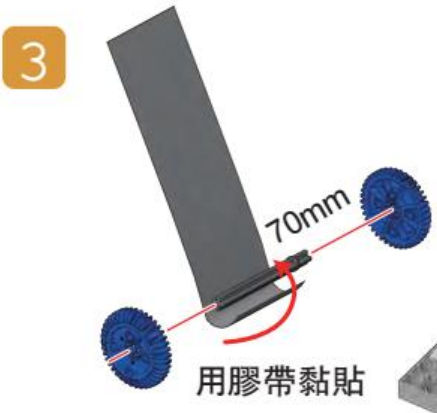
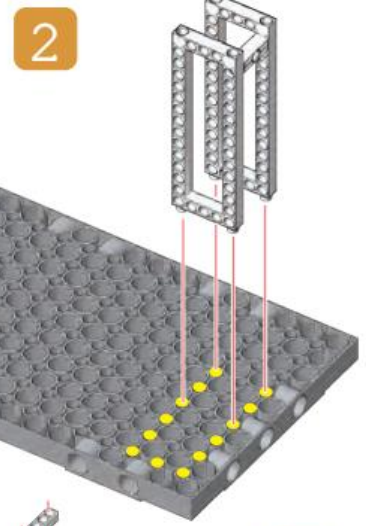
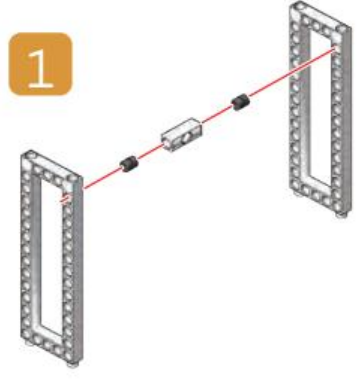
12



完成
Done



- 
 4
x3
- 
 5
x4
- 
 6
x2
- 
 14
x1
- 
 16
x1
- 
 23
x1
- 
 25
x2
- 
 27
x2
- 
 33
x2
- 
 40
x2
- 
 50
x1
- 
 51
x1

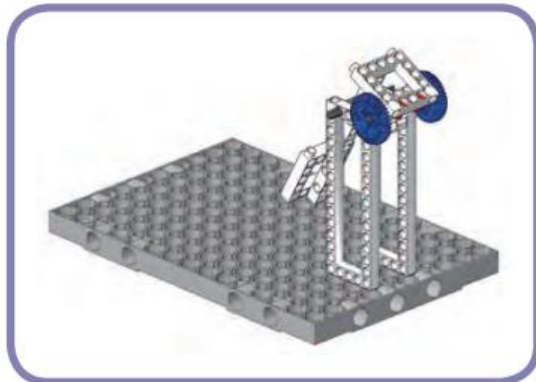
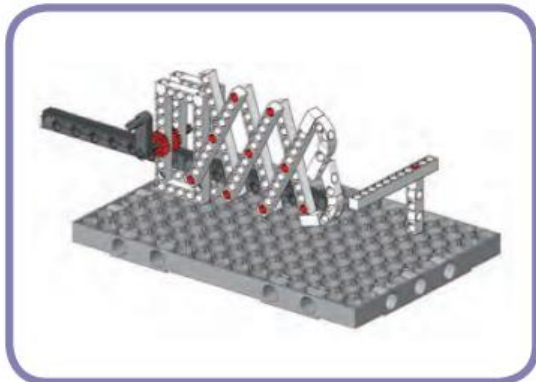
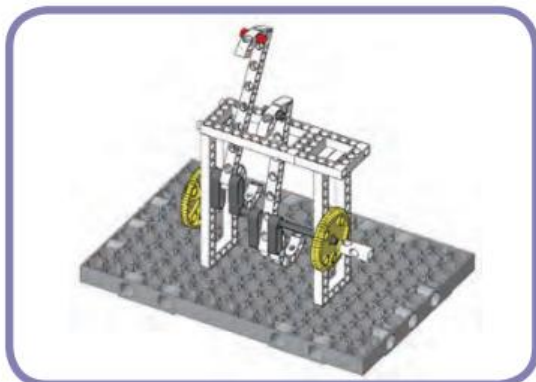


專題製作 (1) Special Project (1)



示範影片 Demo

模型列表 Model List

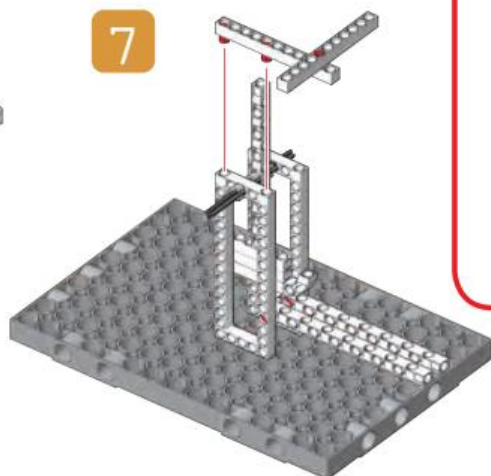
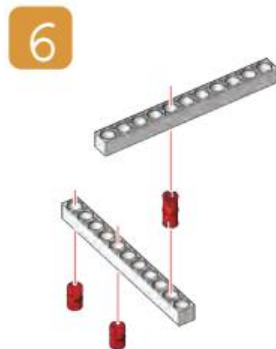
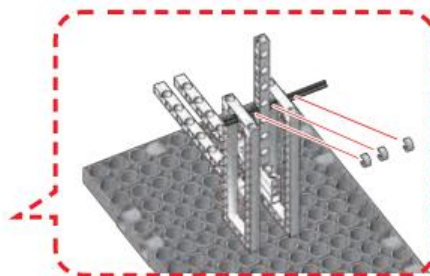
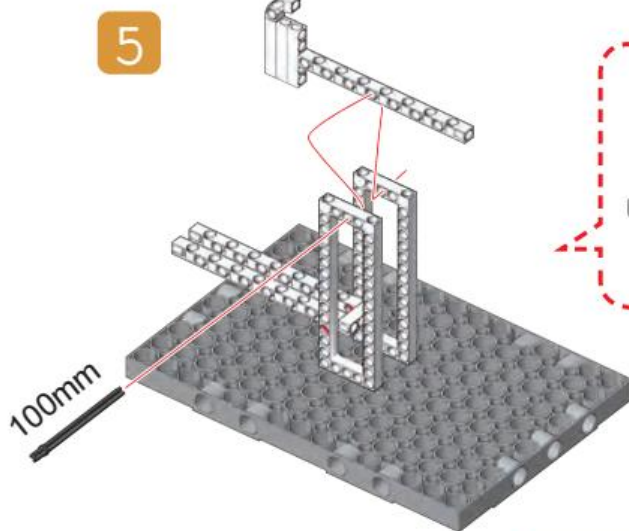
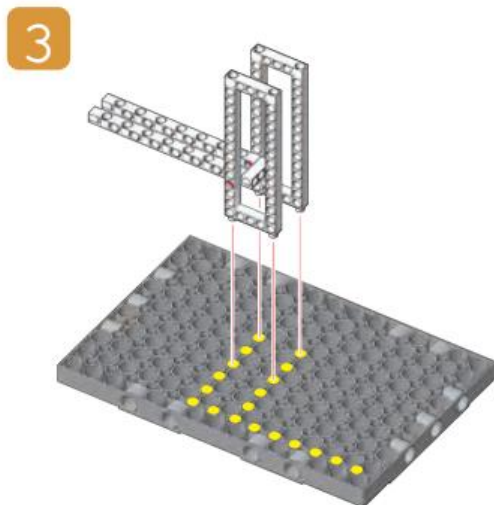
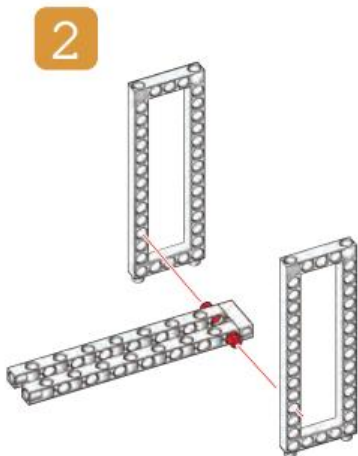
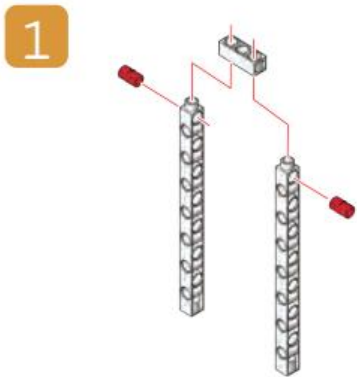


我的作品照 My Artwork



1	4	5	6	11	13	16	17	22	23
x1	x4	x4	x2	x1	x1	x2	x1	x2	x3

25	41	47	50	51
x2	x1	x1	x1	x1



進球得分

Scorer

需用零件 Parts Needed

4	5	8	11	12	13	15	17	18	19
x2	x9	x2	x4	x4	x2	x2	x2	x2	x1

23	24	25	27	47	50	51
x6	x1	x2	x2	x1	x1	x2

1

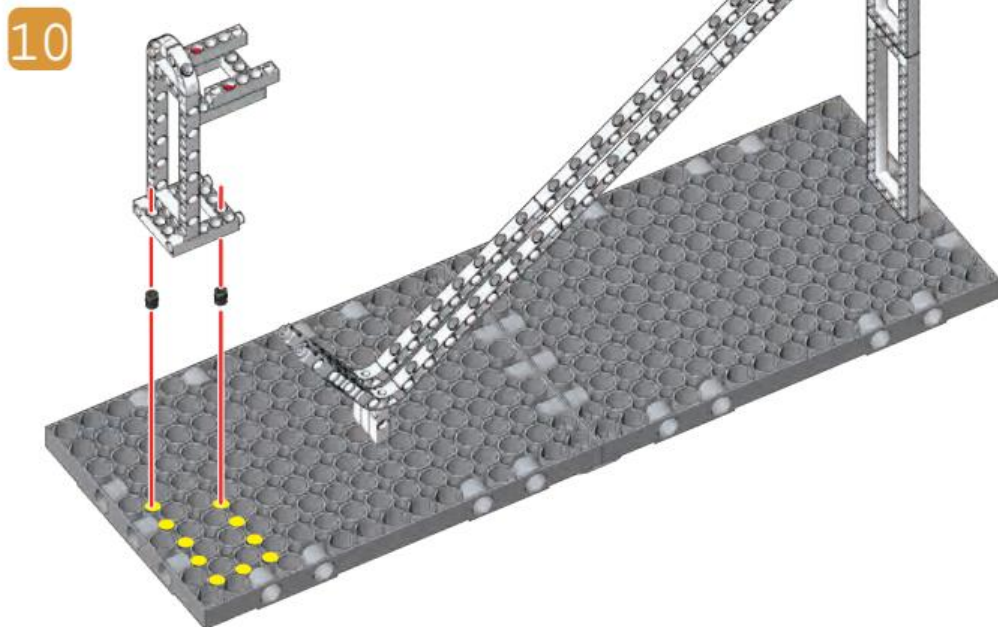
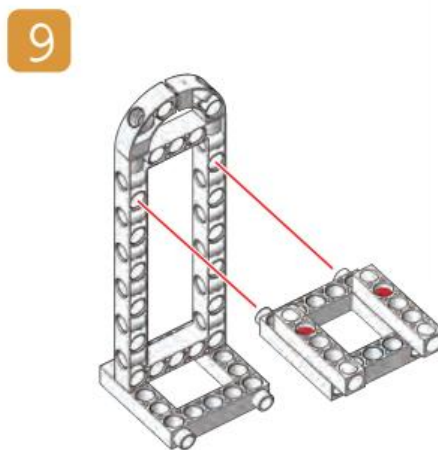
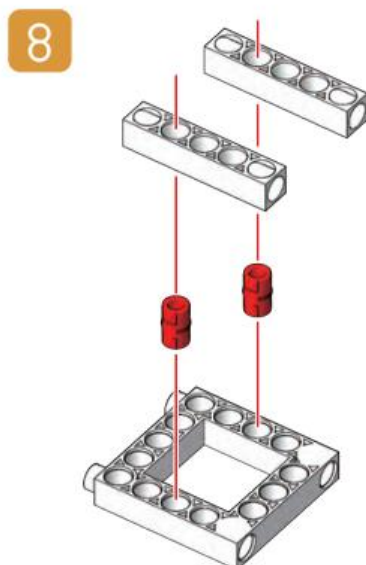
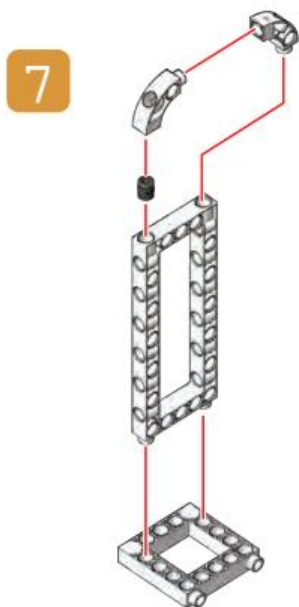
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3

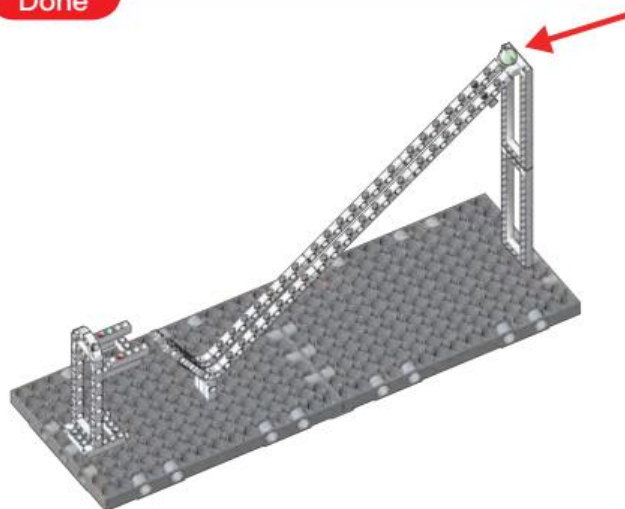
4 x2

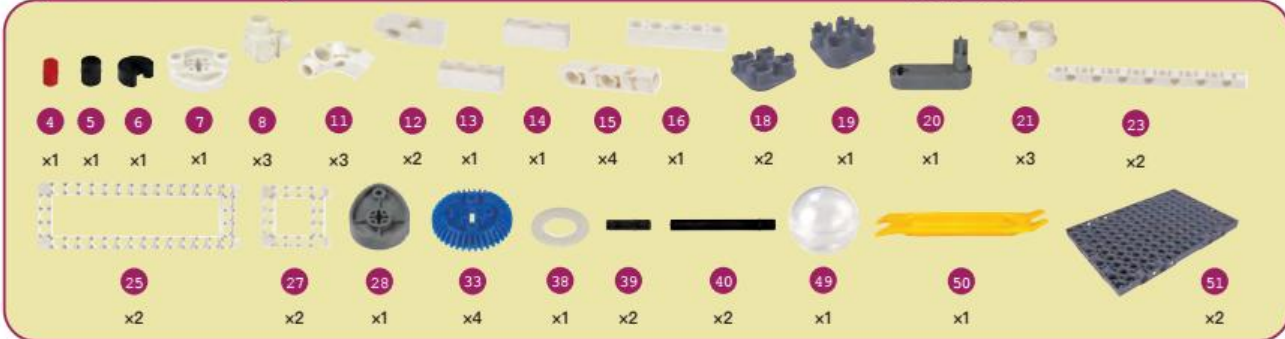
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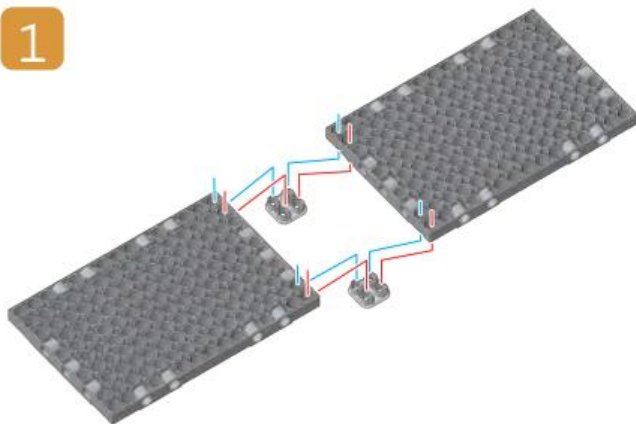


完成
Done

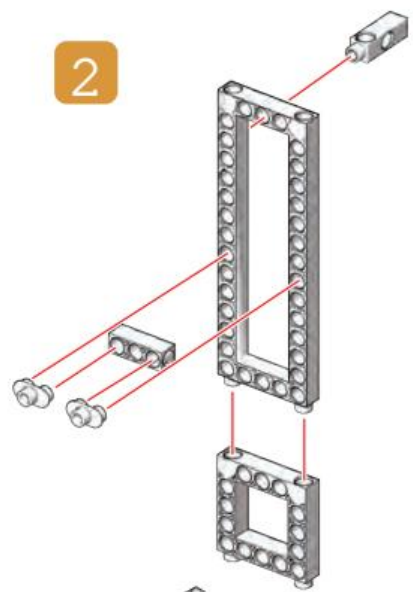




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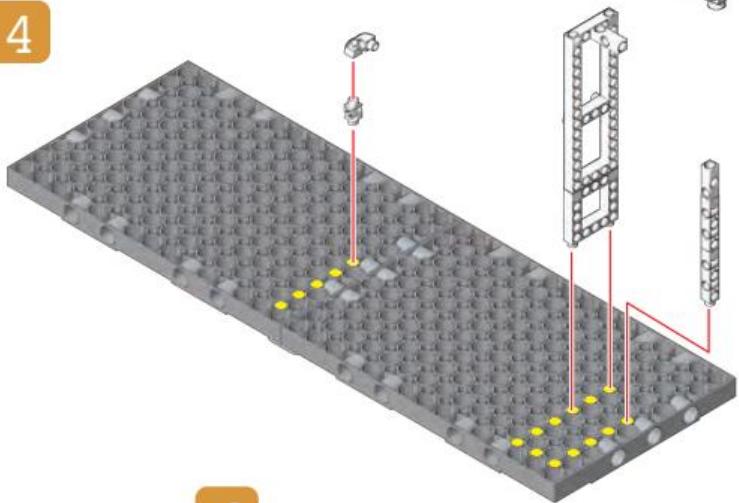
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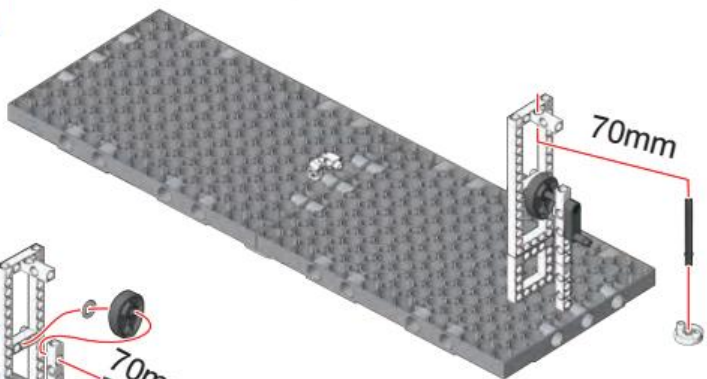
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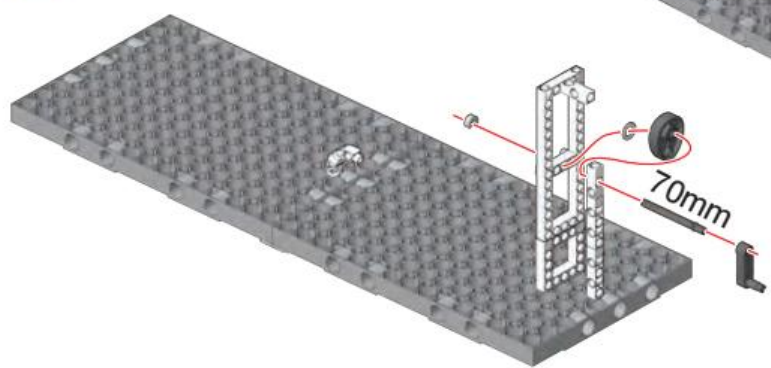
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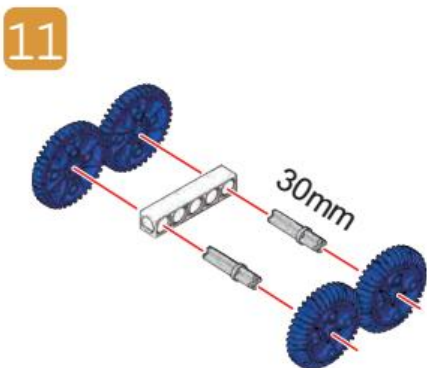
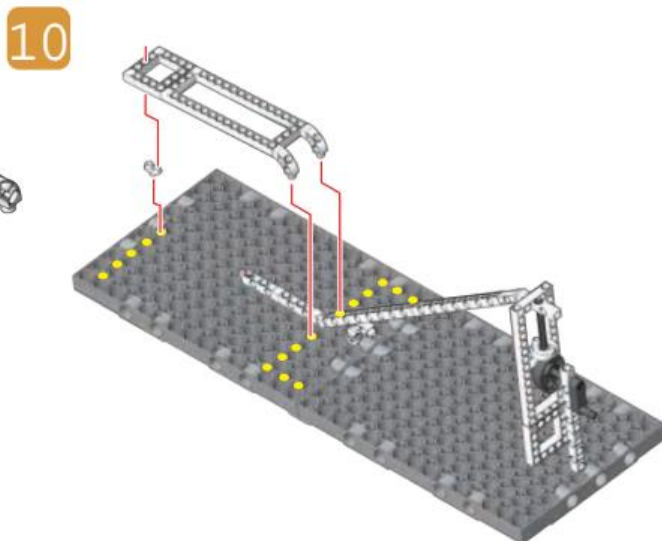
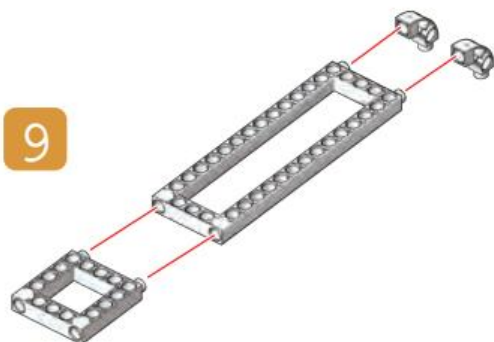
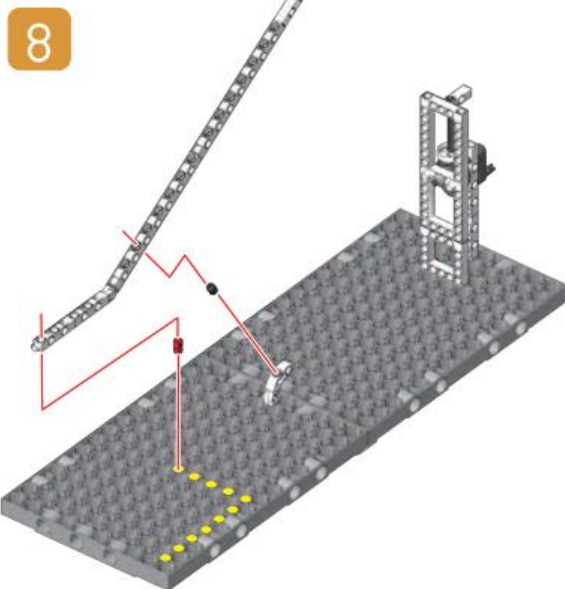
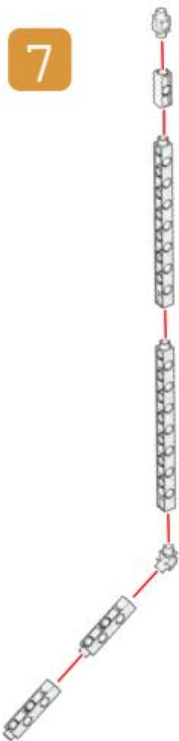


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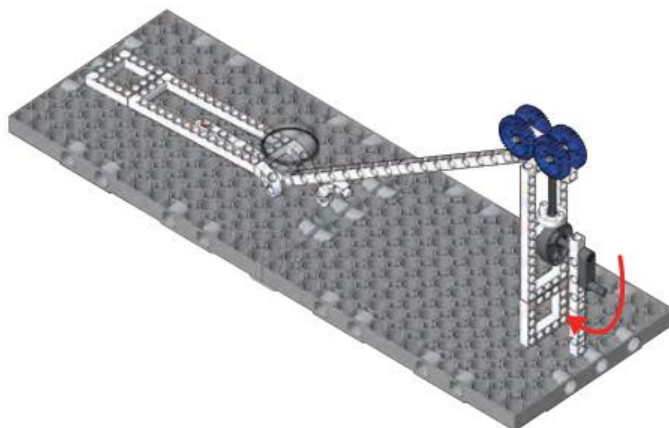


5

















完成
Done


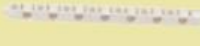
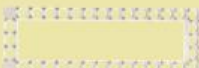



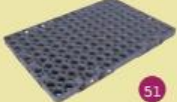


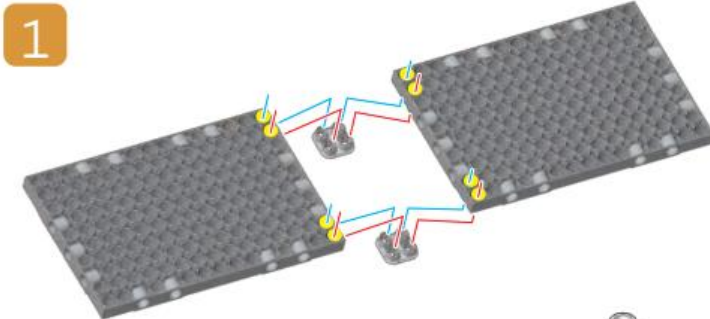
鐵鎚敲敲

Mallet

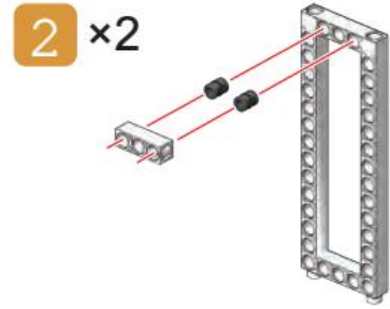
需用零件 Parts Needed

											
2	4	5	6	9	11	12	13	16	18	19	21
x2	x4	x24	x2	x2	x2	x4	x6	x3	x2	x1	x2

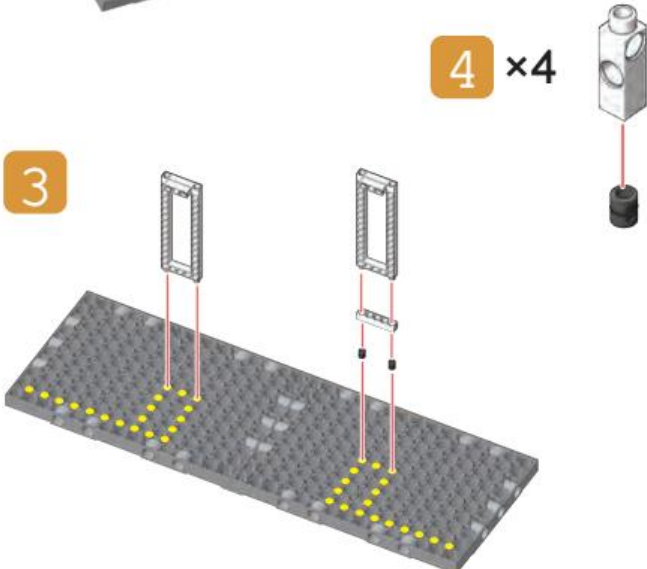
						
22	23	25	40	47	50	51
x4	x12	x2	x2	x1	x1	x2



1

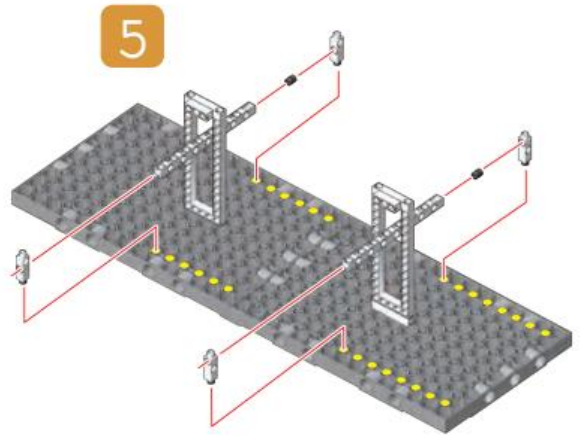


2 x2

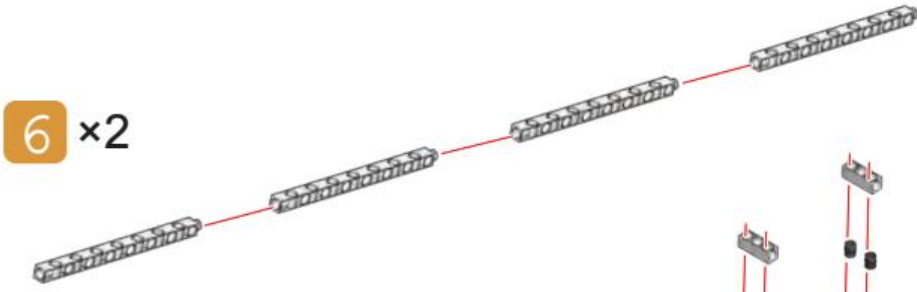


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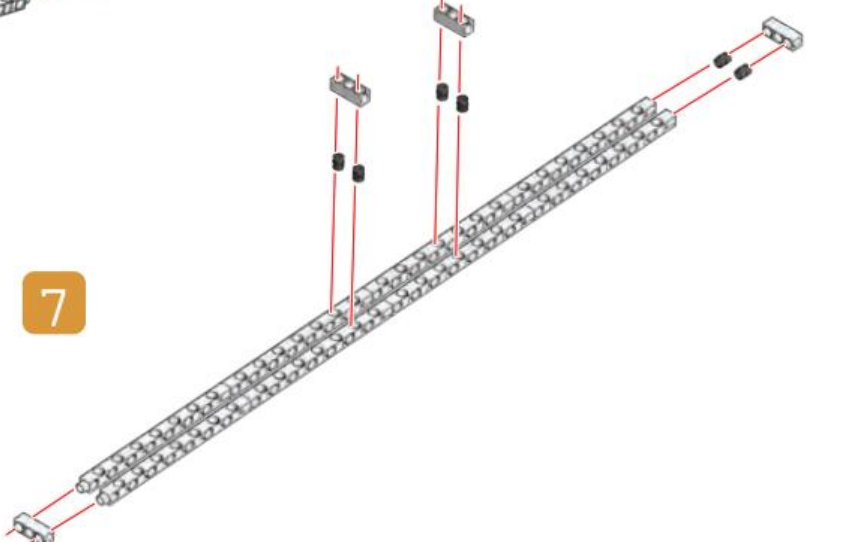
4 x4



5

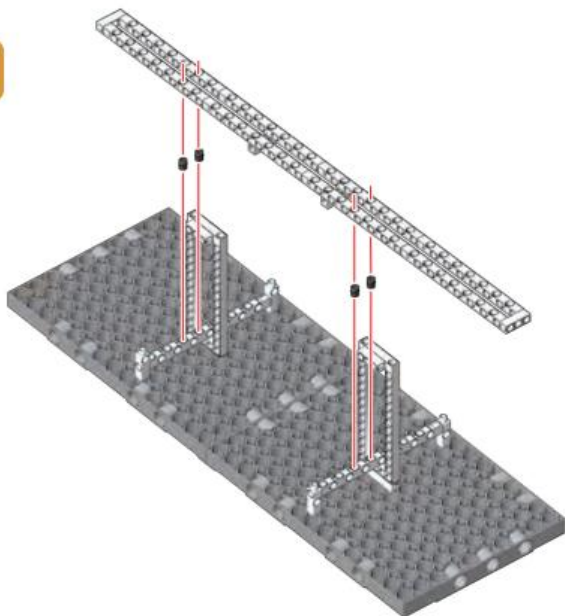


6 x2

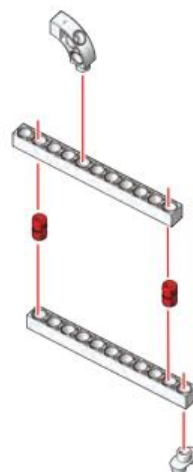


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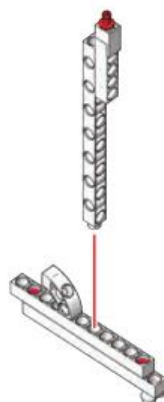
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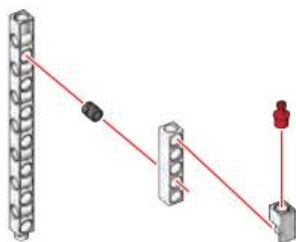
9 x2



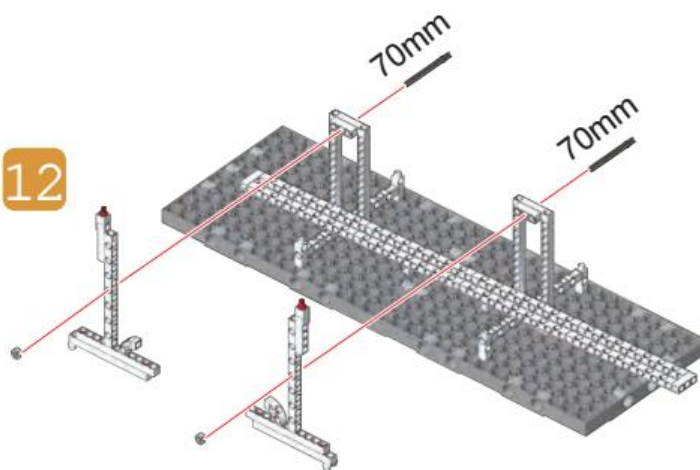
11 x2



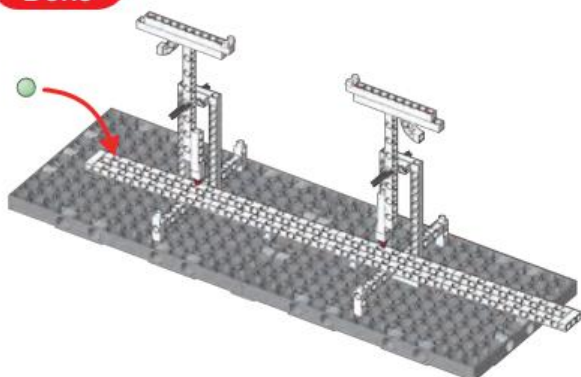
10 x2



12



完成
Done

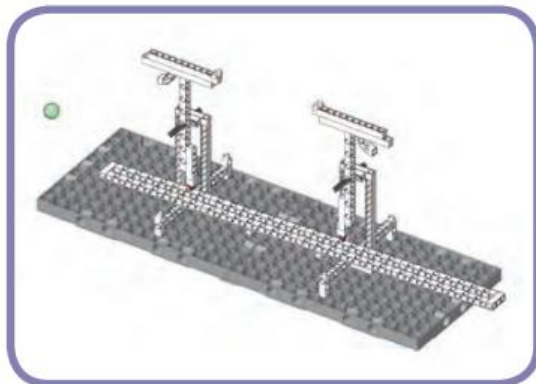
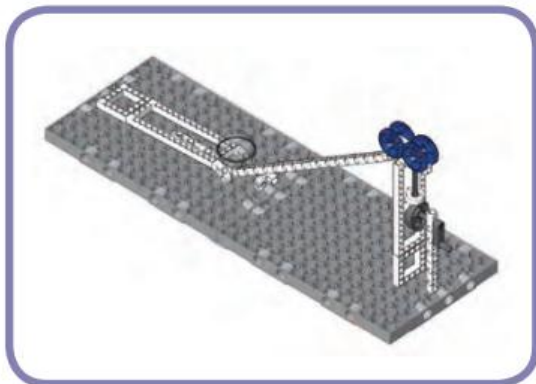
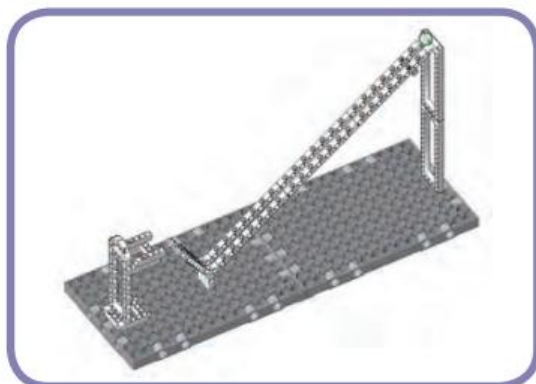
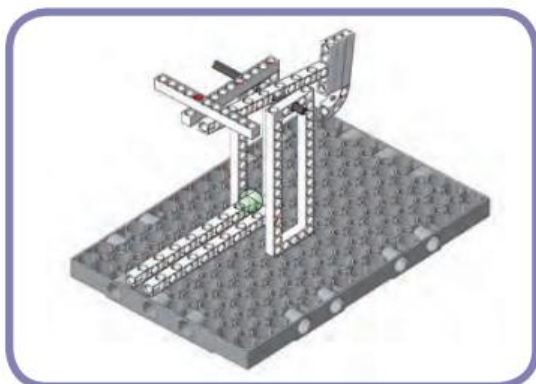


專題製作 (2) Special Project (2)



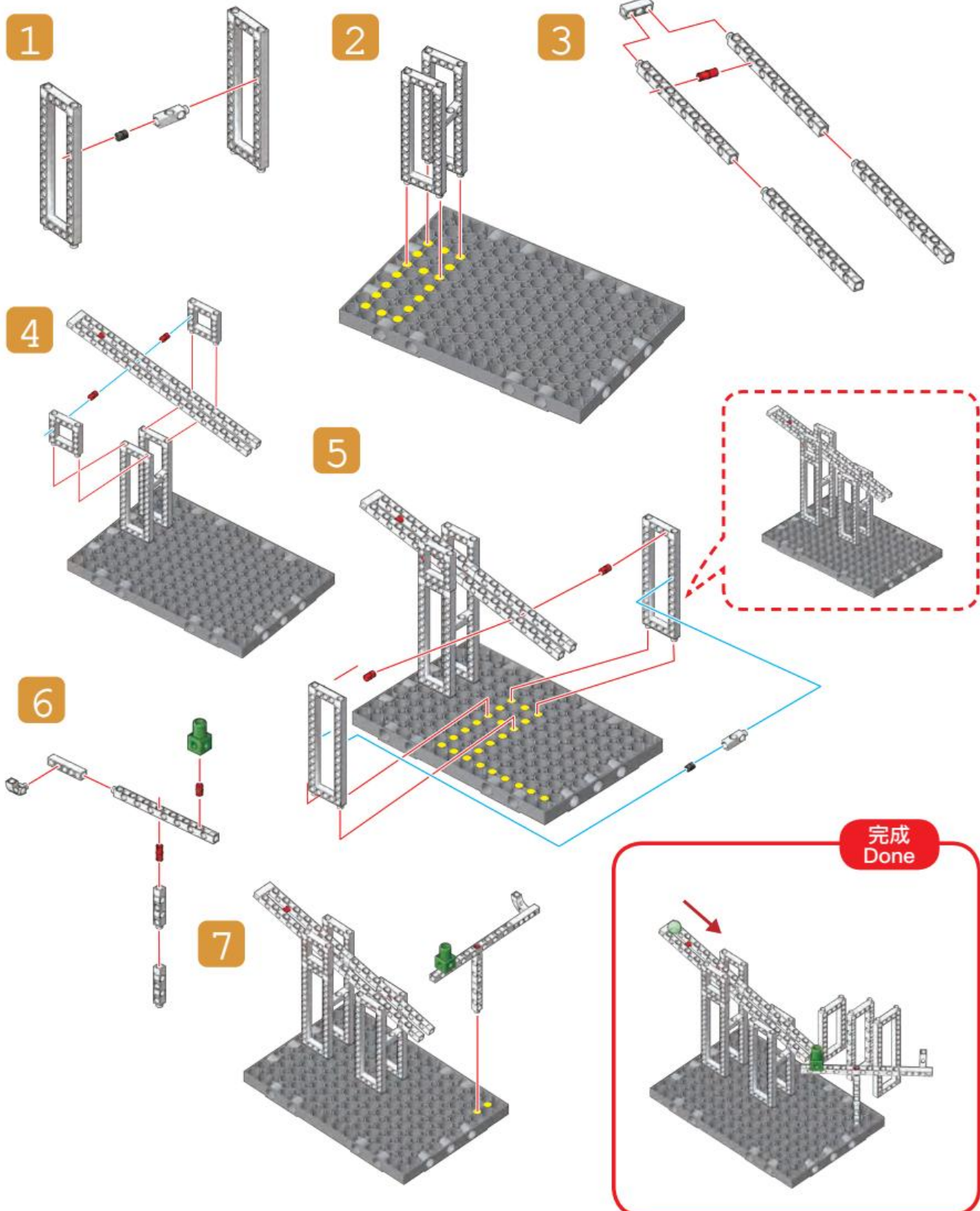
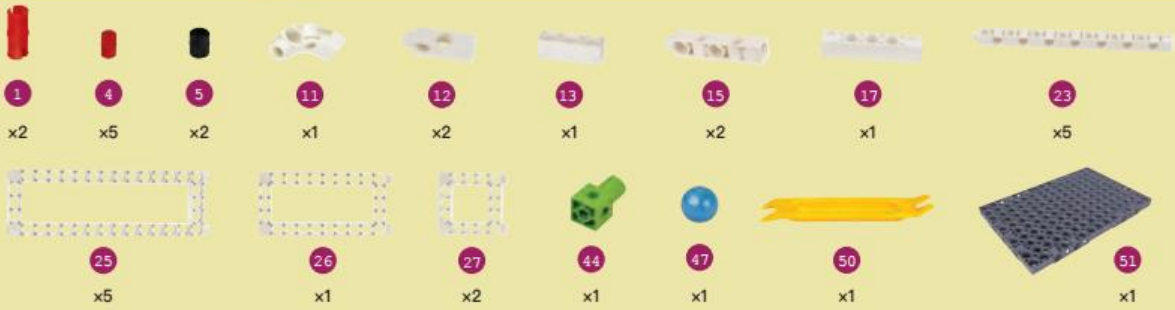
示範影片 Demo

模型列表 Model List



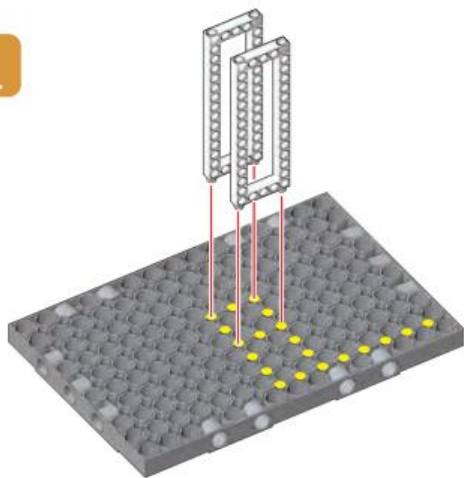
我的作品照 My Artwork



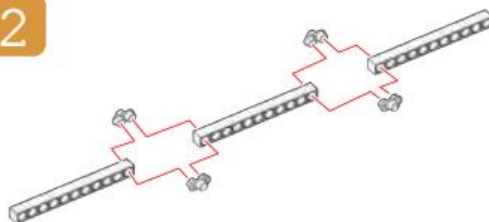


1	4	5	6	12	13	17	21	22	23
x1	x5	x8	x1	x2	x2	x2	x6	x3	x2
25	27	32	40	47	50	51			
x2	x2	x1	x1	x3	x1	x1			

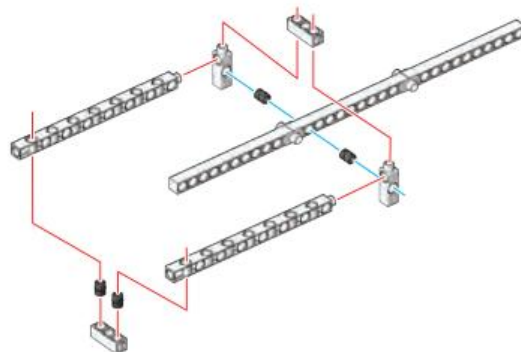
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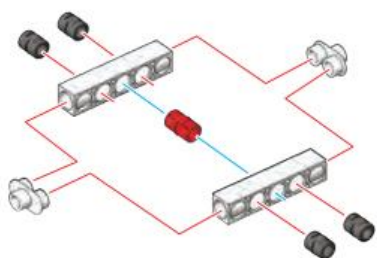
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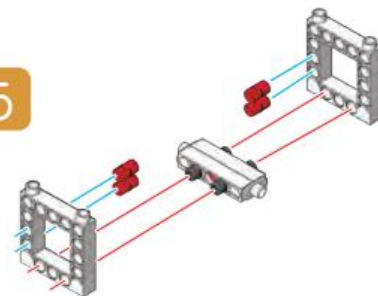
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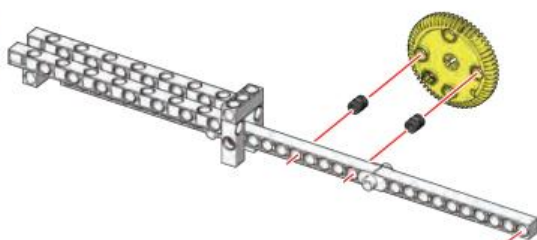
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5

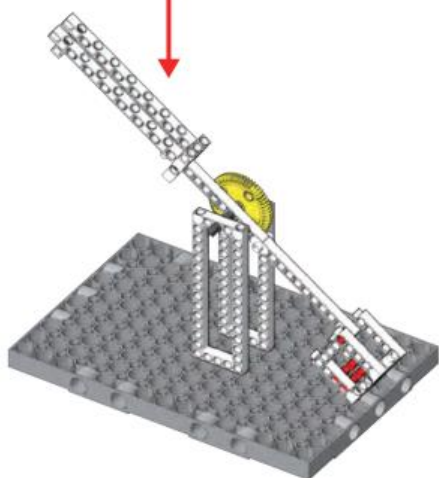


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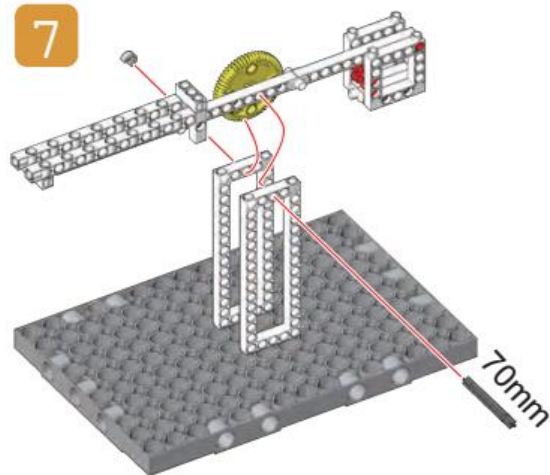


完成
Done

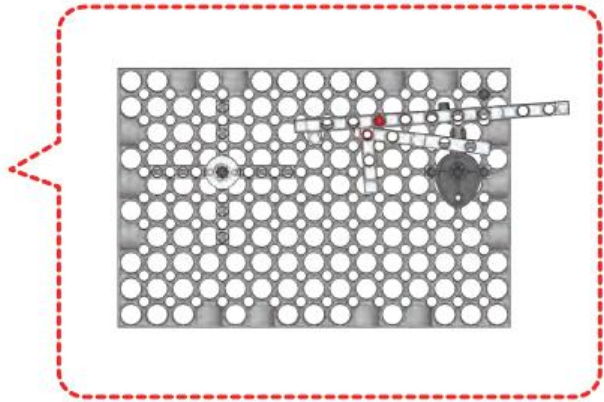
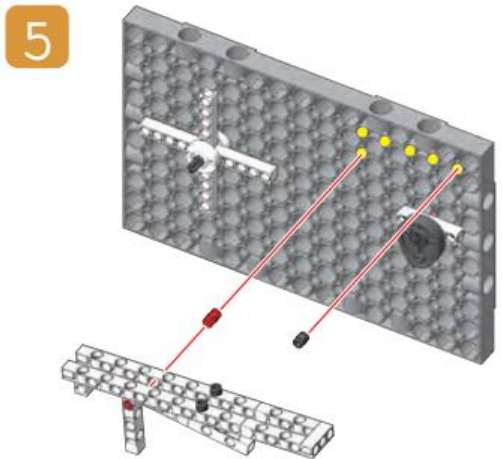
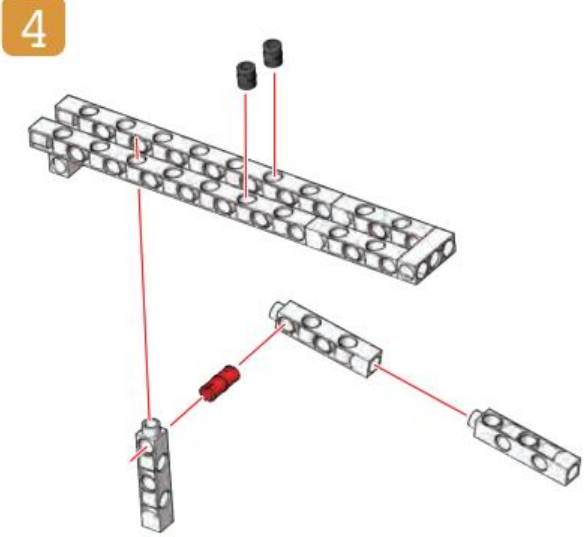
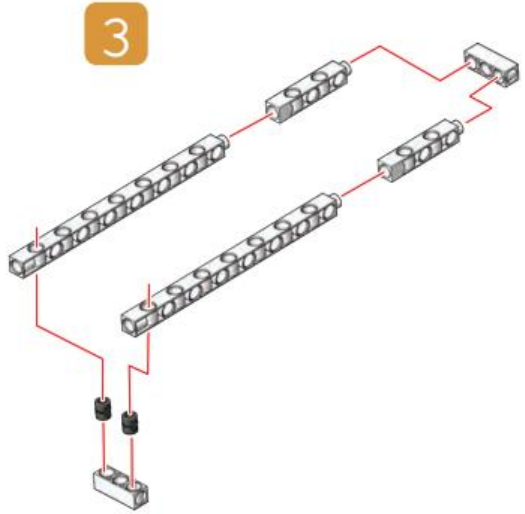
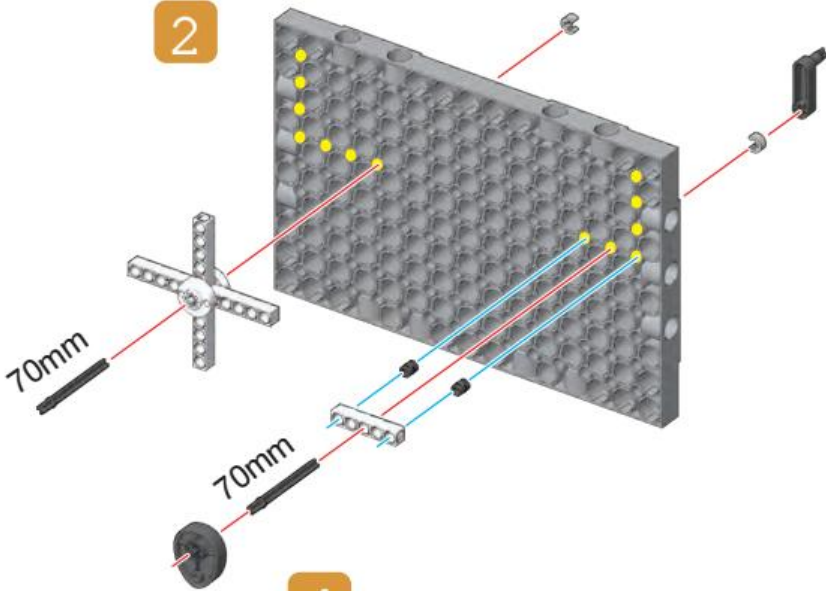
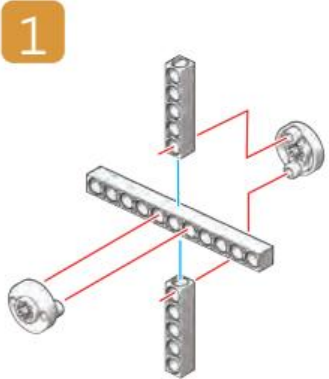
x3



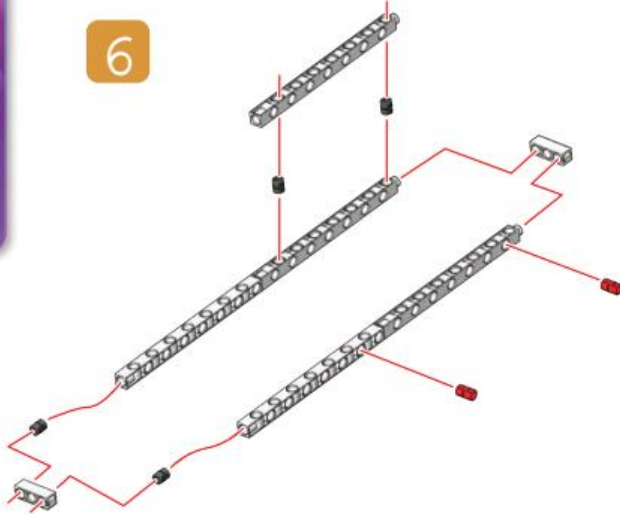
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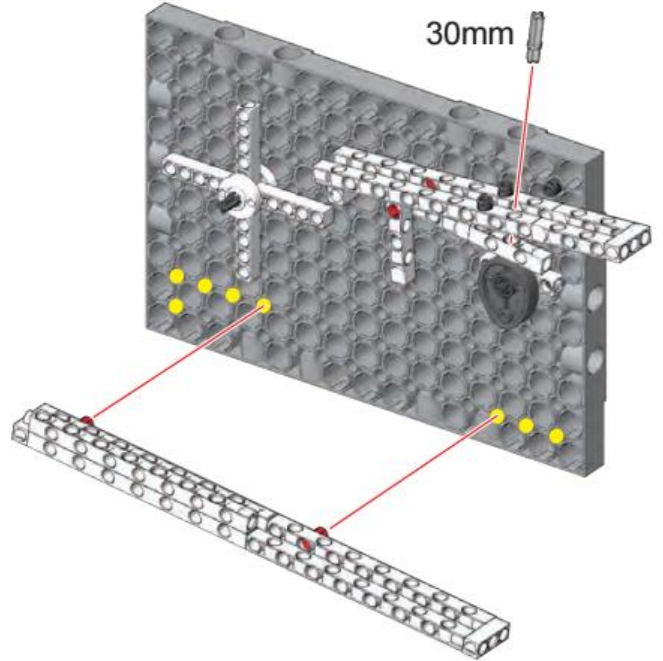
1	4	5	6	7	13	15	16	20	22	23
x1	x3	x11	x2	x2	x4	x5	x3	x1	x1	x7
25	28	39	40	44	47	50	51			
x2	x1	x1	x2	x2	x3	x1	x1			



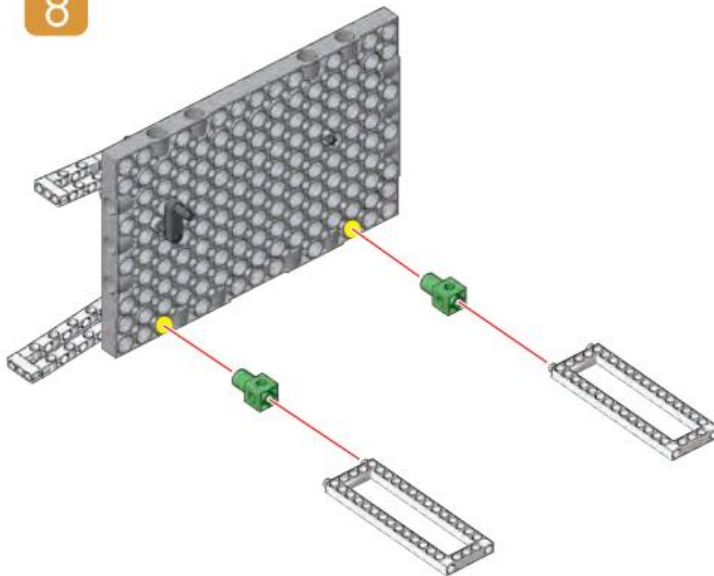
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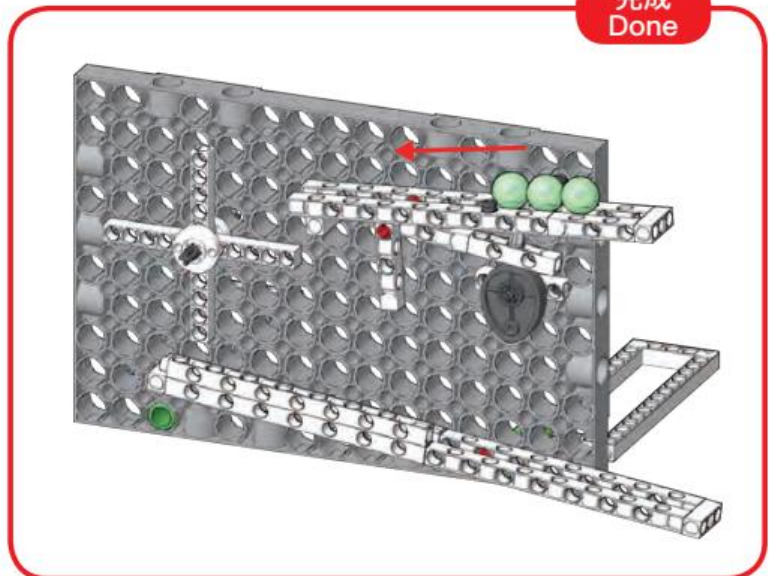
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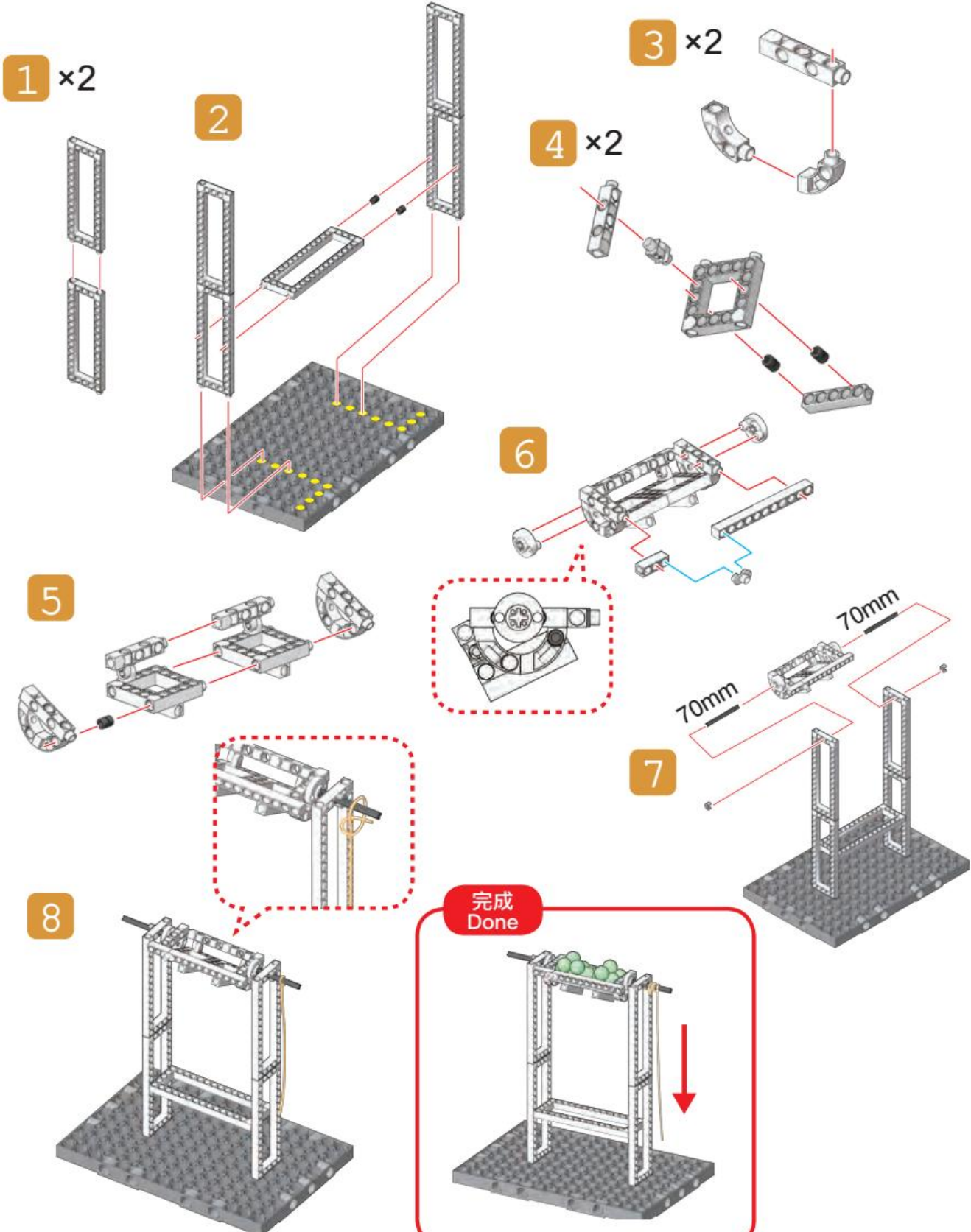
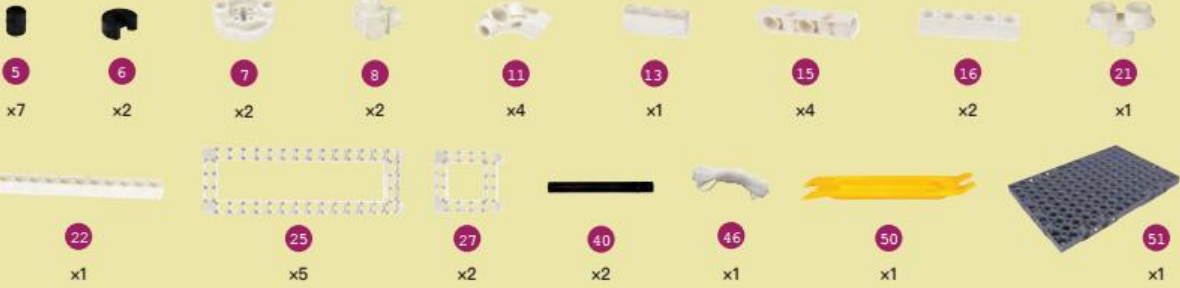


8



完成
Done



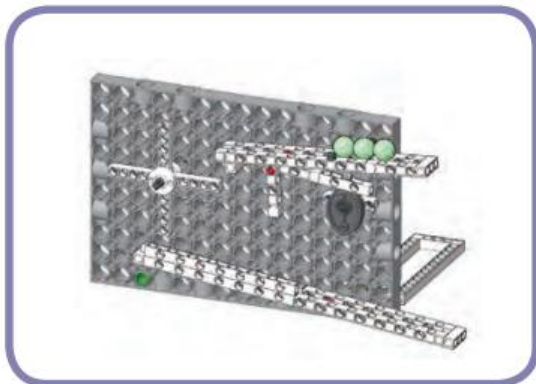
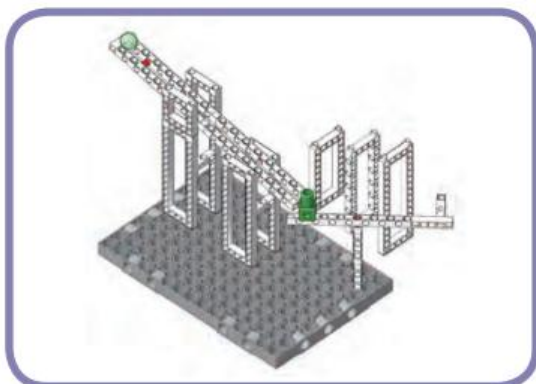


專題製作 (3) Special Project (3)



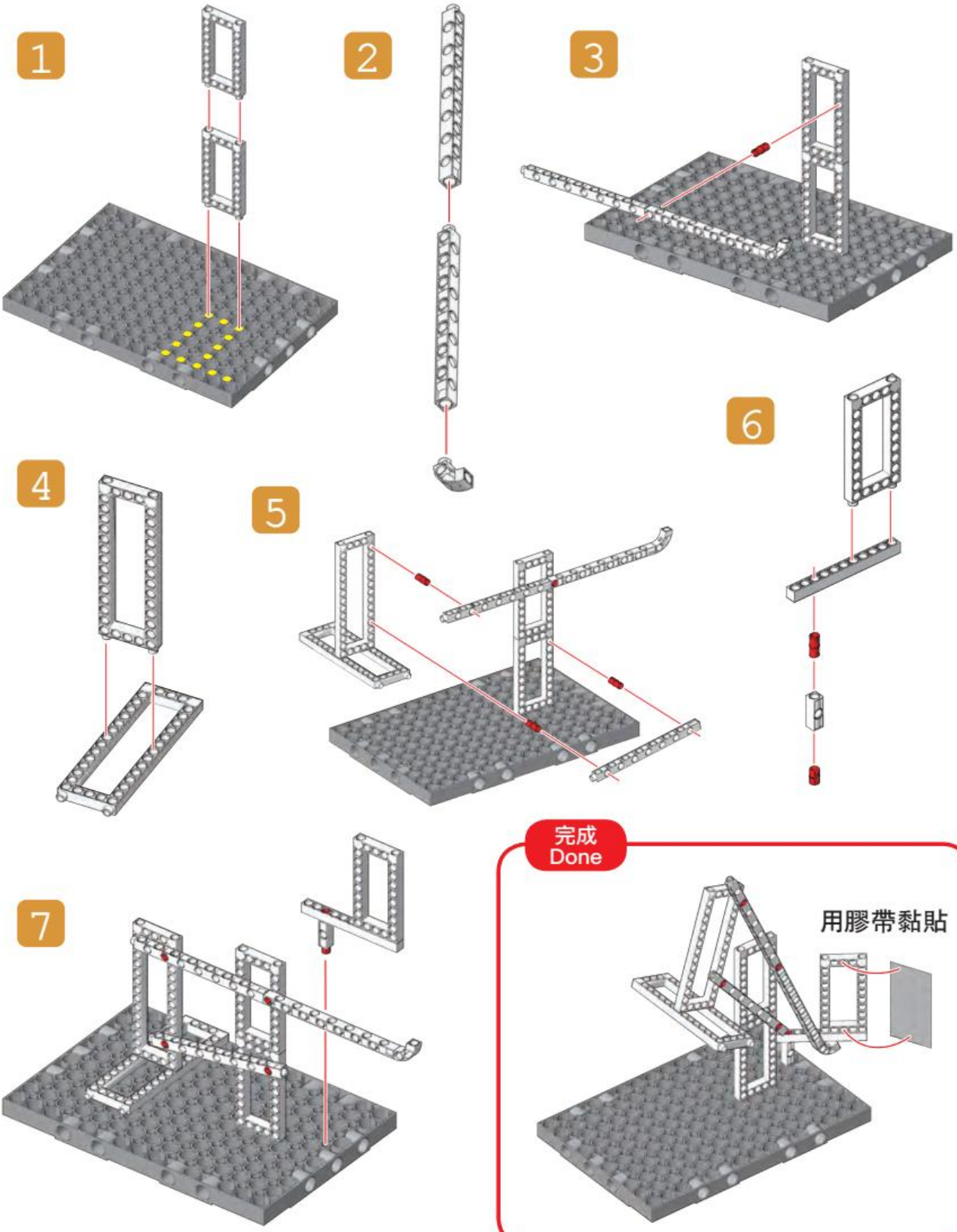
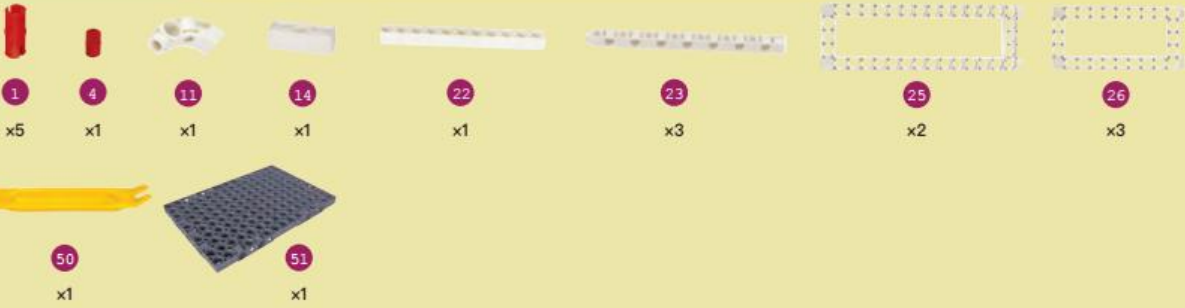
示範影片 Demo

模型列表 Model List



我的作品照 My Artwork




















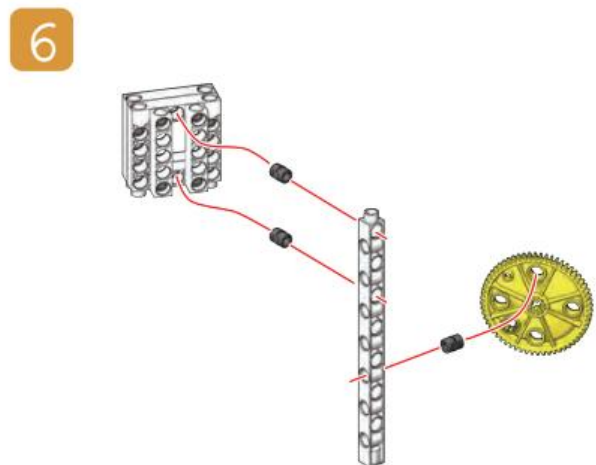
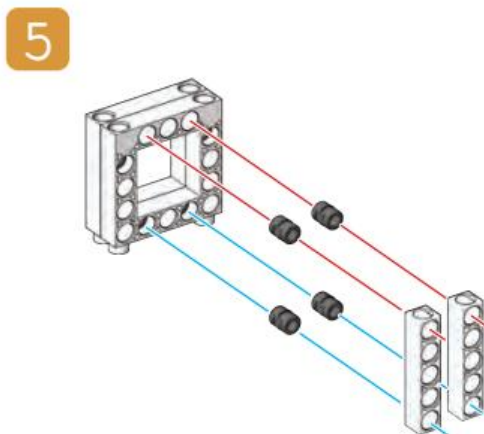
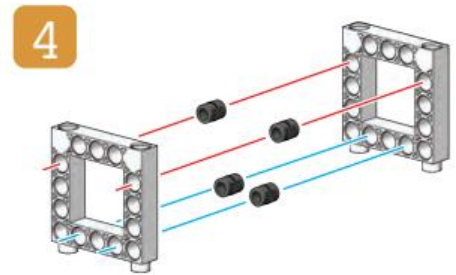
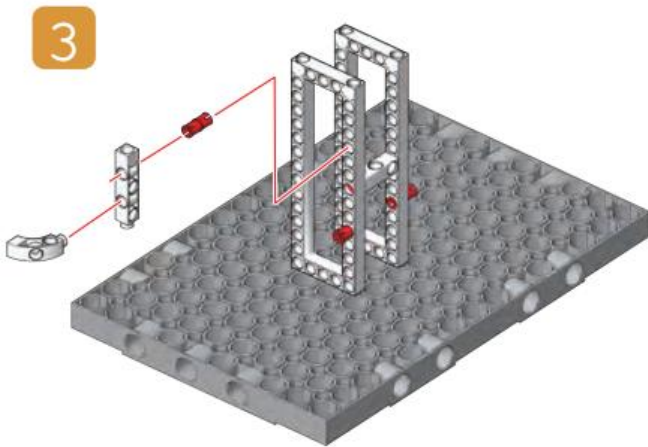
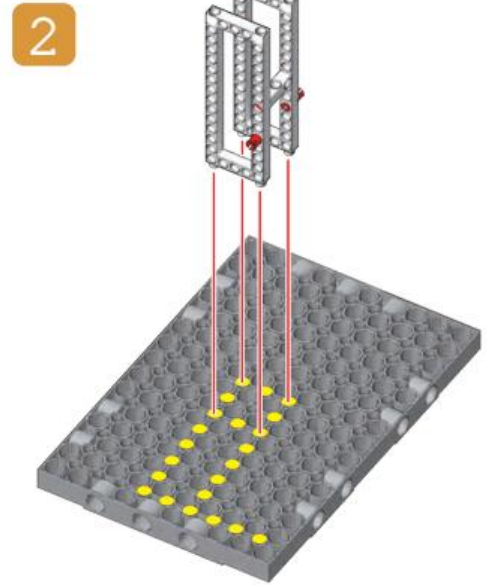
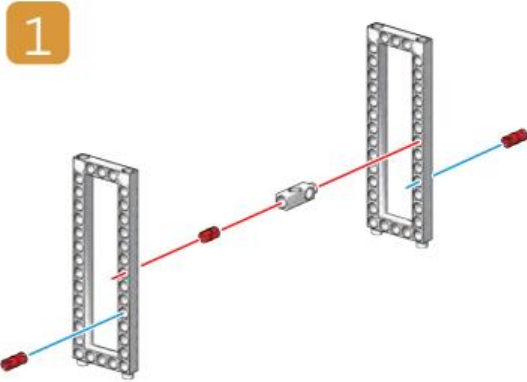


投石機

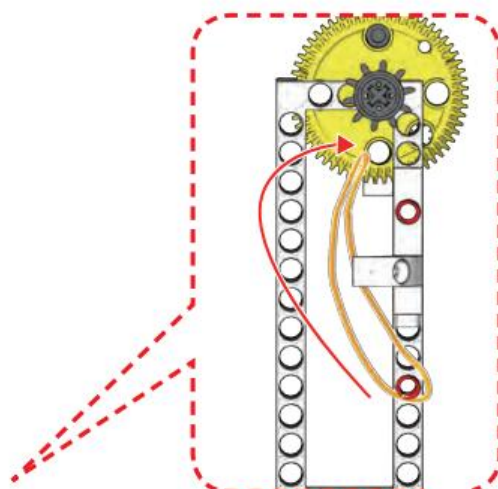
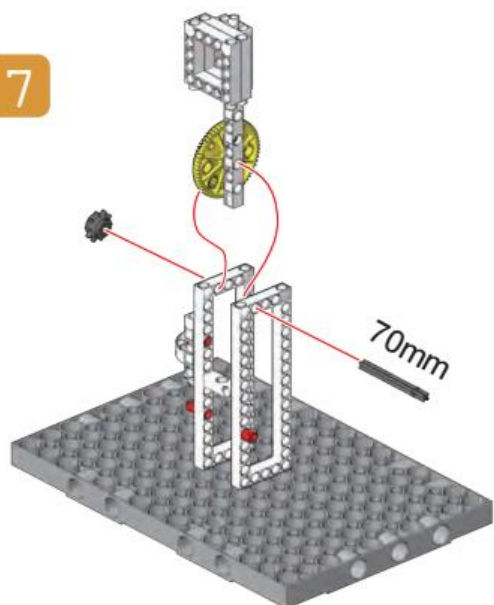
Trebuchet

需用零件 Parts Needed

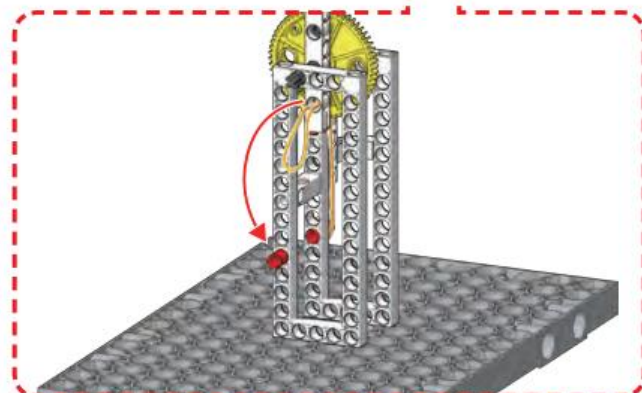
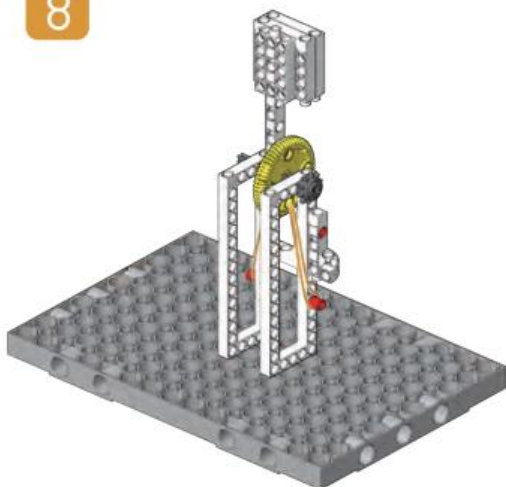
										
1	5	11	12	15	16	23		25	27	
x3	x12	x1	x1	x1	x2	x1		x2	x2	
										
30	32	40	47	48	50	51				
x1	x1	x1	x3	x1	x1	x1				



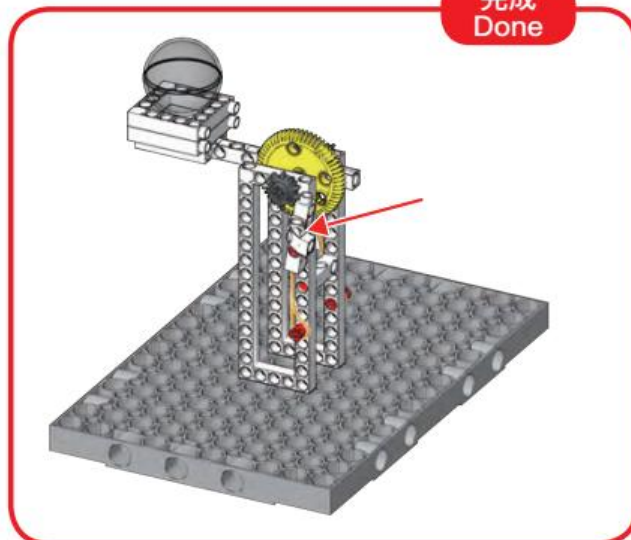
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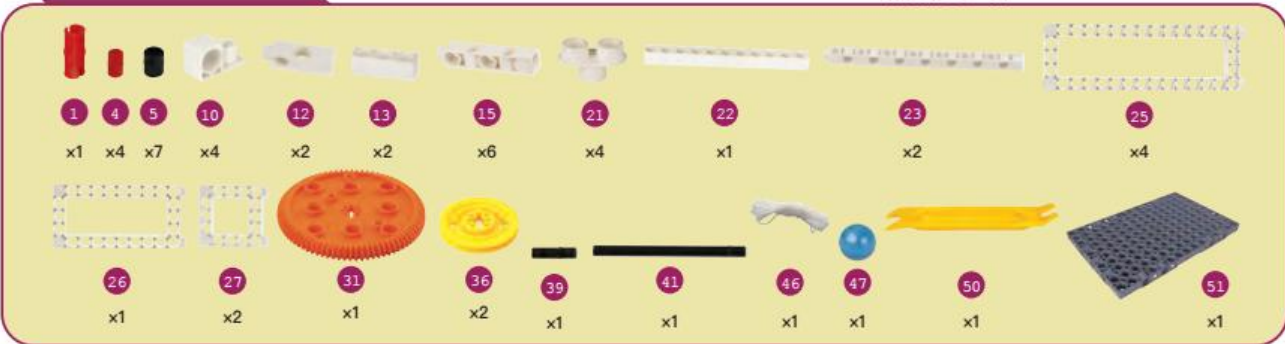


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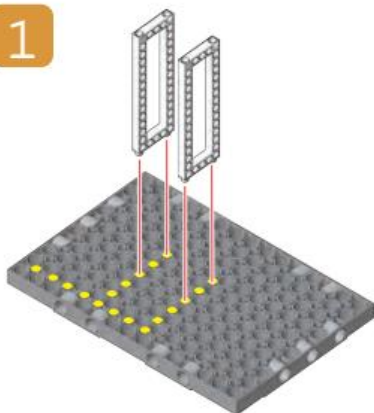


完成
Done

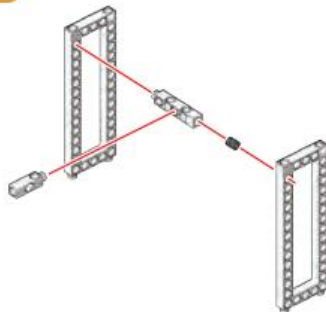




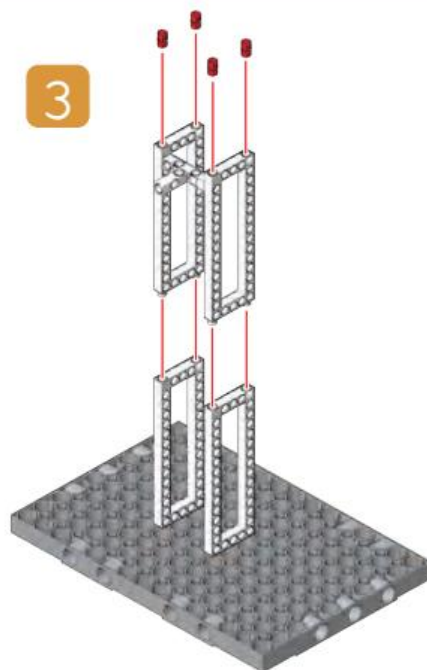
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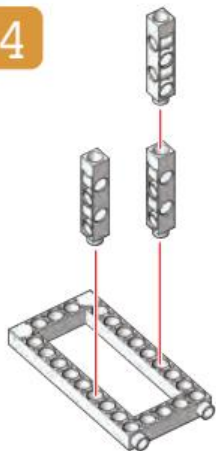
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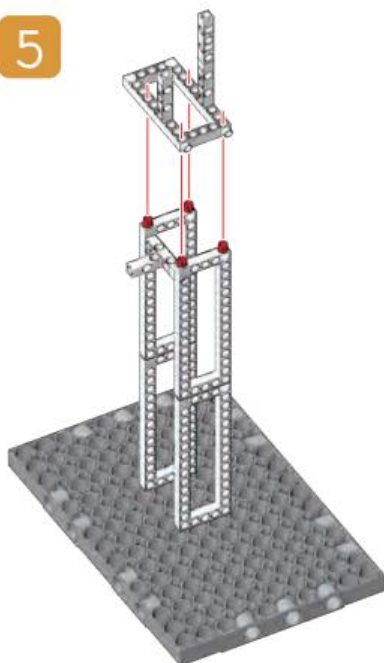
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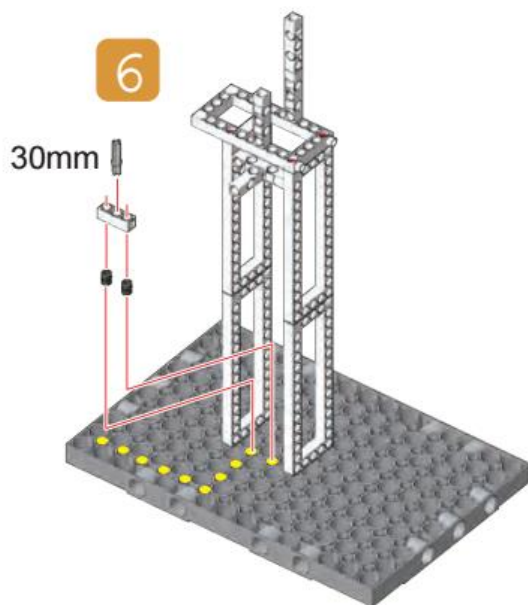
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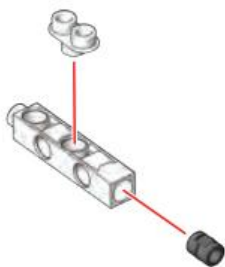
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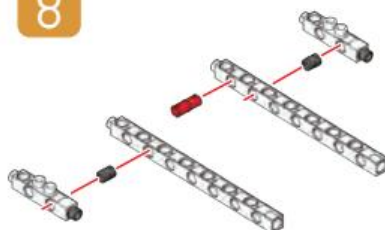
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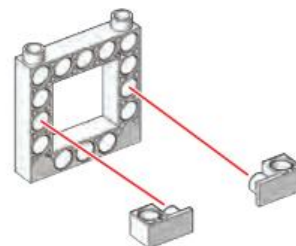
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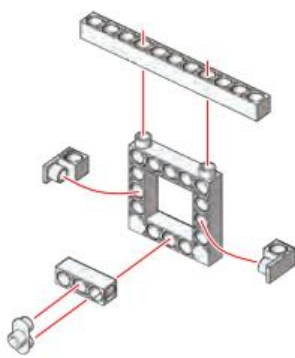
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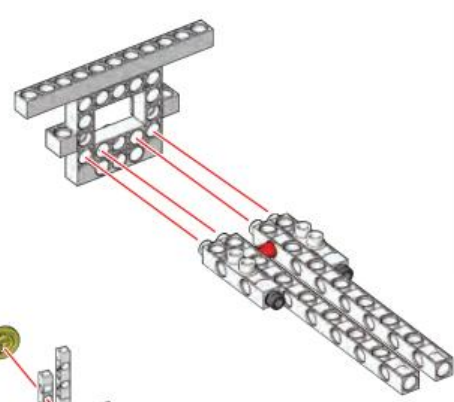
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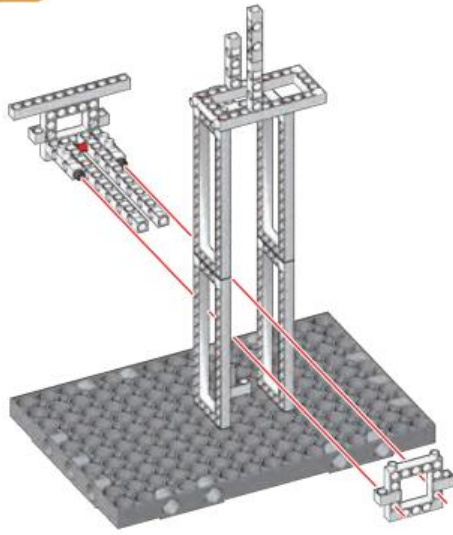
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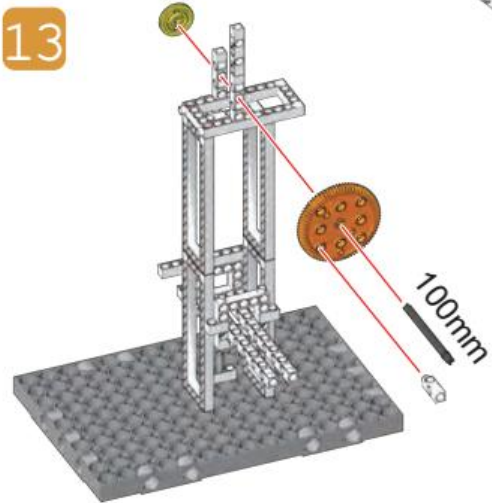
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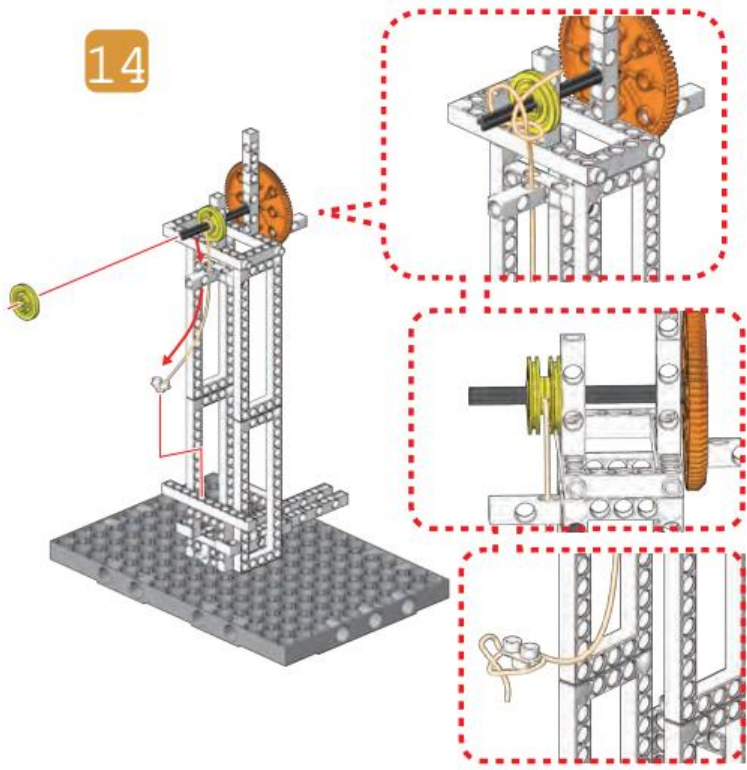
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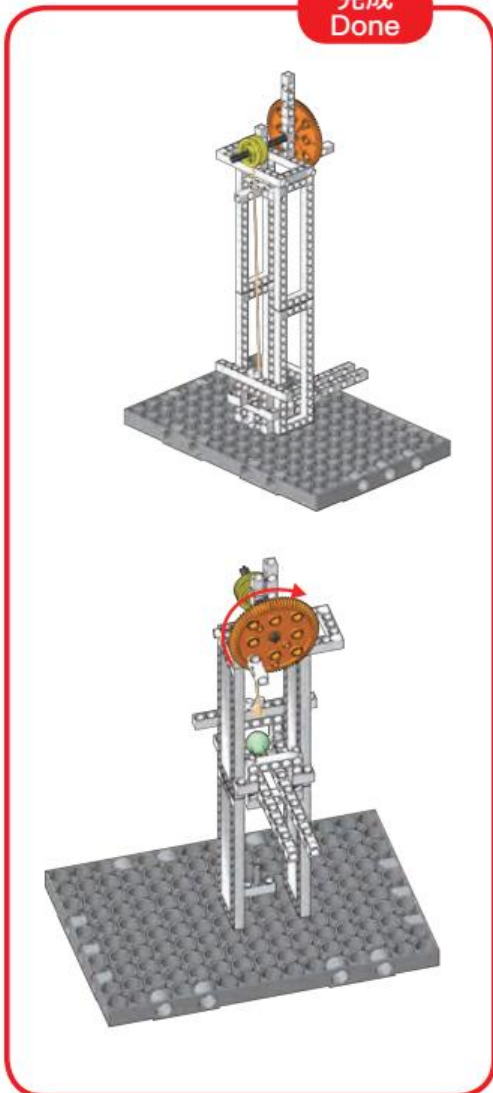
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14



完成
Done

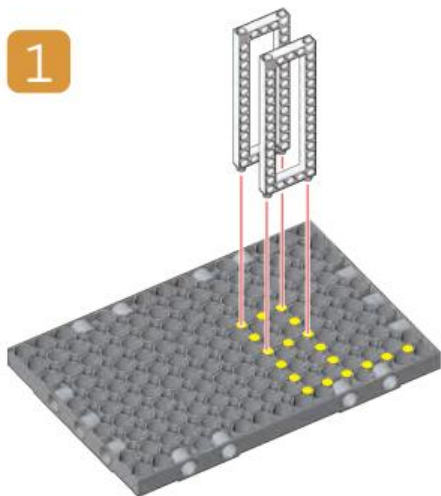


升降台

Scissor Lift

需用零件 Parts Needed

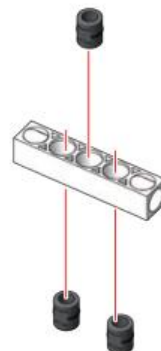
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x8	x5	x14	x2	x4	x3	x2	x6	x4
25	28	34	40	41	50	51		
x6	x4	x4	x3	x1	x1	x1		



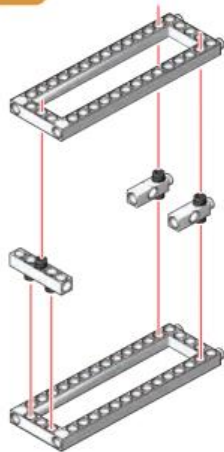
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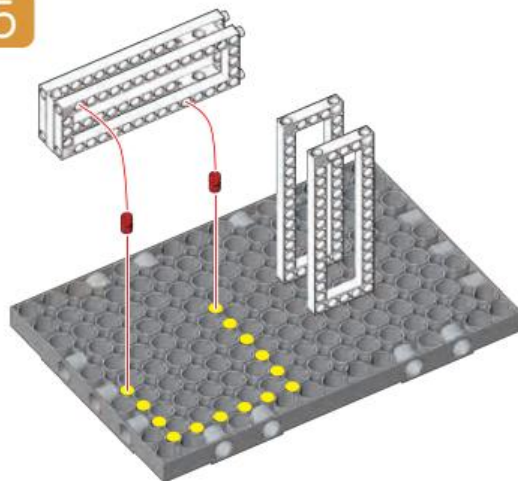
3 x2



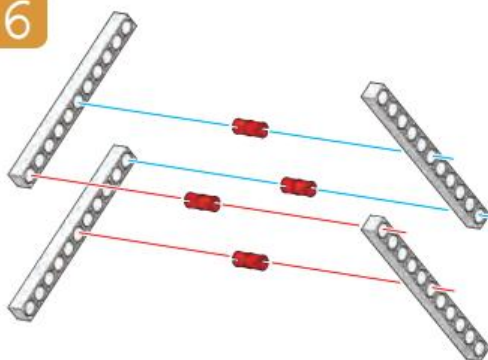
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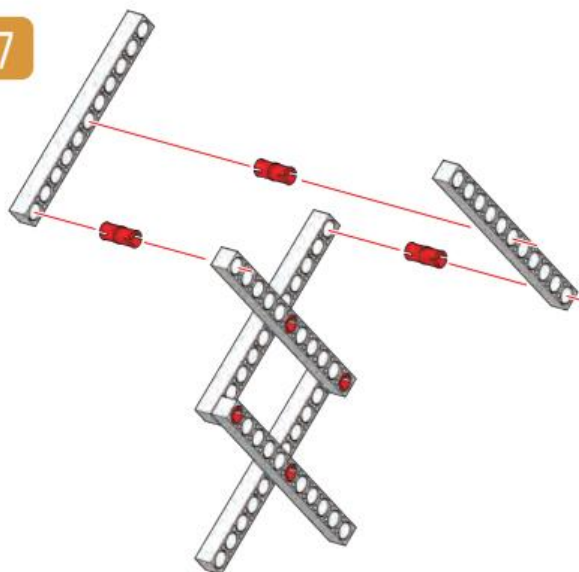
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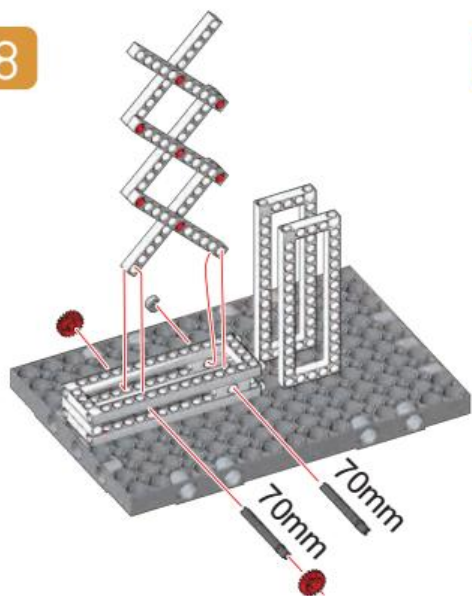
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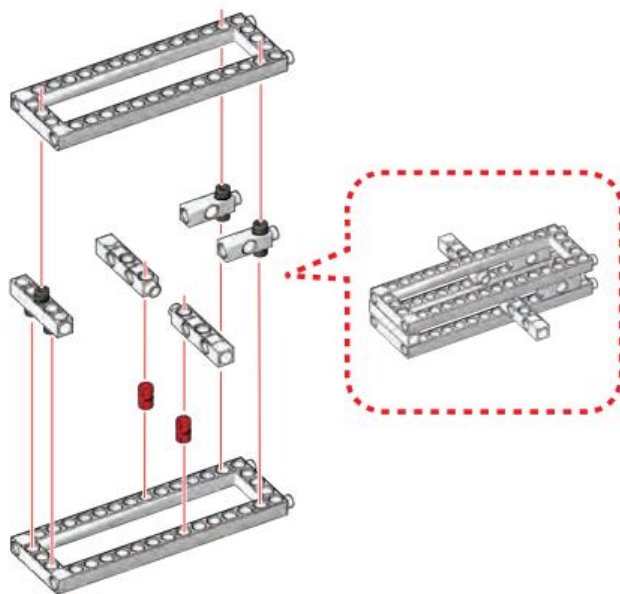
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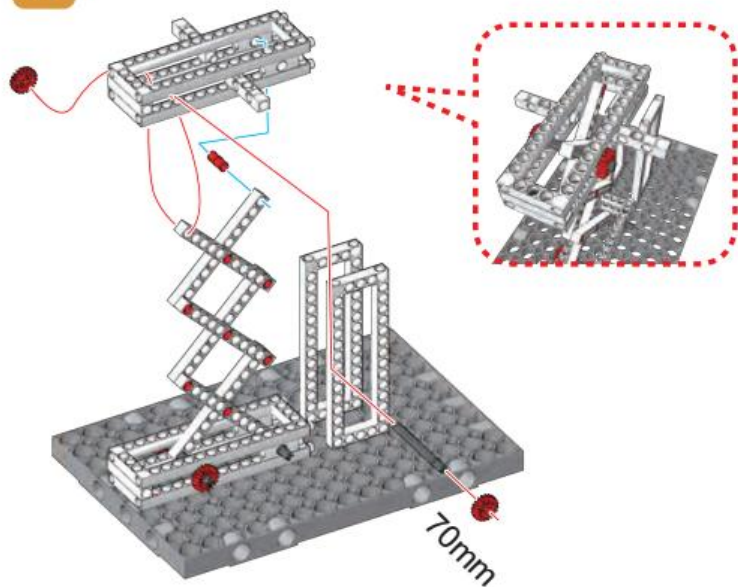
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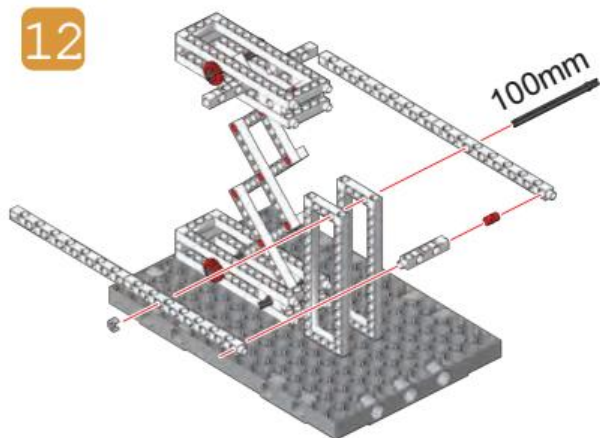
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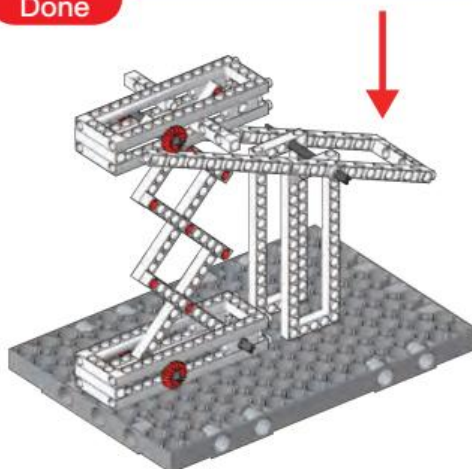
11 x 2



12



完成
Done

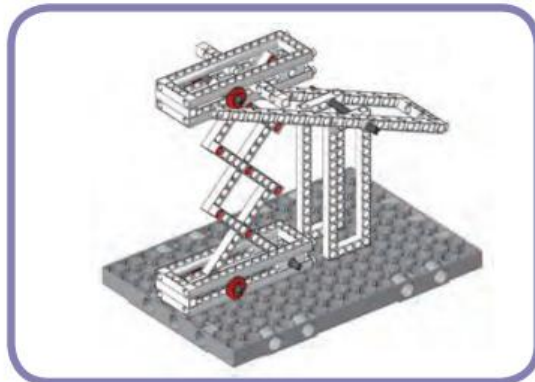
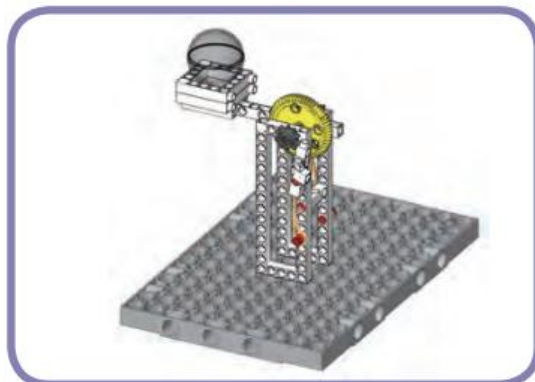
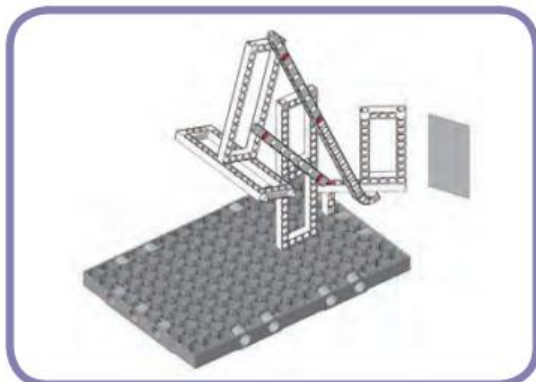


專題製作 (4) Special Project (4)

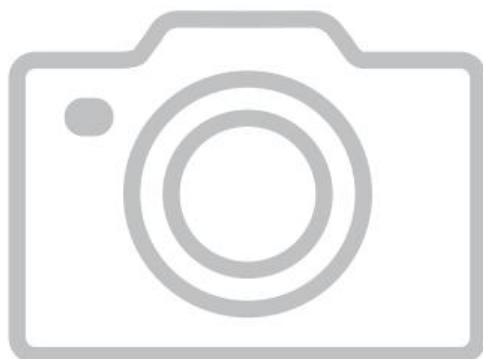


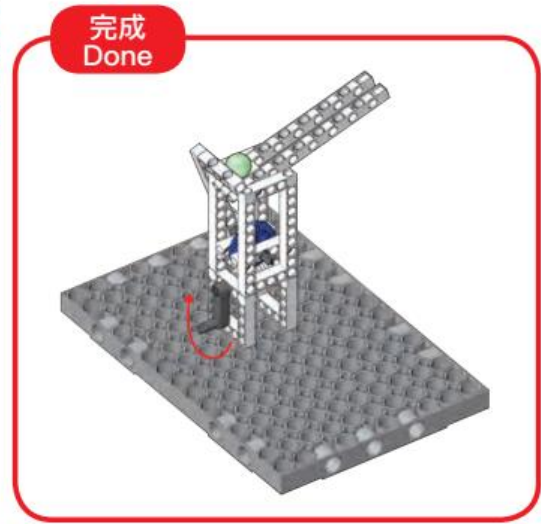
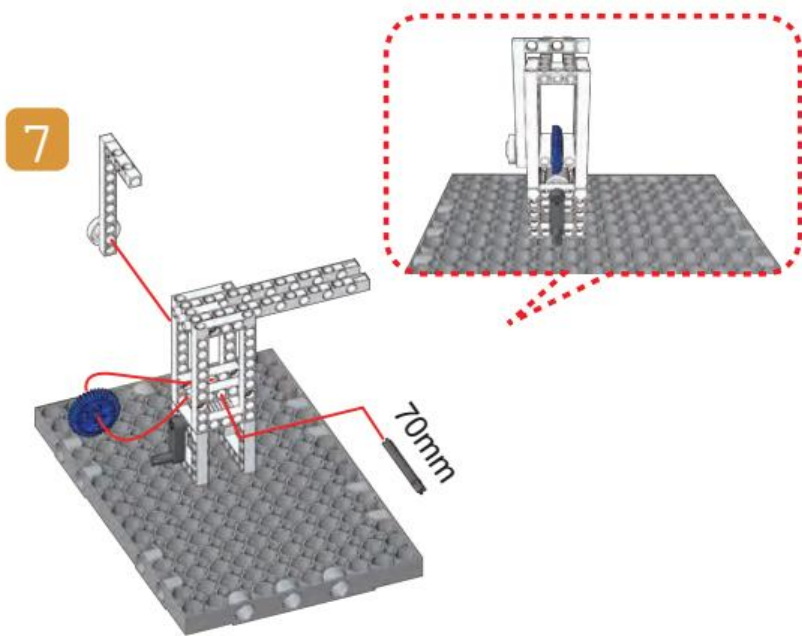
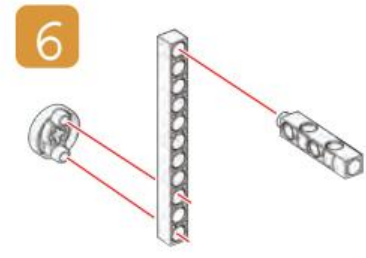
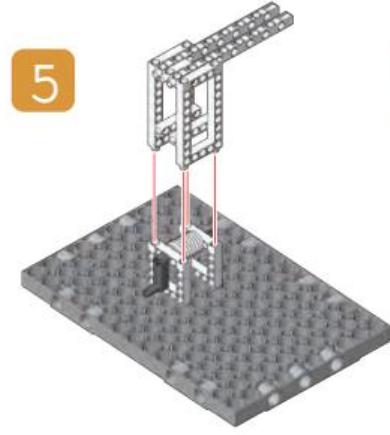
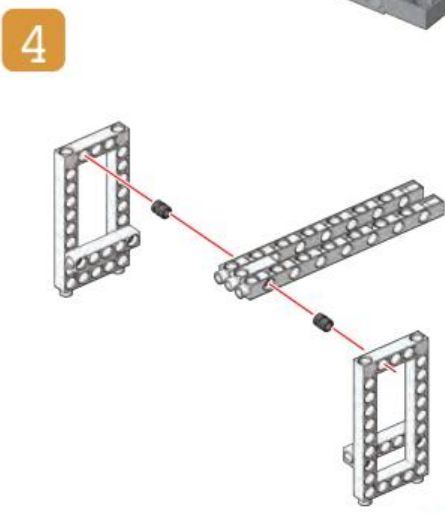
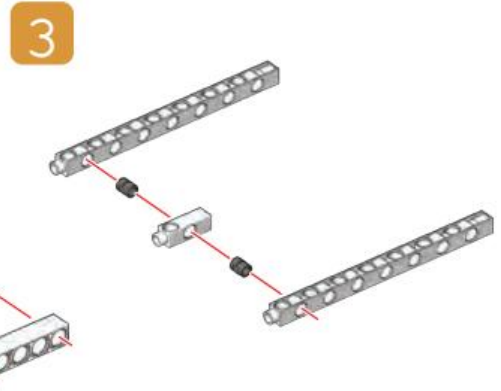
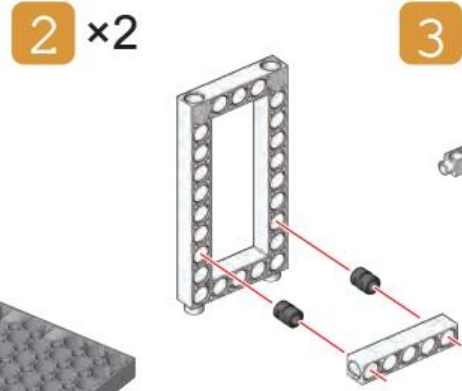
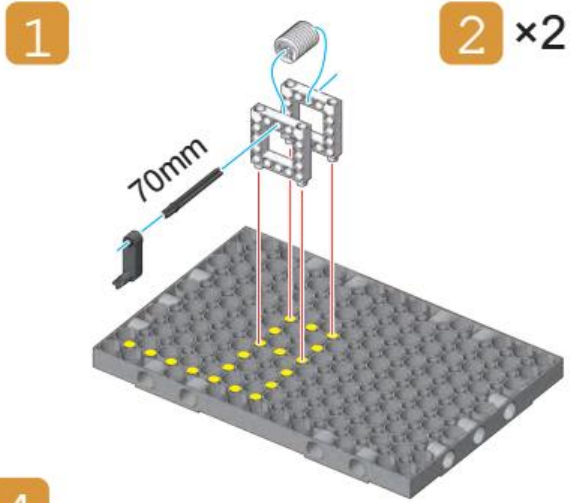
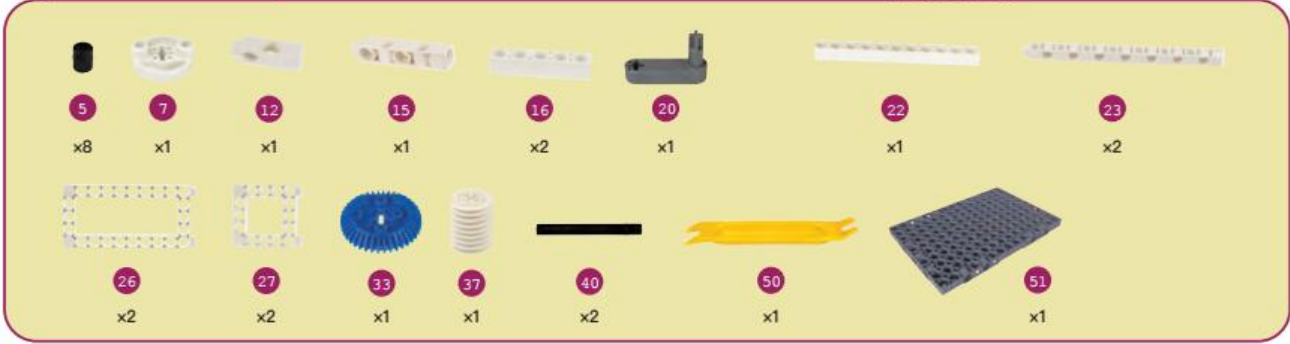
示範影片 Demo

模型列表 Model List



我的作品照 My Artwork





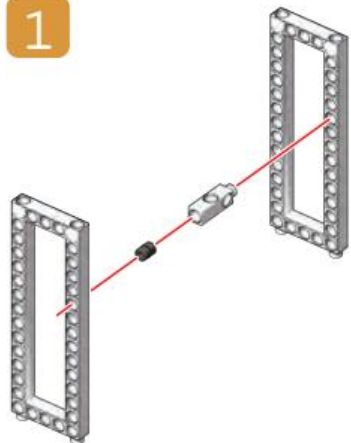
電梯

Elevator

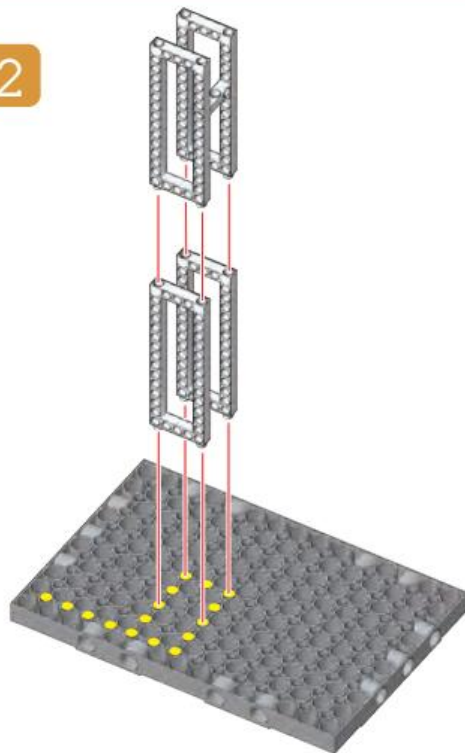
需用零件 Parts Needed

1	2	4	5	6	10	11	12	14	16	25	27
x4	x2	x1	x11	x1	x2	x8	x5	x1	x2	x4	x2
32	33	35	40	46	47	50	51				
x1	x2	x1	x1	x1	x3	x1	x1				

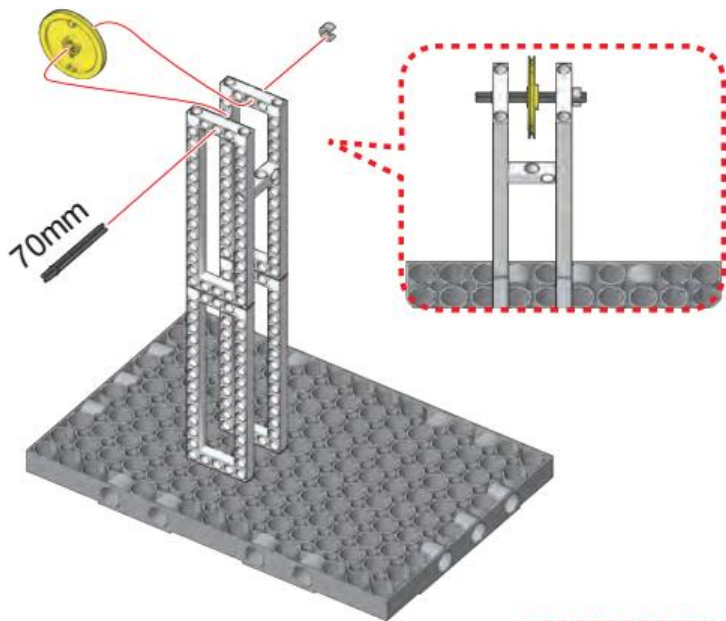
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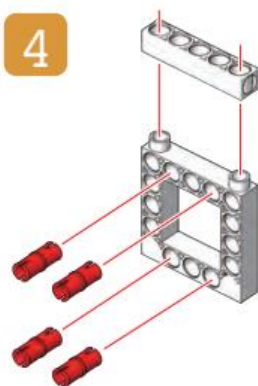
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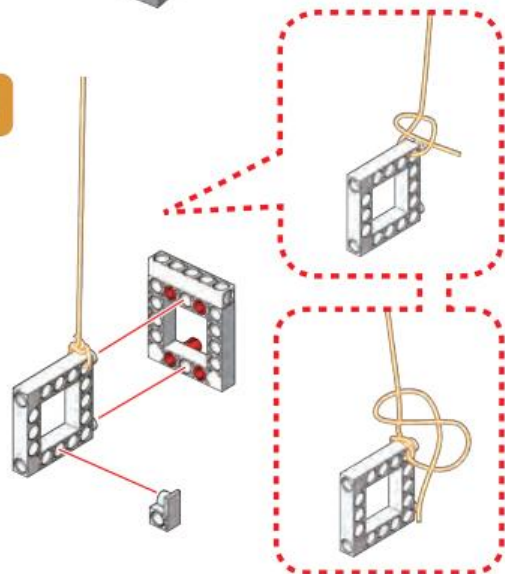
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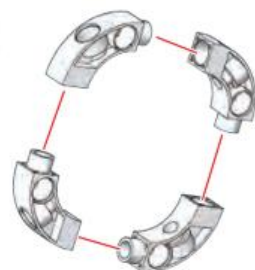
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5



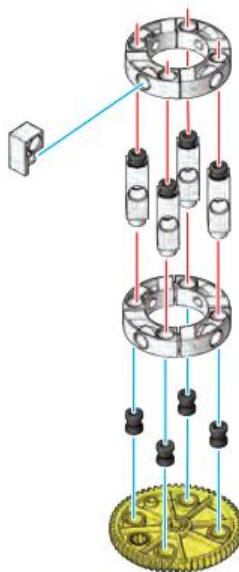
6 x2



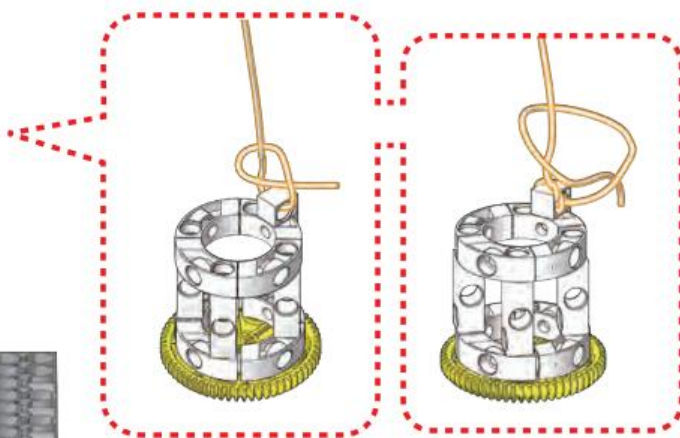
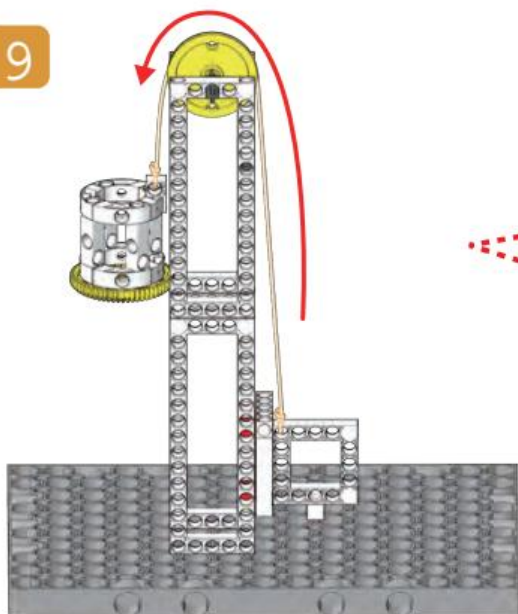
7 x4



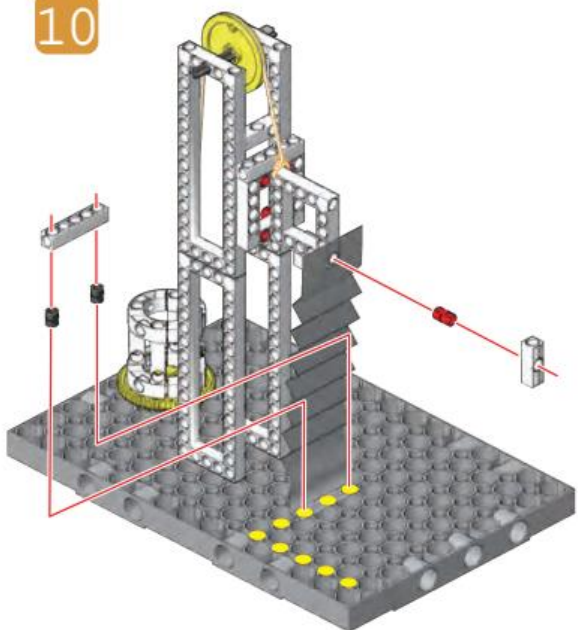
8



9

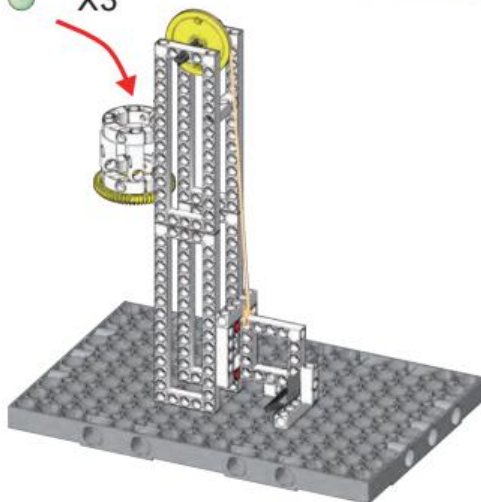


10



完成
Done

X3



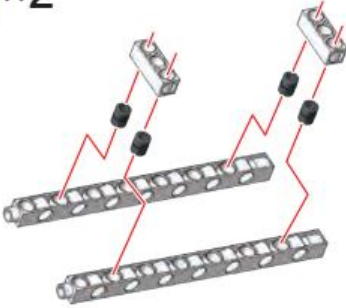
啄木鳥門捶

Woodpecker

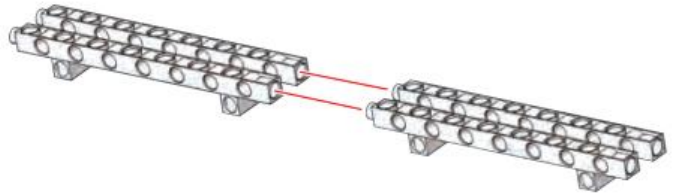
需用零件 Parts Needed

4	5	6	11	12	13	16	22	23
x3	x12	x1	x4	x2	x4	x1	x2	x4
24	25	40	45	46	47	50	51	
x1	x2	x1	x1	x1	x1	x1	x1	

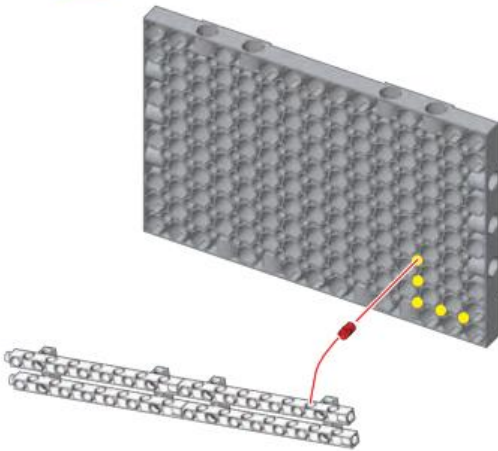
1 x2



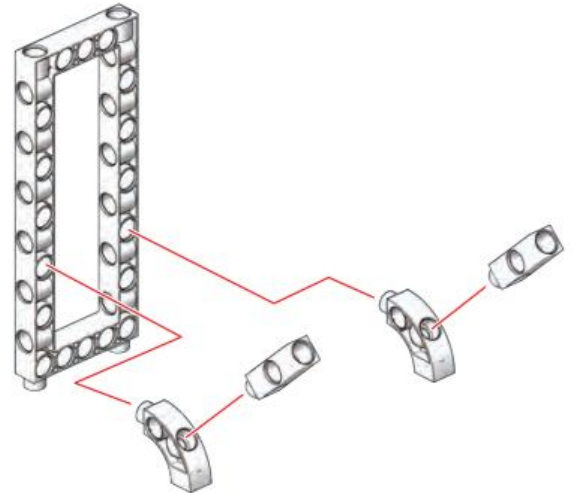
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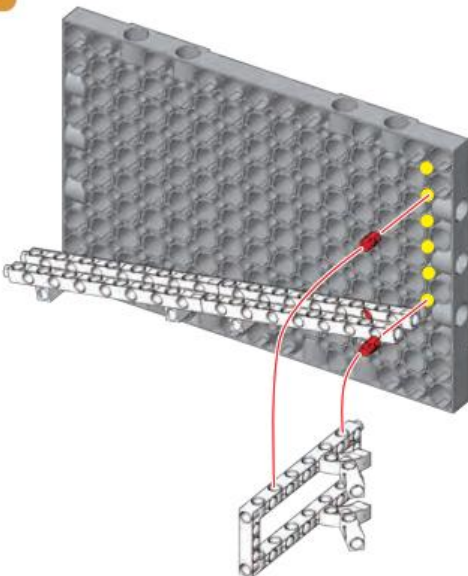
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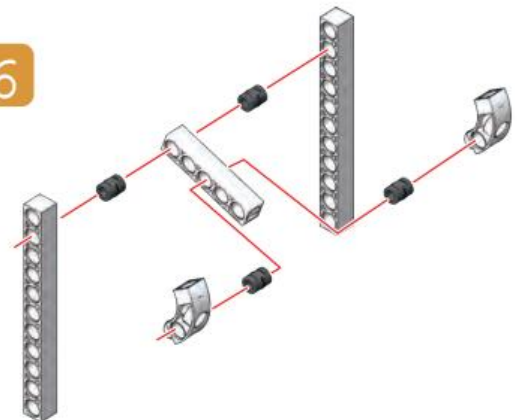
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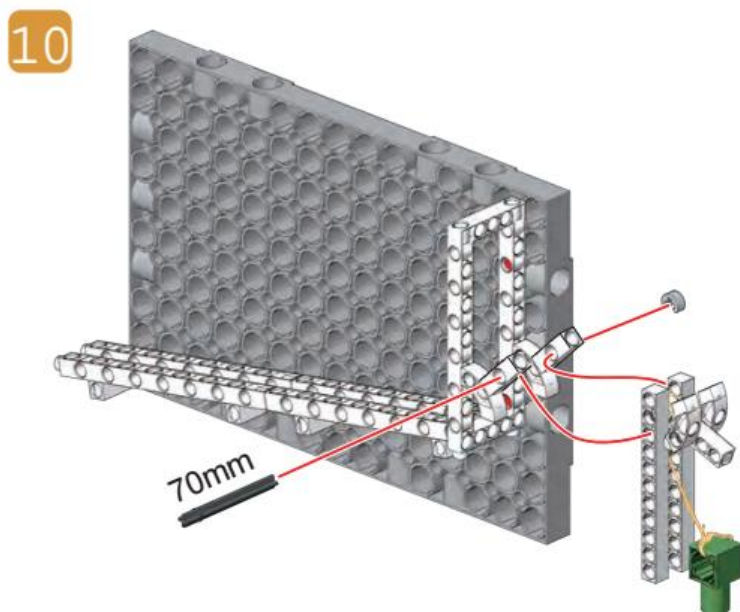
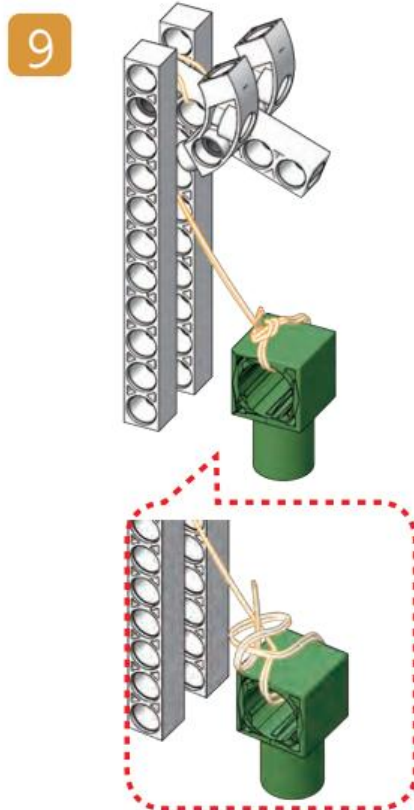
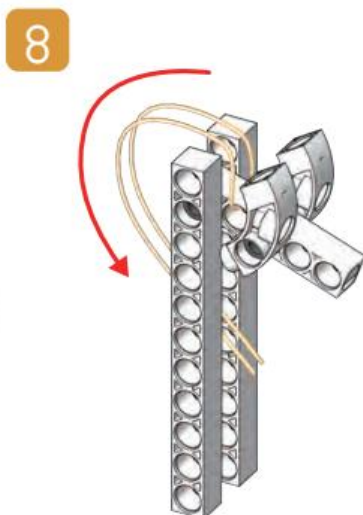
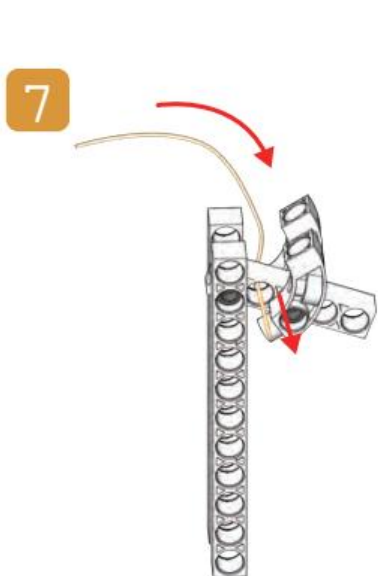


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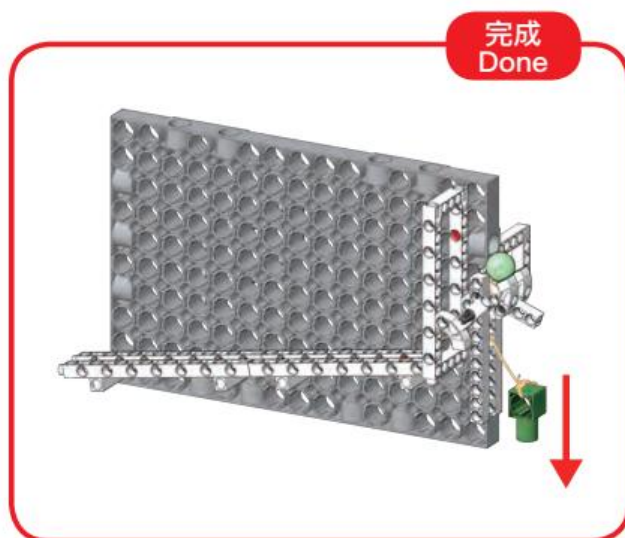
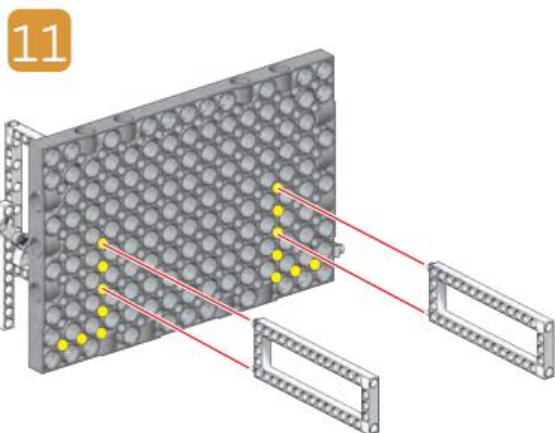


6





70mm



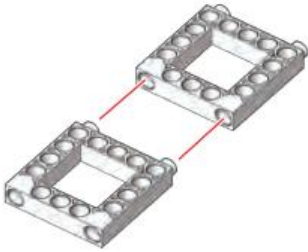
一步一步往上爬

Ice Climber

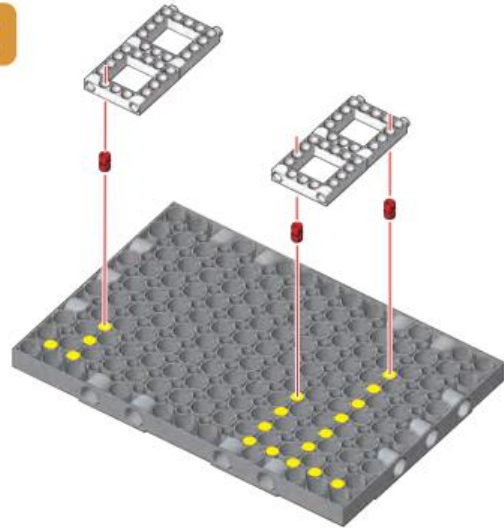
需用零件 Parts Needed

1	4	5	6	9	16	21	22	23
x2	x3	x12	x2	x2	x2	x4	x6	x8
25	26	27	40	47	50	51		
x4	x4	x4	x2	x3	x1	x1		

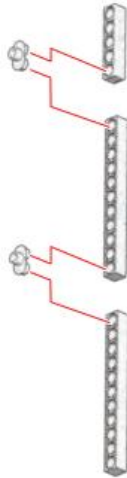
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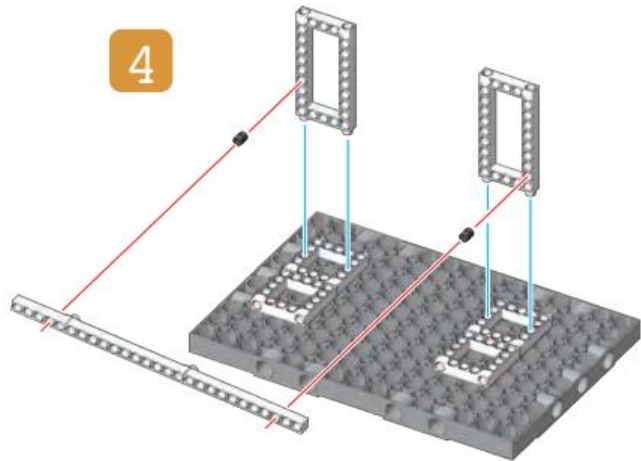
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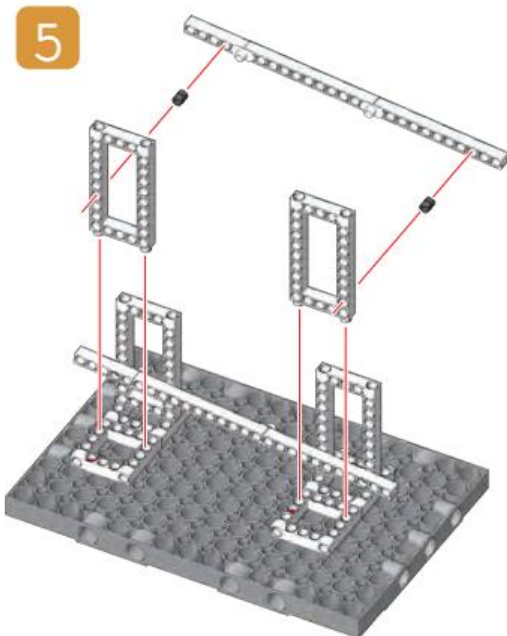
3 x2



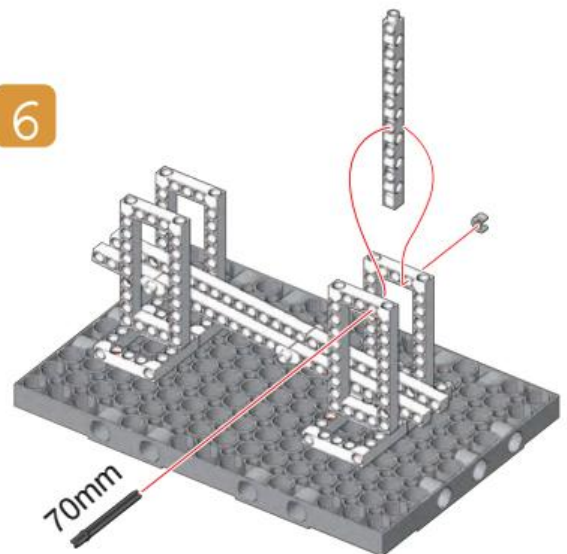
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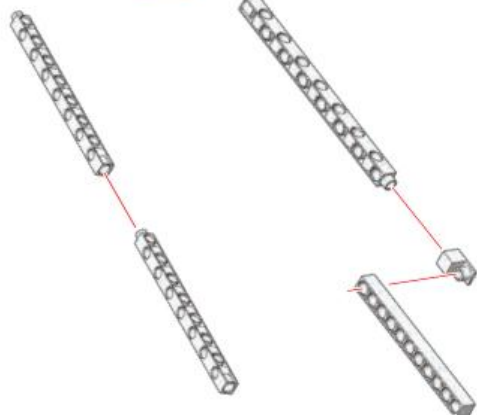
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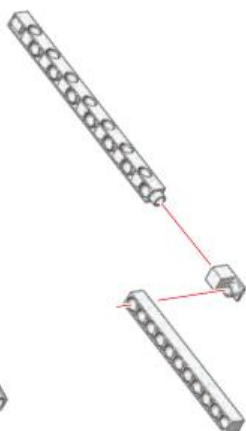
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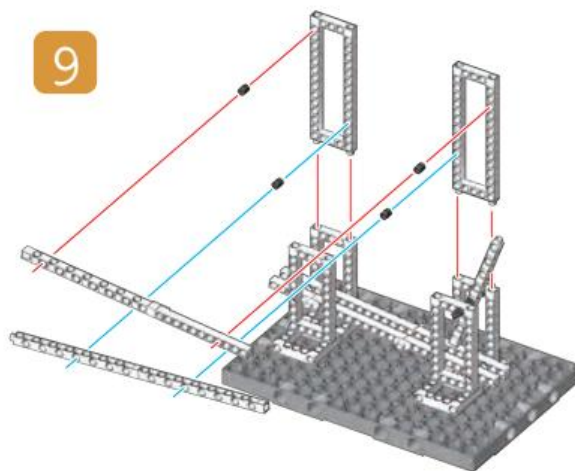
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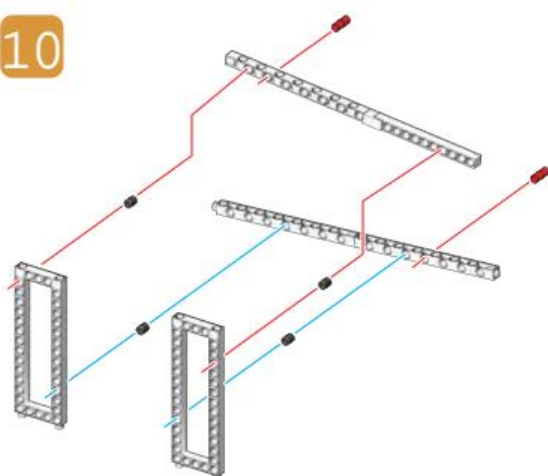
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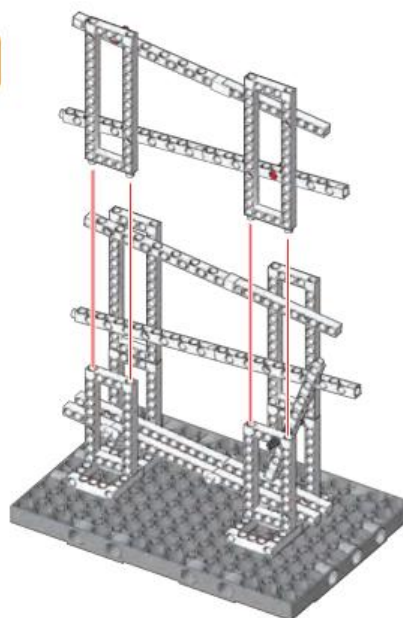
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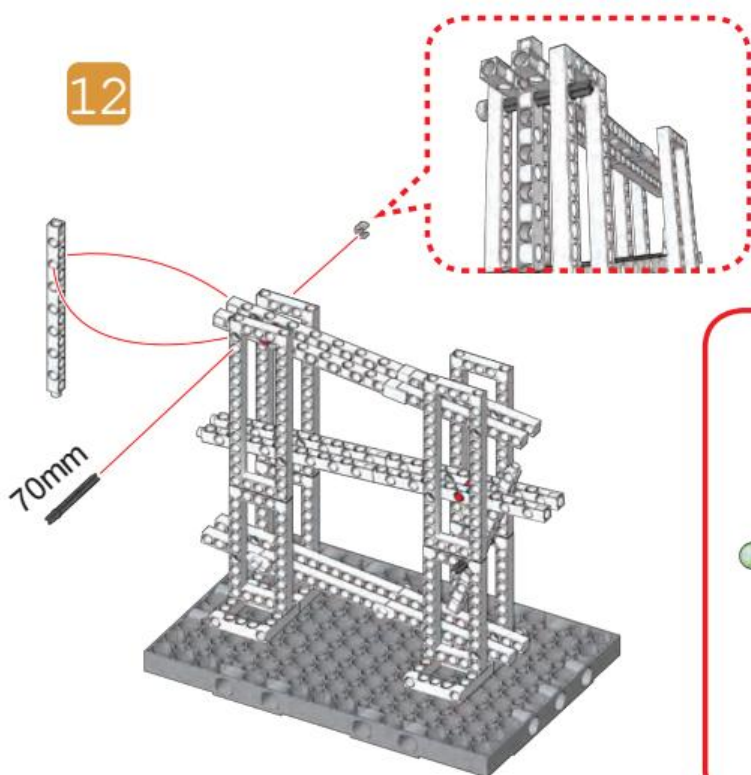
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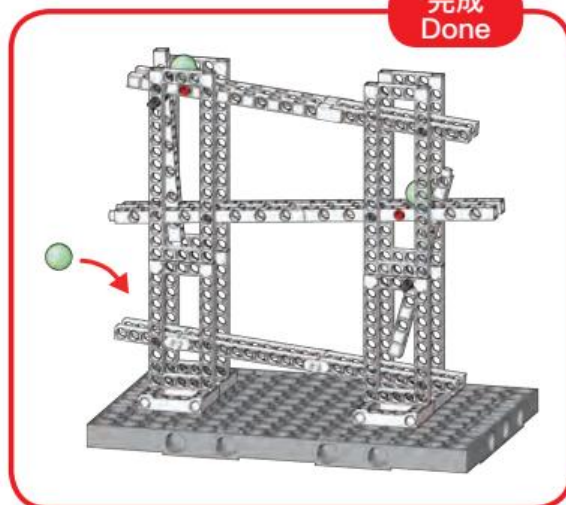
11



12



完成
Done

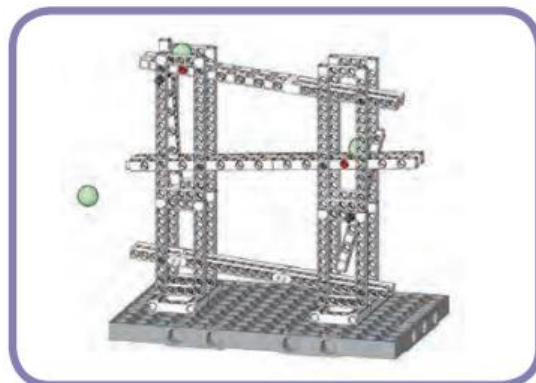
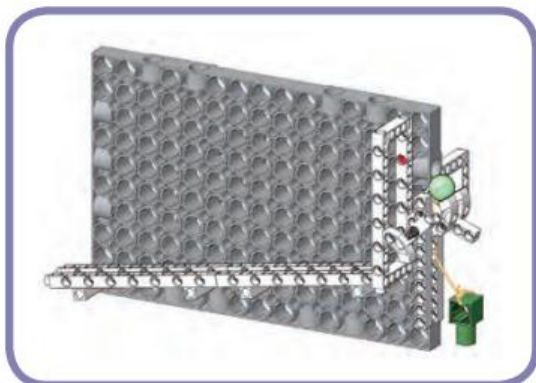
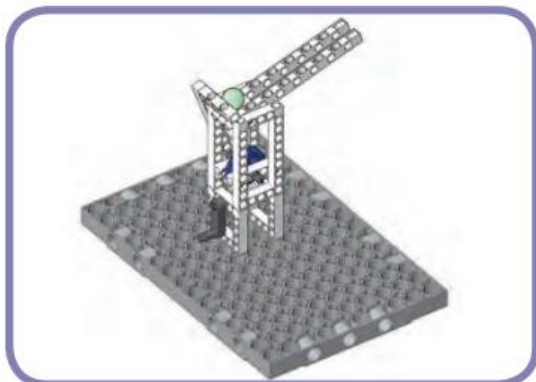


專題製作 (5) Special Project (5)

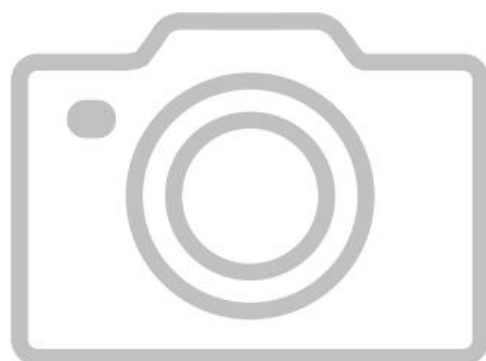


示範影片 Demo

模型列表 Model List

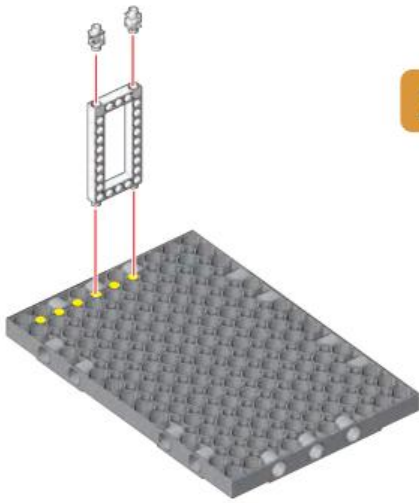


我的作品照 My Artwork

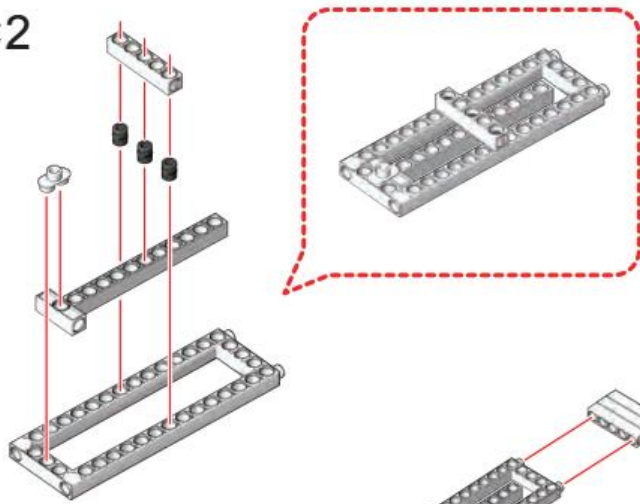


4	5	8	12	14	16	17	21	22	
x2	x13	x4	x2	x2	x3	x2	x2	x2	
23	25	26	40	47	50	51			
x4	x2	x1	x1	x3	x1	x1			

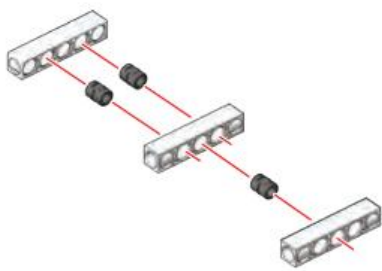
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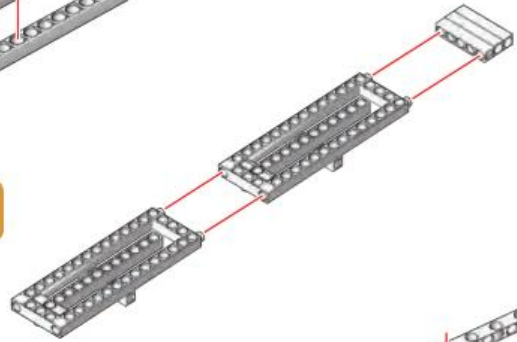
2 x2



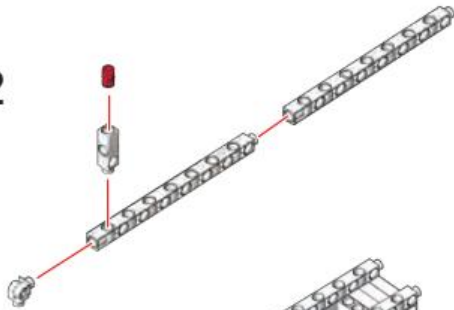
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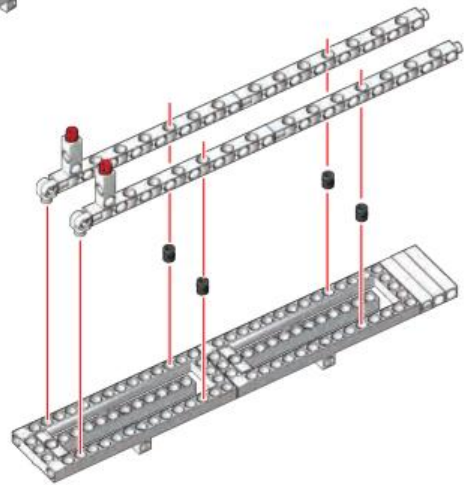
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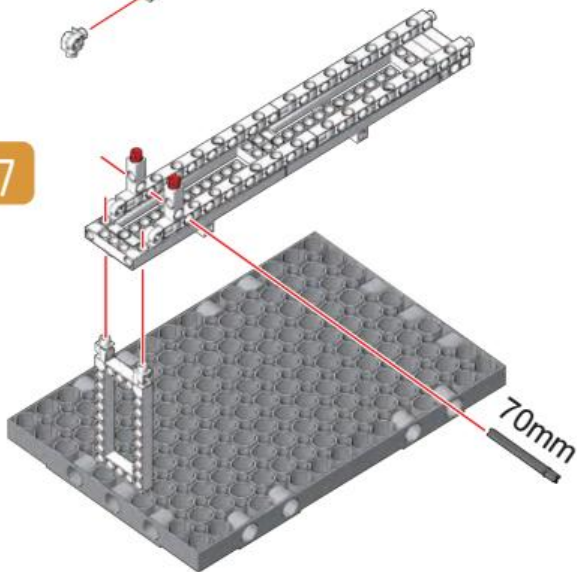
5 x2



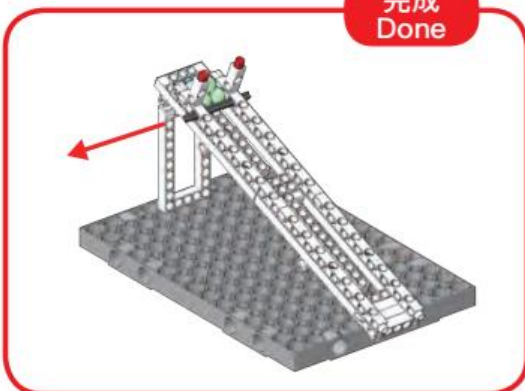
6



7






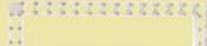



完成 Done



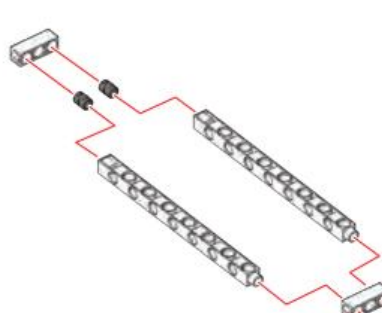
四接軌道

4-Layer Track

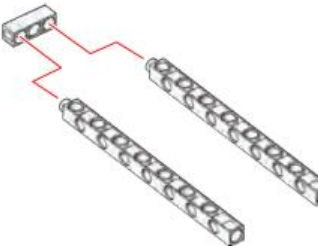
需用零件 Parts Needed

						
5	13	23	25	47	50	51
x10	x5	x8	x4	x1	x1	x1

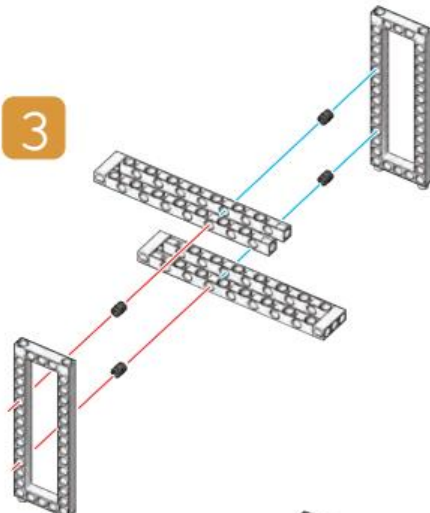
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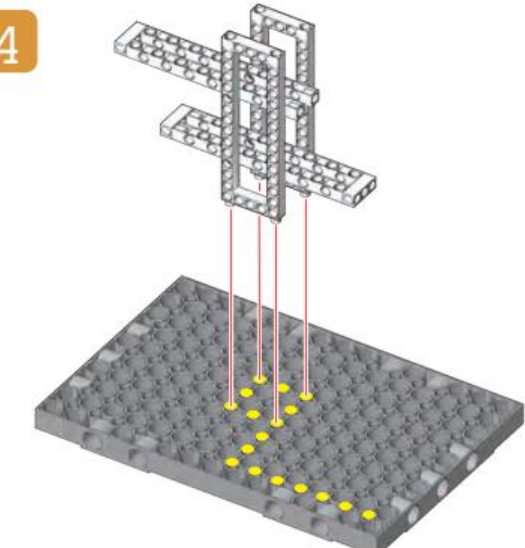
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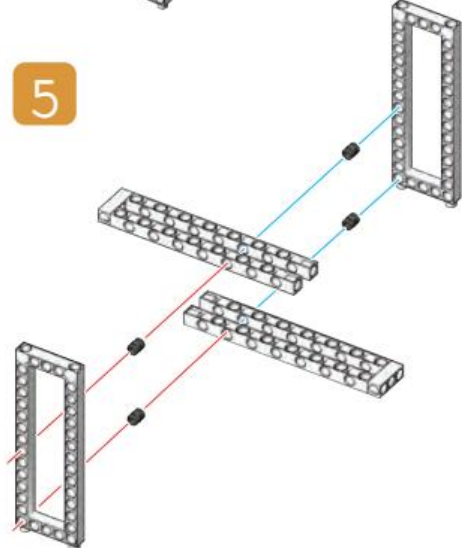
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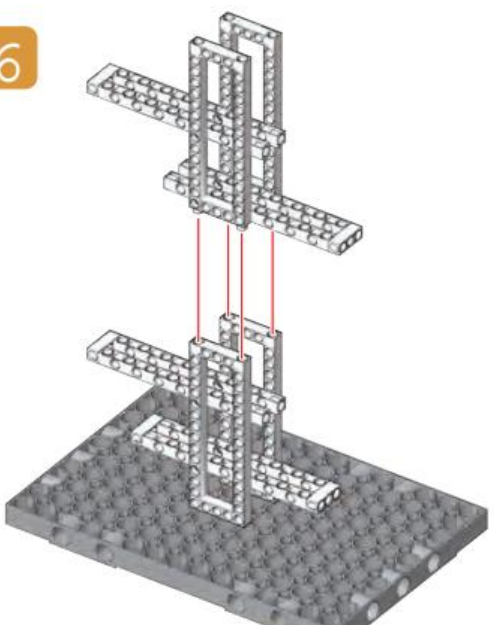
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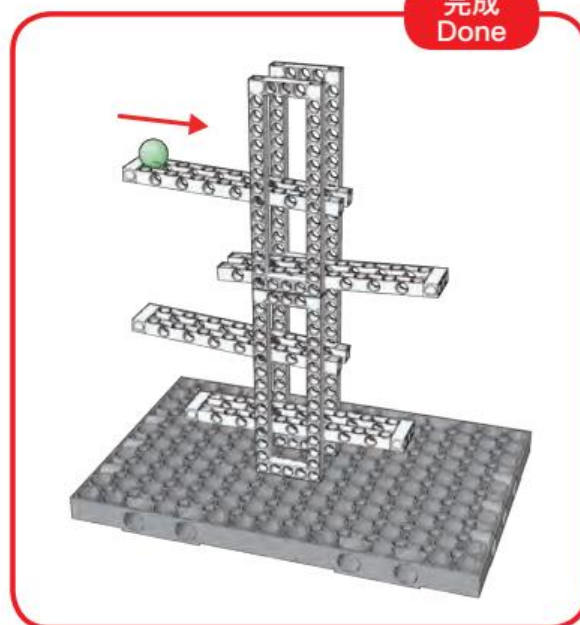
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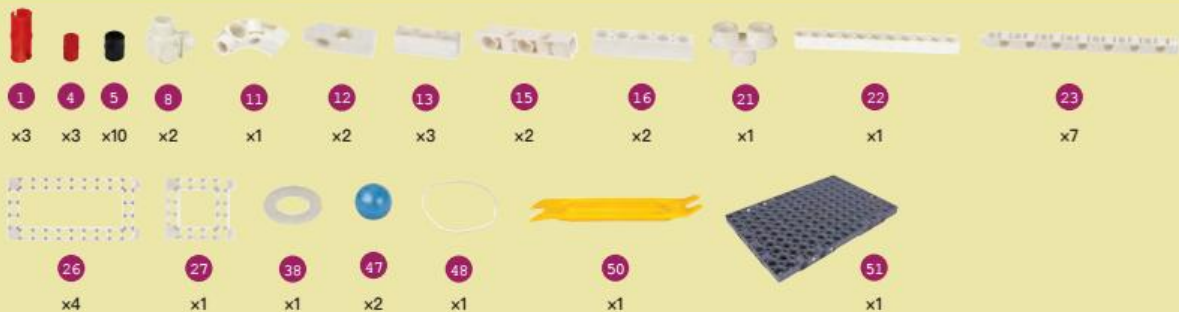


6



完成
Done

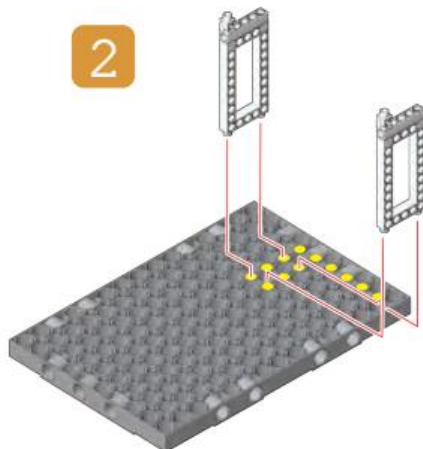




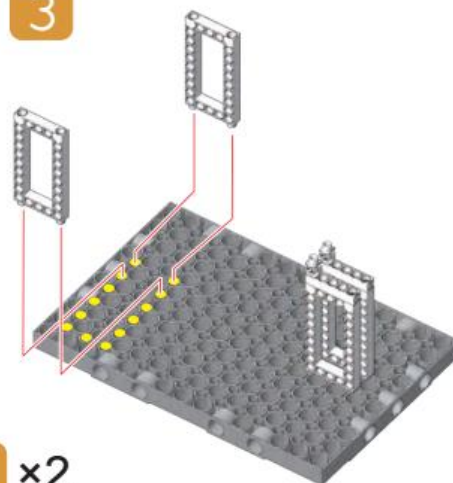
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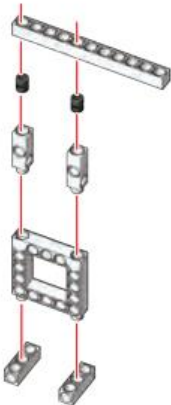


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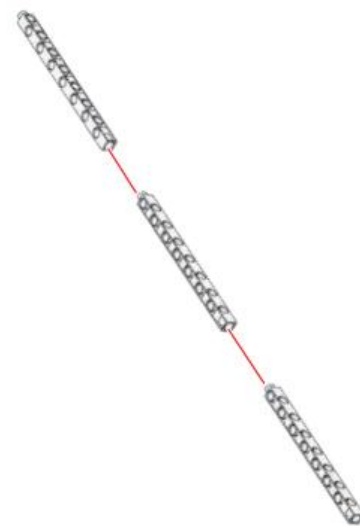
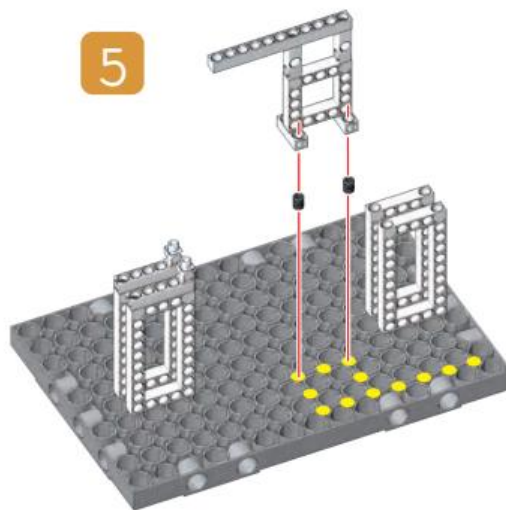


6 x2

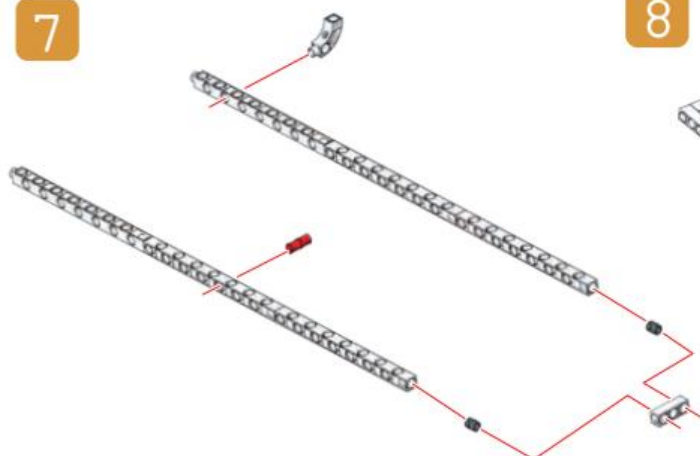
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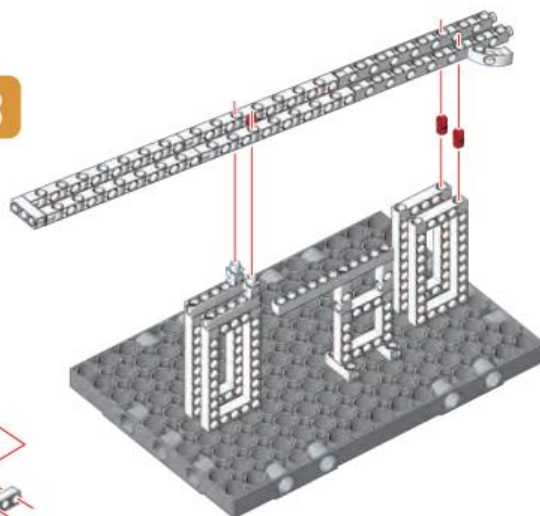
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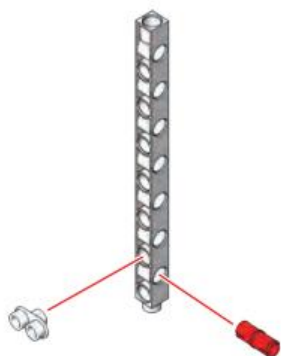
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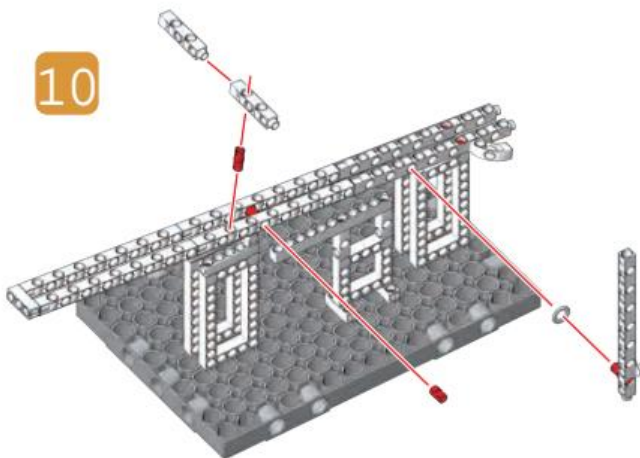
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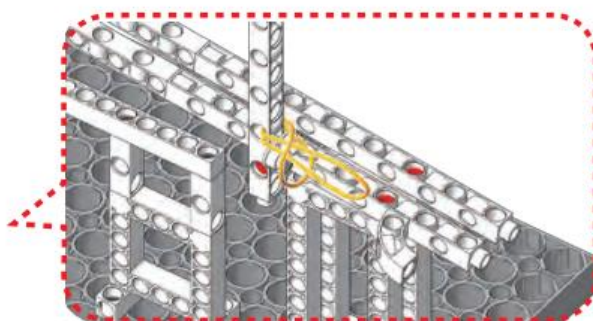
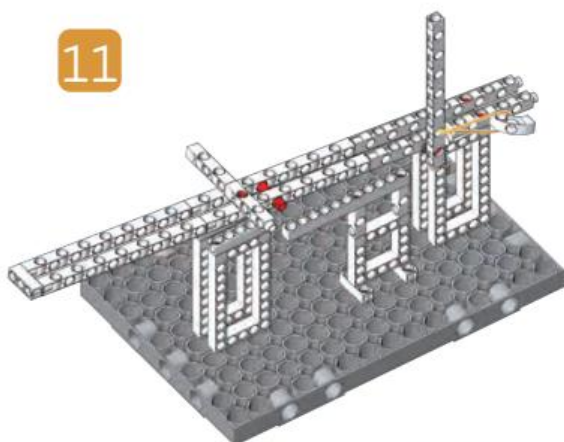
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10

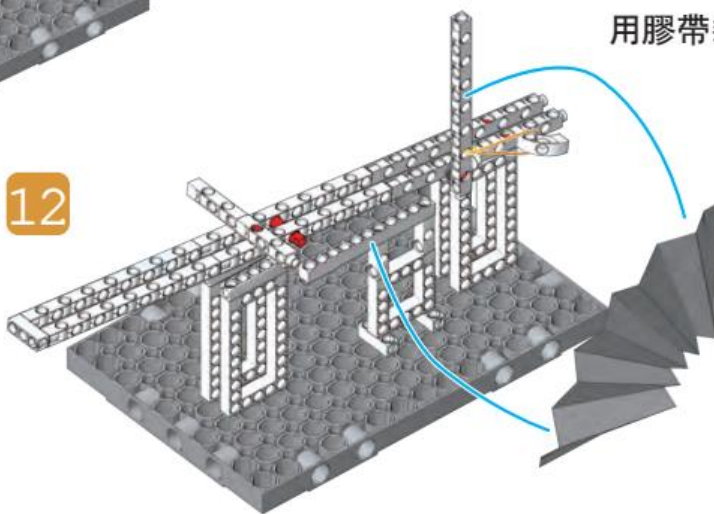


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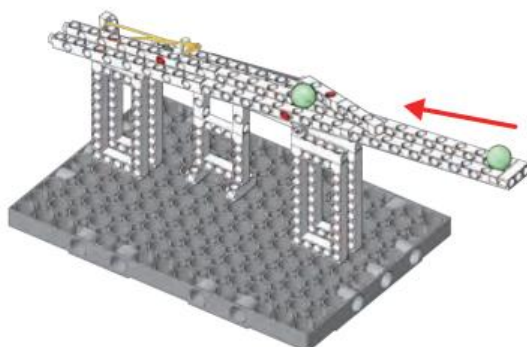
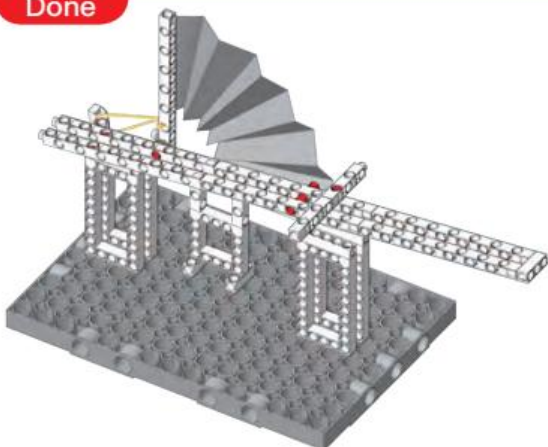


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Done

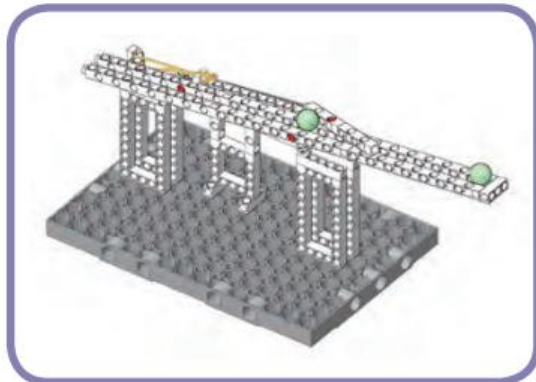
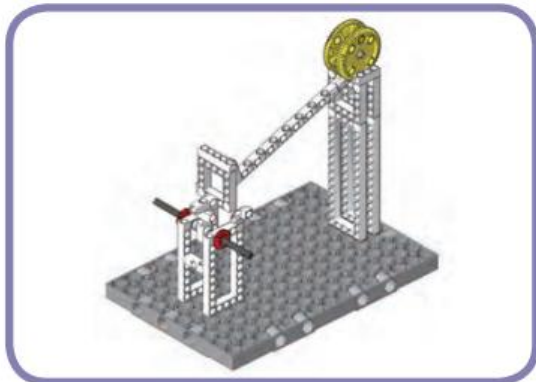
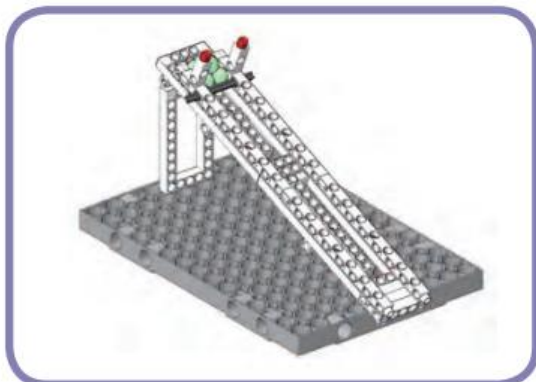


專題製作 (6) Special Project (6)



示範影片 Demo

模型列表 Model List



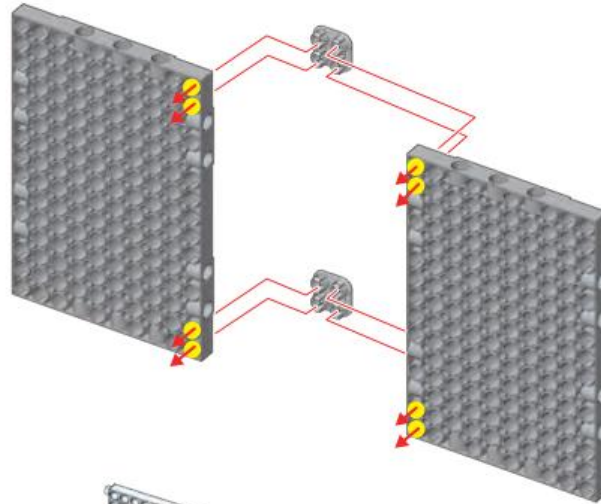
我的作品照 My Artwork



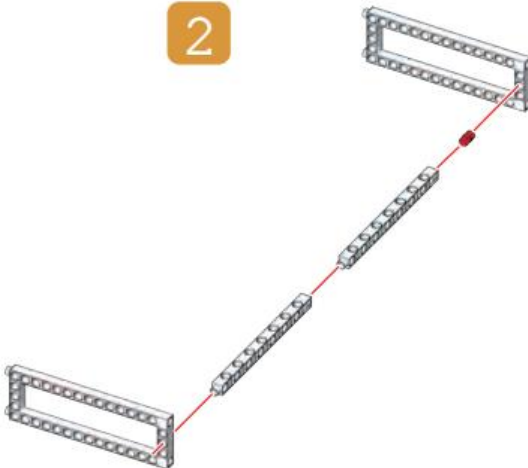
4	5	8	9	11	15	16	18	19	22	23	
x3	x2	x2	x2	x2	x2	x2	x2	x1	x1	x4	

25	32	34	38	42	49	50	51
x4	x1	x1	x1	x1	x3	x1	x2

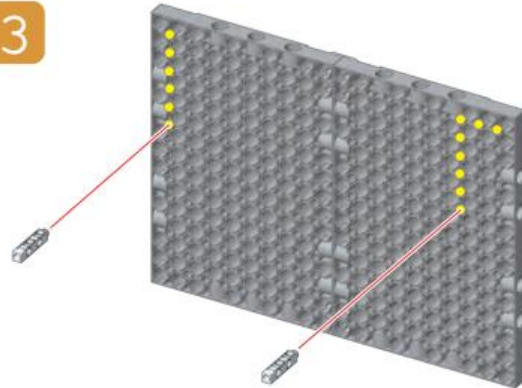
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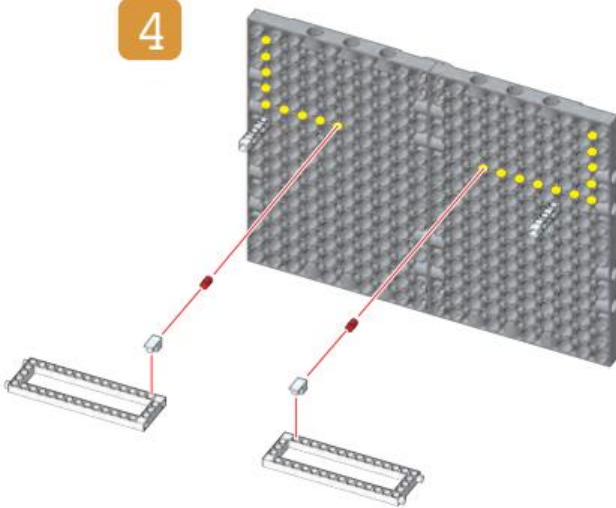
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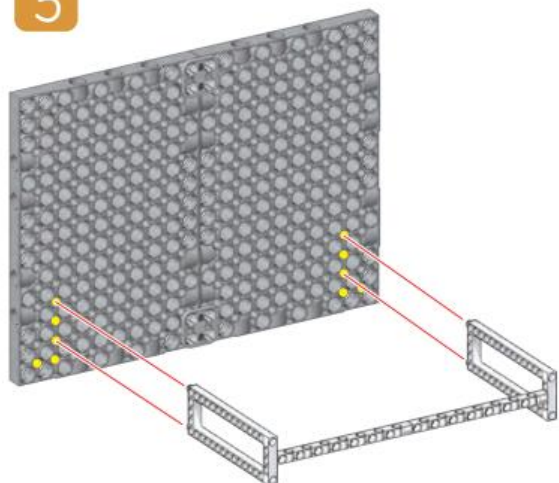
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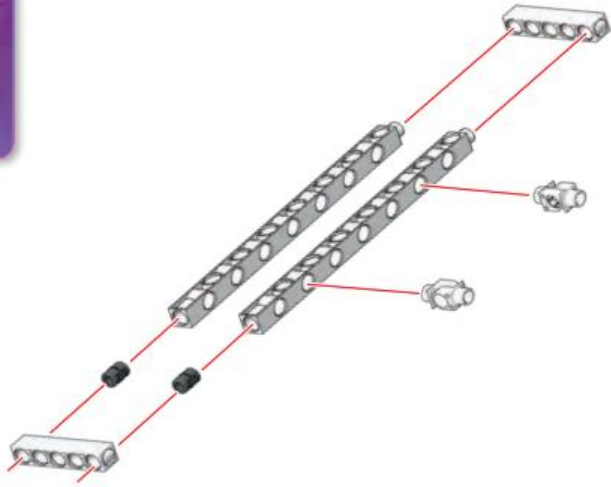
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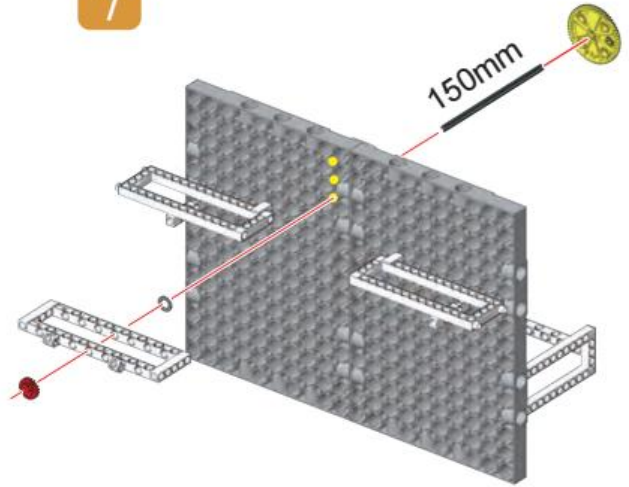
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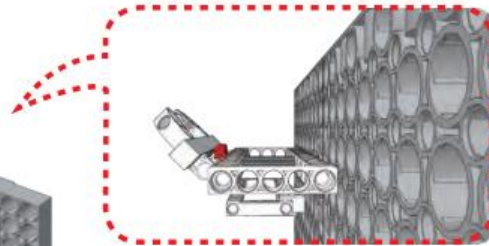
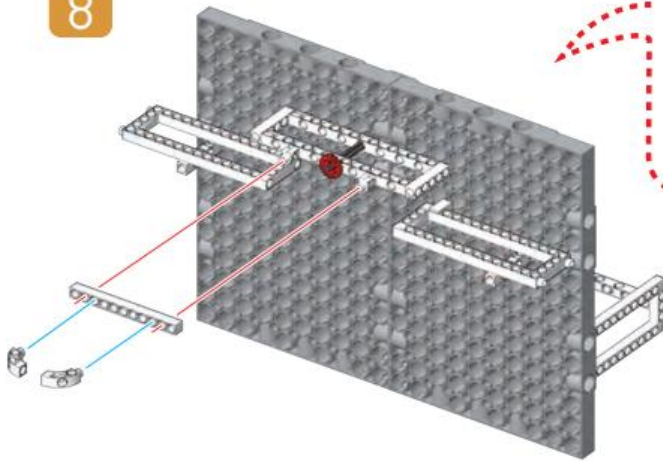
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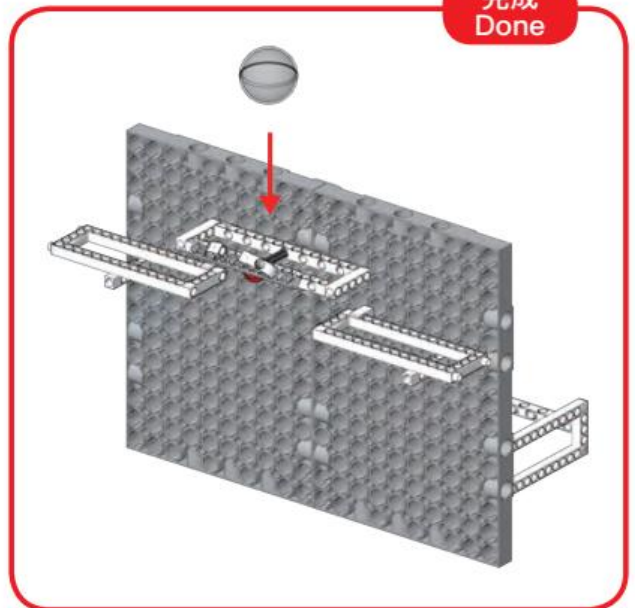
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8

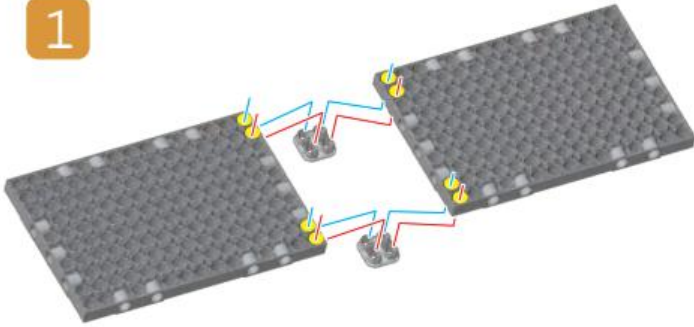


完成
Done

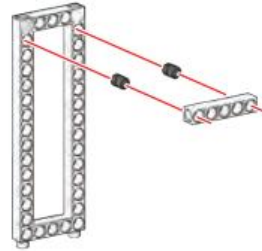


2	5	12	13	16	18	19	20	23
x3	x13	x3	x1	x2	x2	x1	x1	x6
25	27	35	36	40	46	50	51	
x2	x1	x2	x2	x10	x1	x1	x2	

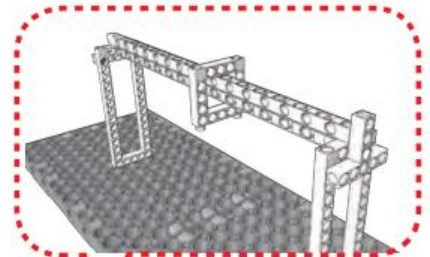
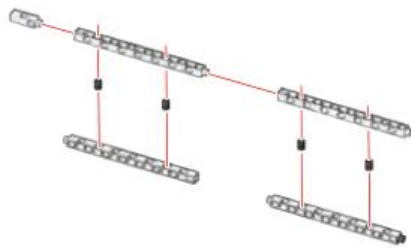
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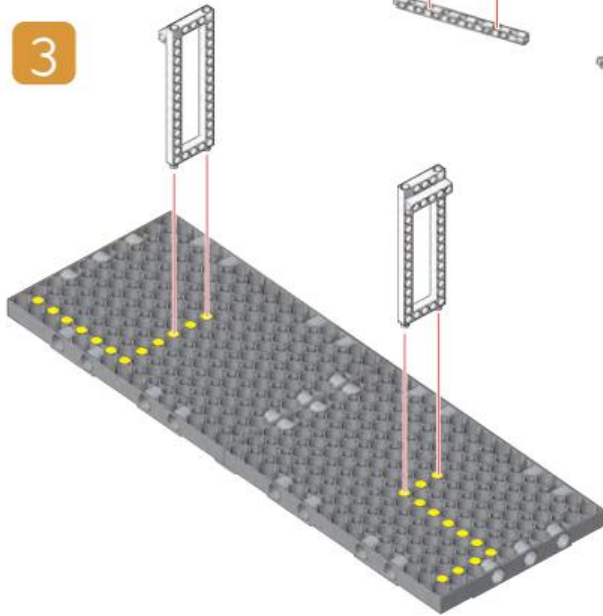
2 x2



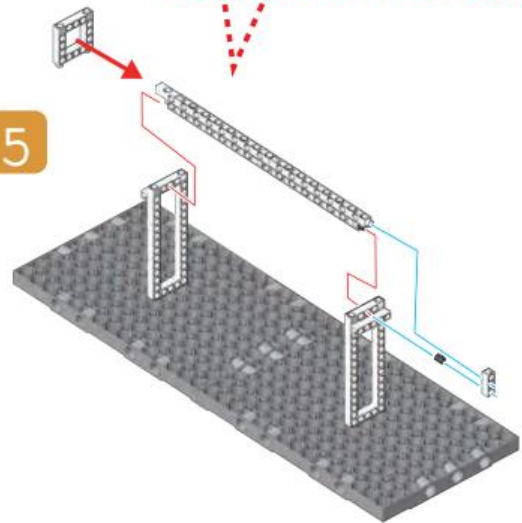
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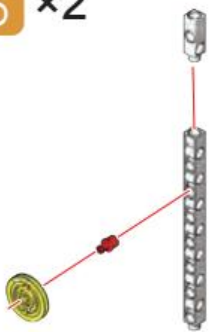
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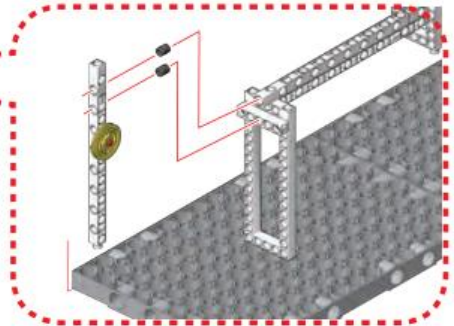
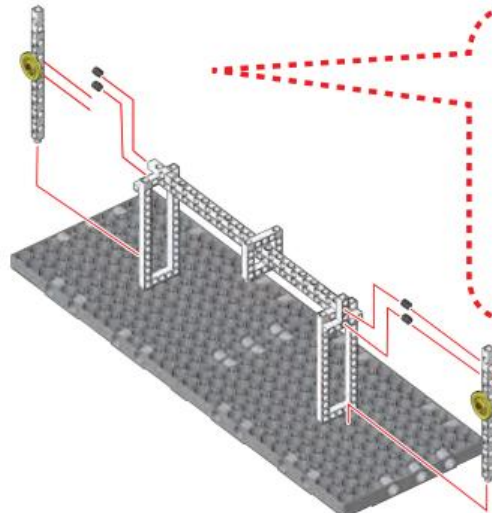


6 x2

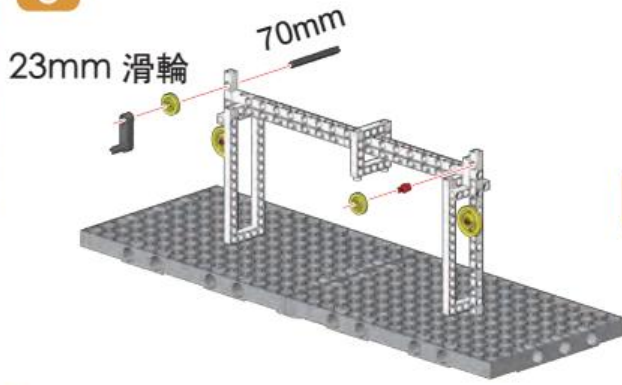


33mm 滑輪

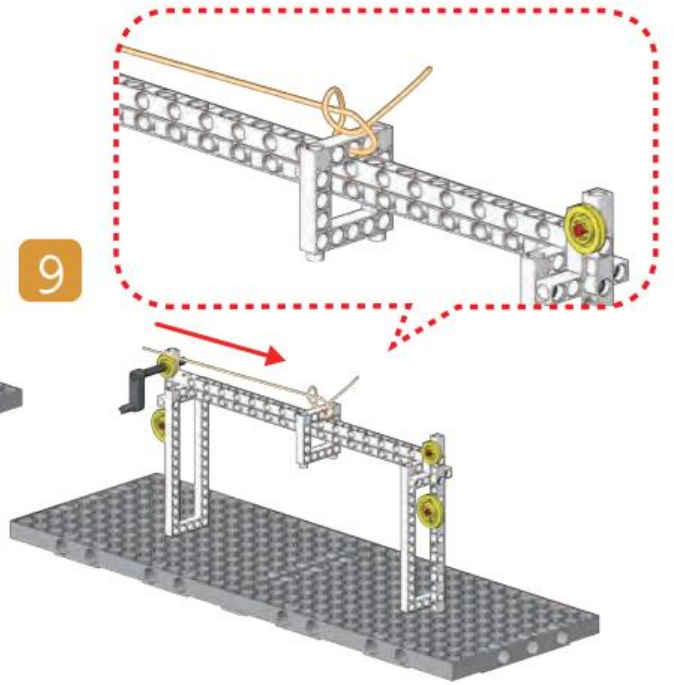
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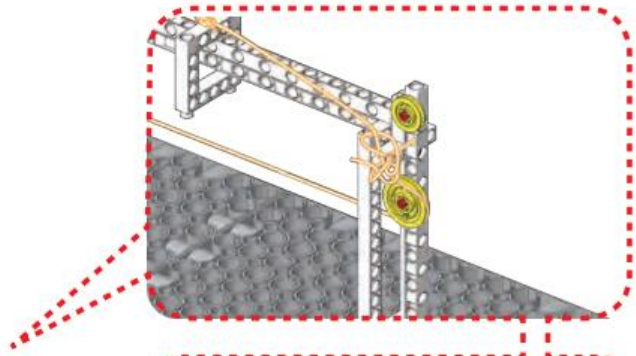
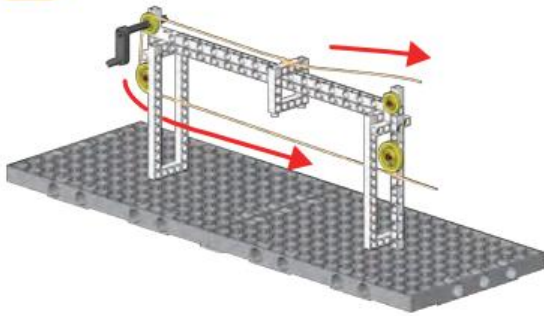
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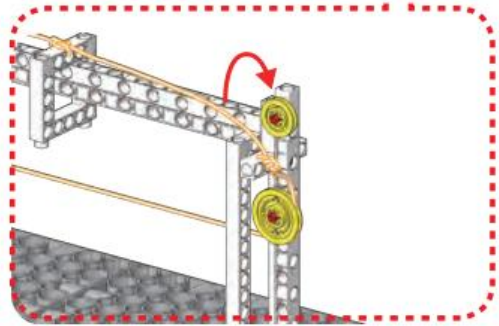
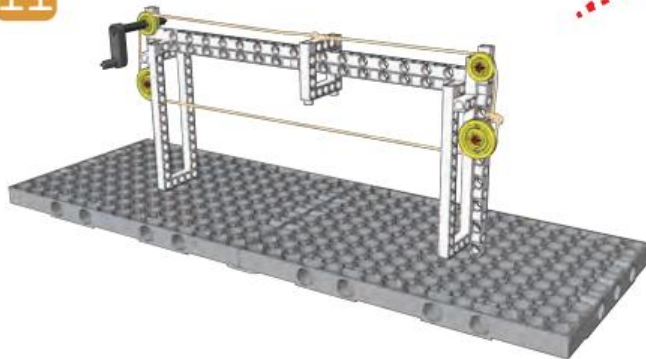
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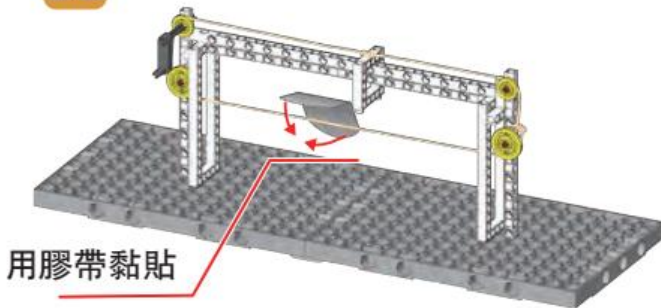
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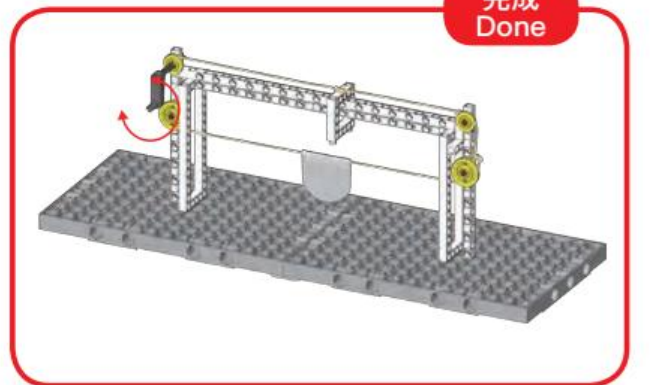
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12

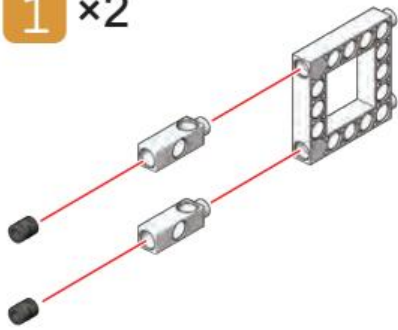


完成
Done

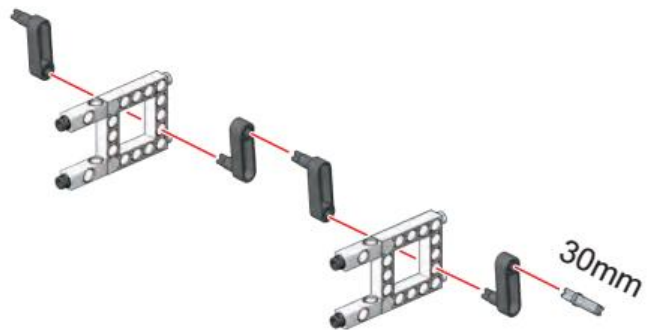




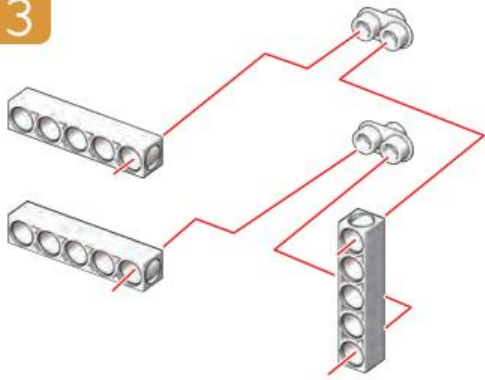
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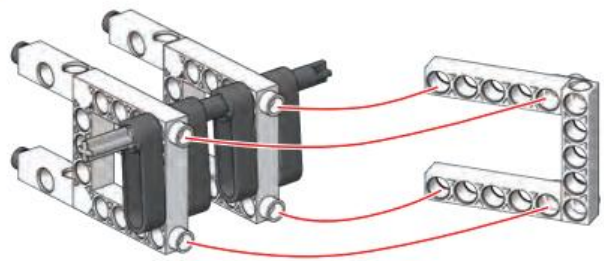
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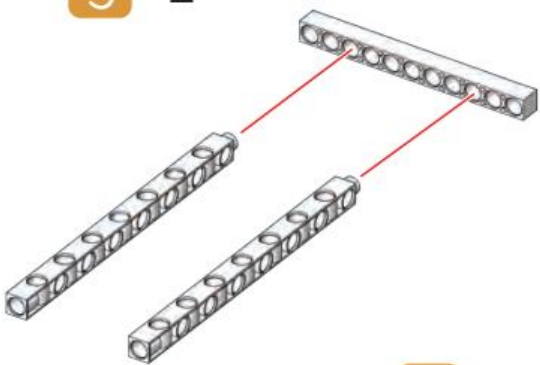
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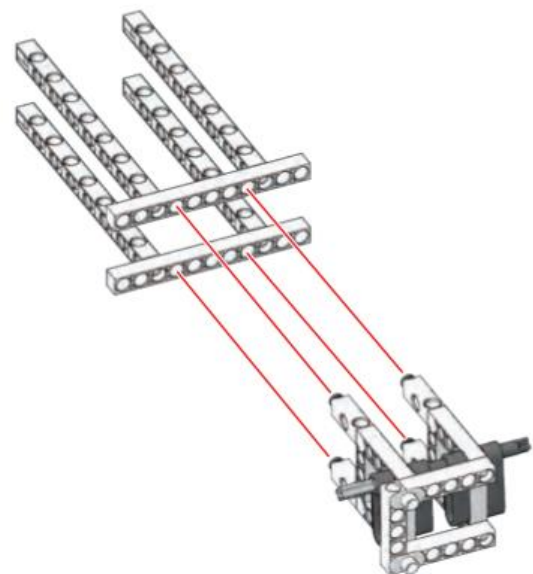
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5 x2



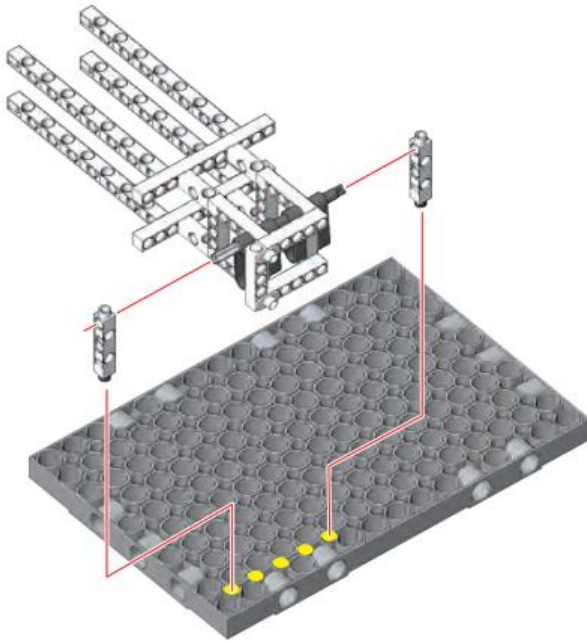
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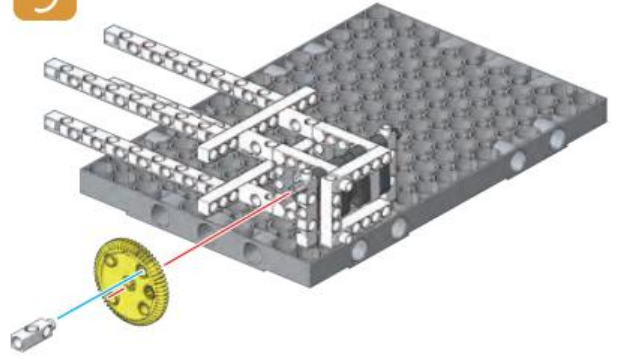
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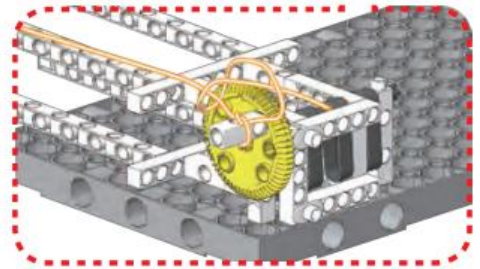
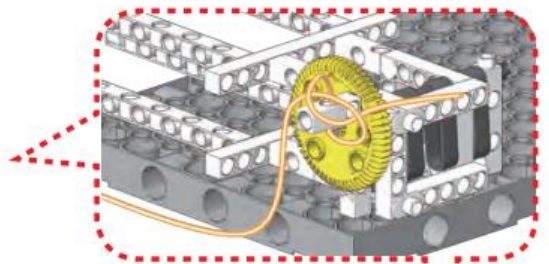
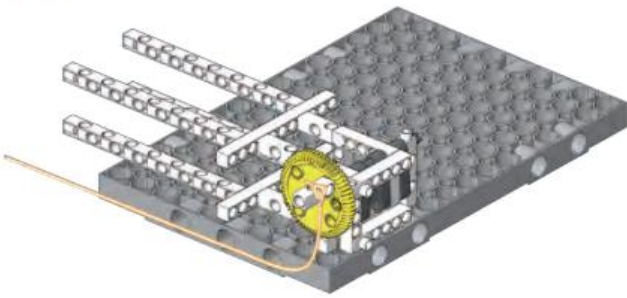
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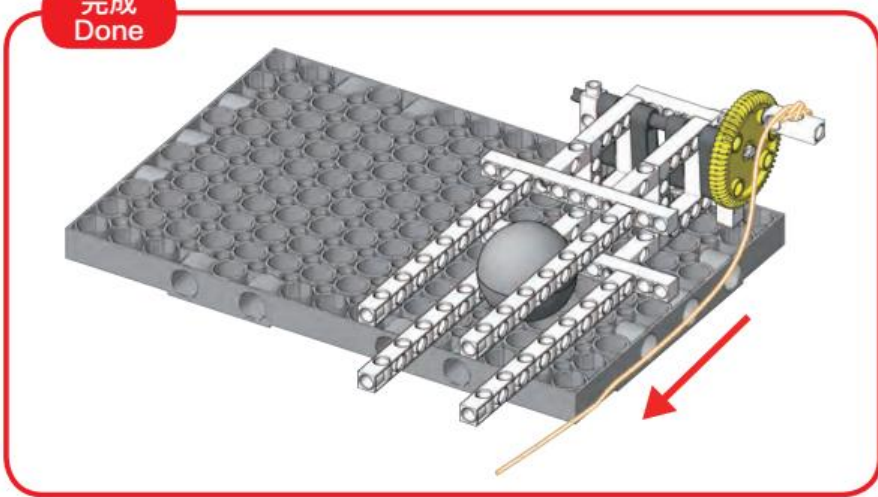
9



10



完成
Done



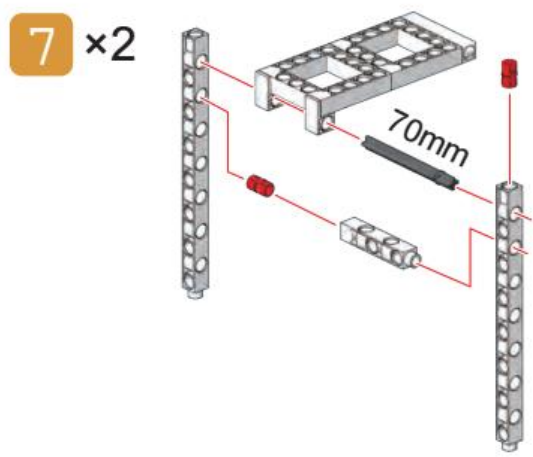
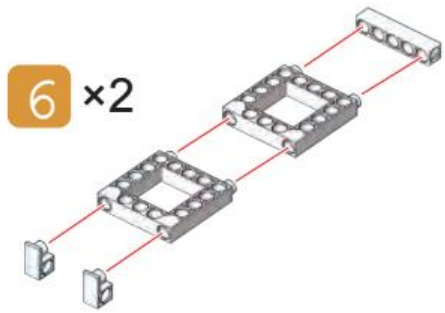
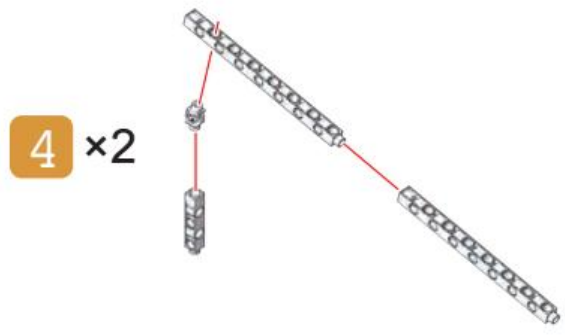
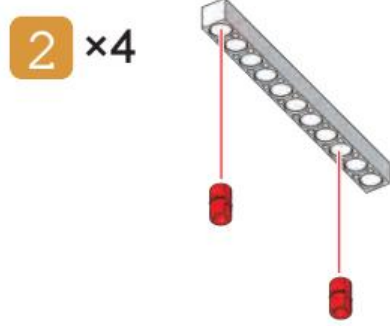
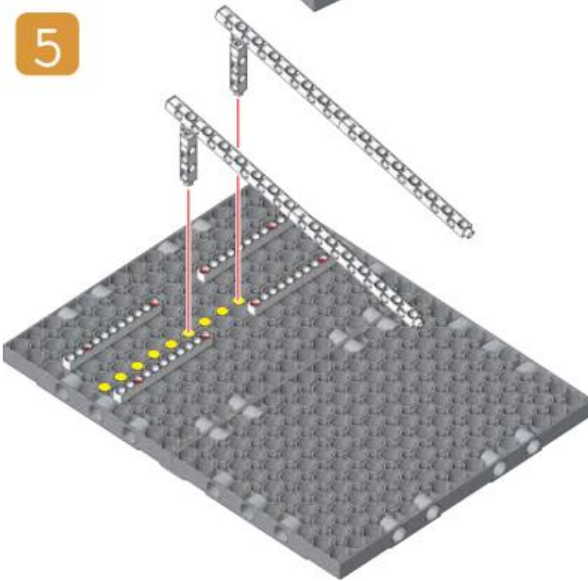
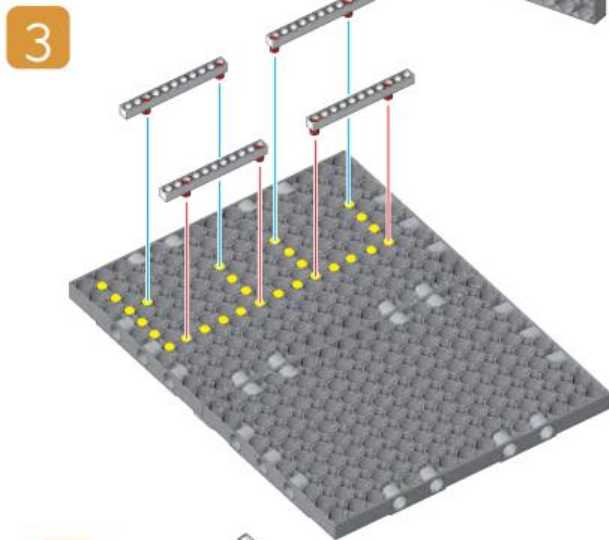
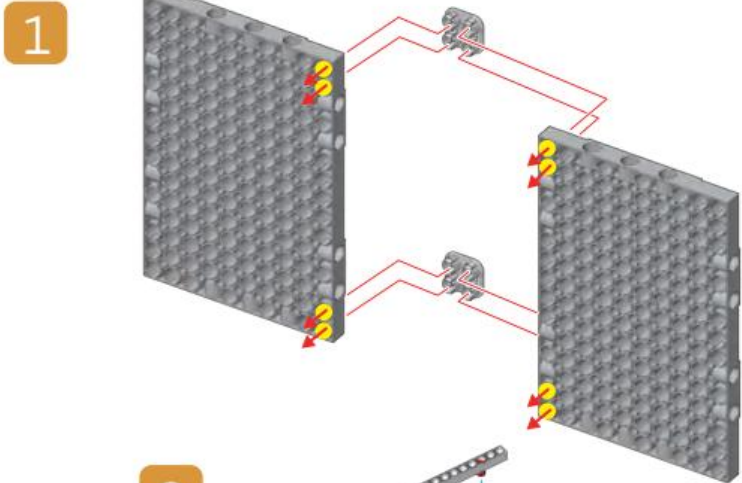
注意落石

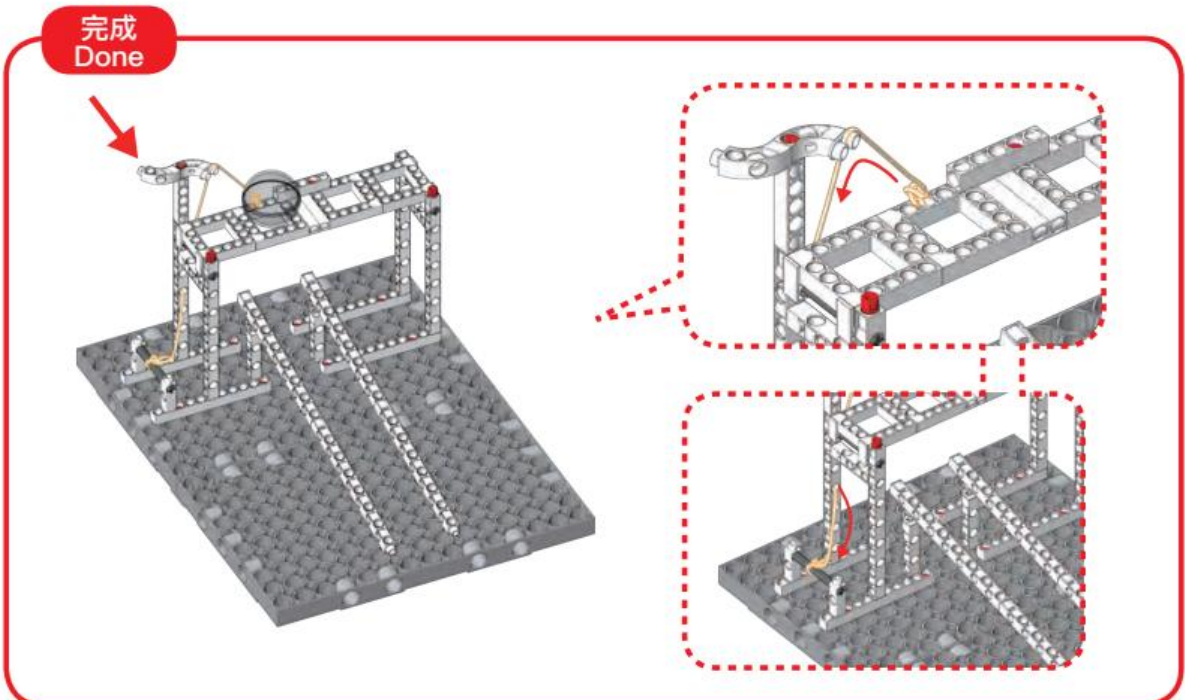
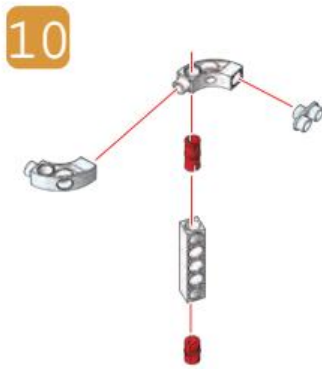
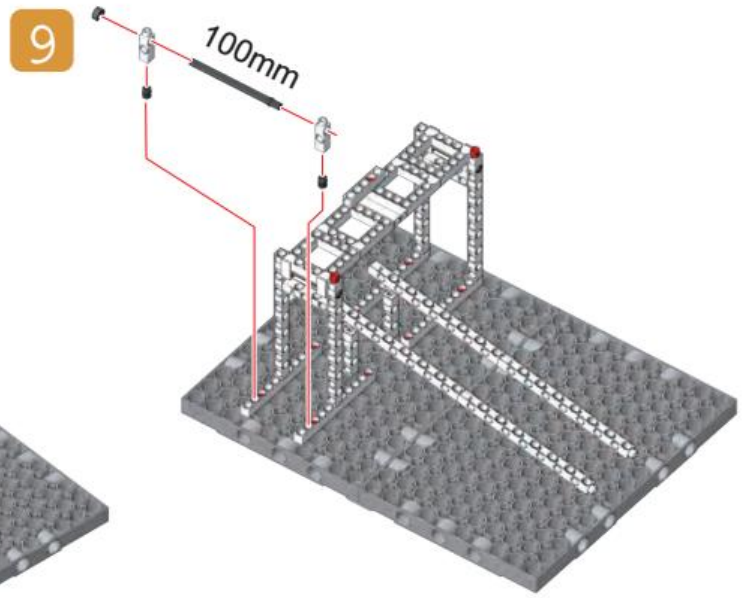
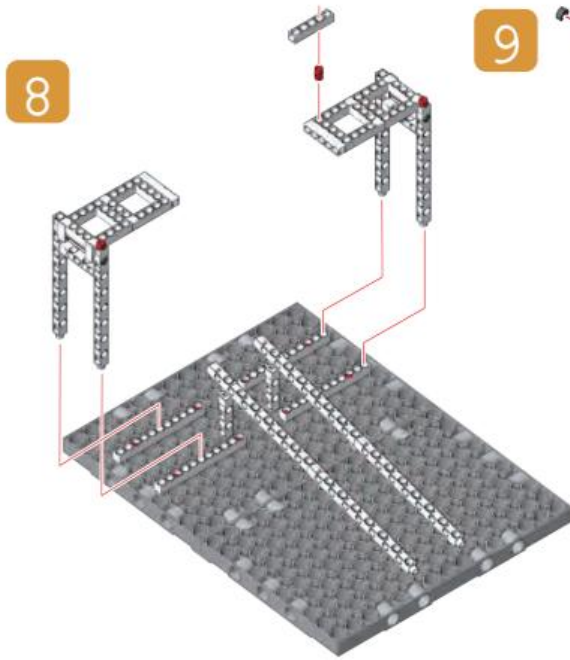
Falling Rocks

需用零件 Parts Needed

1	4	5	6	8	10	11	12	15	16	17	18	19	21
x1	x14	x2	x1	x2	x4	x2	x2	x4	x2	x2	x2	x1	x1

22	23	27	40	41	46	49	50	51
x4	x8	x4	x2	x1	x1	x1	x1	x2



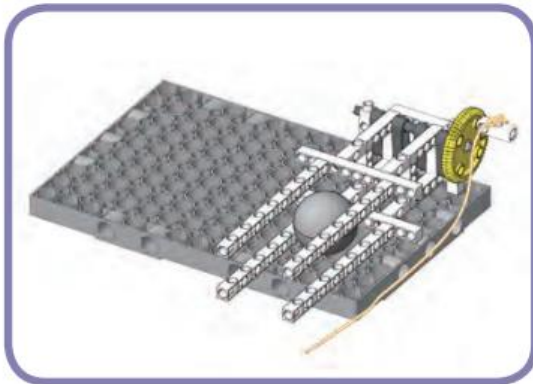
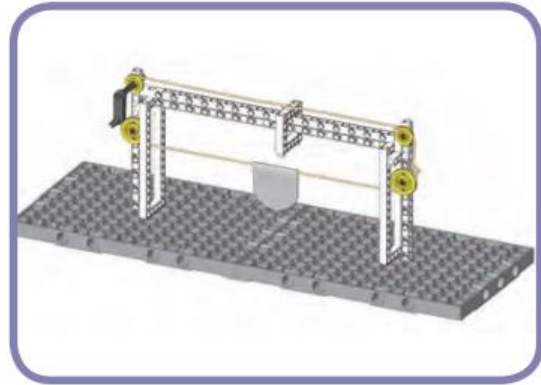
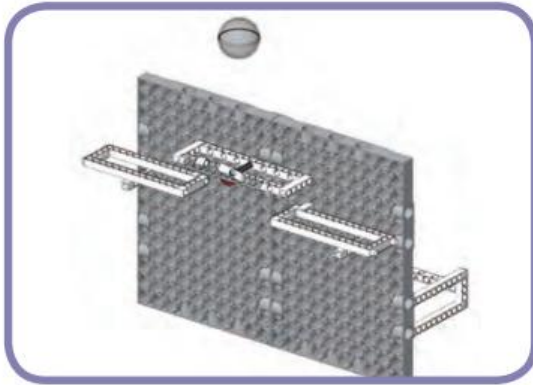


專題製作 (7) Special Project (7)



模型列表 Model List

示範影片 Demo(1) 示範影片 Demo(2)



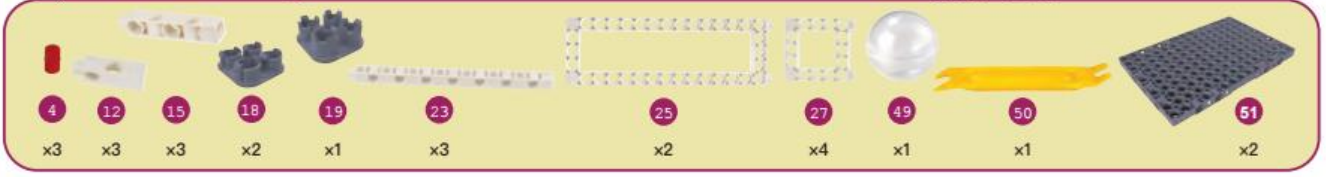
我的作品照 My Artwork



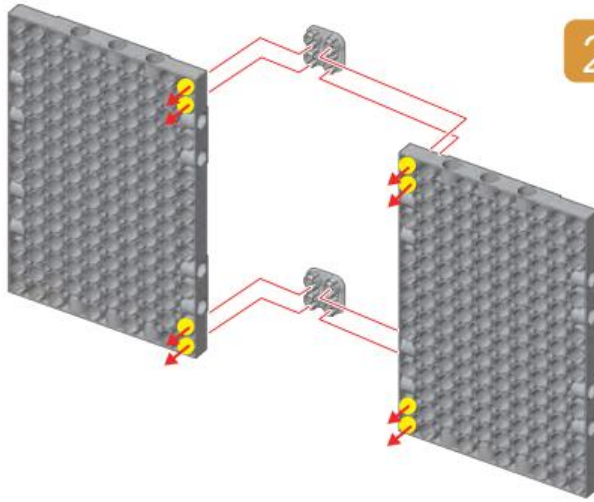
彈珠台

Pinball Machine

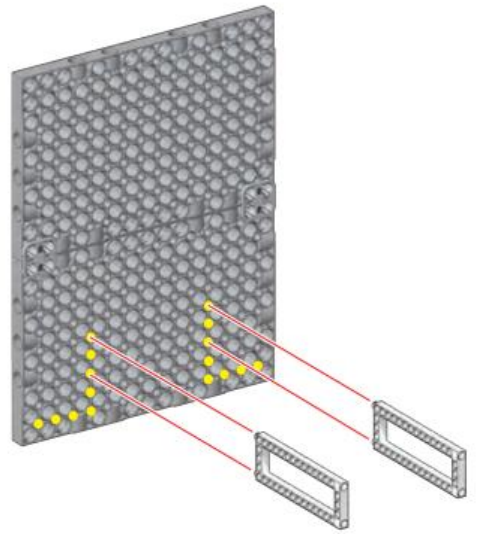
需用零件 Parts Needed



1



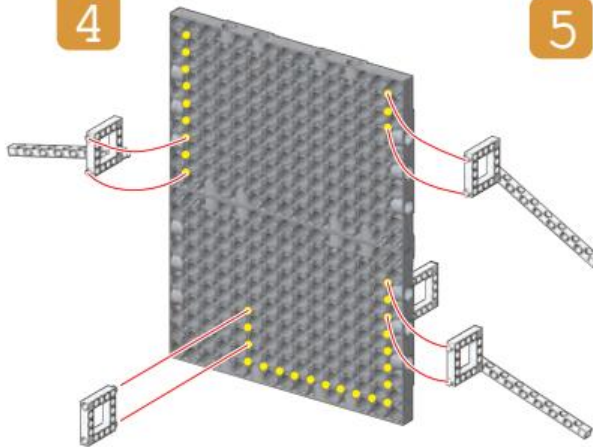
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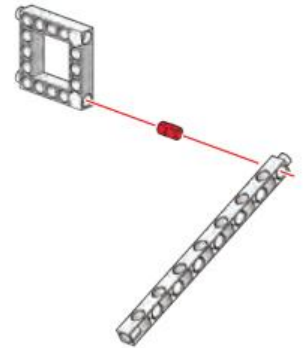
3 x3



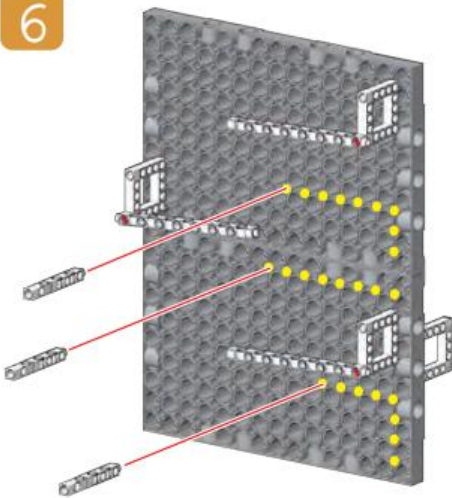
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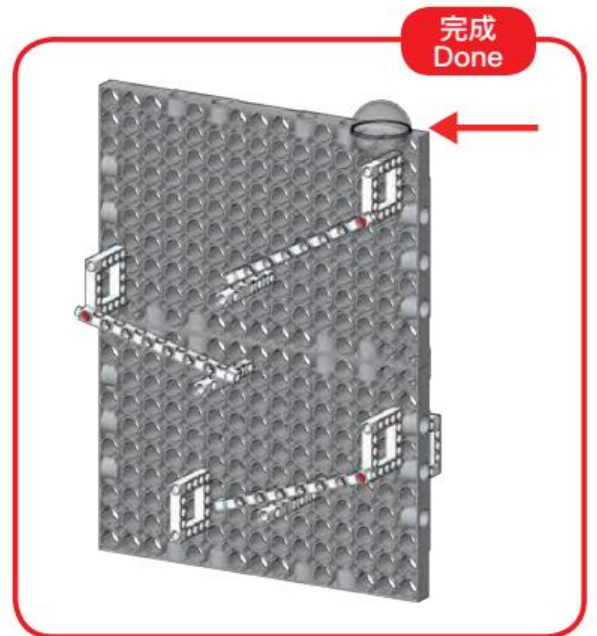
5 x3

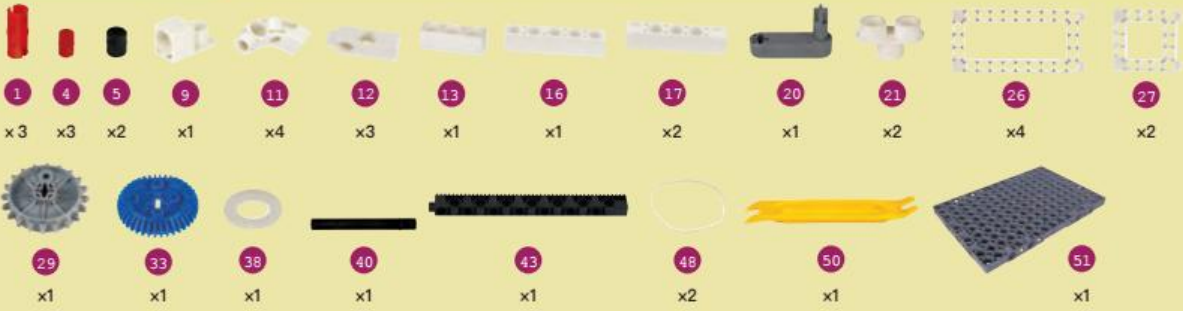


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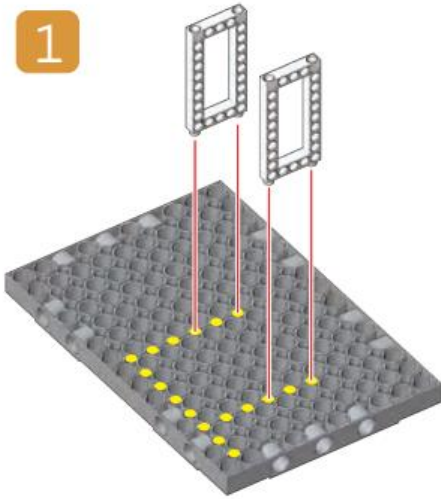


完成
Done

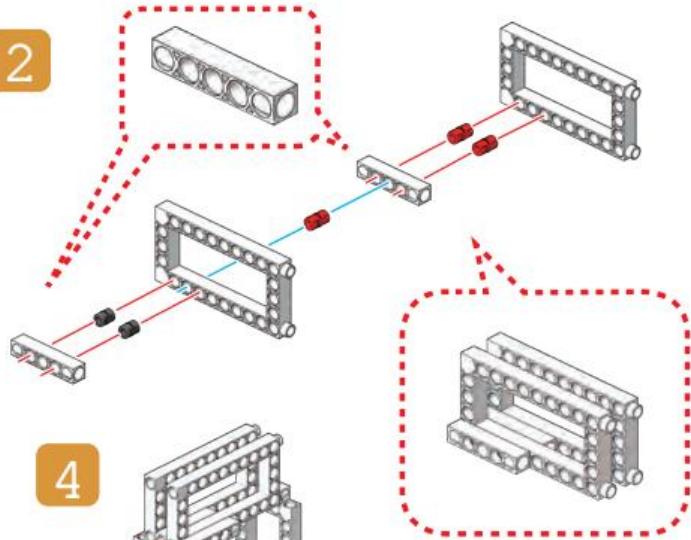




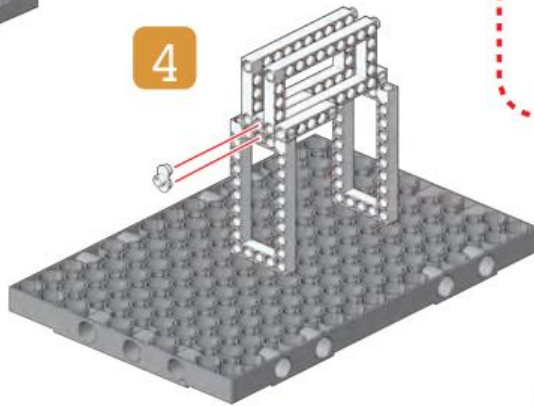
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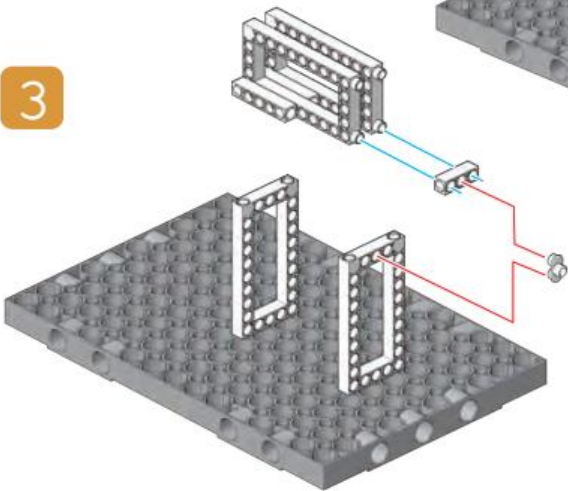
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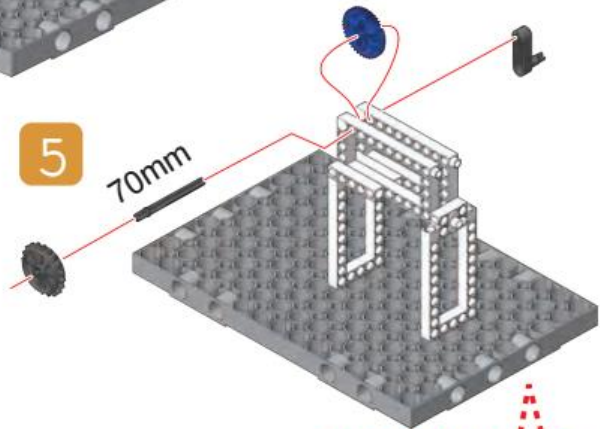
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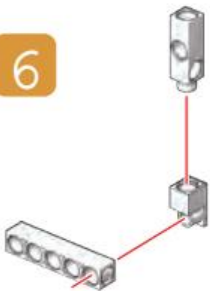
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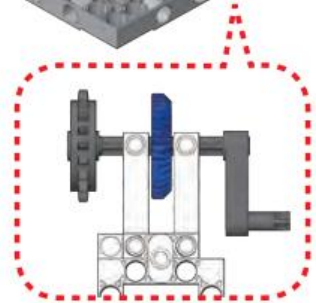
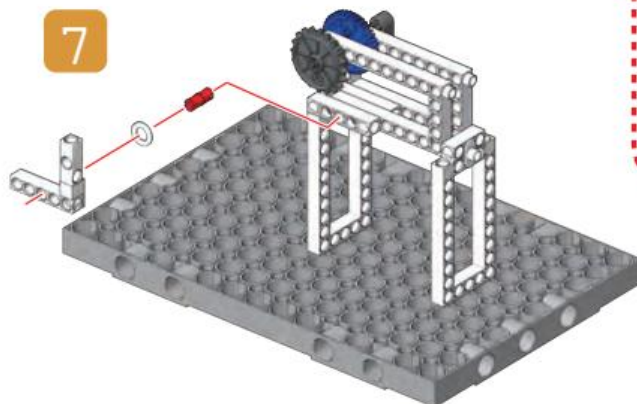
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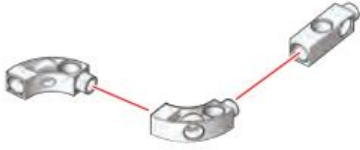
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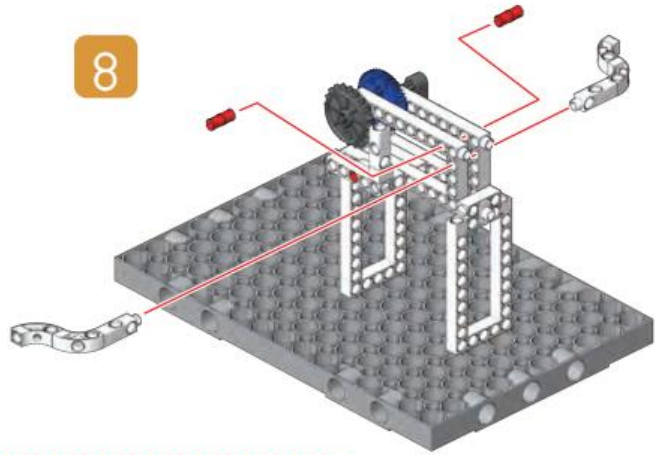
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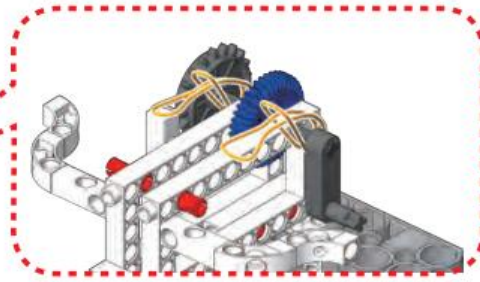
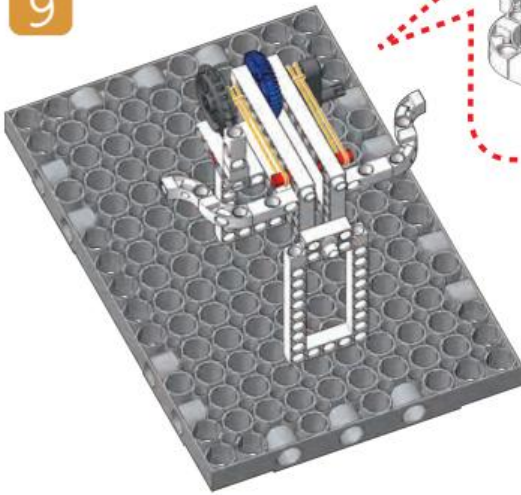
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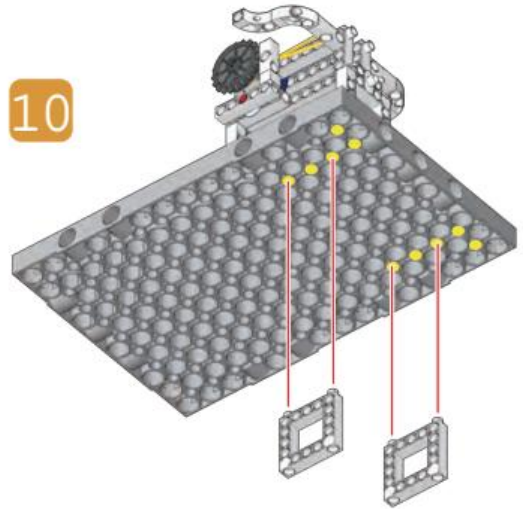
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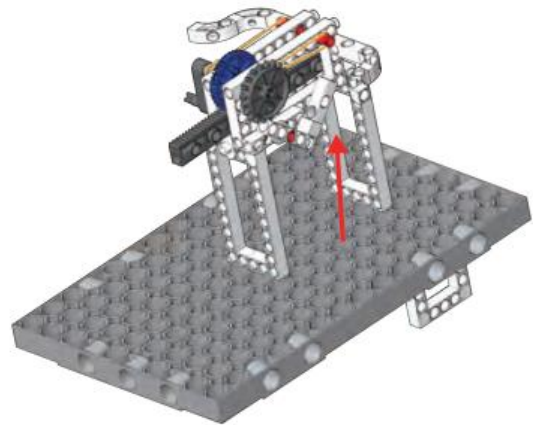
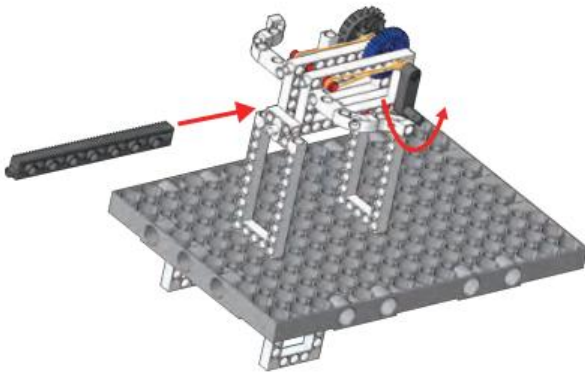
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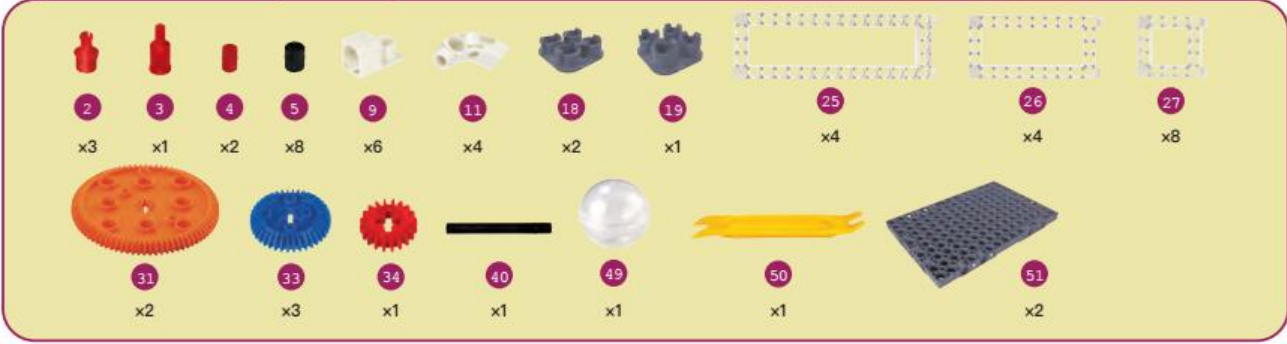


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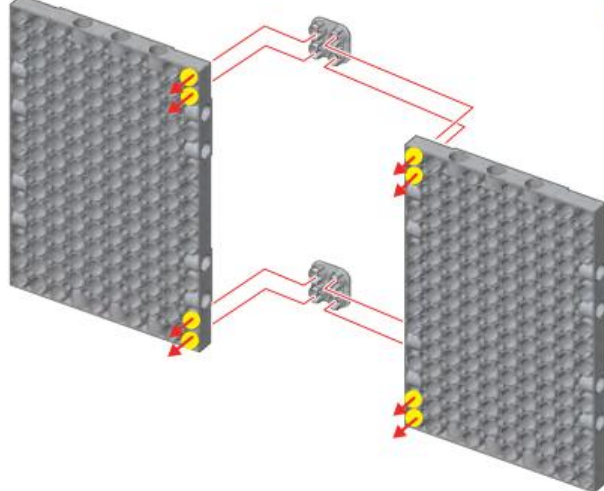


完成
Done

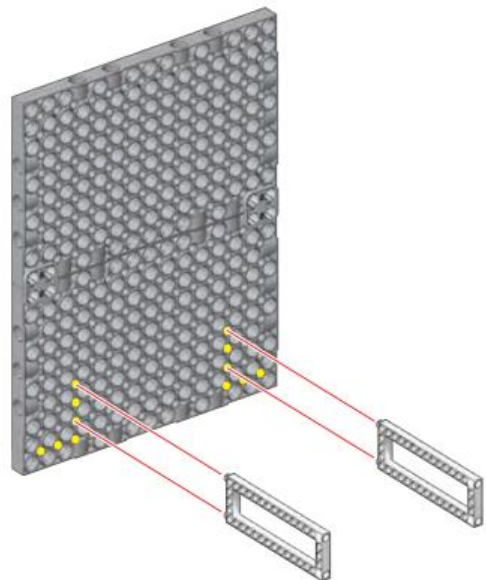




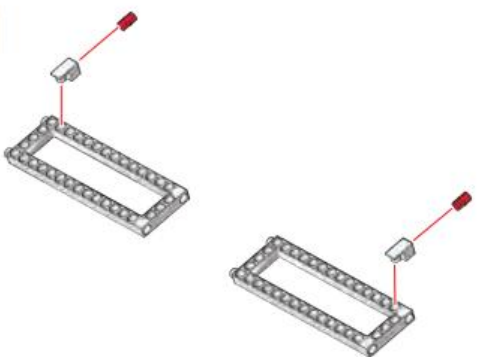
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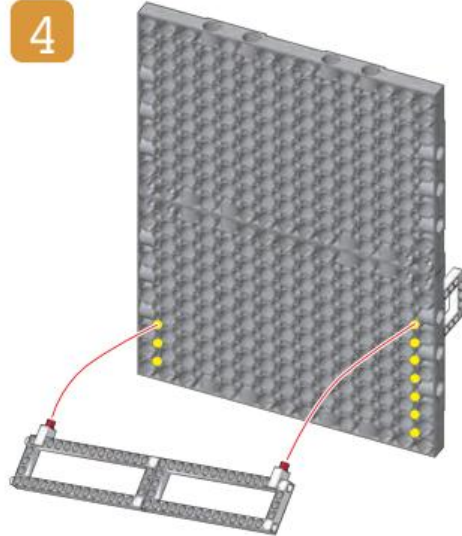
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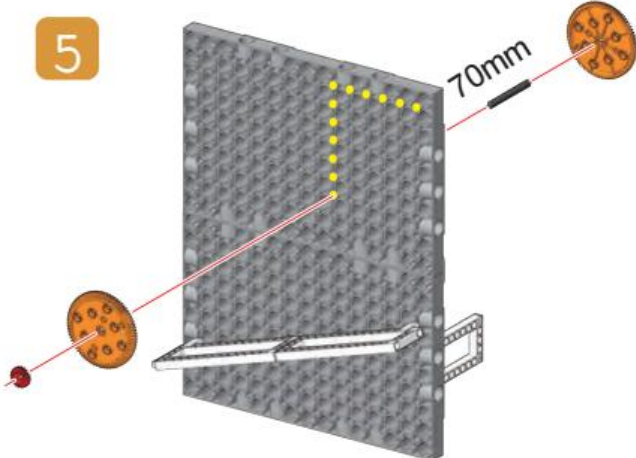
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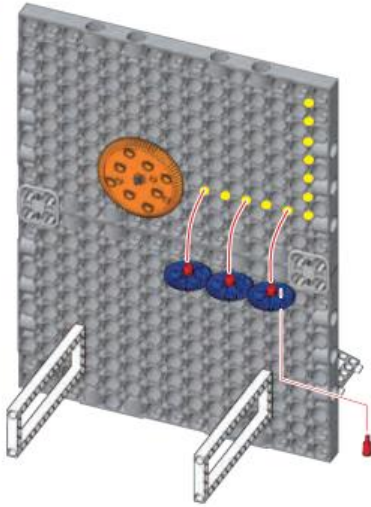
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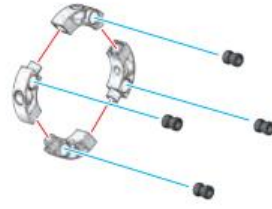
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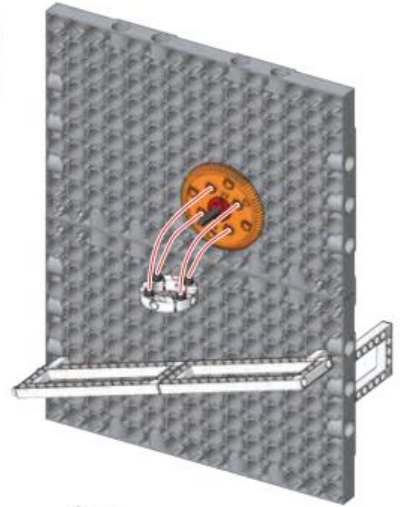
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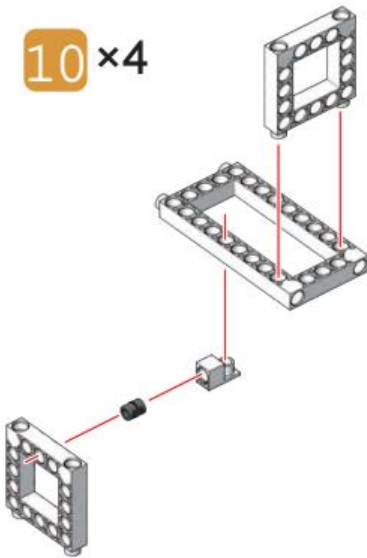
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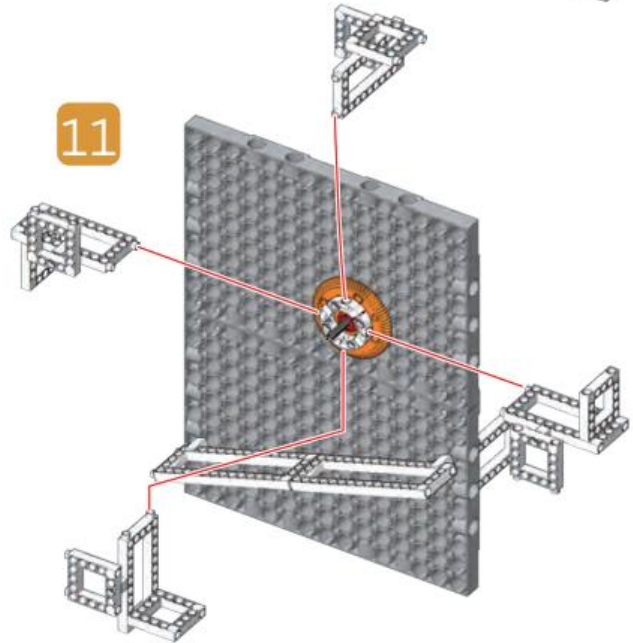
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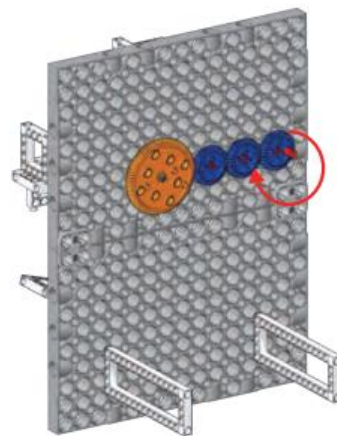
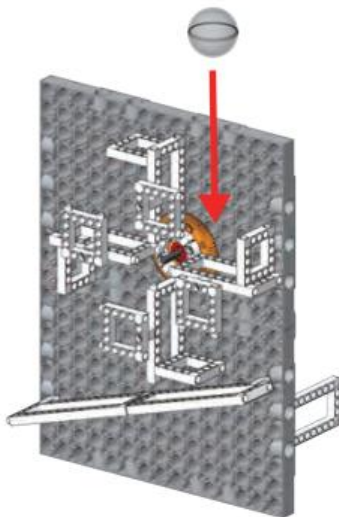
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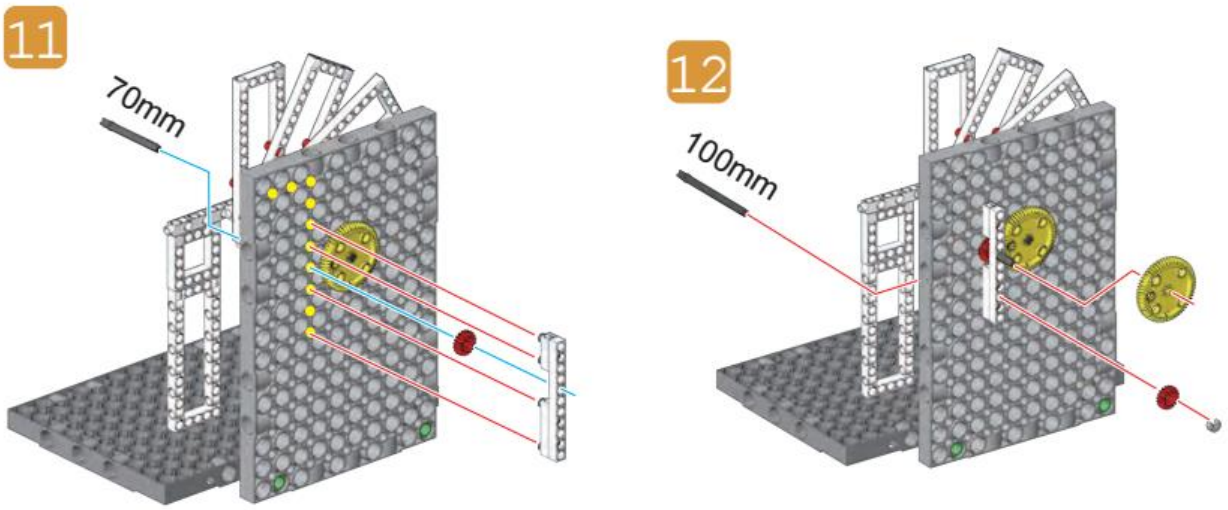
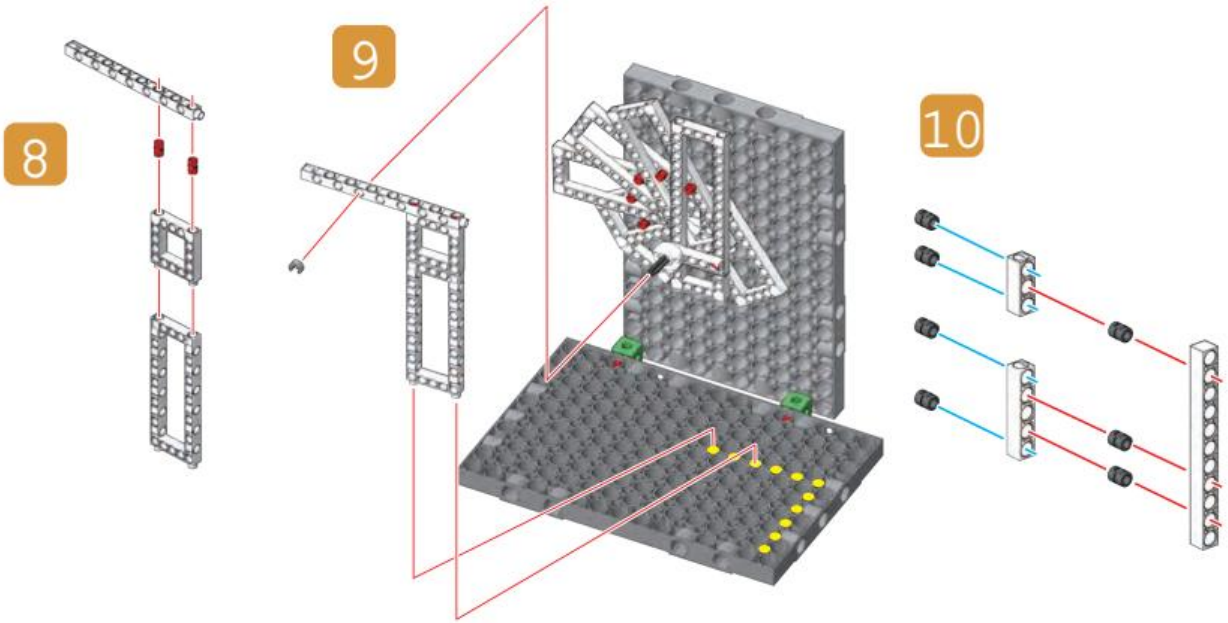


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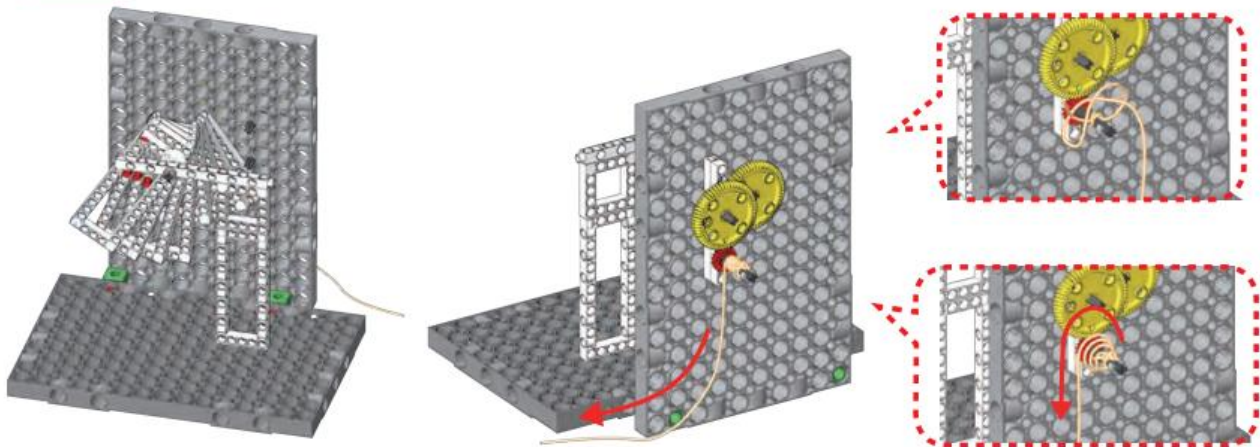


完成
Done





完成
Done

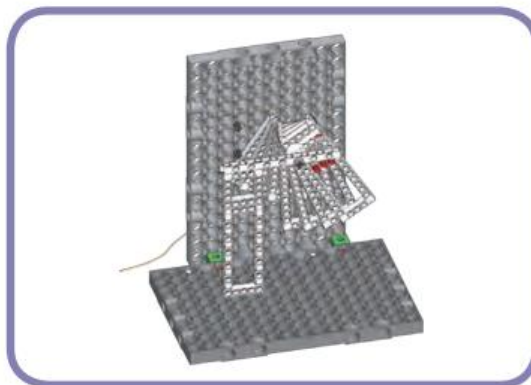
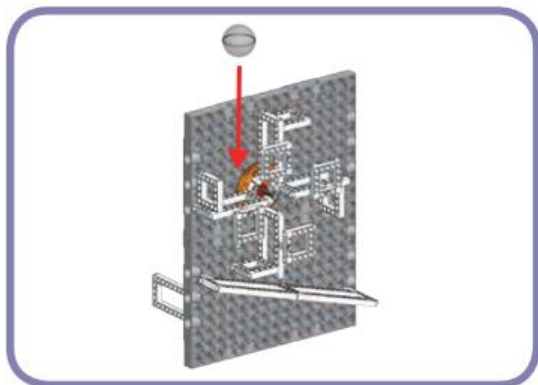
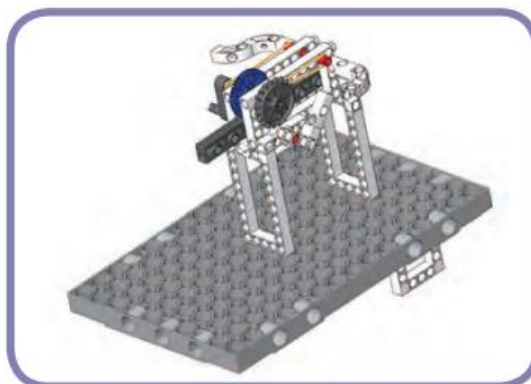


專題製作 (8) Special Project (8)



示範影片 Demo

模型列表 Model List



我的作品照 My Artwork





▲ 活動便條
Rolling Down



▲ 自由落體
Free Fall



▲ 印章
Seal

圖卡
Pictures



▲ 旗開得勝
Win A Victory



▲ 移動旗幟
Flying Flag

圖卡
Pictures

FUN LAB



#1260
創意積木組
CREATIVE CUBE



#1261
科學探索組
SCIENTIFIC TOUR



#1270
趣味機關組
FUN WITH MECHANISM



#1262
電學補充包
ELECTRICITY KIT



#1264
氣動補充包
PNEUMATICS
KIT



#1265
風力補充包
WIND POWER KIT



#1266
水力補充包
HYDRAULICS
KIT



#1267
太陽能補充包
SOLAR POWER
KIT



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