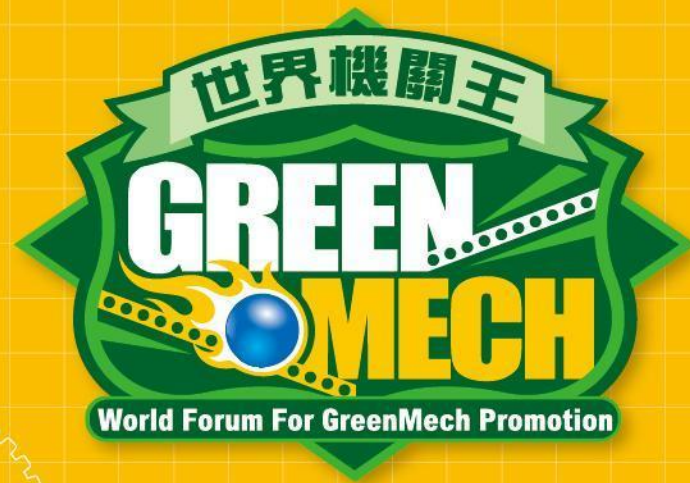




2020 GM Jr. 賽道組裝步驟說明

Assembly instructions of 2020 GM Jr. contest venue



2020 GM Jr.慣性飛輪2.0門架

The Gantry of Inertia Flywheel 2.0

慣性飛輪2.0門架各結構

The Structure of Gantry

門架A

Gantry Arm A

橫樑

Beam

門架B

Gantry Arm B

加分區A

Extra Scoring Area A

加分區B

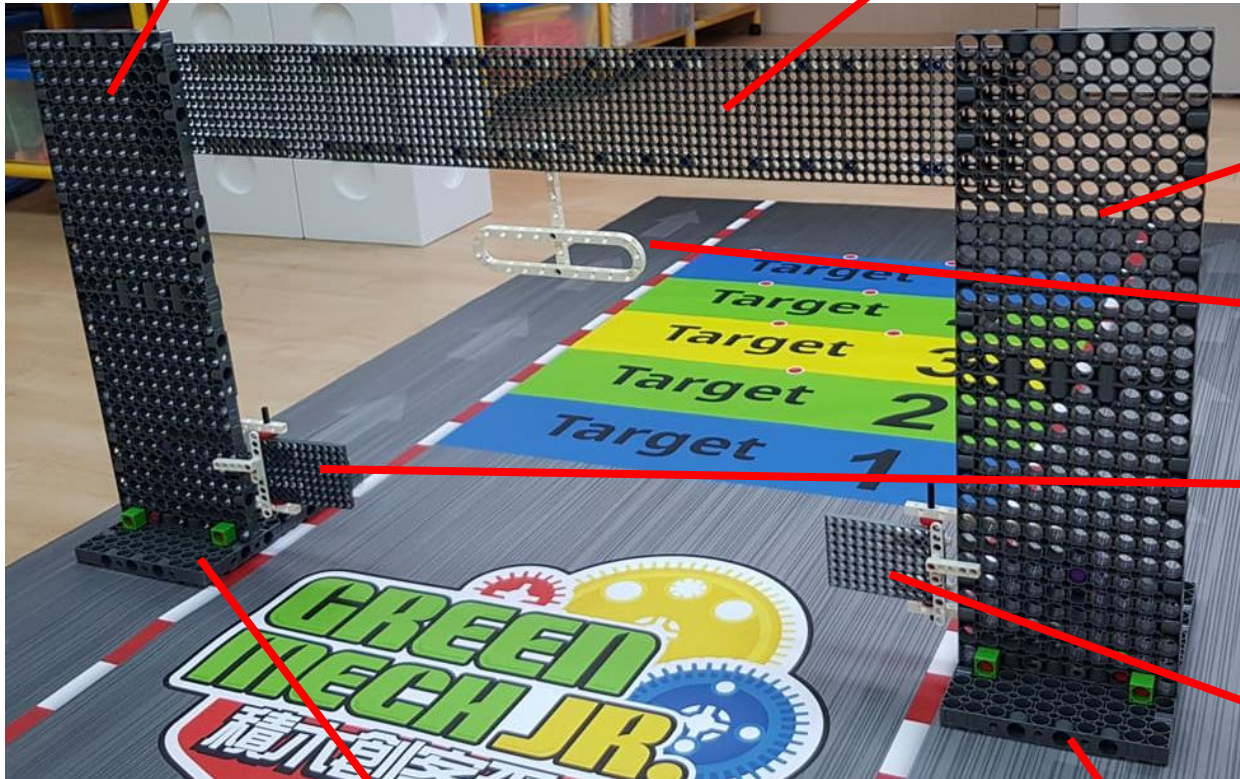
Extra Scoring Area B

加分區C

Extra Scoring Area C

門架底座

Gantry Base

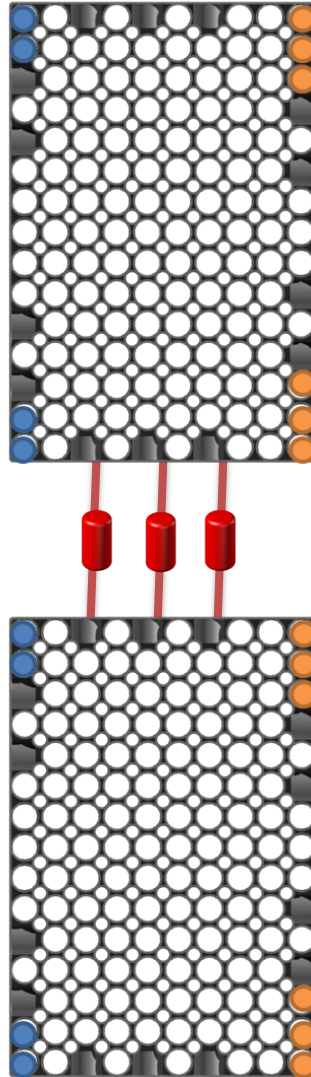


1.製作門架A、B(1)

Gantry Arm A、B(Step 1)

※特別注意本步驟要點，
尤其是大底盤組裝的方向性。
Please pay attention to the
essentials of this step, due to the
large chassis assembly direction.

以30mm圓棒組合 2塊
(7125-W10-B1S)大底盤
(每個凹點皆須放入)
Connect two JUMBO BASE GRIDS
with 30mm CONNECTORS.

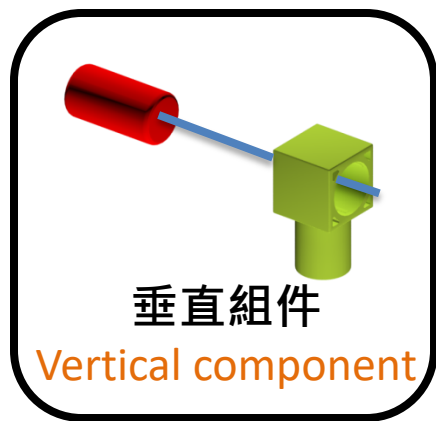


大底盤中間組裝與底部結合
請參照[相關連結\(Link\)](#)本篇將
不再贅述

(please refer to above link for
Gigo JUMBO BASE GRIDS
installation Tutorial).

1.製作門架A、B(2) Gantry Arm A & B (Step 2)

製作3組垂直組件，在門架A正面插入2組;門架A背面插入1組垂直組件與1/4弧長條，插入位置如下圖所示。
Make three “vertical components”. Place two sets on the front of Gantry Arm A , one set and one 4 HOLE BENDED ROD on the back of Gantry Arm A.



X3

垂直組件

Vertical component



腳架A正面

Front of Gantry Arm A



腳架A背面

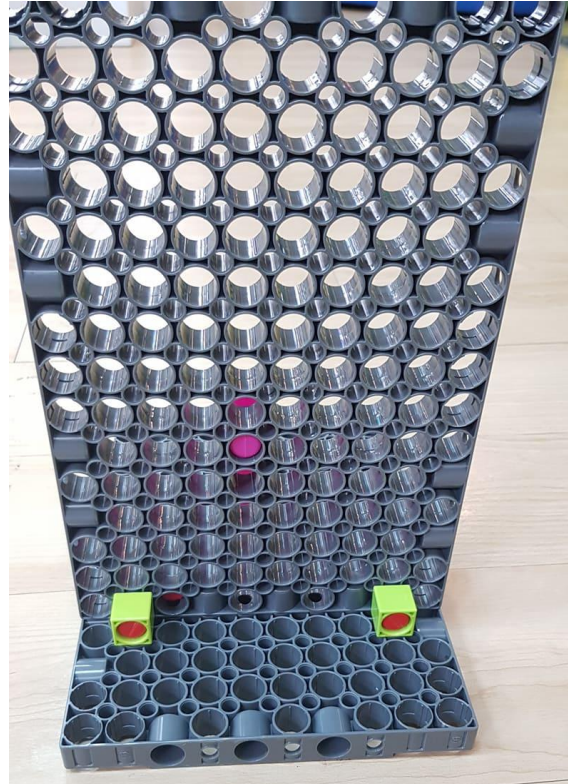
Back of Gantry Arm A

1.製作門架A、B(3) Gantry Arm A & B (Step 3)

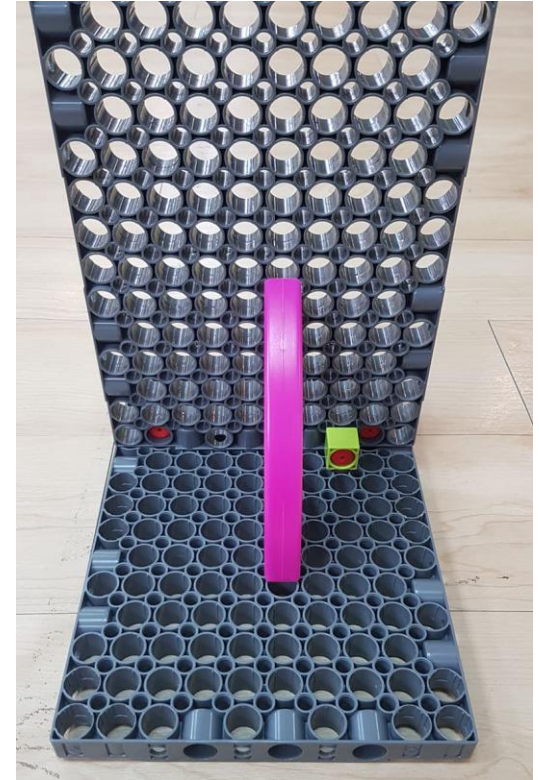
將3個30mm圓棒插入大底板，作為門架底座。
插入位置如下圖所示，之後將門架A插入。
Take three 30mm CONNECTORS and insert into the
JUMBO BASE as Gantry Base, then complete the
Gantry Arm A.



門架底座30mm圓棒
插入位置
The position of
30 mm CONNECTOR





完成正面圖
Front View of
Gantry Arm A



完成背面圖
Back View of
Gantry Arm A



1.製作門架A、B(1) Gantry Arm A & B (Step 1)

以上述方法再製作一個門架B，但需注意兩門架的底盤方向、1/4弧長條與垂直組件位置需**左右對稱**，完成表如下。
Use same way to make Gantry Arm B as Gantry Arm A, but these two Gantry Arms should be **bilateral symmetry**.

	門架A (Gantry Arm A)	門架B (Gantry Arm B)
正面圖 (Front view)		

1.製作門架A、B(2)

Gantry Arm A and Gantry B(Step 2)

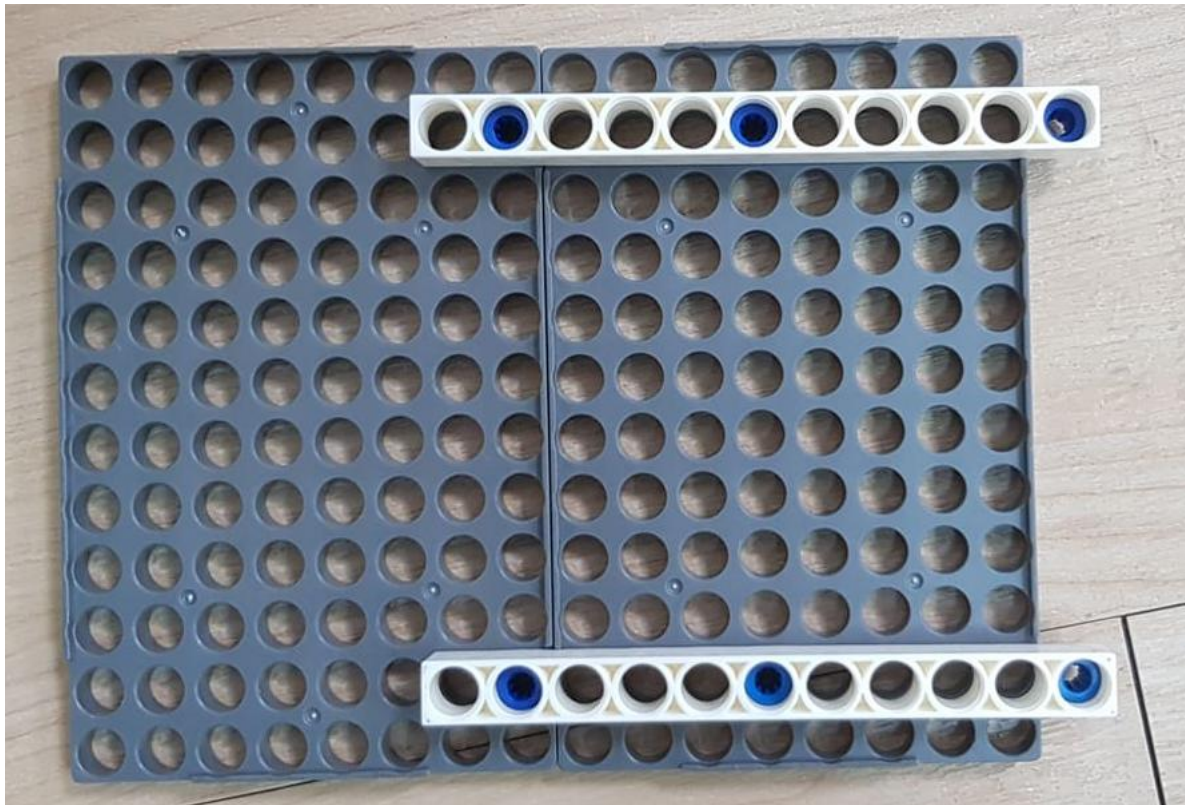
	門架A(Gantry Arm A)	門架B(Gantry Arm B)
背面圖 (Back view)	 The image shows the back view of Gantry Arm A. It is a tall, narrow structure made of grey Technic Technic Bricks with circular holes. A pink Technic Technic Beam is attached to the back of the structure, extending from the bottom towards the top. The structure is placed on a wooden surface against a white background with circular cutouts.	 The image shows the back view of Gantry Arm B. It is a tall, narrow structure made of grey Technic Technic Bricks with circular holes. A pink Technic Technic Beam is attached to the back of the structure, extending from the bottom towards the top. The structure is placed on a wooden surface against a white background with circular cutouts.

2.製作橫樑(1) Beam(Step 1)

將2個11孔長條與6個短結合鍵插入2個8×12底盤背面，組成零件A，共需製作出5組零件A。

At first, please make "Part-A" with two 11 HOLE RODS, six SHORT PEGS, and two BASE GRIDS which shown as below.

※We need total 5 sets of "Part-A" to make the Beam.

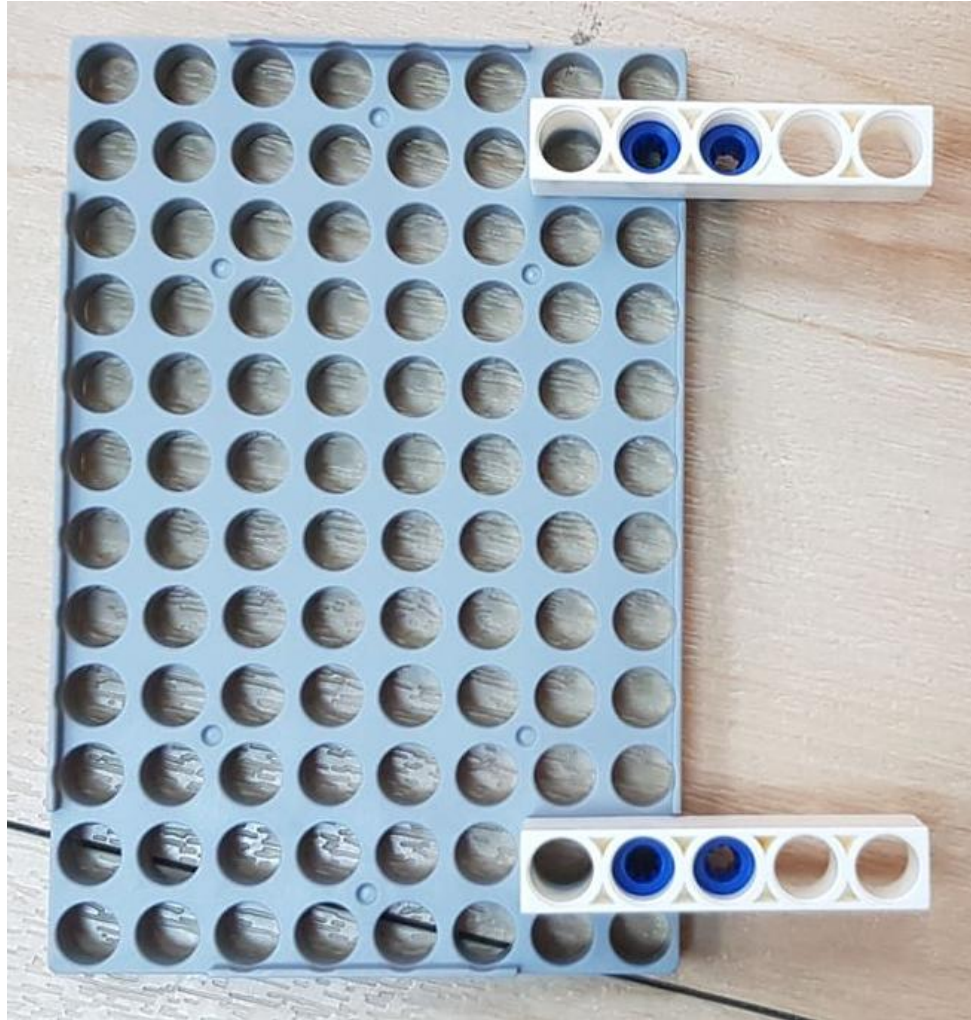


X5

零件A
Part-A

2.製作橫樑(2) Beam(Step 2)

使用1個8×12底盤、2個5孔長條與4個短結合鍵組成1組零件B。
Make one "Part-B" with two 5 HOLE RODS, four SHORT PEGs, and one BASE GRID.

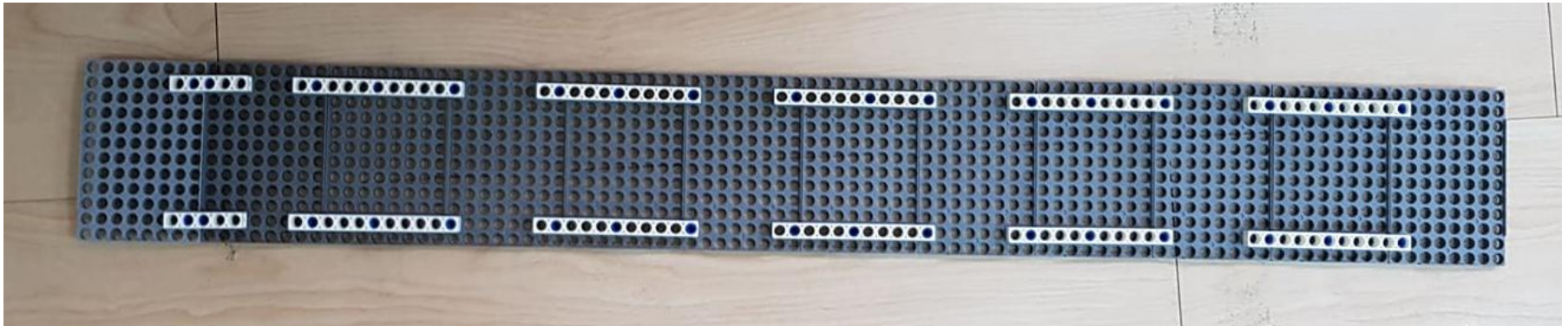
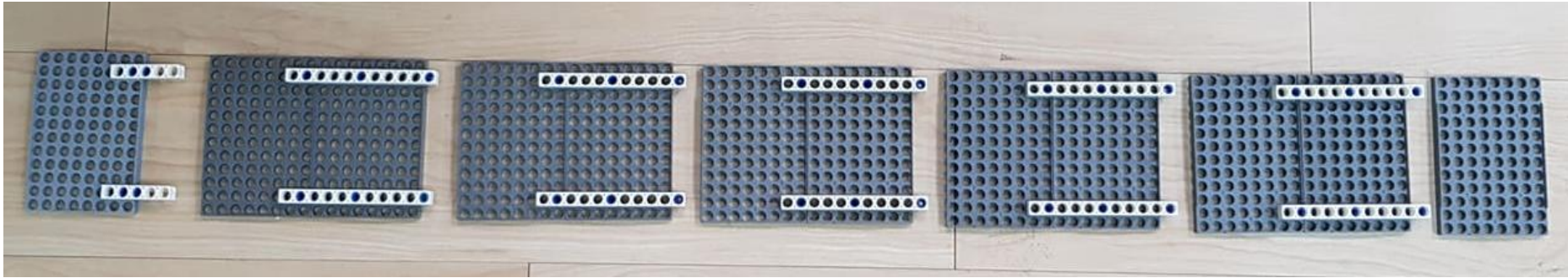


X1

零件B
Part-B

2.製作橫樑(3) Beam(Step 3)

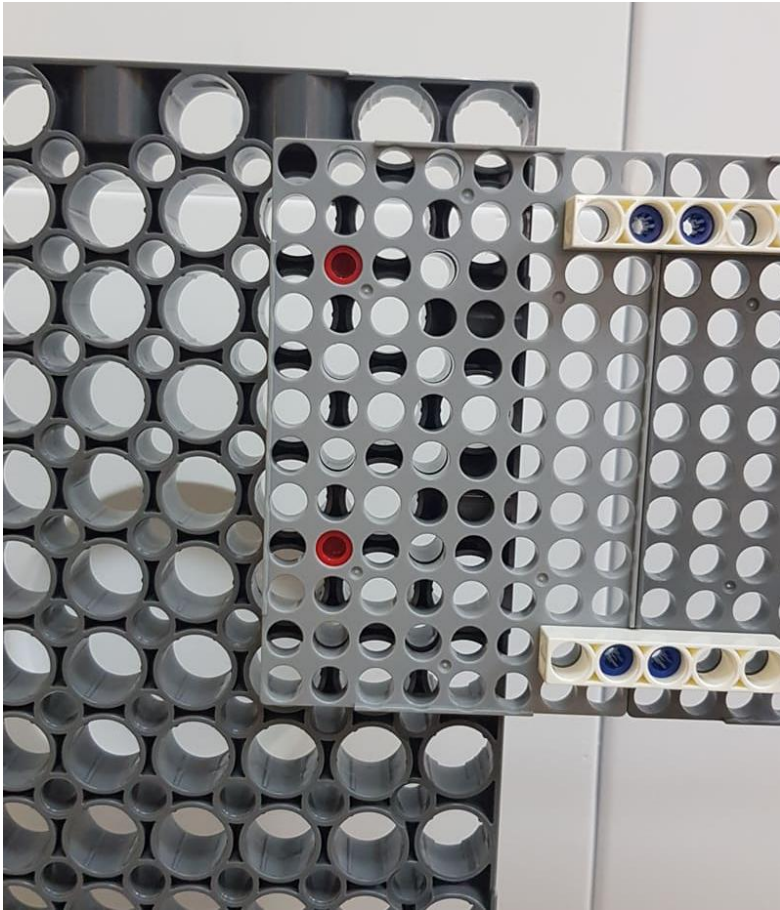
將上述零件與1個8×12底盤結合，結合順序由左至右為：
零件B + 零件A + 零件A + 零件A + 零件A + 零件A + 8×12底盤。
Combine 5 "Part-A" , 1 "Part- B" , and one BASE GRID.
The sequence is Part-B + Part-A + Part-A + Part-A + Part-A +
Part-A + BASE GRID and the Beam is completed.



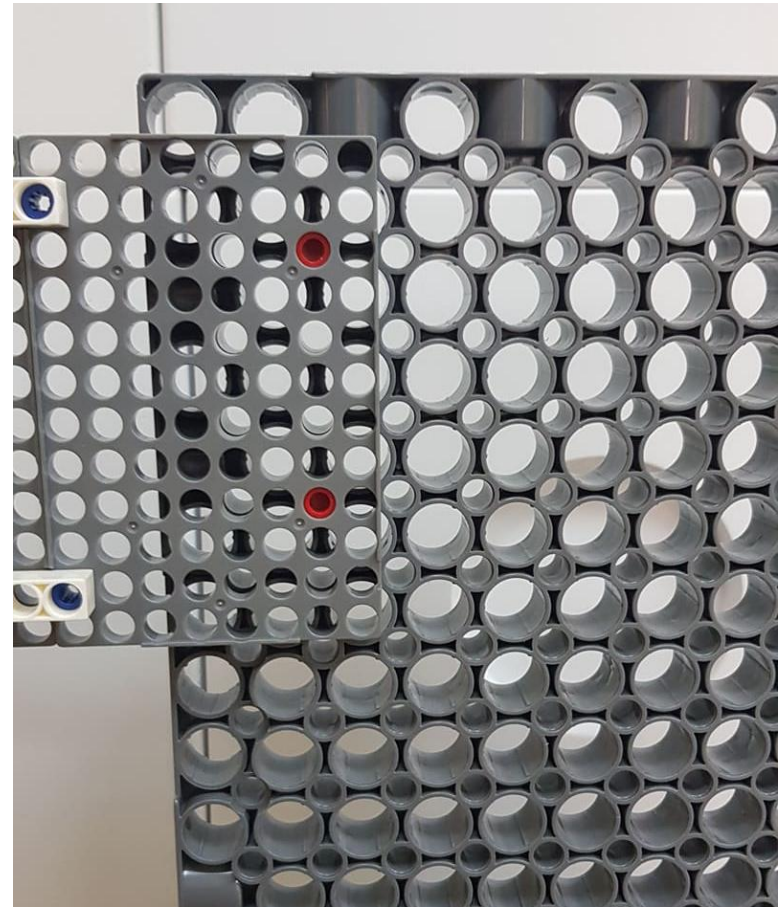
2.製作橫樑(4) Beam(Step 4)

將上個步驟組裝的零件以4個長結合鍵固定於門架A、B後方，完成腳架固定。

Take 4 LONG PEGs and fix Beam in the back of Gantry Arm A and Gantry Arm B respectively.



門架B後方固定處
Beam assembled on
Gantry Arm B



門架A後方固定處
Beam assembled on
Gantry Arm A

3.加分區A製作(1)

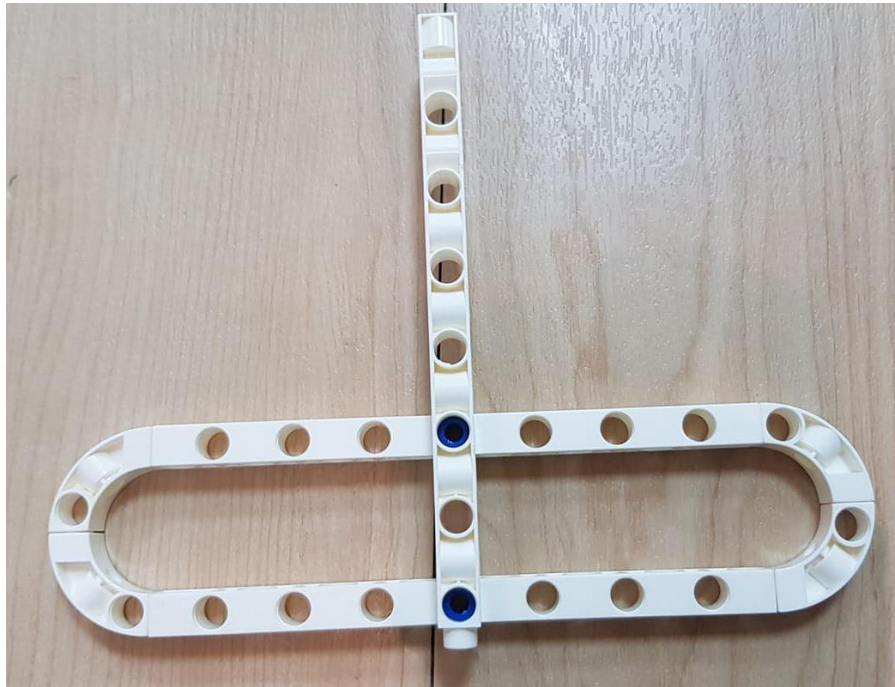
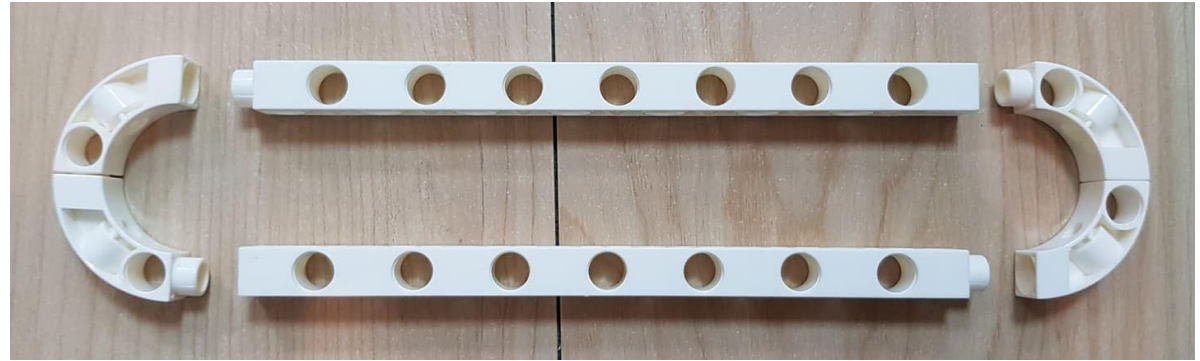
Extra Scoring Area A (Step 1)

使用3個15孔超長條、4個1/4弧長條與2個短結合
鍵製作得分區A。

Make Extra Scoring Area A with three 15 HOLE
DUAL RODs, four BENDED RODs and two SHORT
PEGs.



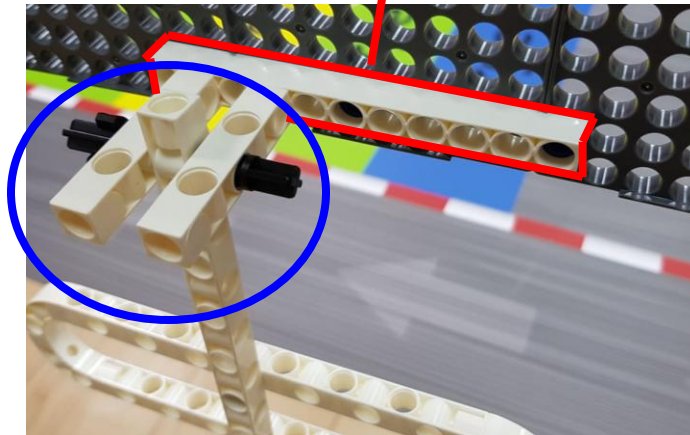
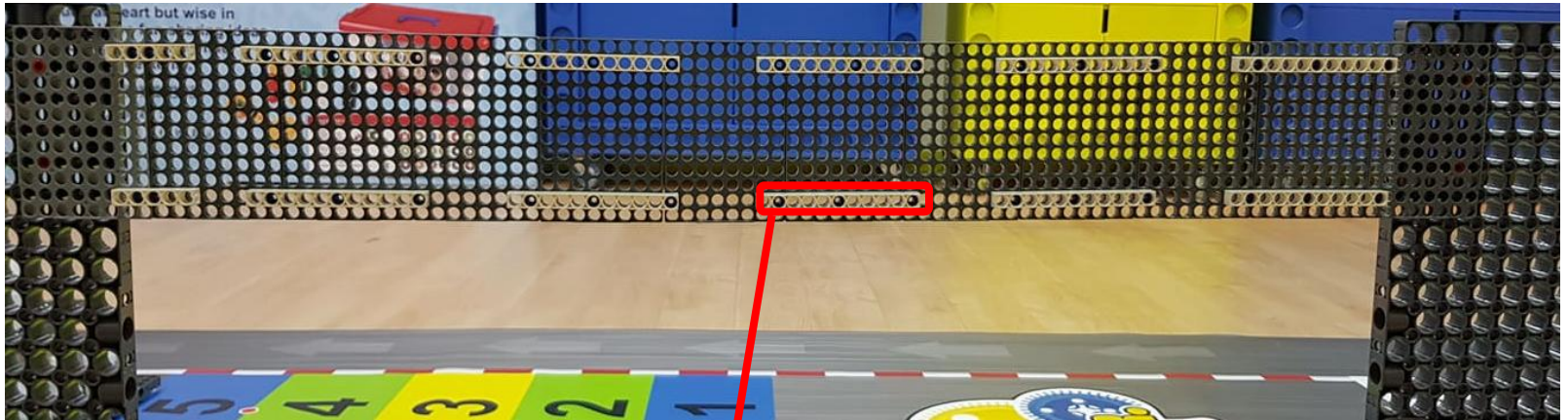
X2 →



3. 加分區A製作(2) Extra Scoring Area A (Step 2)

使用2個5孔超長條、1個60mmⅡ軸與1個軸固定鍵將得分區A固定於橫樑後方的11孔長條上。固定位置如下。

Take two 5 HOLE DUAL RODS , one 60mm AXLE Ⅱ, and one AXLE FIXING to fix Extra Scoring Area A in the 11 HOLE ROD behind the Part-A which shown as below.



4. 加分區B製作(1)

Extra Scoring Area B

- Back side (Step 1)

使用4個短結合鍵將2個5孔超長條安裝於
8×12底盤的背面。

Take two 5 HOLE DUAL RODS and four SHORT PEGs and insert them in the back of the BASE GRID which shown as below.

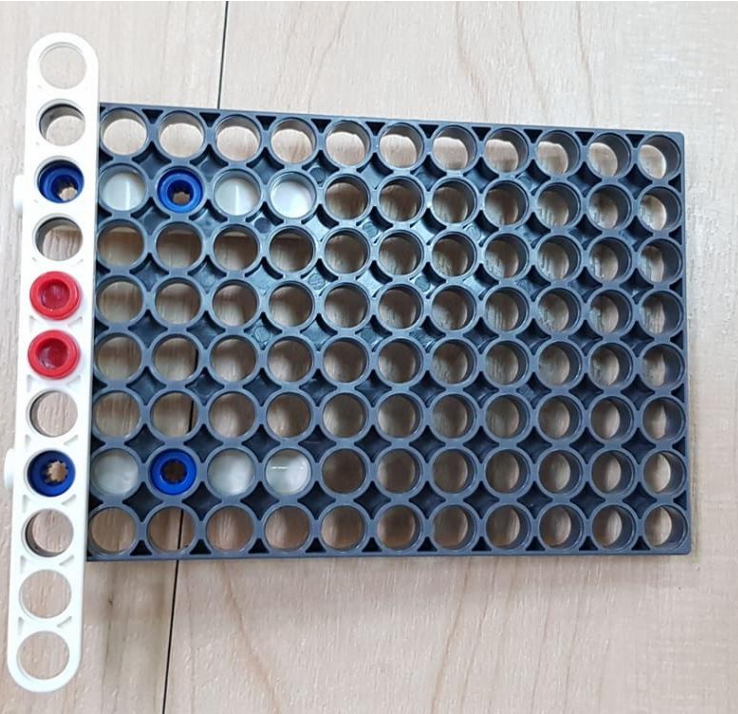


4.加分區B製作(2)

Extra Scoring Area B - Front side(Step 2)

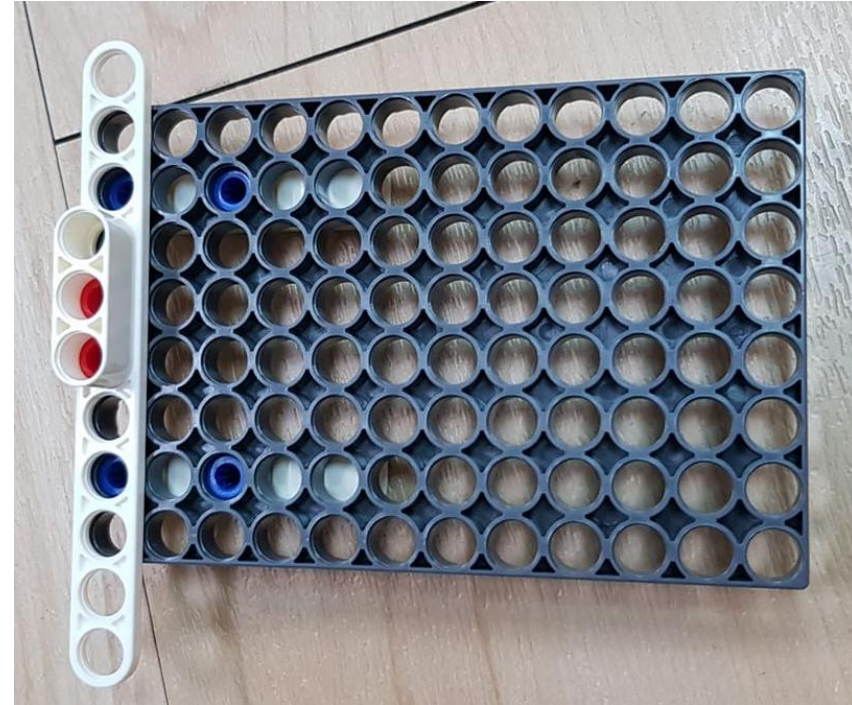
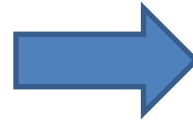
以2個長結合鍵將3孔圓角長條與1個7孔圓角薄長條固定於8×12底盤**正面**。

Take two LONG PEGS, one 3 HOLE ROUND ROD and one 7 HOLE PROLATE ROD, and assembled, then fix them in the **front** of BASE GRID.



2個長結合鍵與1個7孔圓角薄長條固定位置

The position of two LONG PEGS and one 7 HOLE PROLATE ROD



3孔圓角長條固定位置

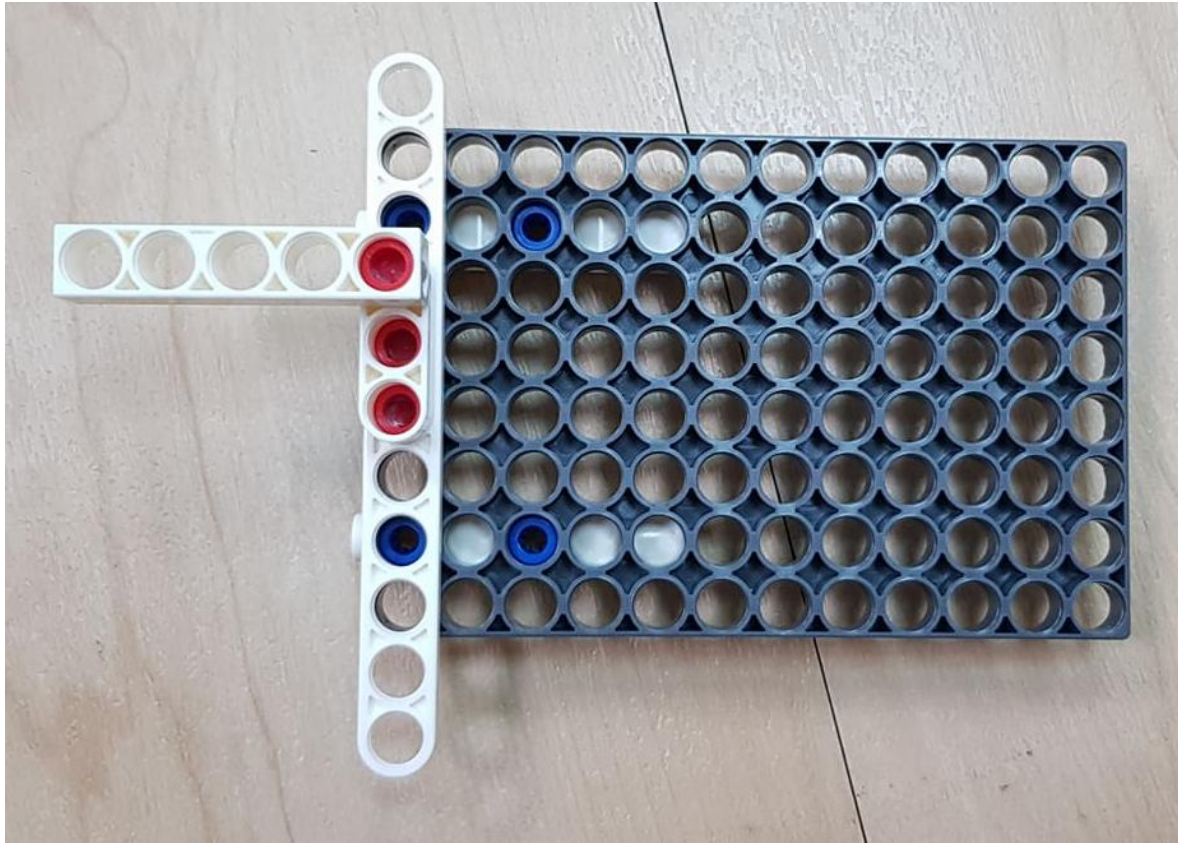
The position of
3 HOLE ROUND ROD

4. 加分區B製作(3)

Extra Scoring Area B (Step 3)

在3孔圓角長條上插入1個長結合鍵與1個5孔長條，即完成加分區B。

Take one LONG PEG and one 5 HOLE ROD, and connect with the components of previous step to complete Extra Scoring Area B.



得分區B

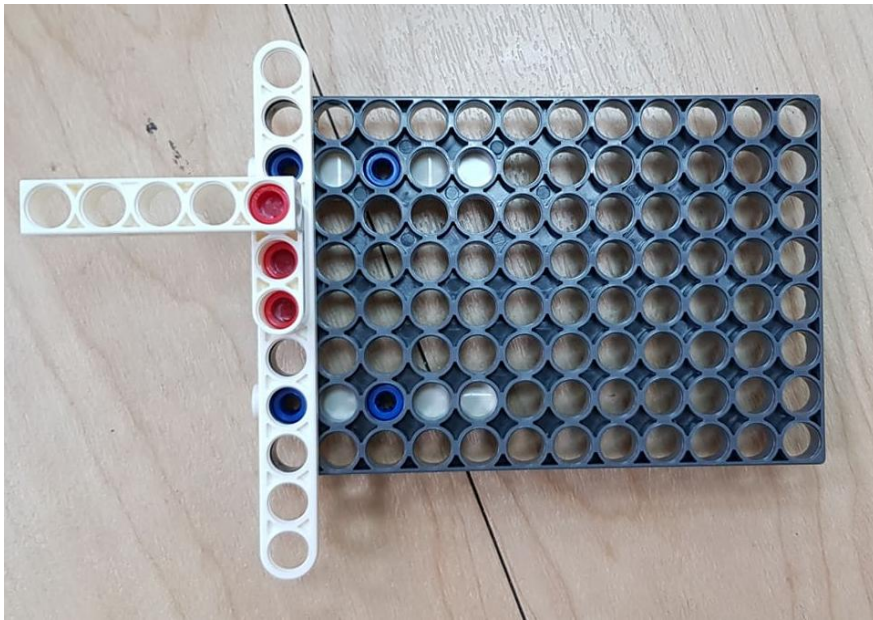
Extra Scoring Area B

5. 加分區C製作(1)

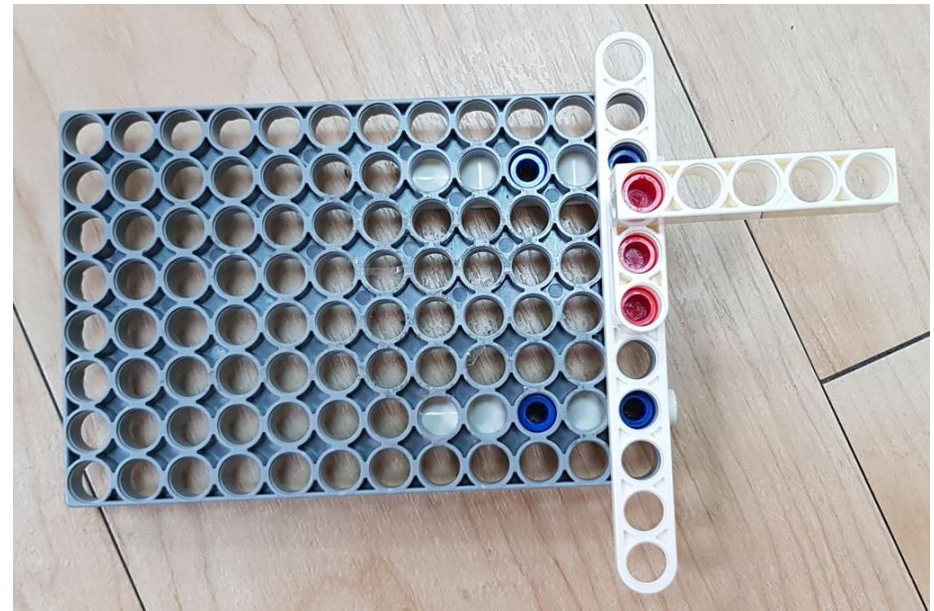
Extra Scoring Area C (Step 1)

與加分區B製作方法相同，但需注意得分區C的零件組裝位置與得分區B**左右對稱**。

Making Extra Scoring C same way as Extra Scoring Area B. But these two Extra Scoring Areas (B & C) are **bilateral symmetry**.



加分區B
Extra Scoring Area B



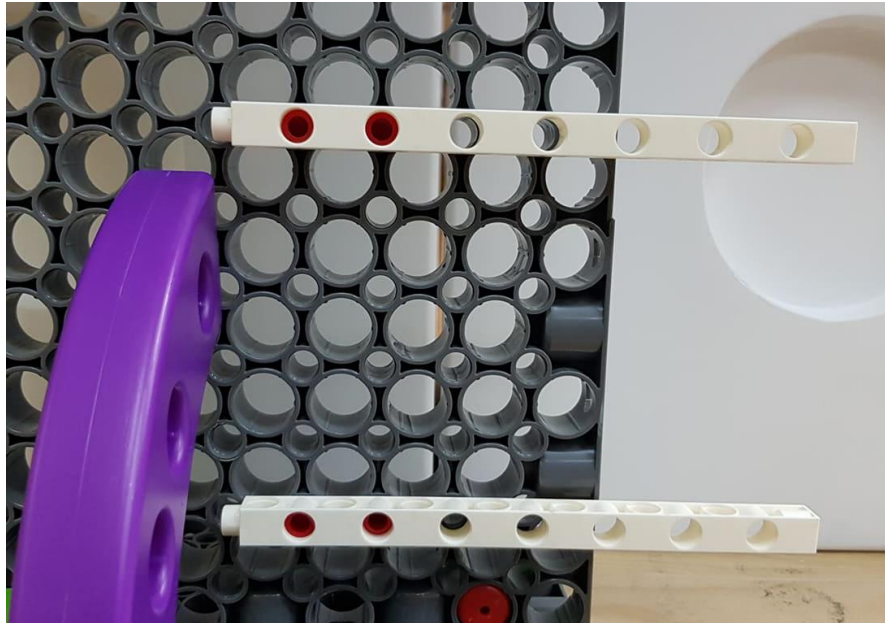
加分區C
Extra Scoring Area C

6. 加分區固定(1)

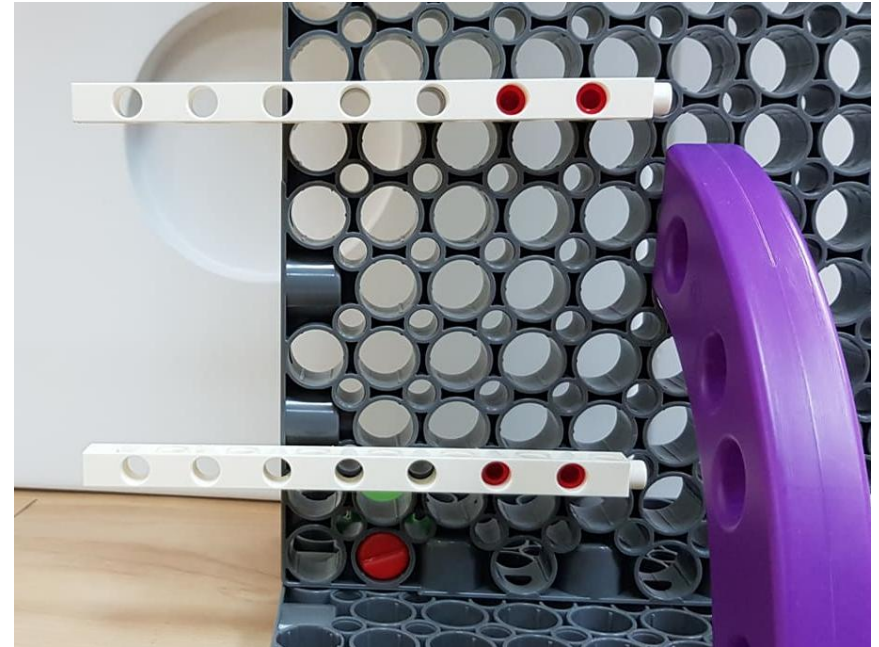
Fix the Extra Scoring Area (Step 1)

在門架A、B背面分別以4個長結合鍵固定2個15孔超長條。

Take 4 four LONG PEGs and fix two 15 HOLE DUAL RODs in the back of Gantry Arm A and Gantry Arm B respectively, as shown below.



門架B : 15孔超長條固定處
Fix 15 HOLE DUAL RODs
in the Gantry Arm B
with 4 LONG PEGs



門架A : 15孔超長條固定處
Fix 15 HOLE DUAL RODs
in the Gantry Arm A
with 4 LONG PEGs

6.加分區B、C固定(2)

Extra Scoring Area B and Extra Scoring C fixed

(Step 2)

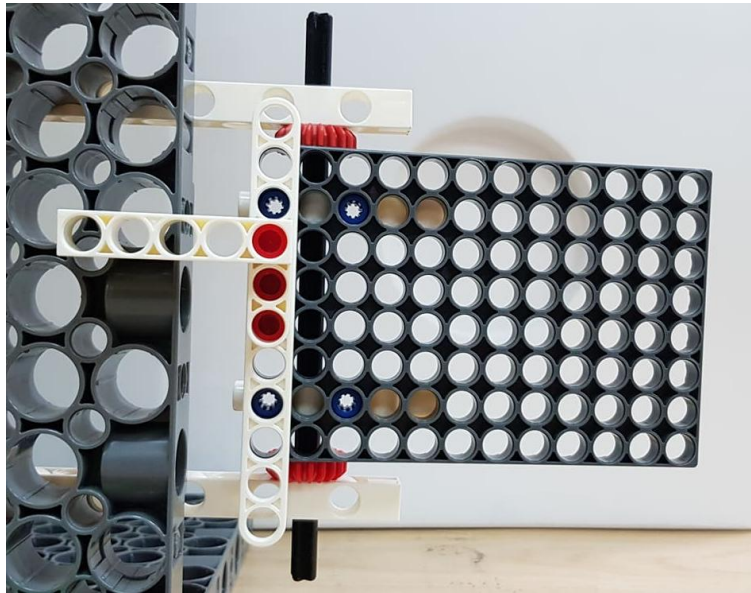
※注意得分版安裝方向-

加分區B安裝於門架A;加分區C安裝於門架B。

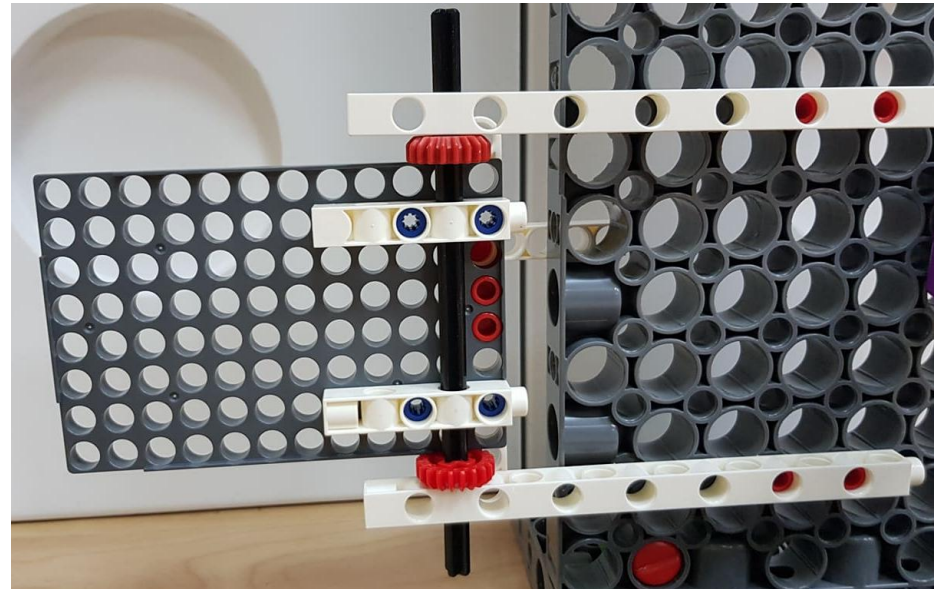
※ Make sure that Extra Scoring Area B is fixed in Gantry Arm A and Extra Scoring Area C is fixed in the Gantry Arm B.

以1根150mm I 軸穿過2個20T齒輪、加分區B(C)以及上步驟中固定於門架上的15孔超長條，完成得分區的固定。

Take one 150mm AXLE I and go through following parts (two C-20T GEARS, Extra Scoring Area B(C), and 15 HOLE DUAL RODS) on the Gantry Arm A and Gantry B respectively.



加分區B前視圖
Front view of
Extra Scoring Area B



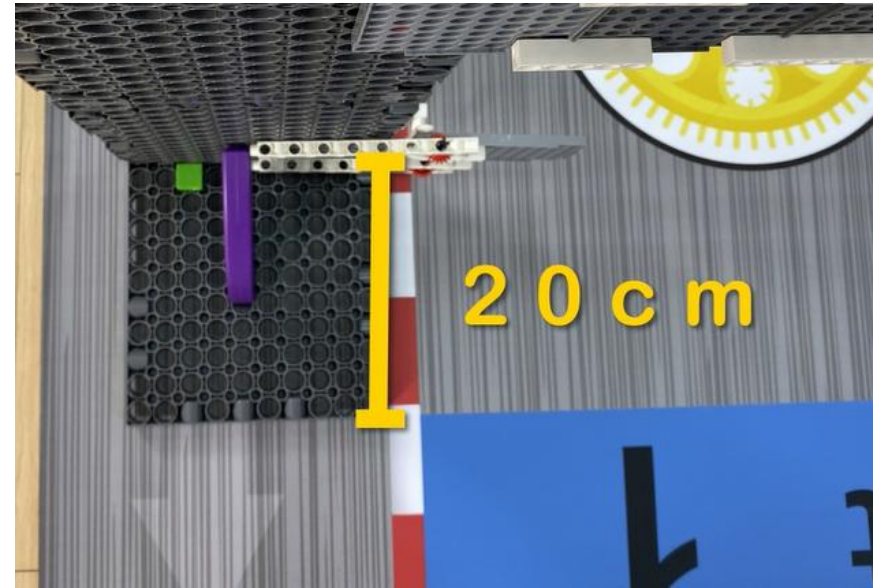
加分區B後視圖
Back view of
Extra Scoring Area B

慣性飛輪2.0門架完成

Complete The Gantry of Inertia Flywheel 2.0

擺放位置:與「Target 1」相距20cm

The Gantry is placed 20cm away from the Target 1



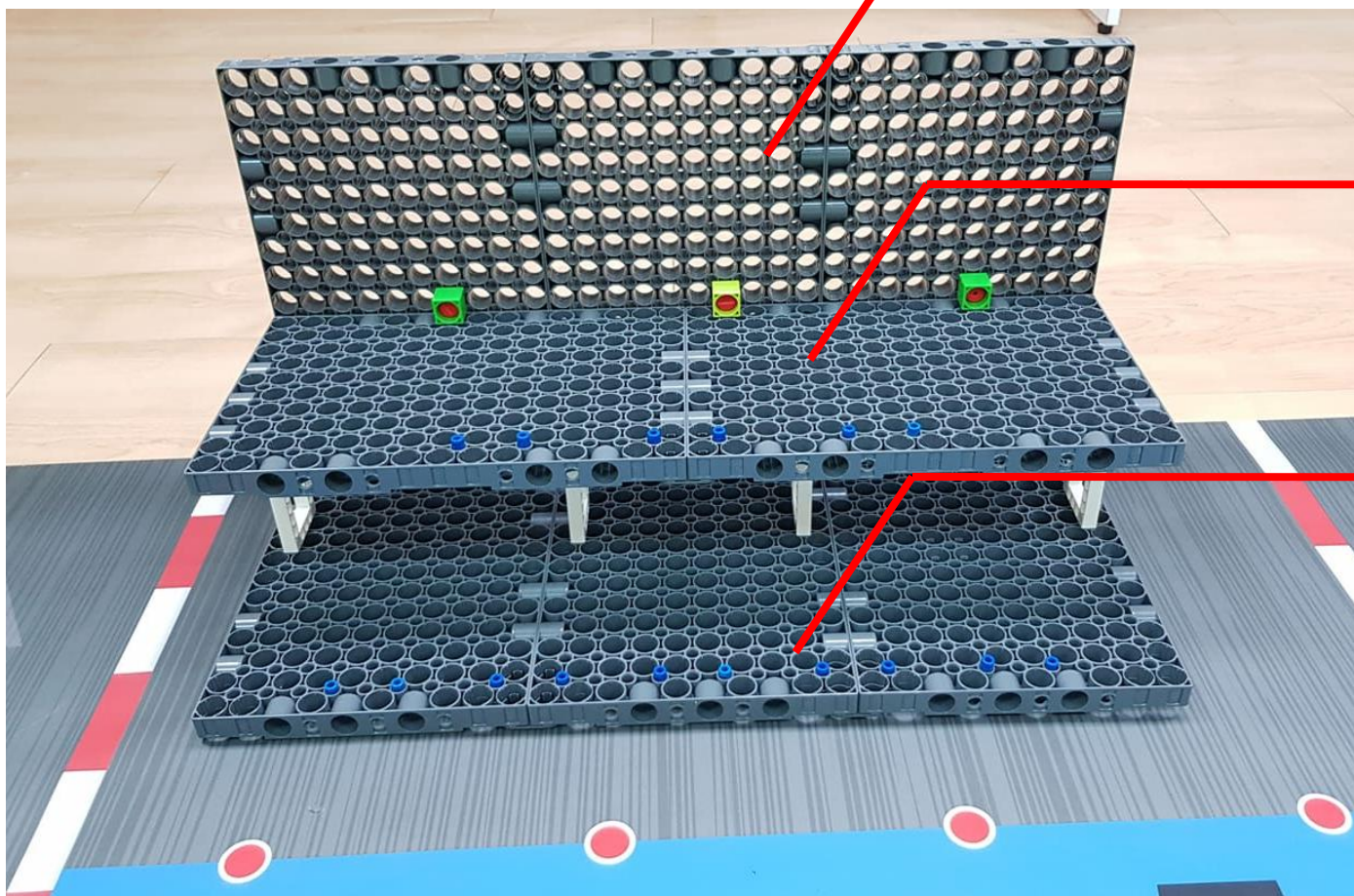


2020 GM Jr. 我是神射手目標區

The Target Area of Sharpshooter

我是神射手目標區各結構

The structure of Target Area



背板

Backboard

上層底板

Upper Layer

下層底板

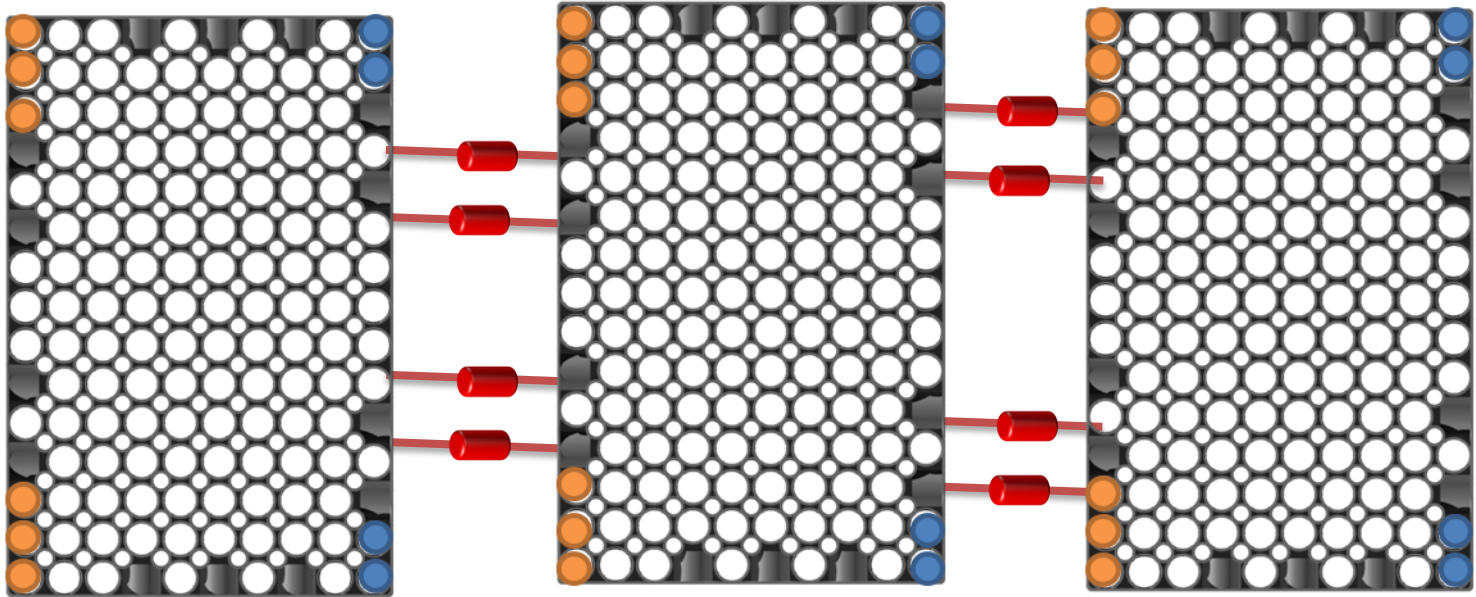
Lower Layer

1.製作下層底板(1)

Lower Layer (Step 1)

大底盤中間組裝與底部結合請參照[相關連結](#)(Link)
本篇將不在贅述

(please refer to above link for Gigo JUMBO
BASE GRID installation Tutorial).



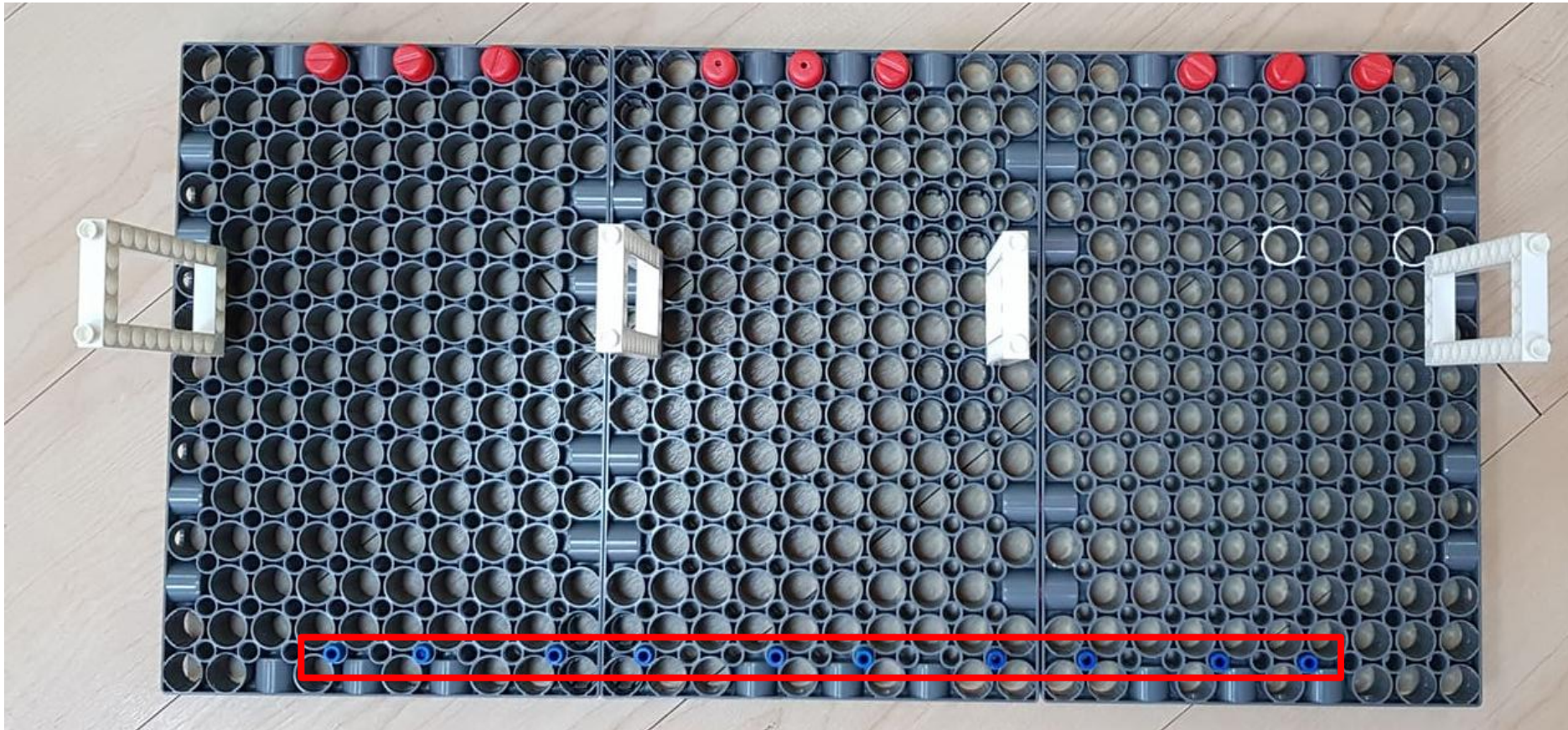
將3塊(7125-W10-B1S) 大底盤以 30mm圓棒組成(每個凹點皆須放入)
Connect 3 JUMBO BASE GRIDs with 30mm CONNECTORs which
shown as above.

※特別注意本步驟要點，尤其是大底盤組裝的方向性。
Please pay attention to the essentials of this step,
due to the large chassis assembly direction.

1.製作下層底板(2)

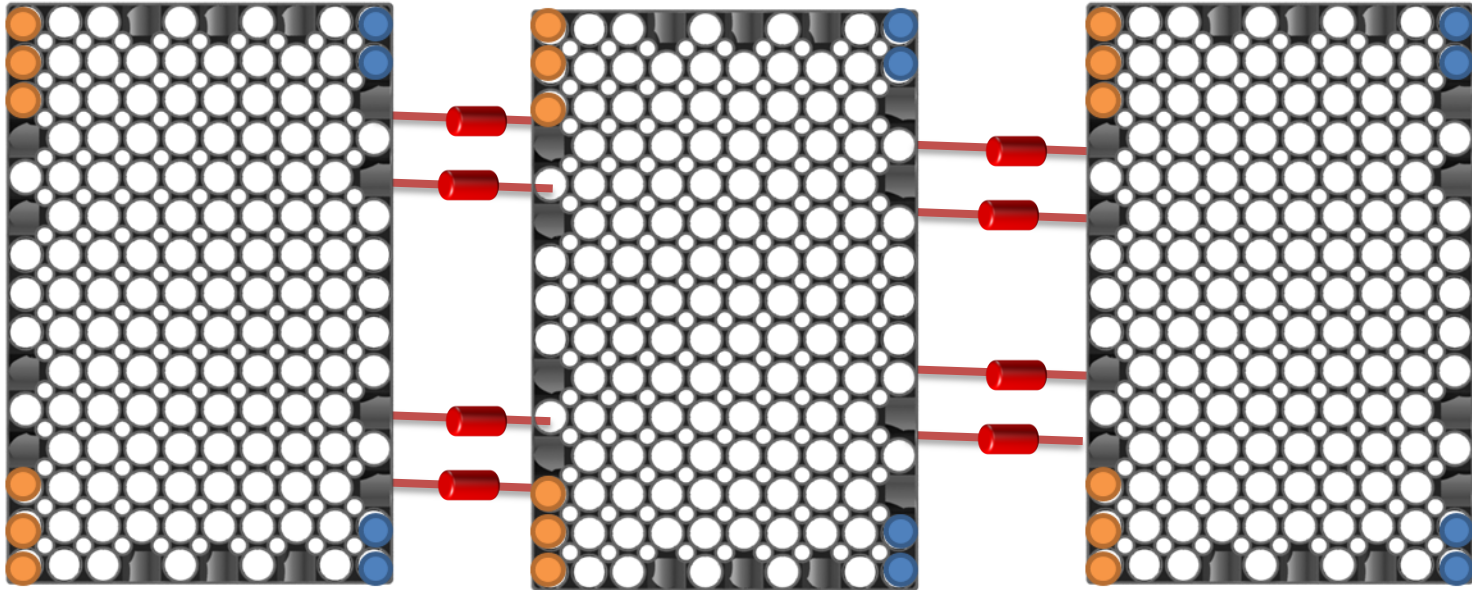
Lower Layer (Step 2)

於下層底板上方插入9個30mm圓棒、10個短結合鍵與4個5×10孔長方框(以長結合鍵固定)，放置位置如圖所示。
Put nine 30mm CONNECTORS, ten SHORT PEGS, and four 5X10 FRAMES (connected with LONG PEGS) on Lower Layer.



2.製作背板(1) Backboard(Step 1)

大底盤中間組裝與底部結合
請參照[相關連結](#)(Link)本篇將不再贅述。
(please refer to above link for Gigo
JUMBO BASE GRID installation Tutorial).



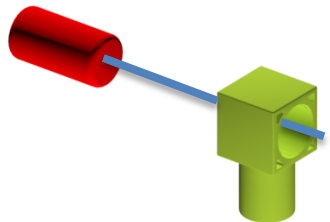
將3塊(7125-W10-B1S) 大底盤以30mm圓棒組成(每個凹點皆須放入)
Connect 3 JUMBO BASE GRIDs with 30mm CONNECTORs which
shown as above.

※特別注意本步驟要點，尤其是大底盤組裝的方向性。

Please pay attention to the essentials of this step, due to the
large chassis assembly direction.

2.製作背板(2)

Backboard(Step 2)



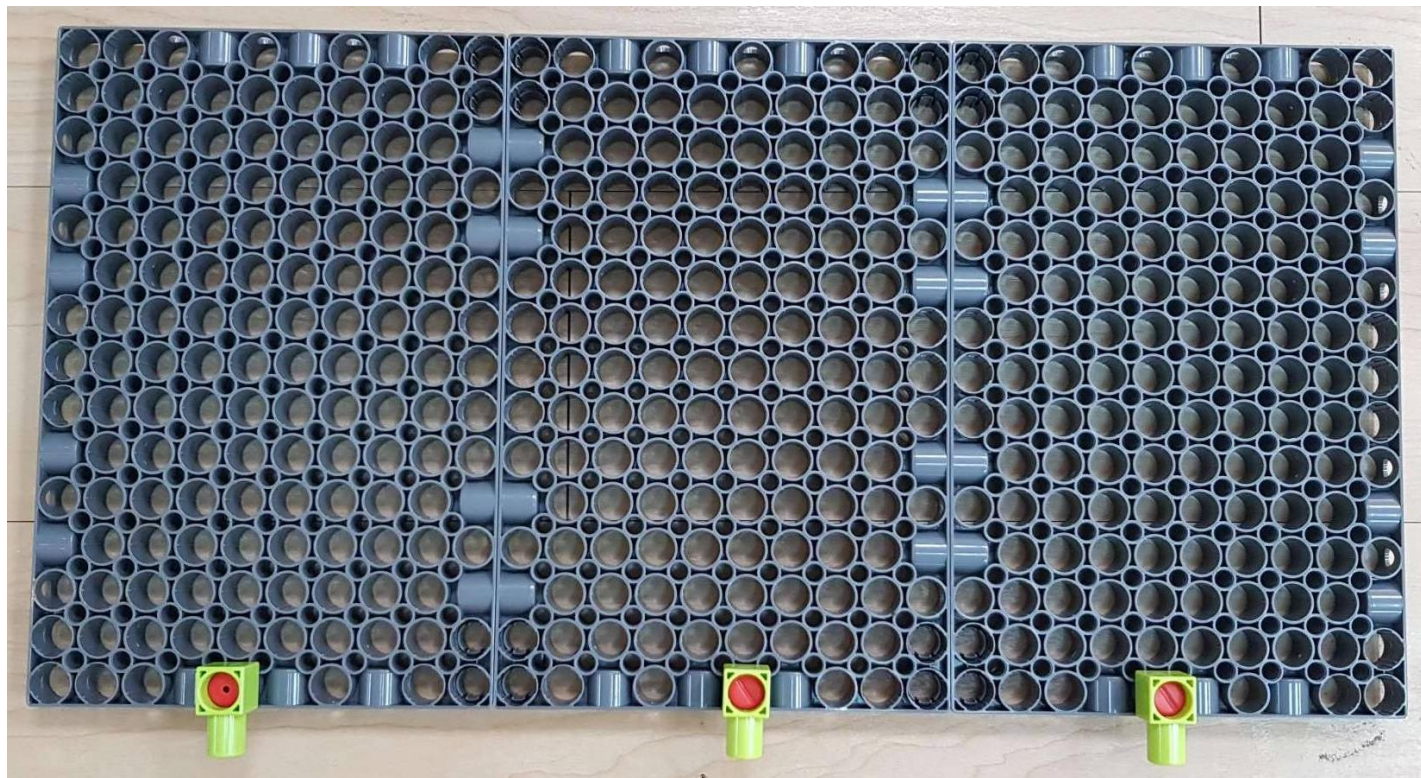
垂直組件

Vertical component

X3

於背板插入3個垂直組件，放置位置如圖所示。

Insert three Vertical components in the Backboard shown as below.

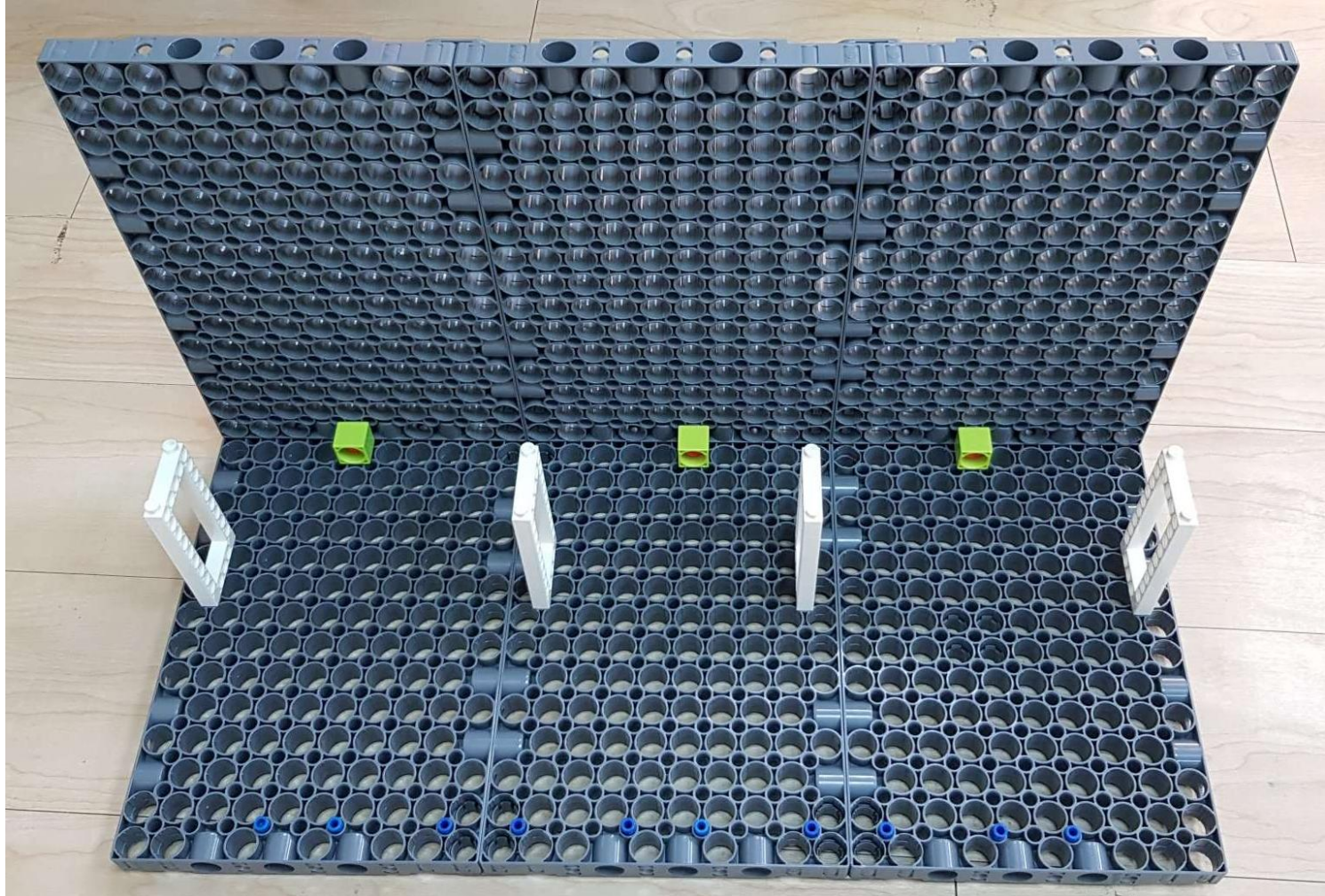


3. 結合下層底板與背板

Combine Lower Layer with Backboard

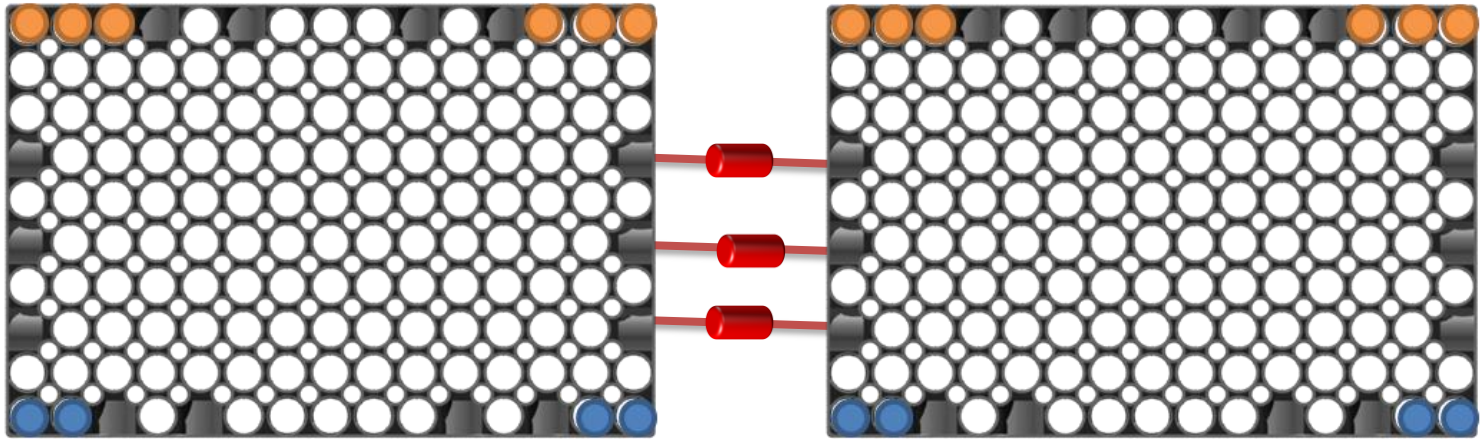
將背板插入下層底板，插入位置如圖所示。

Insert Backboard into Lower Layer.



4.製作上層底板(1) Upper layer(Step 1)

大底盤中間組裝與底部結合
請參照[相關連結](#)(Link)本篇將不再贅述。
(please refer to above link for Gigo
JUMBO BASE GRID installation Tutorial).

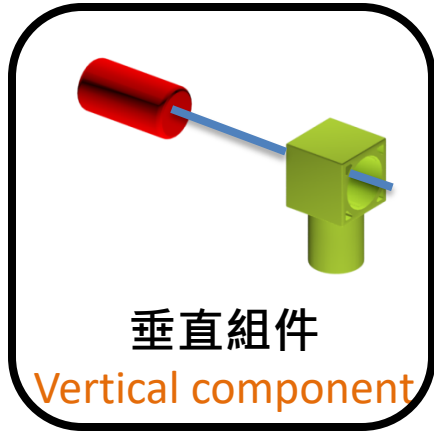


將2塊(7125-W10-B1S) 大底盤以30mm圓棒組成 (每個凹點皆須放入)
Connect two JUMBO BASE GRIDs with 30mm CONNECTORs.

※特別注意本步驟要點，尤其是大底盤組裝的方向性。
Please pay attention to the essentials of this step, due to the
large chassis assembly direction.

4.製作上層底板(2)

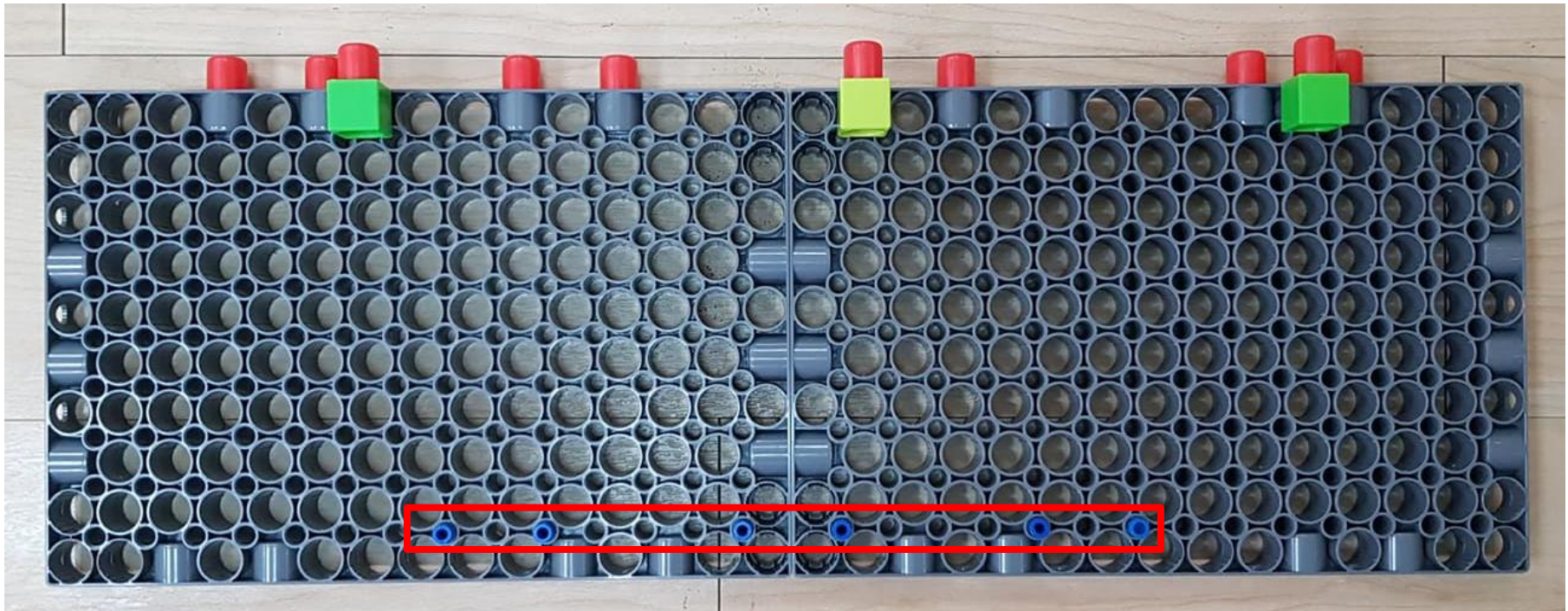
Upper Layer(Step 2)



X3

放入7個30mm圓棒、3個垂直組件與6個短結合鍵於上層底板上方，放置位置如圖所示。

Insert seven 30mm CONNECTORs, three Vertical components, and six SHORT PEGs in Upper Layer.

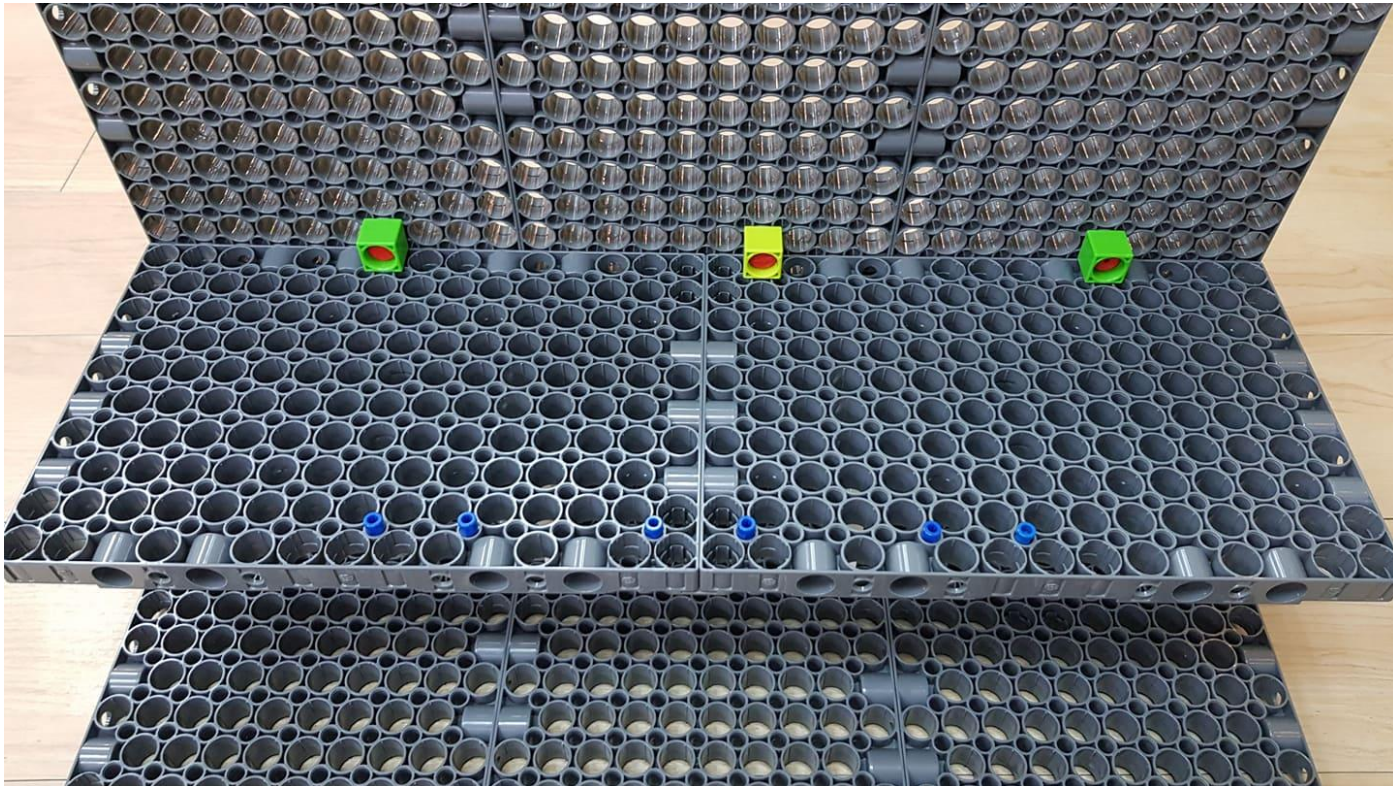


5. 結合上、下層底板與背板(1)

Combine Lower Layer, Upper Layer and Backboard

將上層底板的垂直組件紅棒插入背板，下層底板的4個5×10孔長方框插入上層底板，插入位置如圖所示。

Connect Vertical components of Upper Layer with Backboard, and connect 5X10 FRAMES of Lower Layer with Upper layer which shown as below.



我是神射手目標區完成

Complete The Target Area of Sharpshooter

