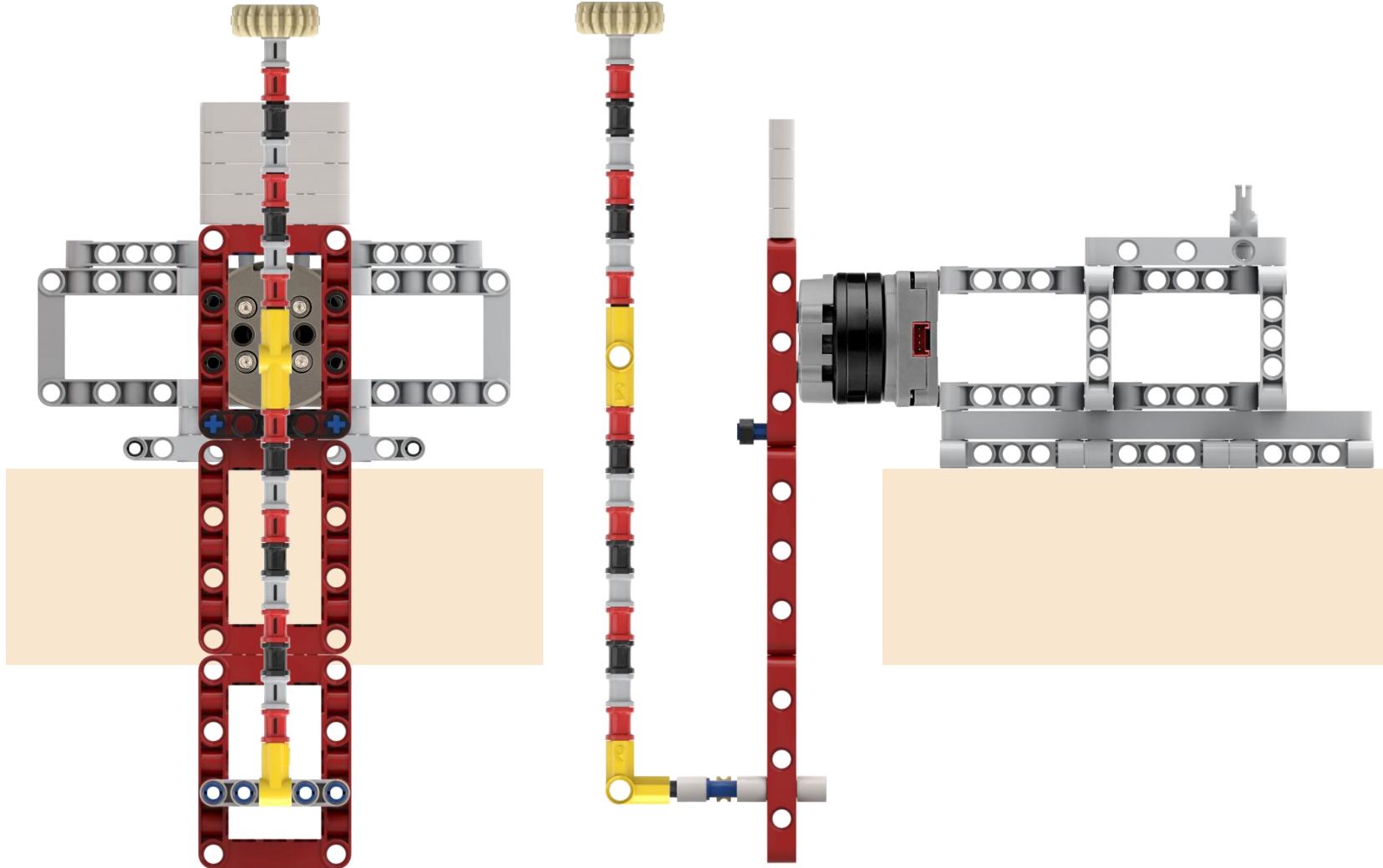


アーム型倒立振子の組み立て



部品リストと購入先

3万円を超えるくらい
(Arduino 含む)

LEGO 部品

2026/02/01 確認

部品番号	部品名	色	個数	単価	価格	購入先
3713	Technic Bush	Black	5	38	190	https://brickers.jp/products/3713-026
3713	Technic Bush	Light Bluish Gray	6	13	78	https://brickers.jp/products/3713-194
3713	Technic Bush	Red	7	10	70	https://brickers.jp/products/3713-021
4265c	Technic Bush 1/2 Smooth	Yellow	1	10	10	https://brickers.jp/products/4265c-024
43093	Technic, Axle 1L with Pin with Friction Ridges	Blue	2	6	12	https://brickers.jp/products/43093-023
87083	Technic, Axle 4L with Stop	Dark Bluish Gray	1	10	10	https://brickers.jp/products/87083-199
3737	Technic, Axle 10L	Black	1	113	113	https://brickers.jp/products/3737-026
3708	Technic, Axle 12L	Black	1	148	148	https://brickers.jp/products/3708-026
32034	Technic, Axle and Pin Connector Angled #2 - 180 degrees	Yellow	1	78	78	https://brickers.jp/products/32034-024
32014	Technic, Axle and Pin Connector Angled #6 - 90 degrees	Yellow	1	48	48	https://brickers.jp/products/32014-024
32269	Technic, Gear 20 Tooth Double Bevel	Tan	1	118	118	https://brickers.jp/products/32269-005
32278	Technic, Liftarm Thick 1 x 15	Light Bluish Gray	2	178	356	https://brickers.jp/products/32278-194
32523	Technic, Liftarm Thick 1 x 3	White	1	18	18	https://brickers.jp/products/32523-001
32316	Technic, Liftarm Thick 1 x 5	White	6	28	168	https://brickers.jp/products/32316-001
11478	Technic, Liftarm Thin 1 x 5 - Axle Holes	Black	1	48	48	https://brickers.jp/products/11478-026
64178	Technic, Liftarm, Modified Frame Thick 5 x 11 Open Center	Light Bluish Gray	3	488	1,464	https://brickers.jp/products/64178-194
64179	Technic, Liftarm, Modified Frame Thick 5 x 7 Open Center	Light Bluish Gray	10	398	3,980	https://brickers.jp/products/64179-194
64179	Technic, Liftarm, Modified Frame Thick 5 x 7 Open Center	Red	3	498	1,494	https://brickers.jp/products/64179-021
6558	Technic, Pin 3L with Friction Ridges	Blue	20	10	200	https://brickers.jp/products/6558-023
48989	Technic, Pin Connector Perpendicular 3L with 4 Pins	Light Bluish Gray	1	28	28	https://brickers.jp/products/48989-194
2780	Technic, Pin with Short Friction Ridges	Black	32	6	192	https://brickers.jp/products/2780-026
					合計	8,823

	個数	単価	価格	購入先
Unit Roller485 (スリップリング付き)	1	8,316	8,316	https://www.switch-science.com/products/9924
12bit磁気式エンコーダAS5601	1	1,700	1,700	https://www.switch-science.com/products/3494
手元スイッチ	1	1,698	1,698	https://www.monotaro.com/p/4103/8103/
DCジャック付ケーブル (2.1Φ)	1	449	449	https://www.monotaro.com/p/6991/8795/
ACアダプタ 16V/3.75A	1	2,380	2,380	https://akizukidenshi.com/catalog/g/g110664/
Arduino Mega2560 Rev3	1	7,980	7,980	https://akizukidenshi.com/catalog/g/g107381/
L型ピンヘッダ	1	15	15	https://akizukidenshi.com/catalog/g/g112986/
		合計	22,538	

その他

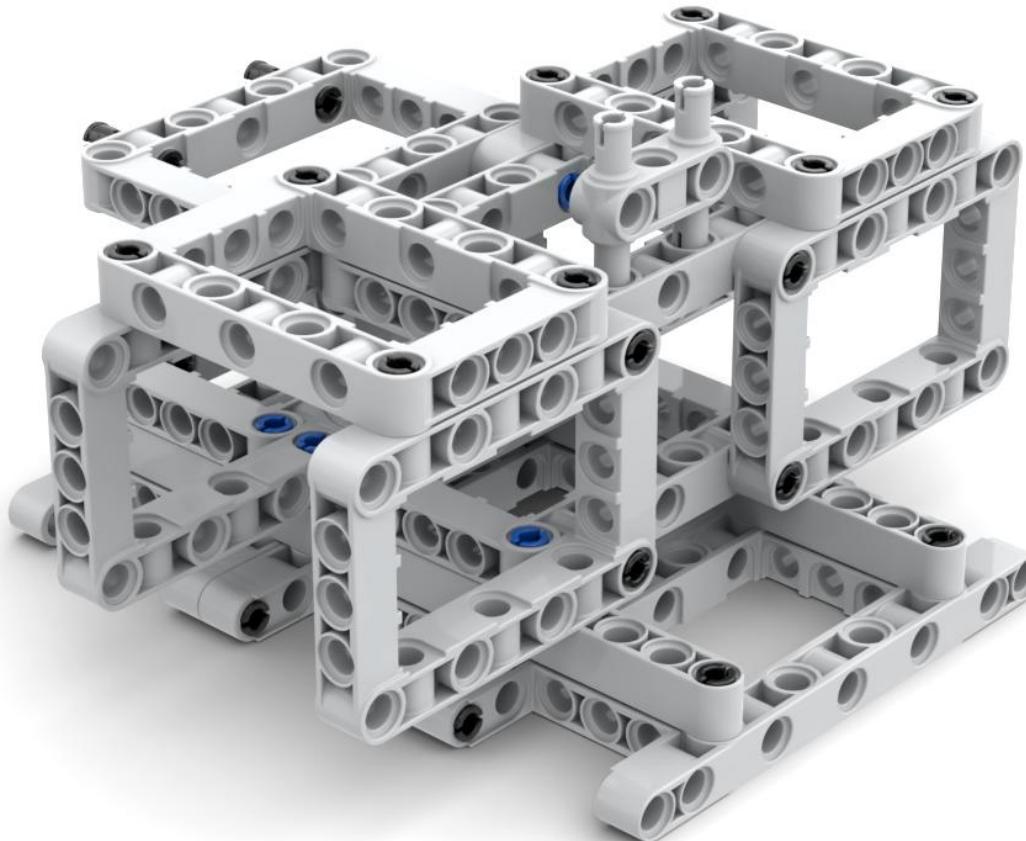
USBケーブル (PC側 : Type A, Mega側 : Type B)

適当な長さの Grove ケーブル

オス・メスジャンパ線 (赤, 黒, 黄, 白)

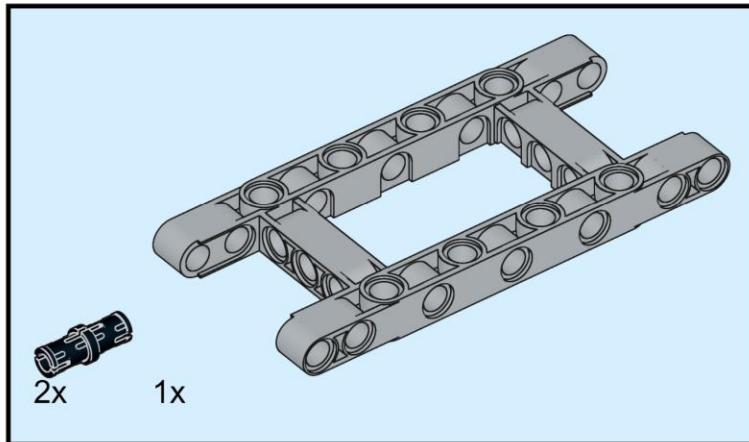
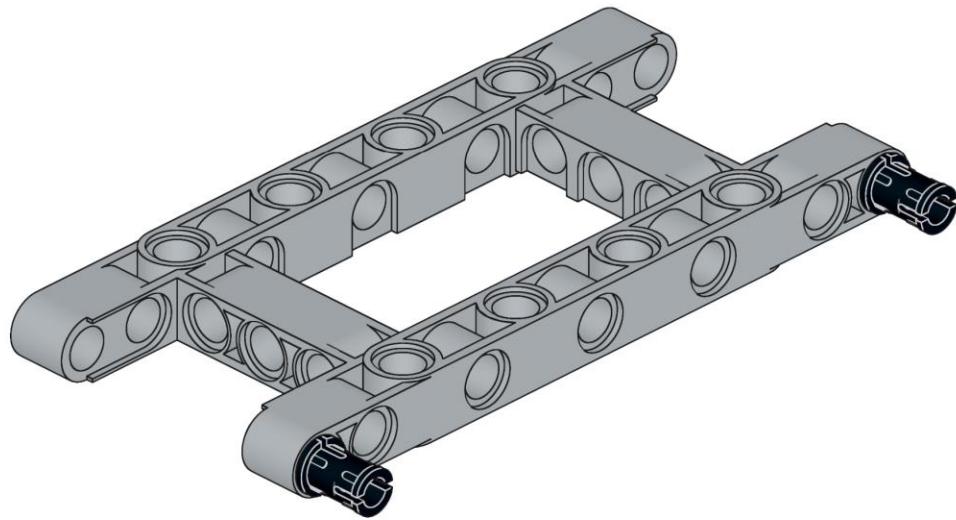
オス・オスジャンパ線 (赤, 黒, 黄, 白)

まずは、
台座の組み立て

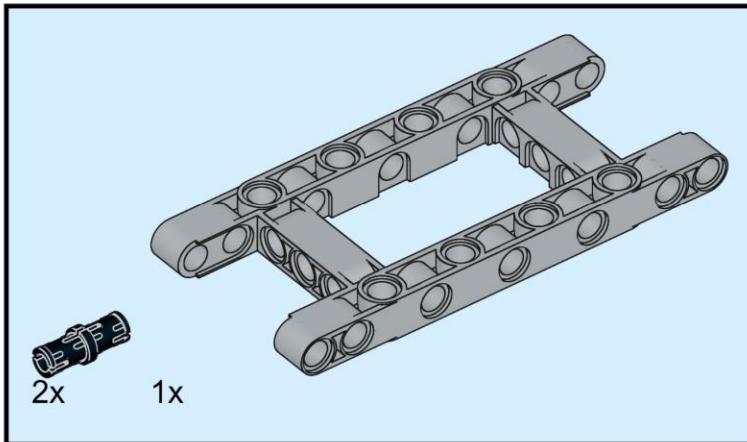
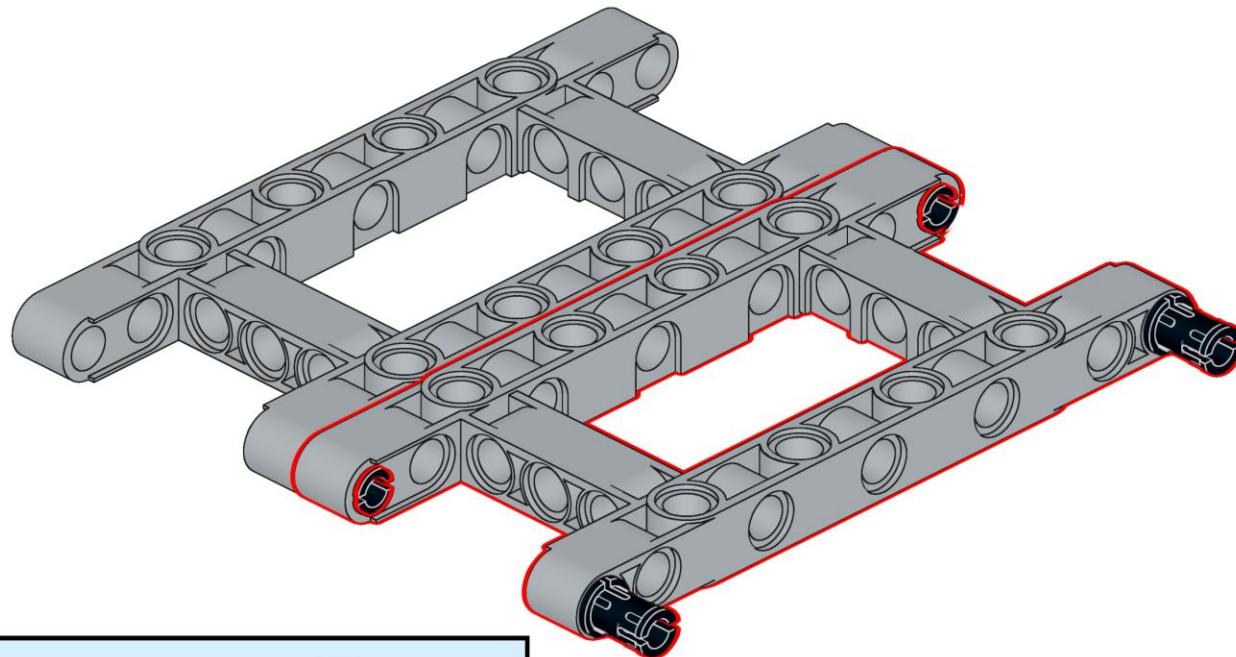


台座1

1



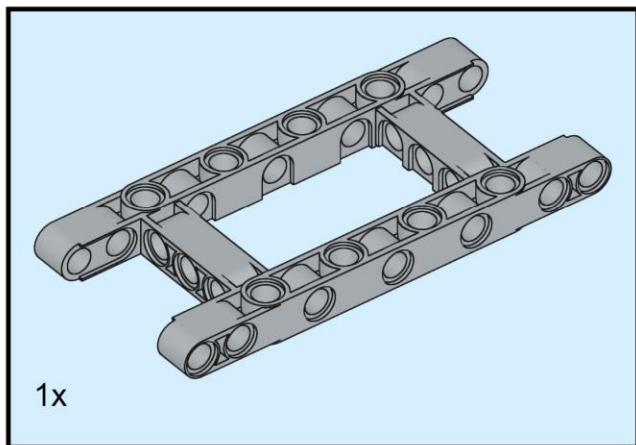
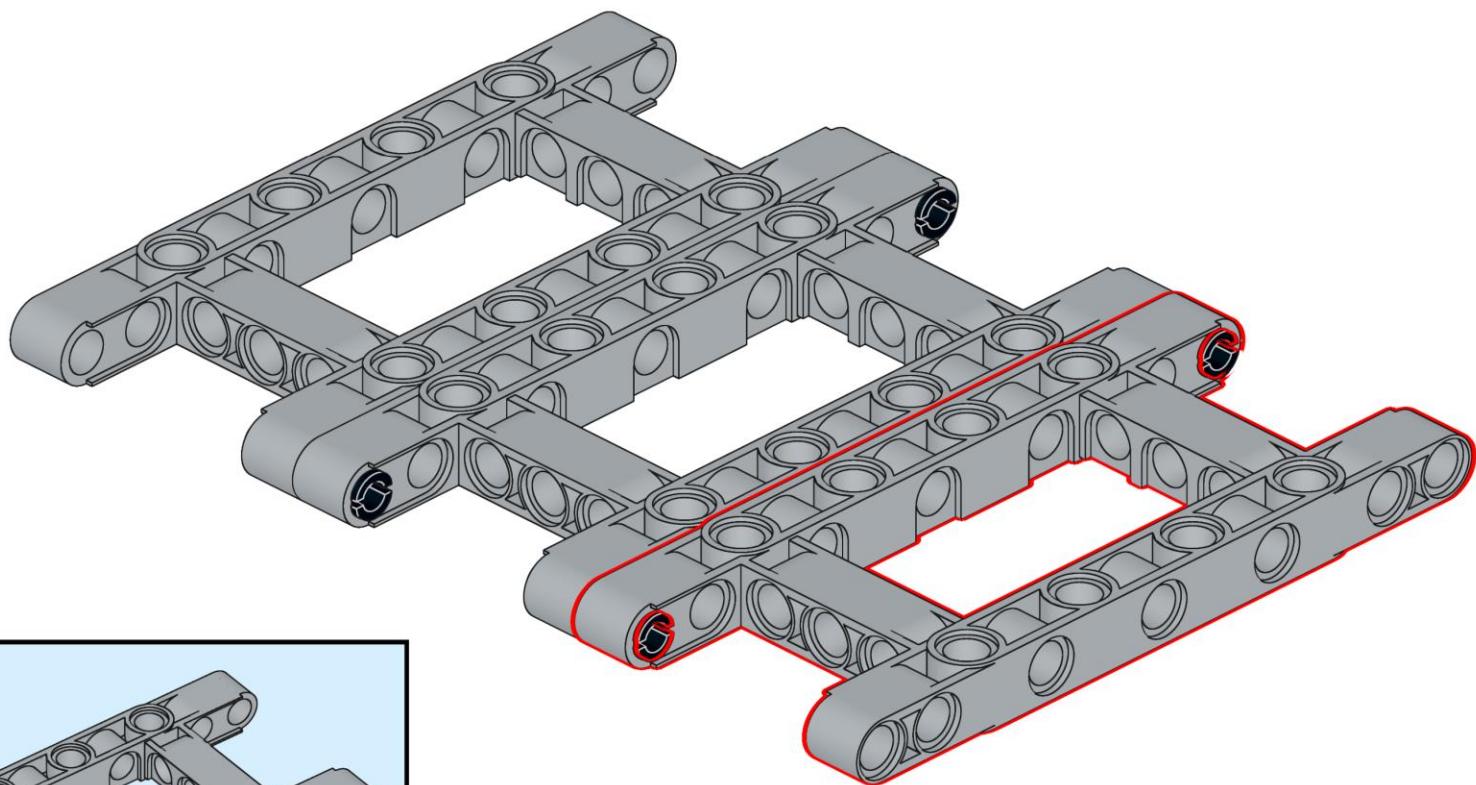
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2x

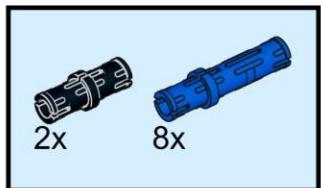
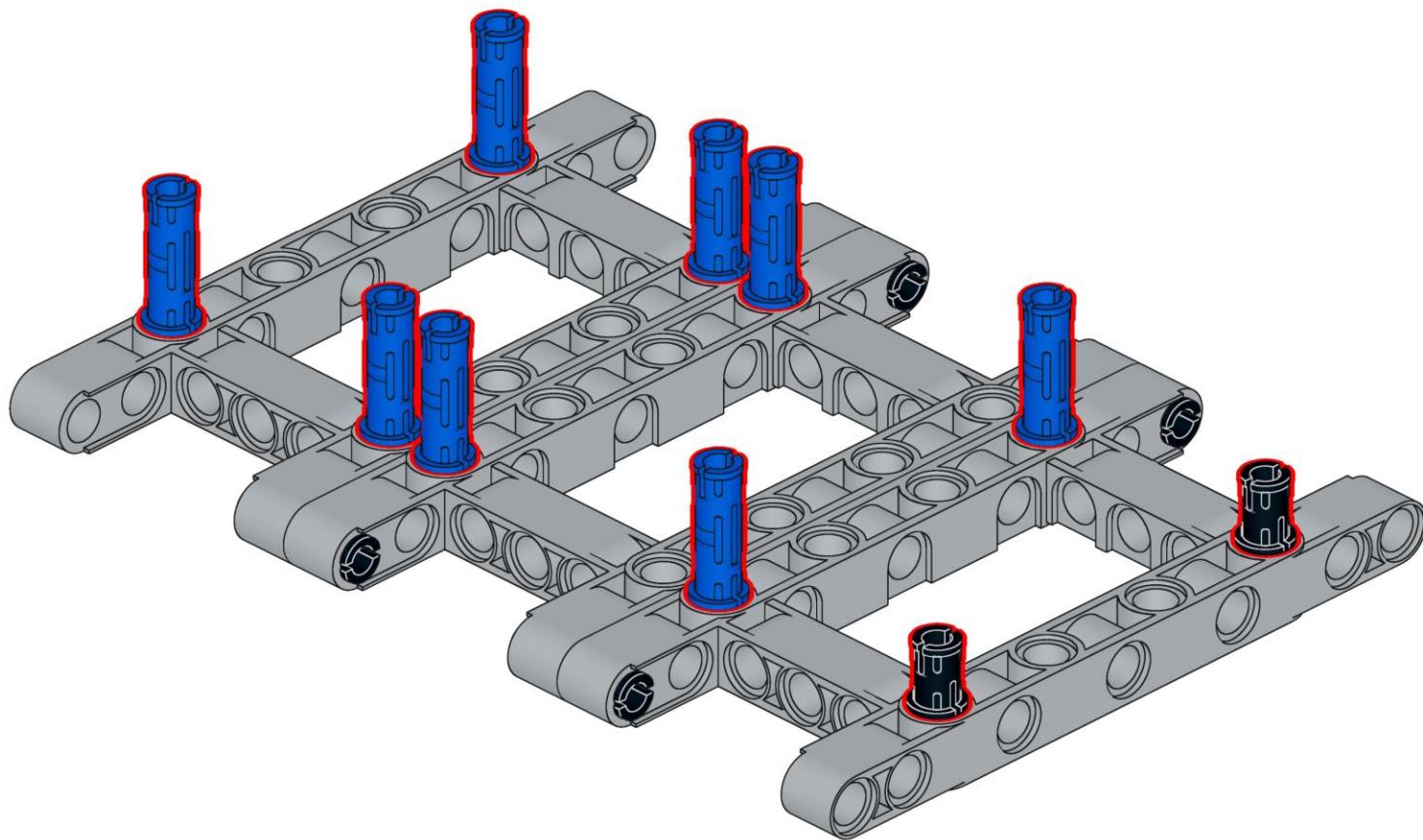
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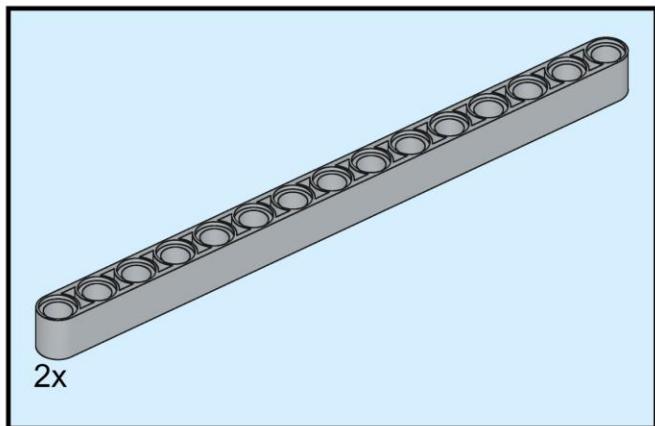
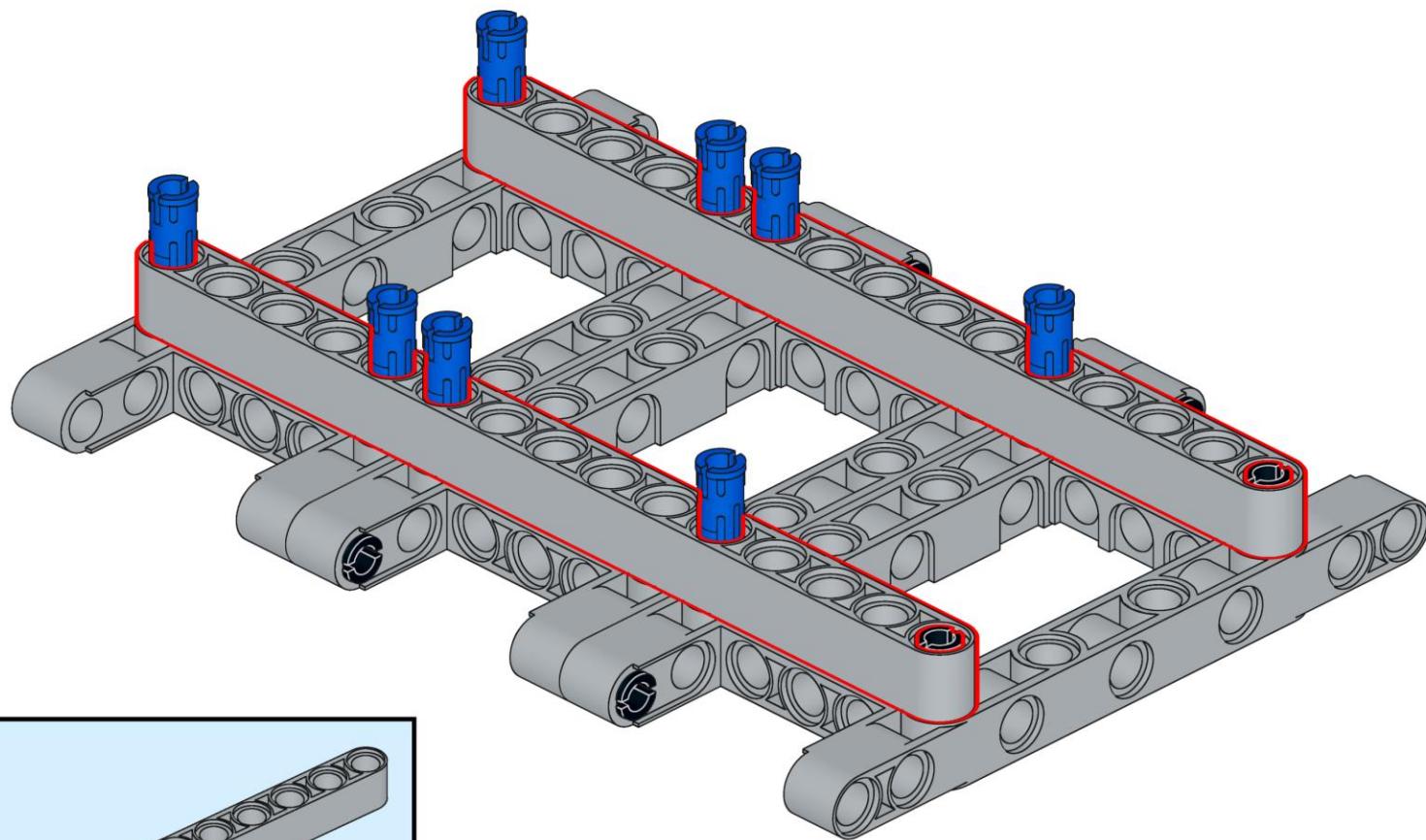


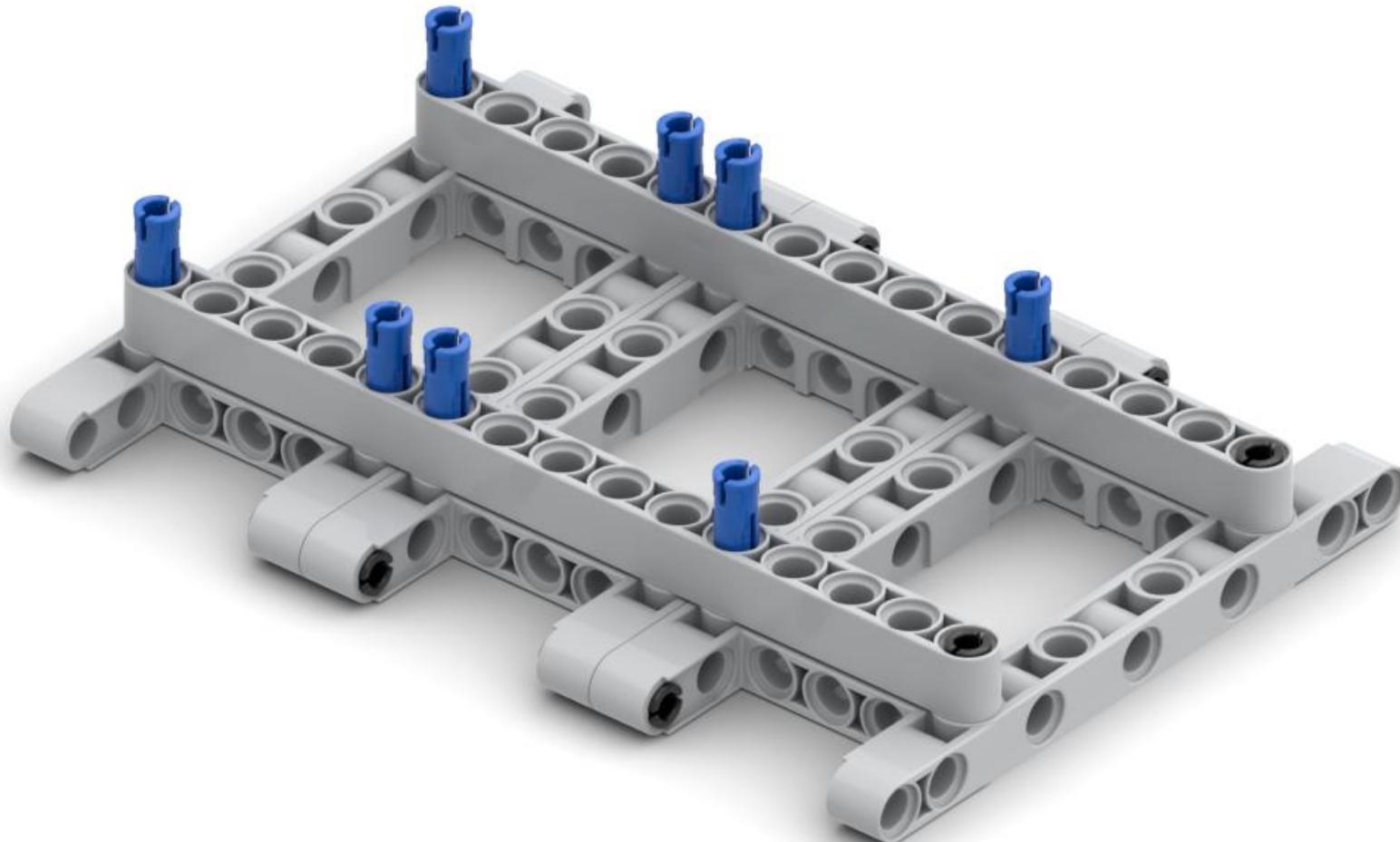
1x

4



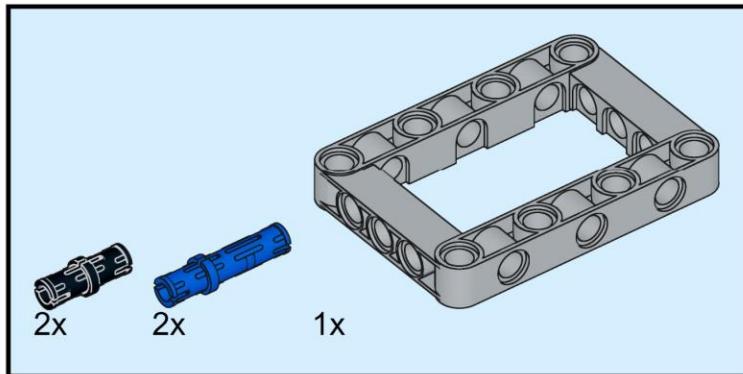
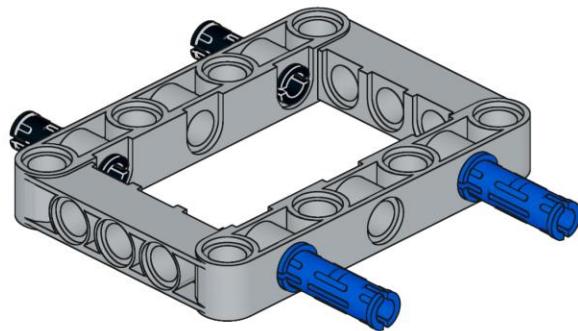
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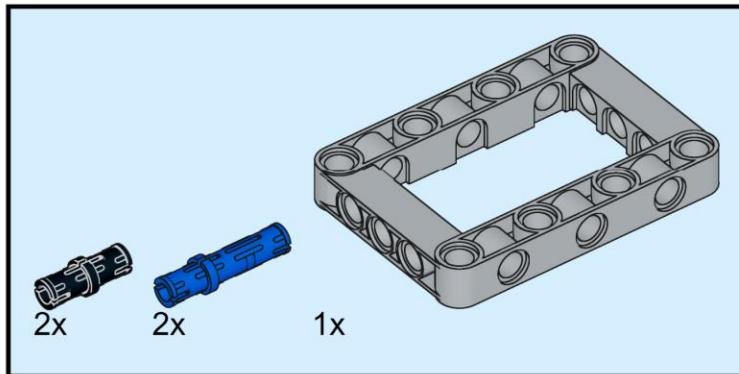
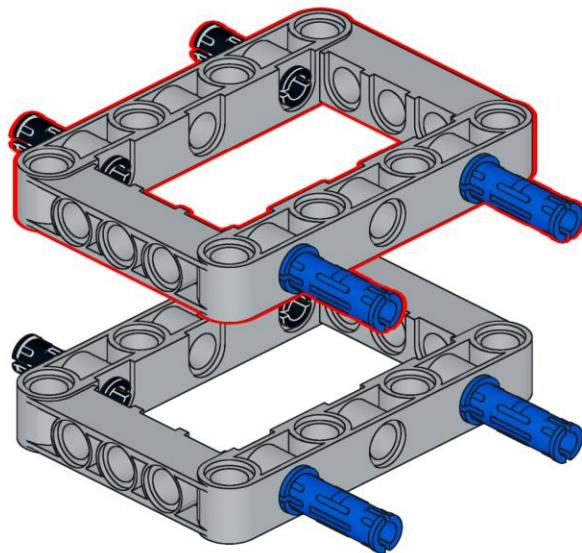


台座2

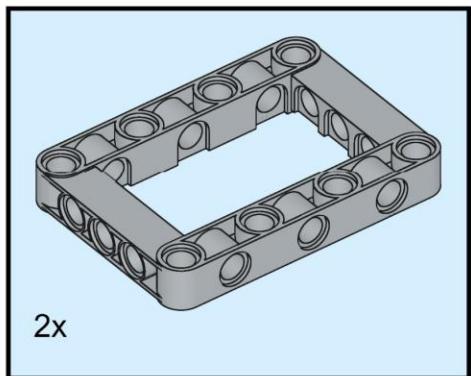
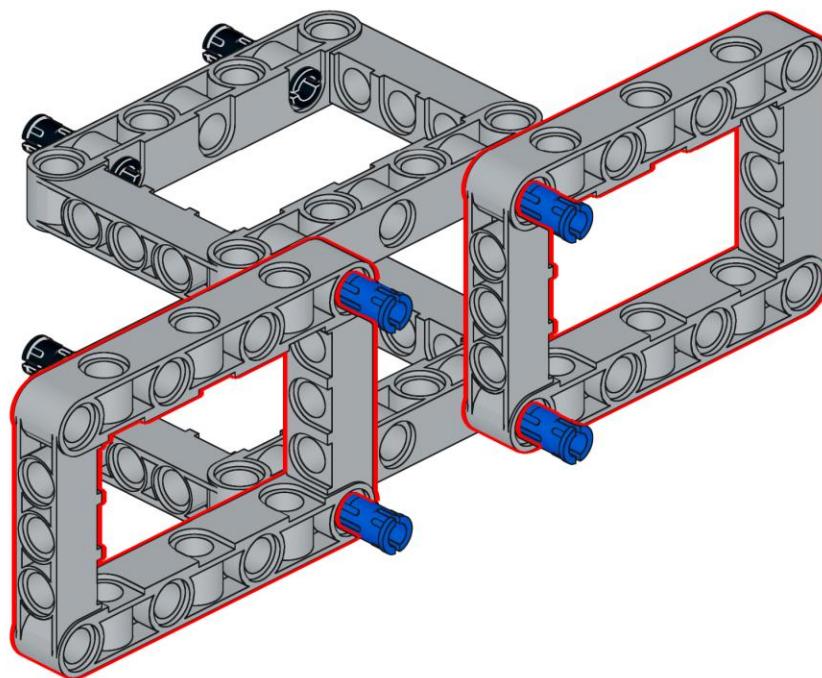
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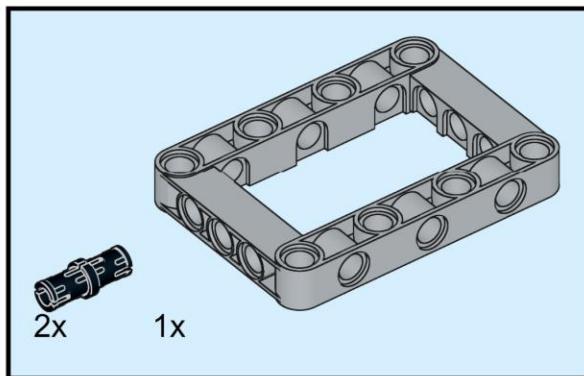
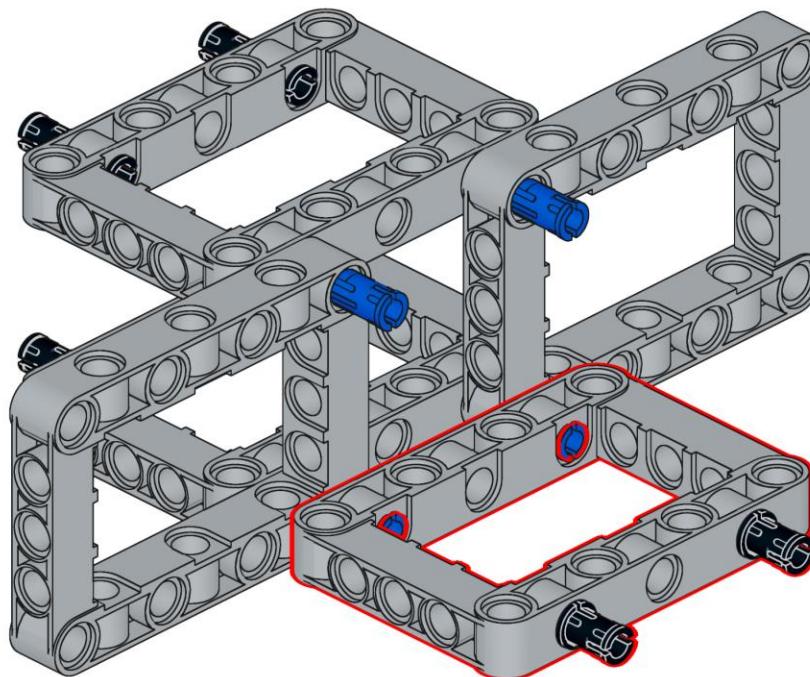
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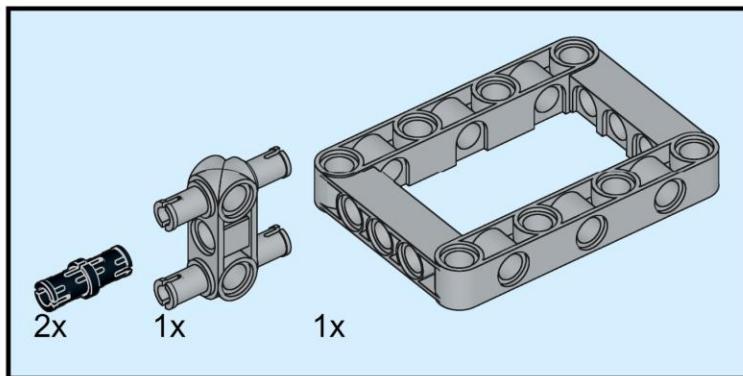
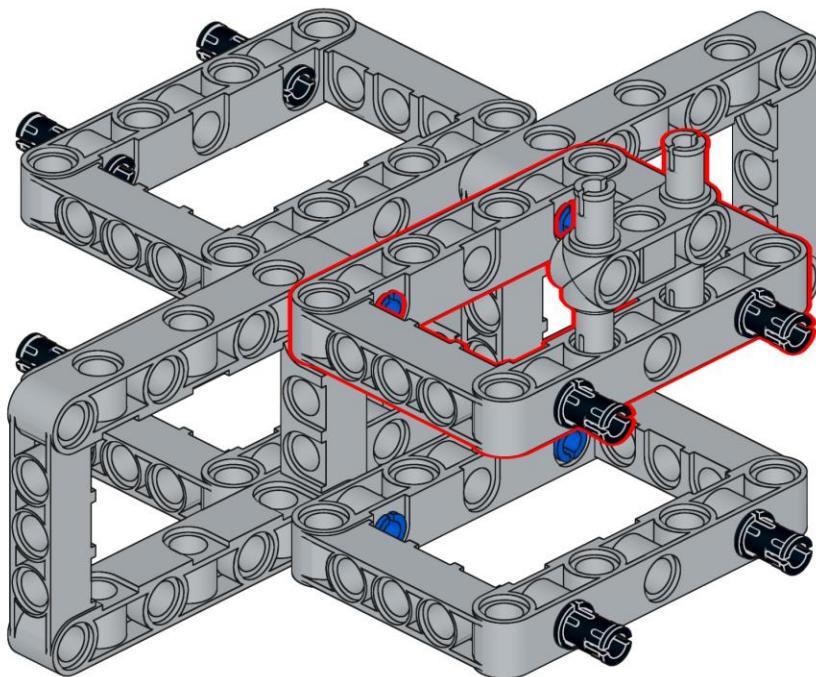
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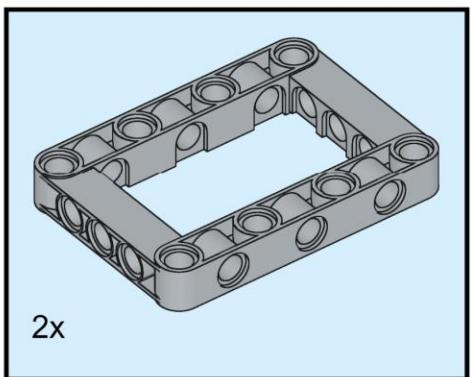
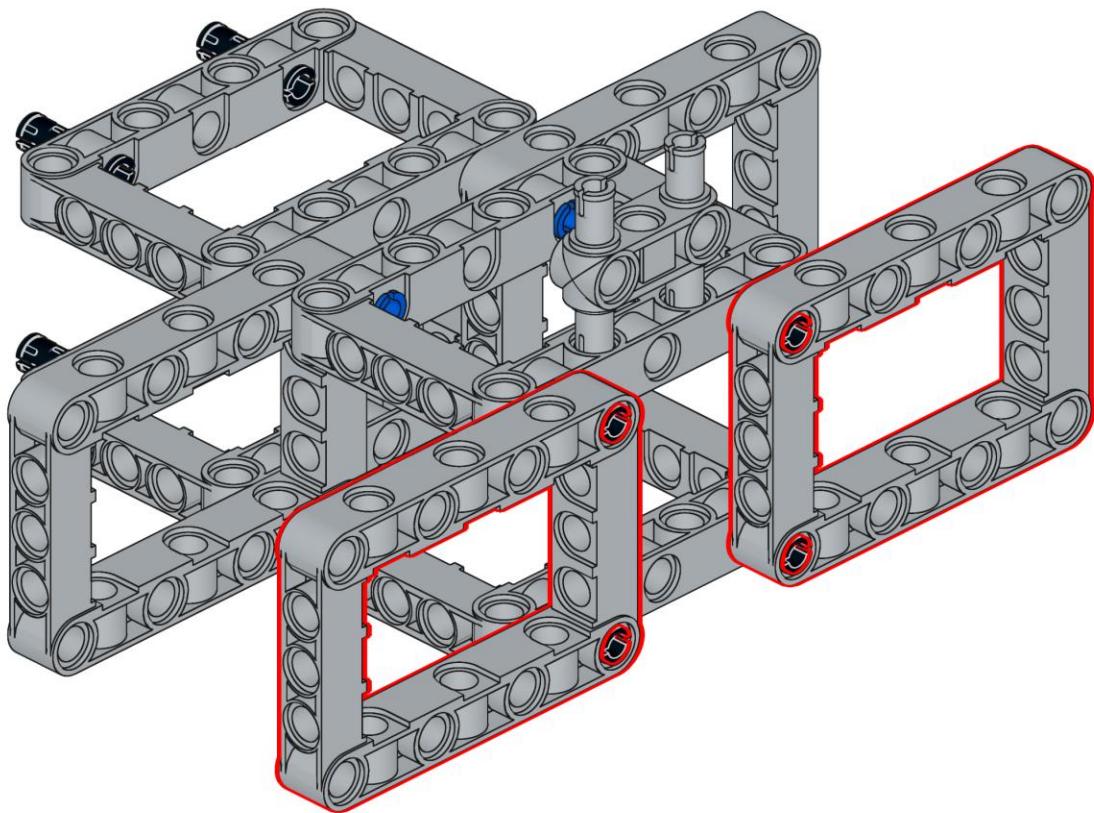
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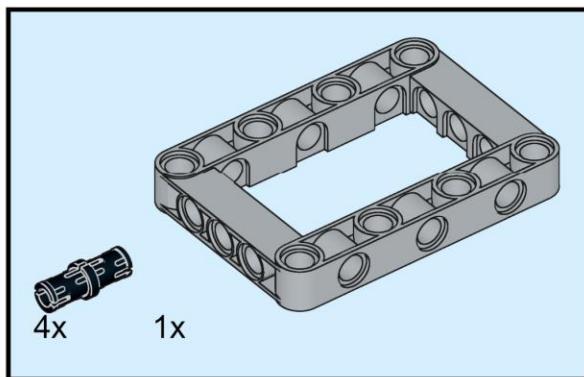
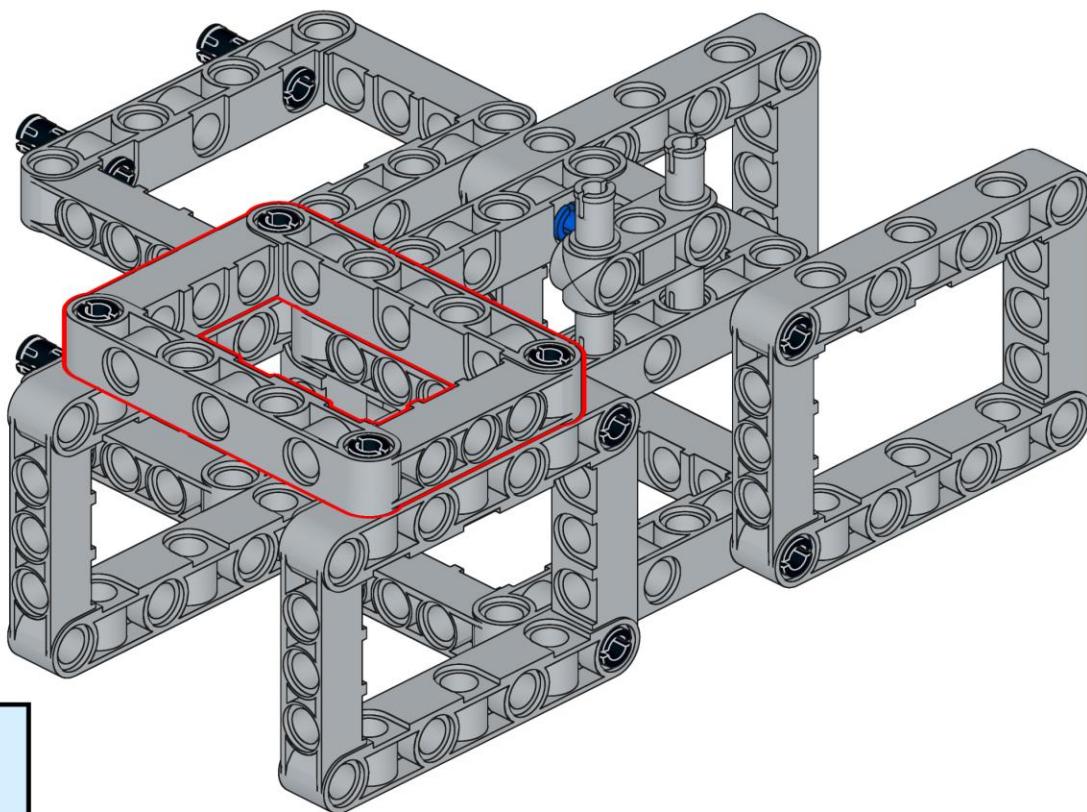
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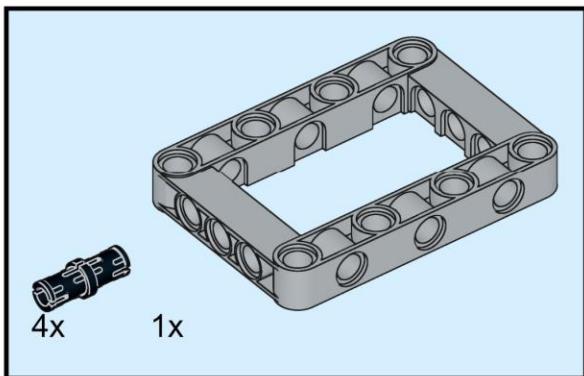
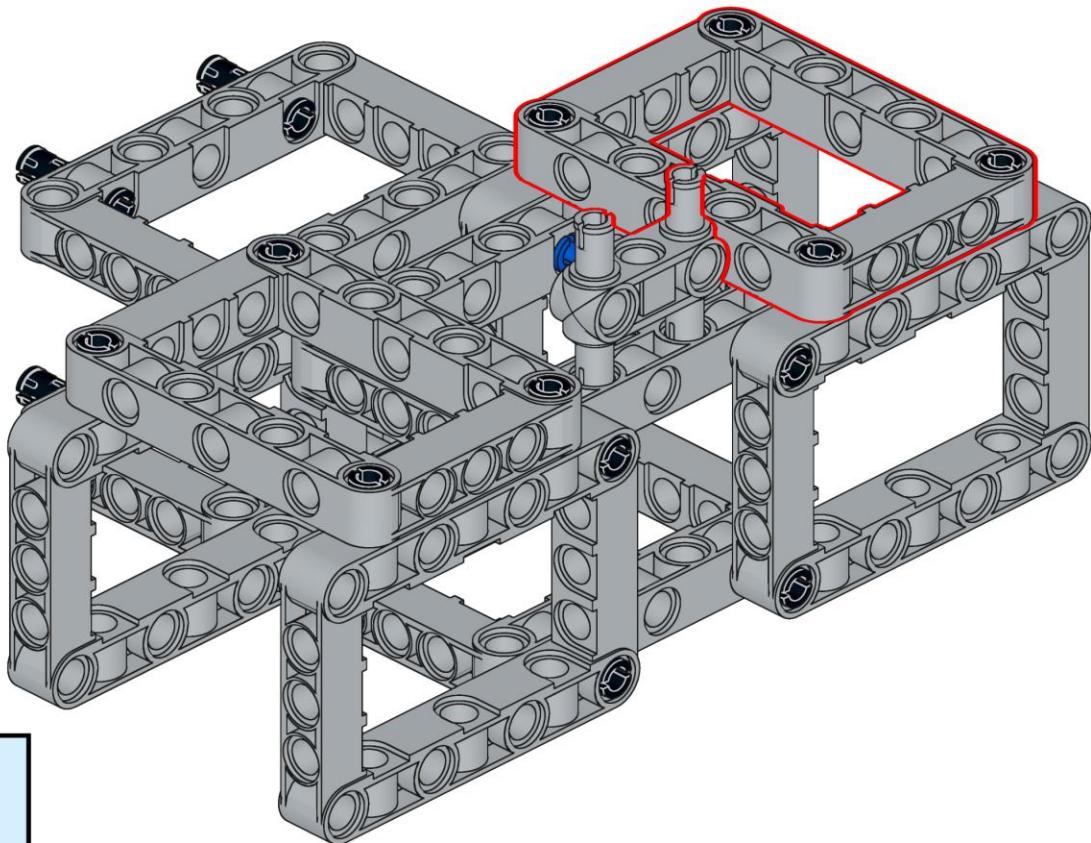
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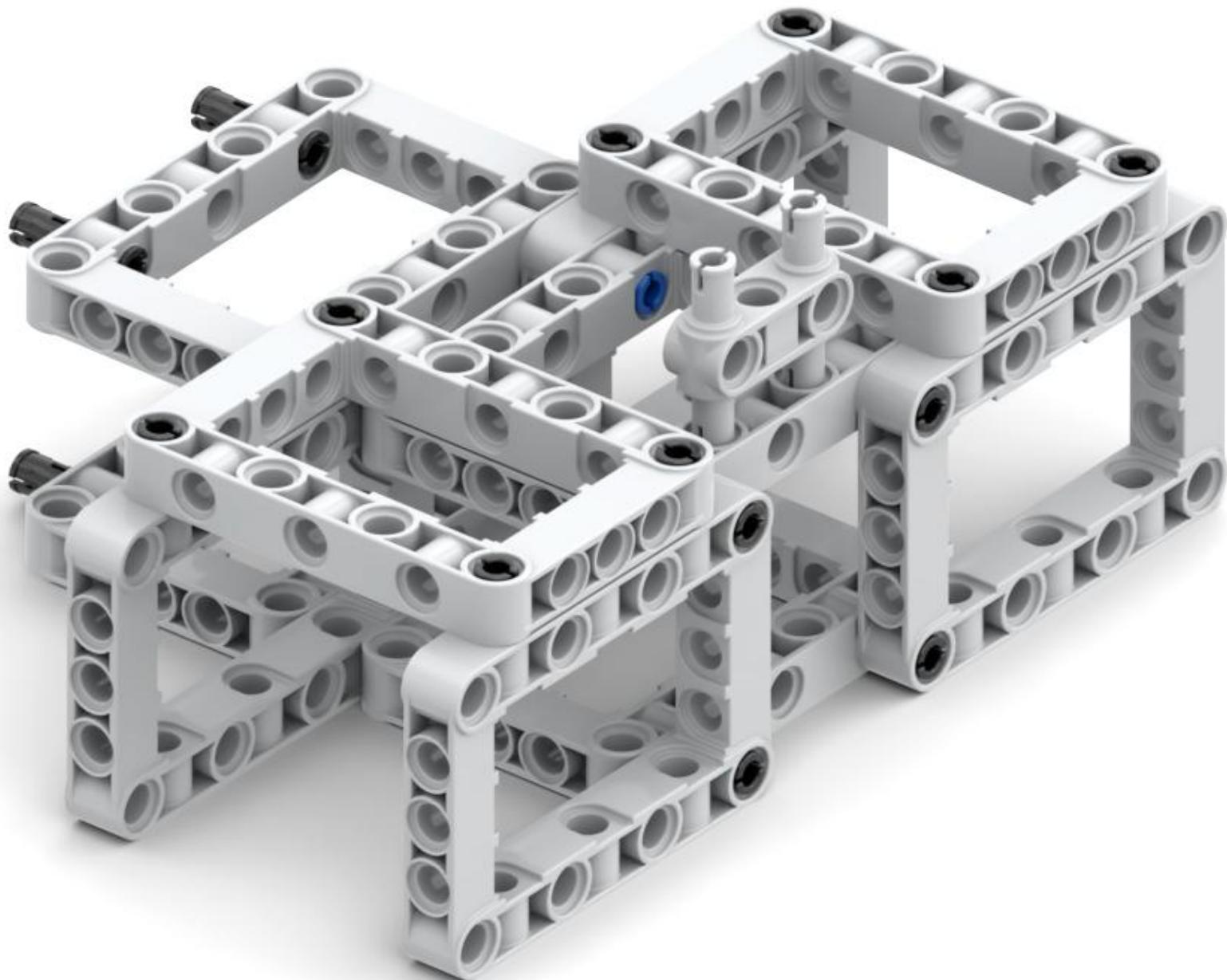


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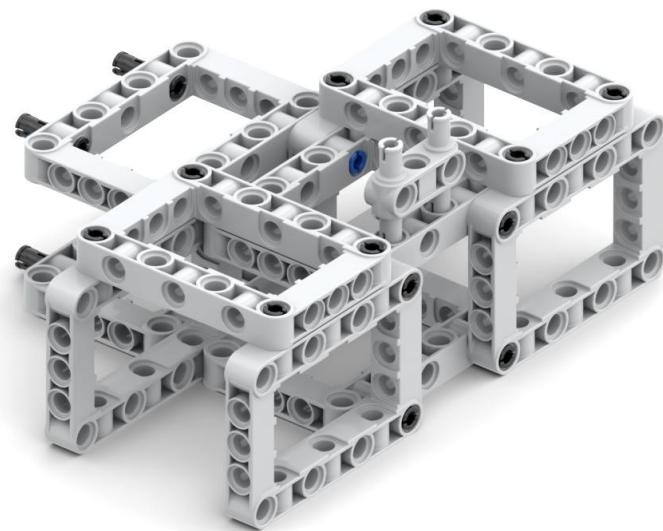
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8

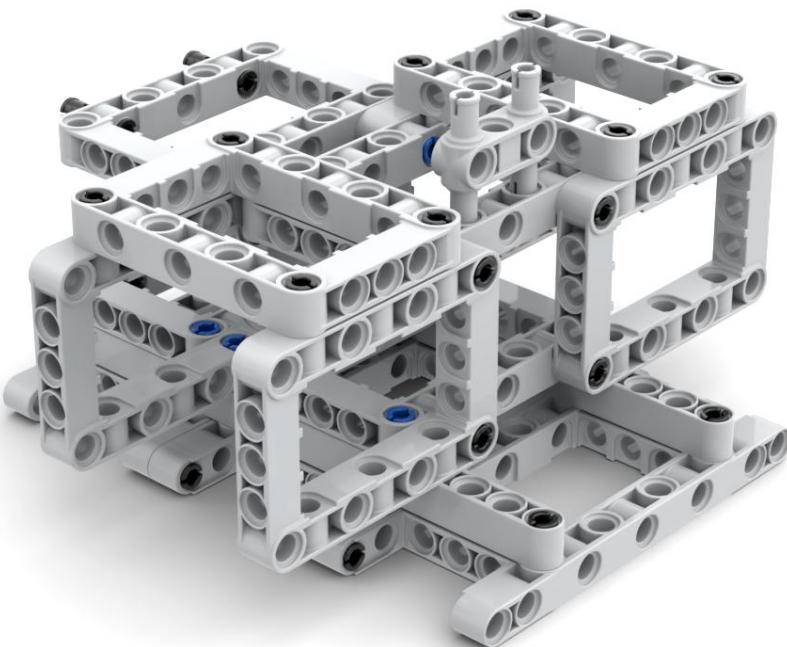
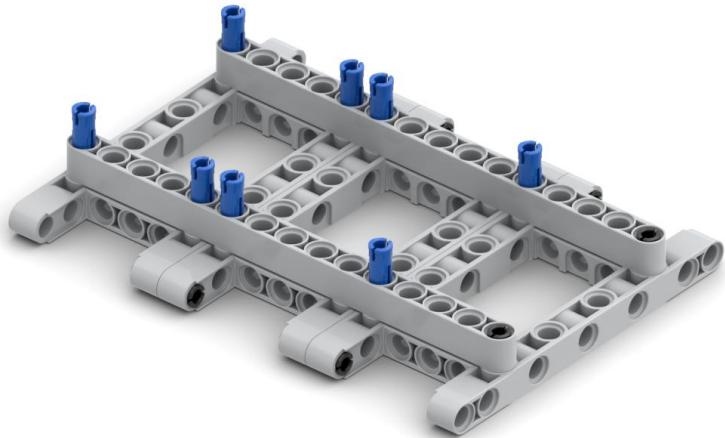




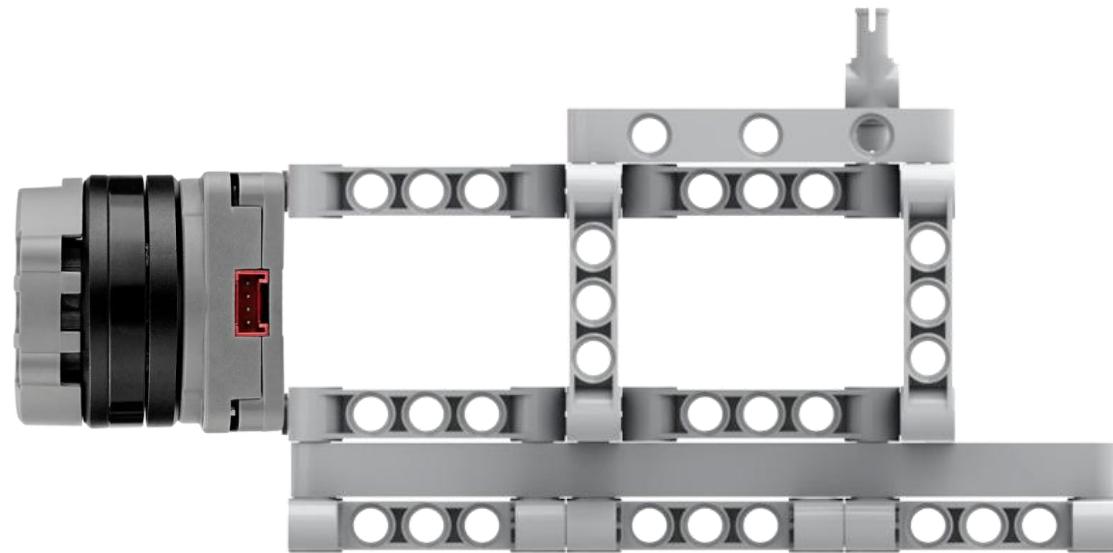
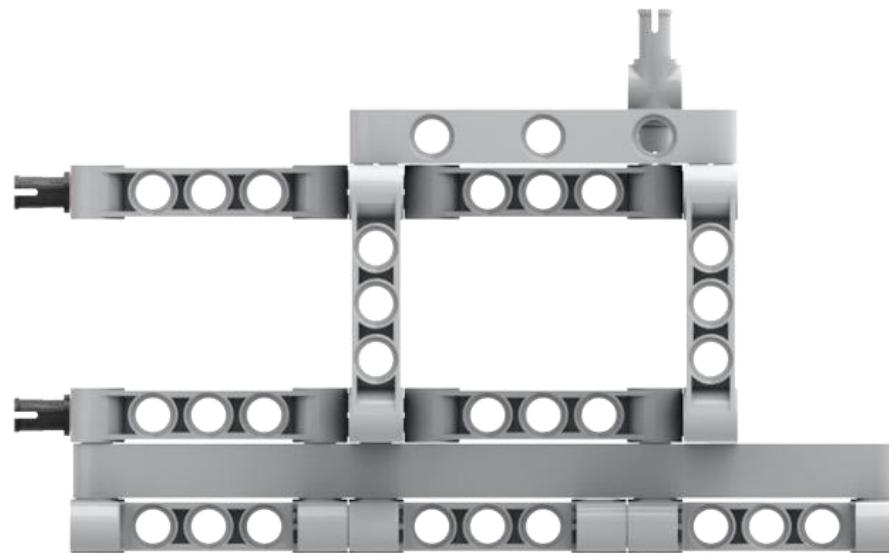
台座2



台座1



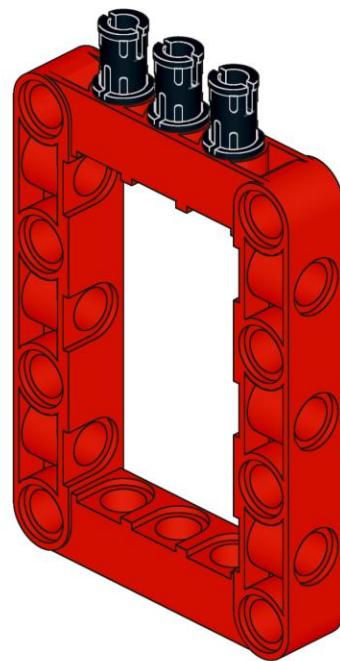
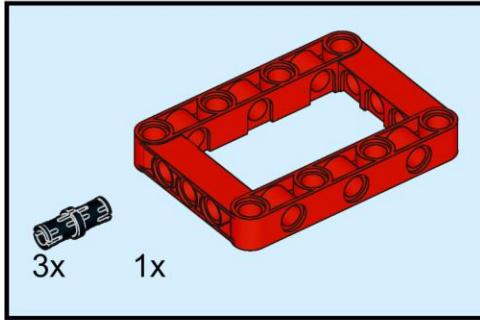
Unit
Roller485



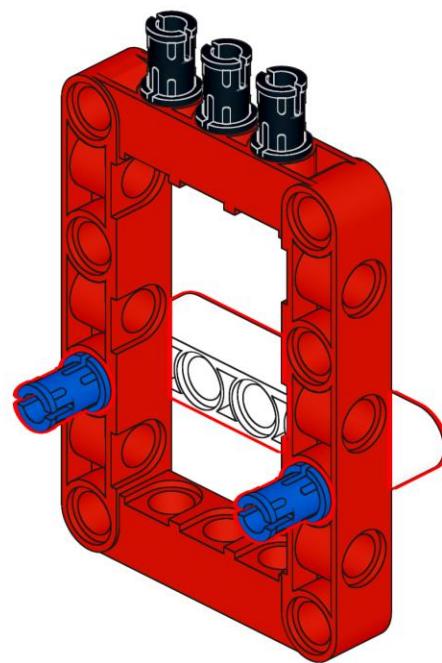
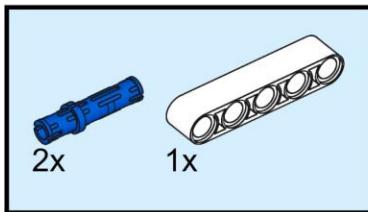
つぎに、
アームの組み立て



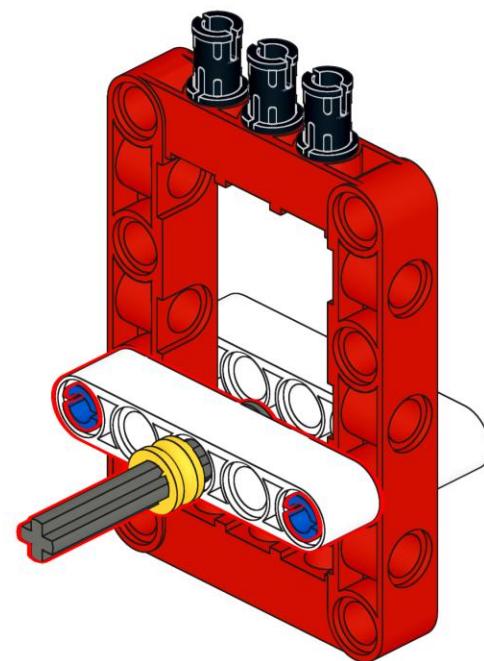
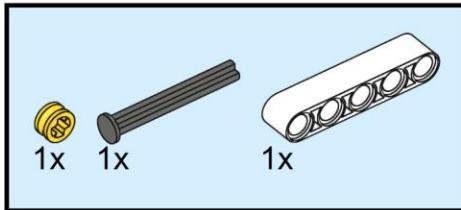
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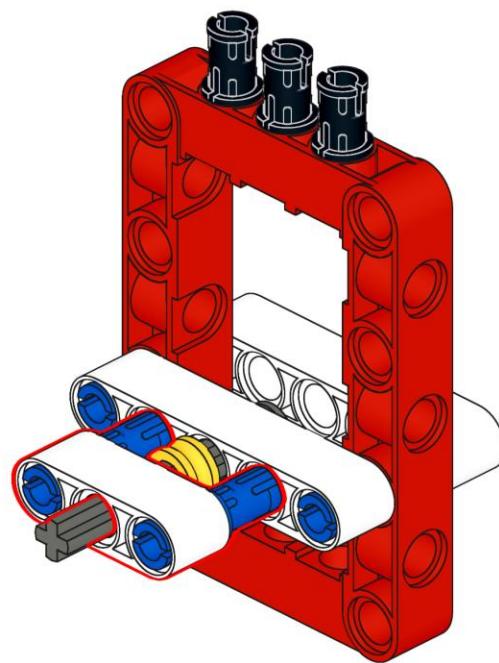
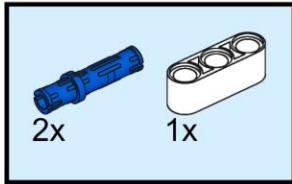
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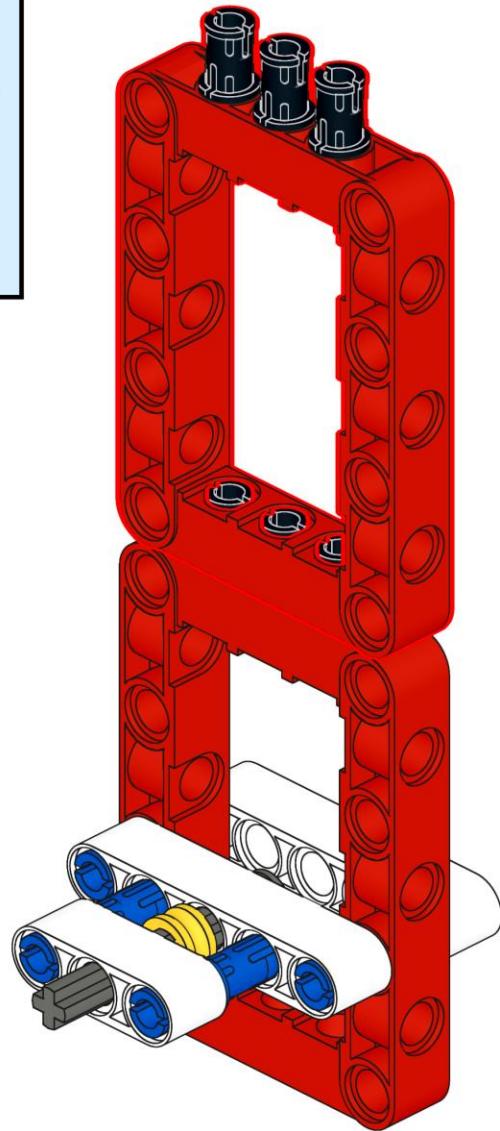
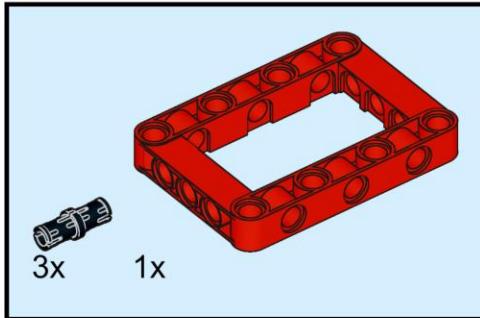
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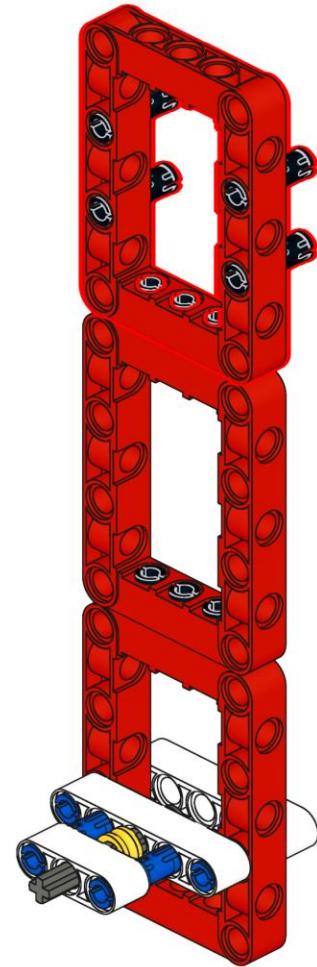
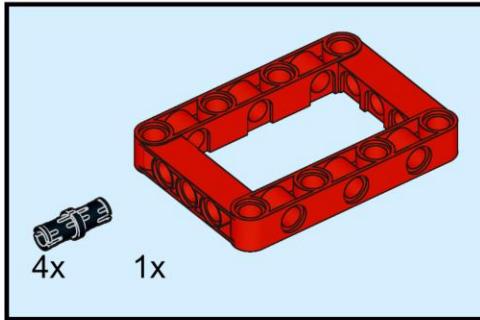
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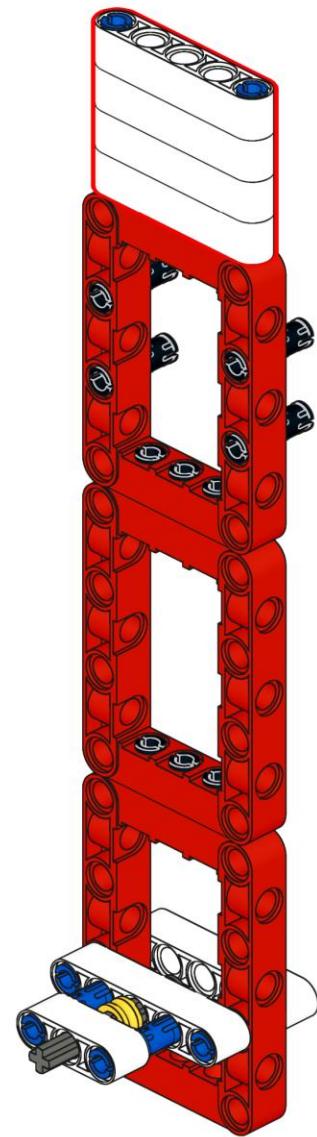
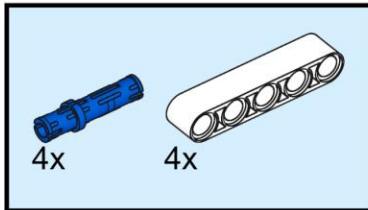
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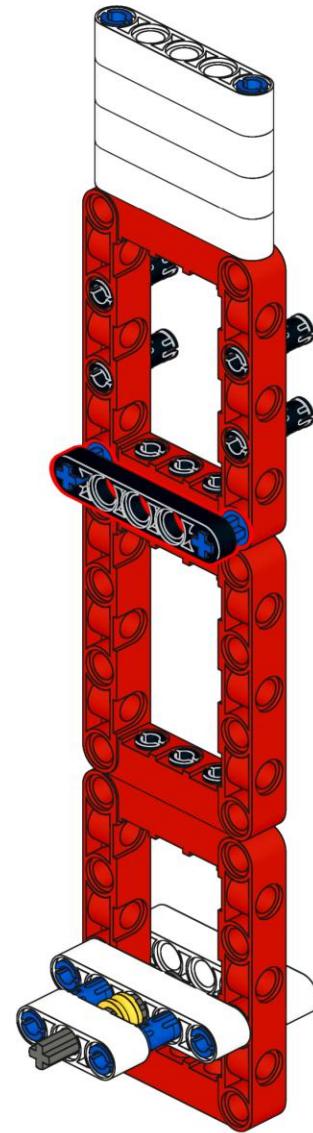
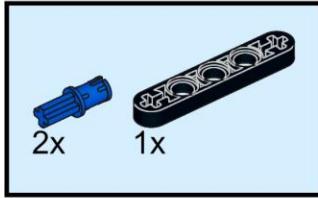
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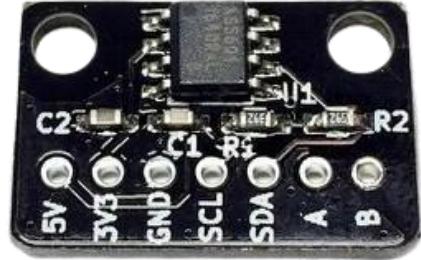
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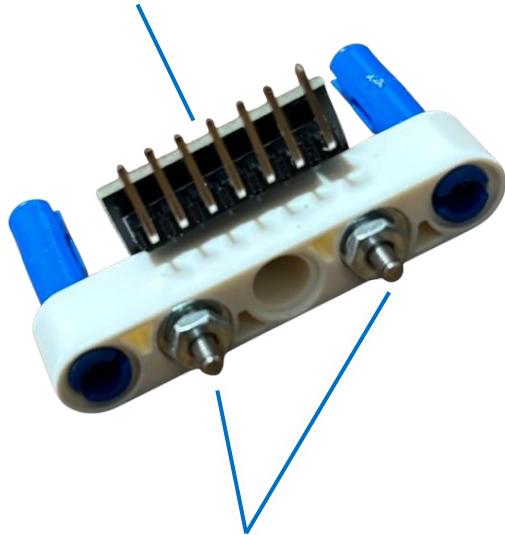
8



振子用エンコーダ AS5601 の取りつけ

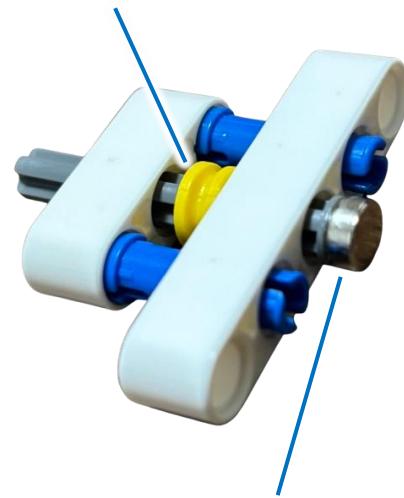


L字ピンヘッダを
エンコーダ AS5601 に
はんだ付け

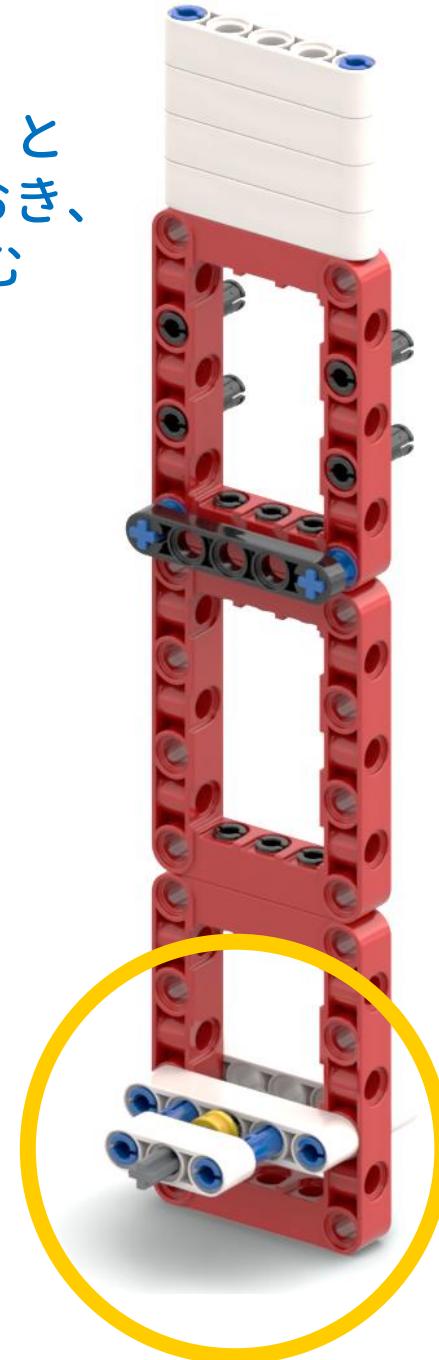


M2 のネジ・ワッシャ・ナット
で LEGO 部品 32316 に
エンコーダ AS5601 を固定

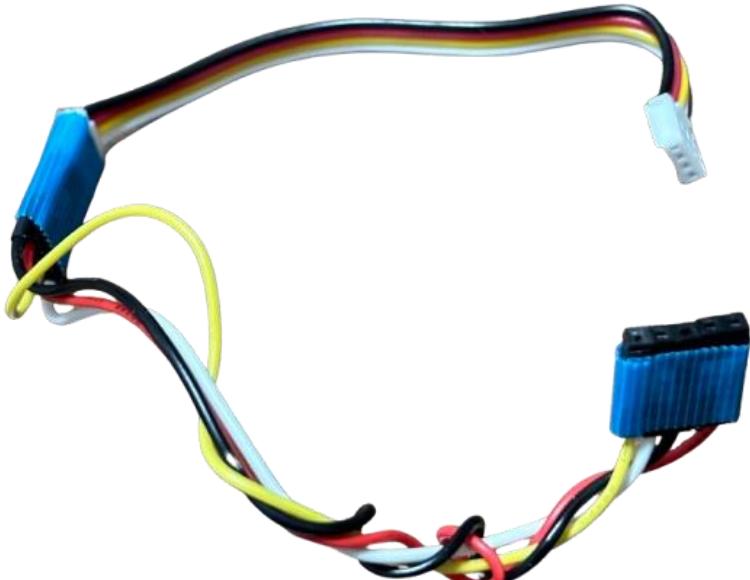
回転摩擦を軽減するために
少しだけ LEGO 部品 (32316) と
4265c の間に隙間を空けておき、
LEGO 部品 (6558) を挿し込む
長さを調整



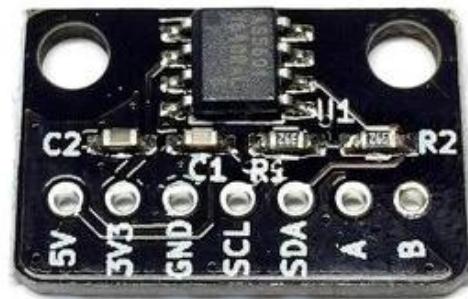
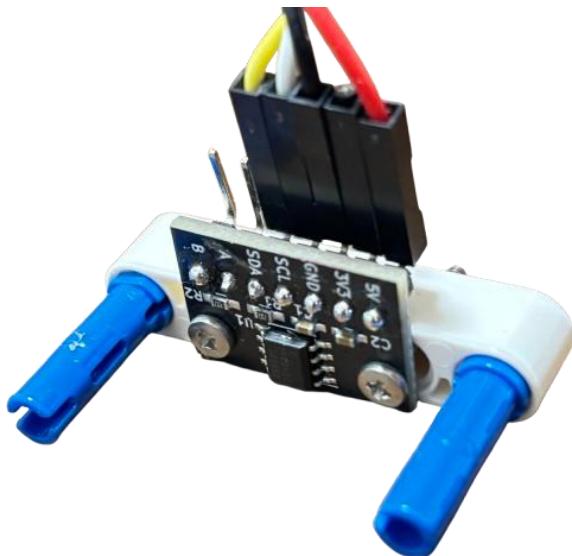
AS5601 付属の磁石を
接着剤で LEGO 部品
(87083) に固定



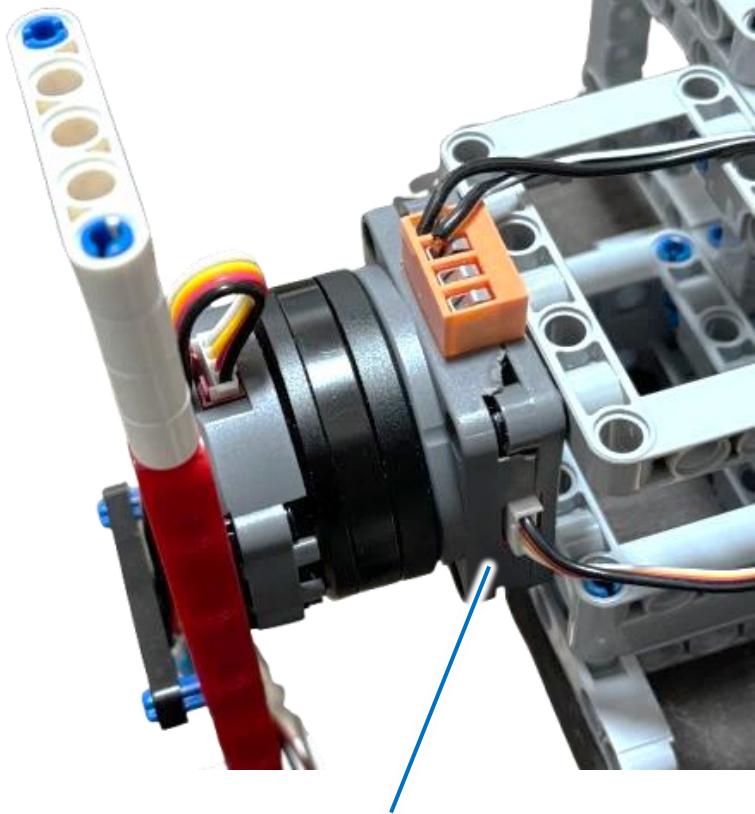
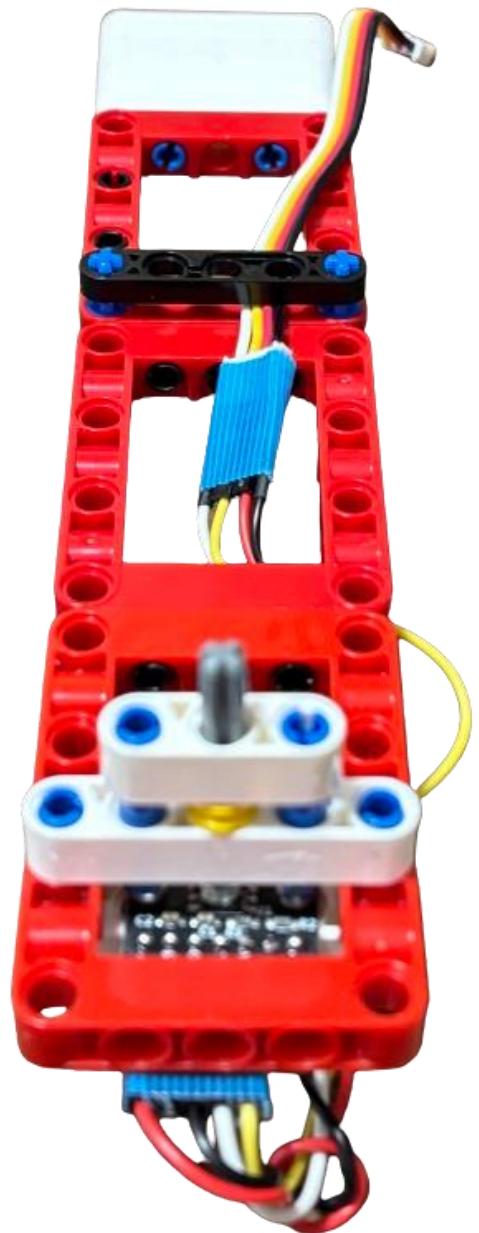
Grove ケーブル



オス・メスのジャンパ線

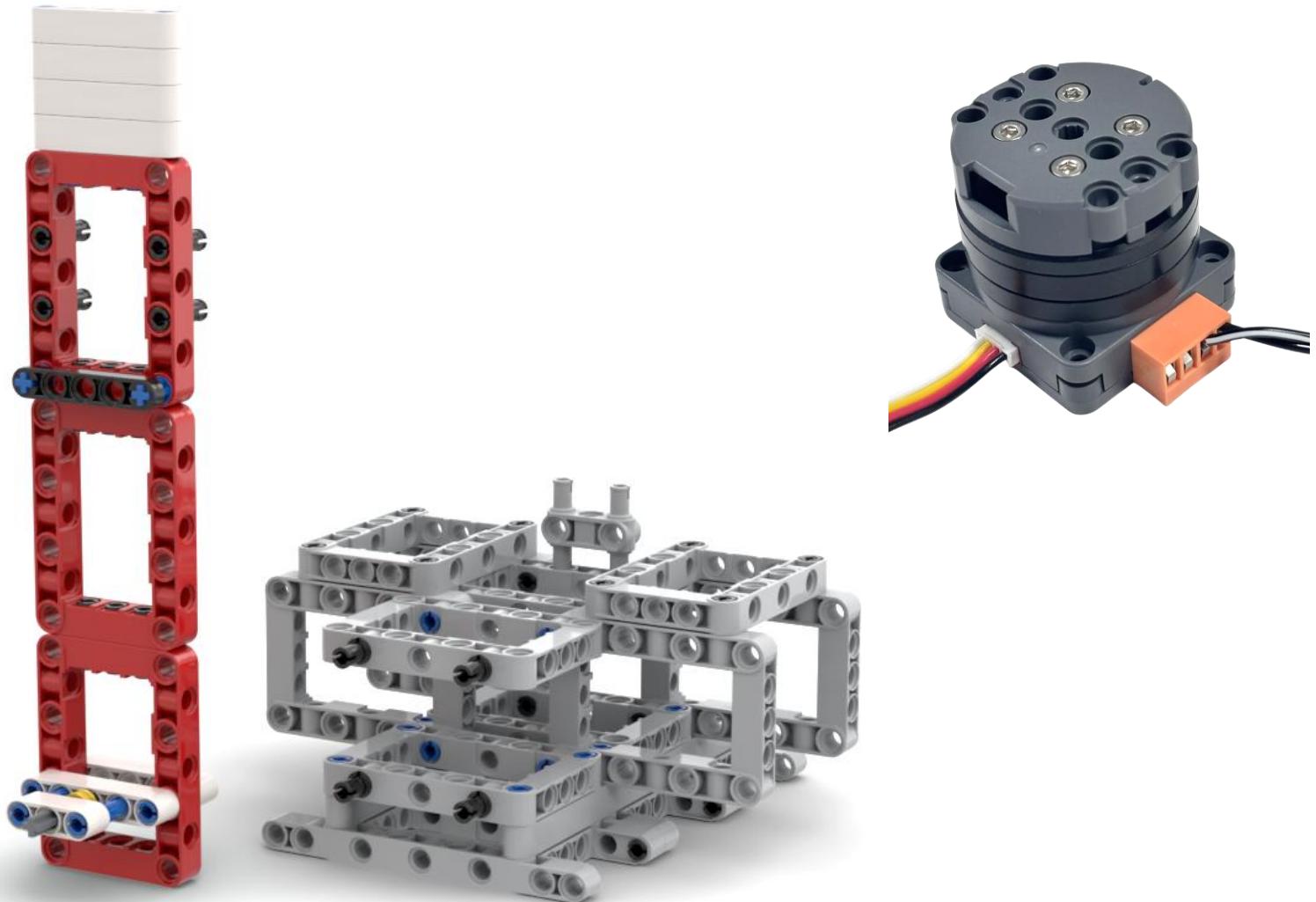


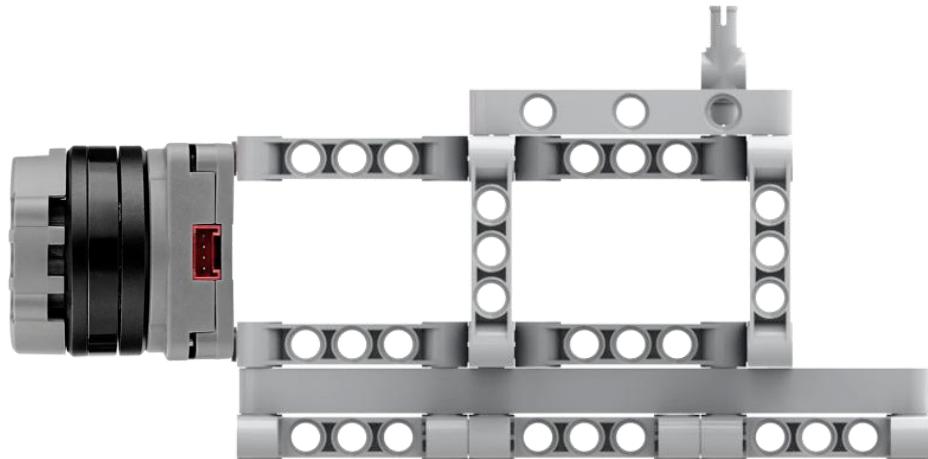
5V ——————
GND ——————
SCL ——————
SDA ——————

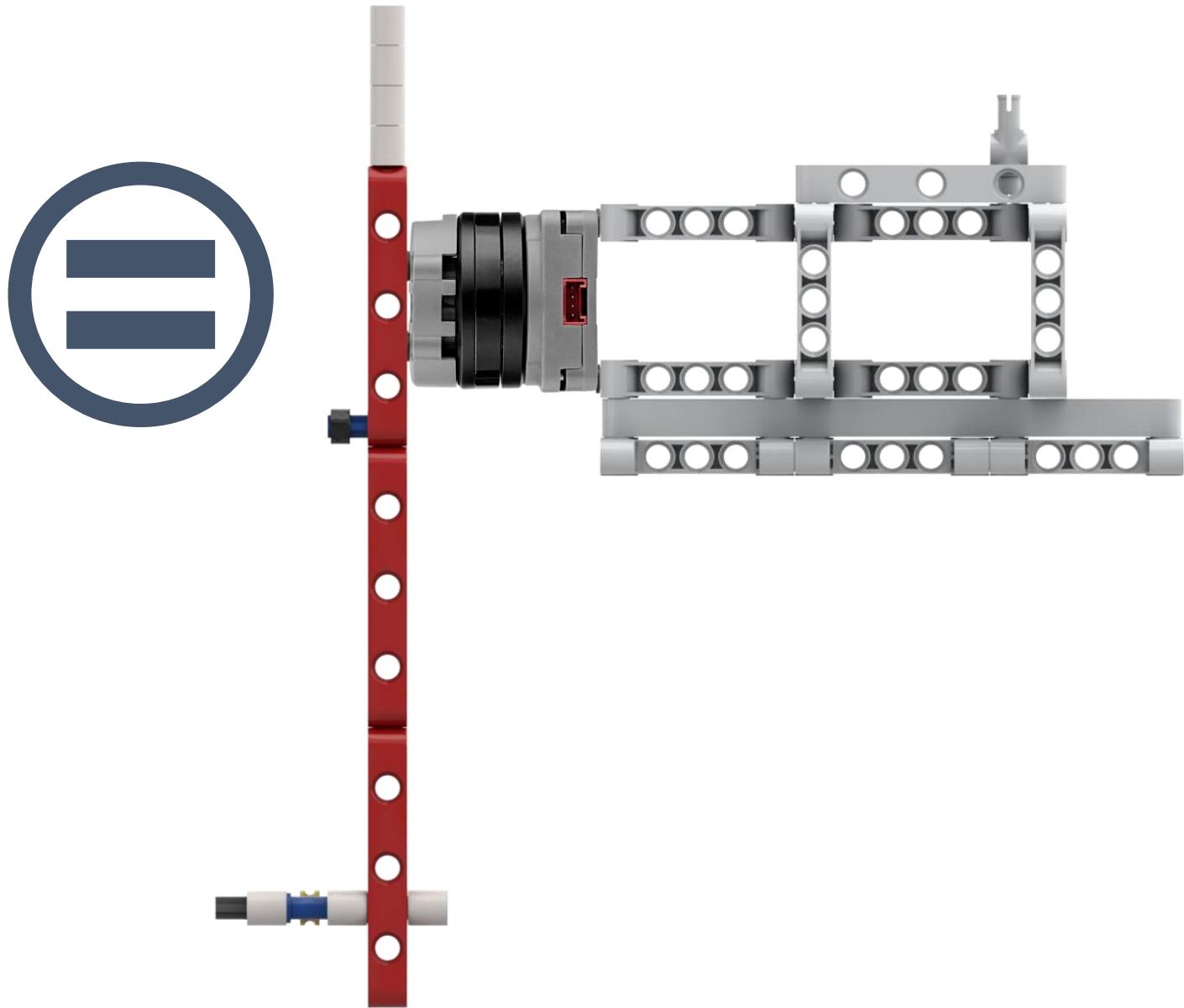


Grove ケーブルを
Roller485 の
スリップリングに接続

Roller485 を介して 台座とアームを結合



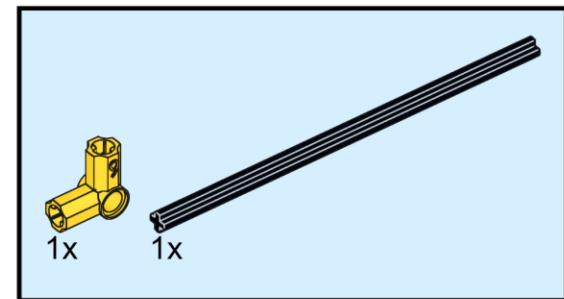




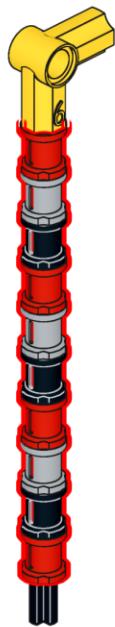
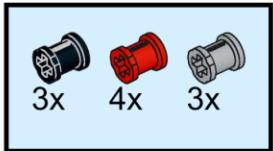
さいごに、
振子の組み立て



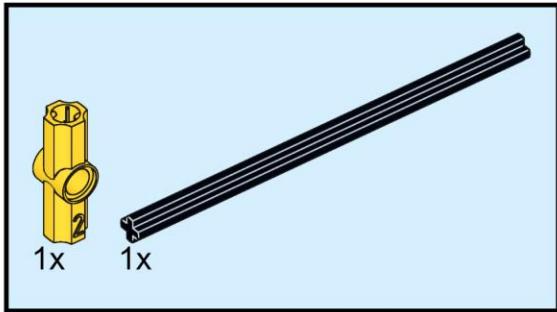
1



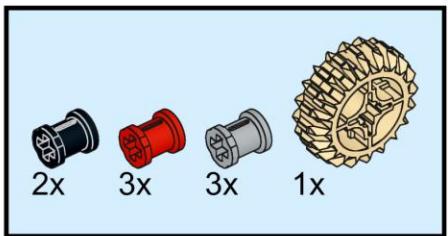
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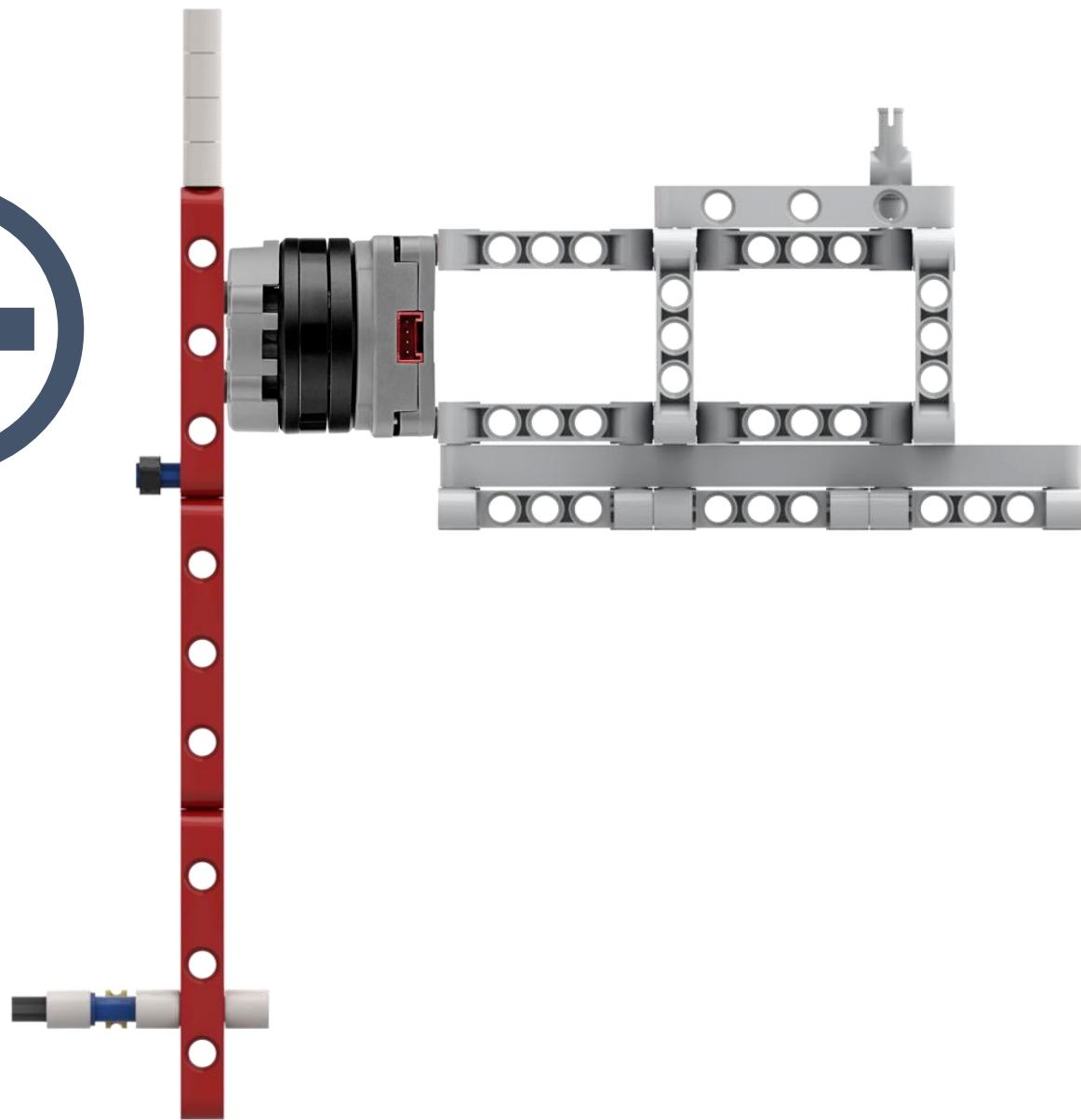


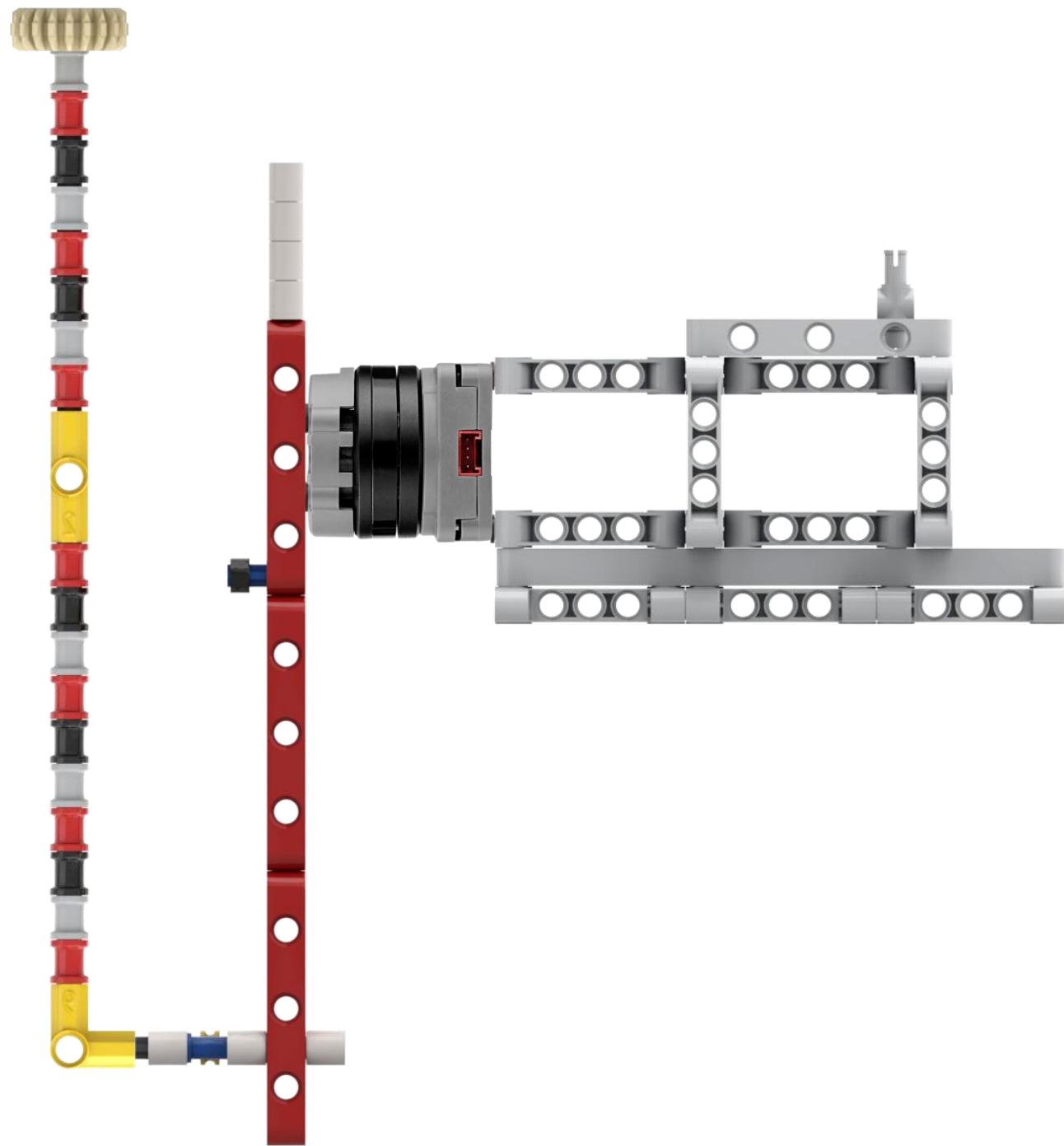
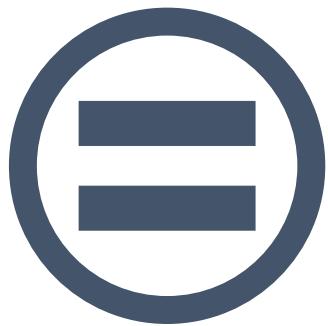
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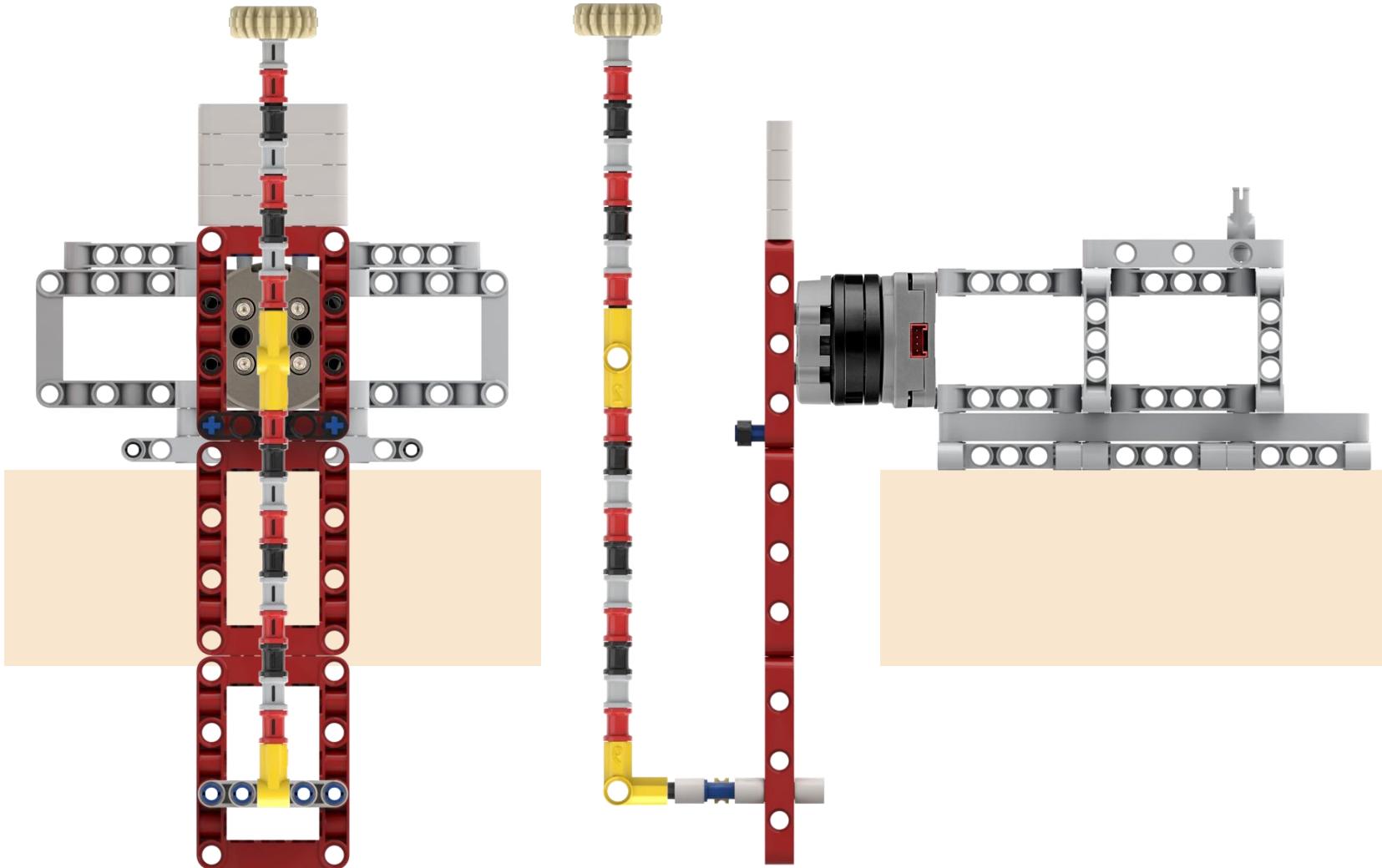


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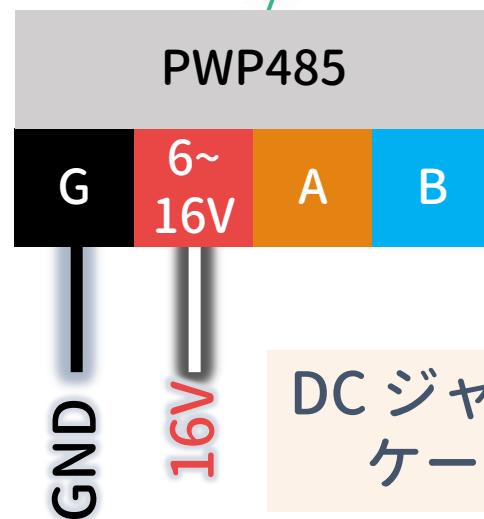
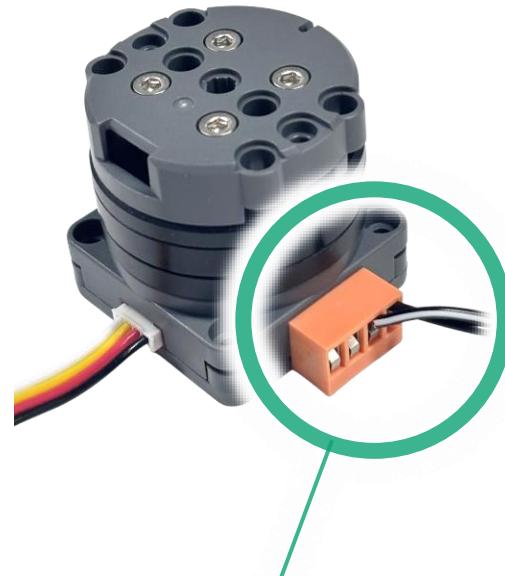
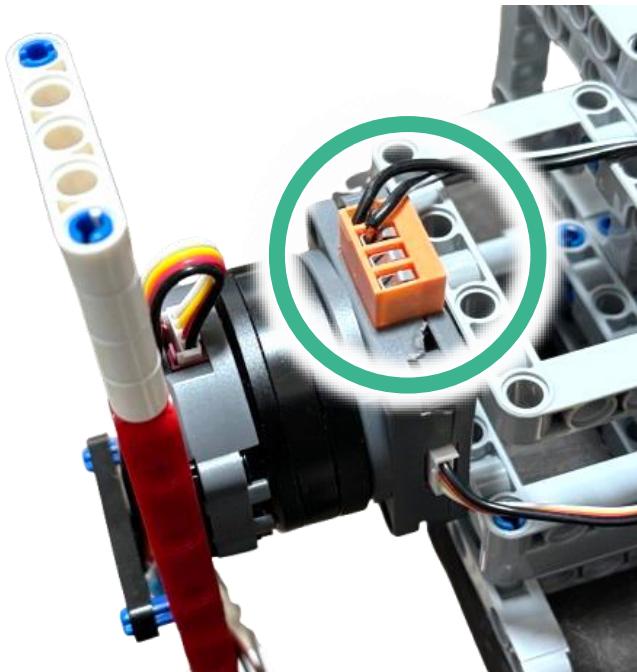








Arduino Mega 2560 との接続



DC ジャック付
ケーブル

AC アダプタ
(16V/3.75A)

エクスターナルで
実行する場合は
5V に接続しない

GND

SDA

SCL

手元スイッチ